



# *Turning Challenges into Opportunities*

*How the Department of Psychiatry, PGIMER, Chandigarh reorganized itself and coped with the COVID-19 Pandemic*



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**Editors:** Sandeep Grover, Subho Chakrabarti, Debasish Basu

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## **Preface**

*The Coronavirus Disease-2019 (COVID-19) pandemic has emerged as one of the most devastating crises for human beings in recent history. The pandemic led to a lockdown and had a significant negative impact on the healthcare services across the globe. Our Department was no exception. Due to the ongoing pandemic, we had to quickly reorganize our services, training, teaching, and research priorities. All this was not very easy, given the uncertainty about practically everything and the rapid pace at which things were evolving. Every service area was affected and we had to use innovative methods to modify the various service areas to ensure continuity of care for the patients, training of the residents, safety of all concerned and also contribute to the mental health research on COVID-19 infection.*

*The Department of Psychiatry, PGIMER, Chandigarh, celebrates its Foundation Day on 16<sup>th</sup> September every year. As we were approaching this date, the idea of publishing this book came in with the aim to document how we coped with COVID-19 pandemic in nearly one and a half years, with the maintenance of continuity of care. An additional aim was also to compile the research from the Department on COVID-19. The idea was supported wholeheartedly by all the faculty members.*

*The e-book has 23 chapters, comprehensively covering the reorganization efforts in the service areas and training. Additionally, the book also includes the bibliography of all the papers published by members of the Department. The book also includes reprints of the manuscripts for which we were able to obtain permission from the publishers.*

*We would like to thank all faculty members of the department, faculty colleagues from other departments and the administration of the institute, for helping out in these difficult times. On behalf of the whole faculty of the department, we would also like to thank all our residents, nursing staff, and other staff members who worked in the department in these challenging times, at times risking their lives, and helped us modify the services, and contributed to the services by their own innovative ideas.*

*We hope that this book will help the readers to learn from our experience, and improve mental health services and training across the country.*

Sandeep Grover

Subho Chakrabarti

Debasish Basu

## Foreword

COVID-19-like pandemics occur once in a century or so. Thus, we are historically privileged to be a part of one. This privilege gives us all, both as individuals and as communities, an opportunity to learn from and contribute to the current and future possibilities.

Being part of an institute of national importance, Postgraduate Institute of Medical Education & Research Chandigarh, we at the Department of Psychiatry were placed in an enviable position to learn and contribute. All aspects of our professional functioning – clinical care, academics, and research - were affected by the COVID-19 pandemic.

The sudden lockdown in March 2020 ensured the outpatient and inpatient services were drastically curtailed. Those needing care urgently, such as cases with life threatening catatonia or complicated substance withdrawal syndrome, or acute psychosis or a panic attack, could not be turned away. Though the administration arranged facilities for telephone/video consultations, the lines were swamped, for video consultation the audio-video reception was sometimes appalling, and at other times the (wo)manpower could not imbibe the new skills as fast as required.

The academics and the examinations had to turn from face-to-face to online, requiring the learning to set up/log in and manage group platforms through small but irritating glitches like switch off the camera and mute to not overload the system, and unmute before speaking, and screen sharing, and so on. Especially commendable is the fact that we did not lose the focus on research and continued to contribute at a greater pace.

All categories of staff had to be allowed to self-isolate if exposed or take time off/work from home, in the name of office space constraints and social distancing. Face-to-face contact had to be distanced, masked, and minimised in a room of proper size and ventilation. Hand sanitizers had to be arranged and provided. Duty Rotas had to be re-drawn so often that one could not plan for more than a week. The use of PPE kits, practising social distancing, frequent changes of rotas and postings, pre-existing leaves and personal and professional plans going for a toss – all these and others often tested the patience of the individuals and categories of the staff.

I congratulate Dr Debasish Basu and his faculty colleagues for the vision of conceiving this compilation chronicling the department's service, academic and research contribution to the COVID-19. All professionals have contributed on a wide range of topics/issues from SOPs/Position statements, Service models, Views/reviews, original research, and Case series/reports, and in all areas of service from adult, child, addiction, consultation-liaison, geriatric, community etc. Only time will judge how best we have succeeded and what lessons we have learnt to improve, especially the patient care, under 'normal' times (telepsychiatry) as also handle the next such event better.



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## Chapter-1

# Managing the Department of Psychiatry during the COVID-19 Pandemic: Administrative Challenges

Debasish Basu, Surendra K Mattoo

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The Coronavirus Disease 2019 (COVID-19) pandemic took the world by surprise, caught the world unaware and unprepared, and rattled the healthcare system globally. India was no exception. The first confirmed case of COVID-19 was detected in India on January 30, 2020, the same day the World Health Organization declared COVID-19 as a “Public Health Emergency of International Concern”, and further officially declared it as a pandemic on March 11, 2020. Shortly thereafter, on March 25, 2020, the nationwide “hard lockdown” was imposed on the country. How did it affect the Institute and especially the Department of Psychiatry in administrative manners? This brief overview covers various aspects and also serves as a prelude and backdrop to the following chapters in this e-book.

### Adjusting our mindset

The month of February 2020 was a month of turmoil, marked by initial denial or disregard, followed by states of shock, perplexity, confusion, and then quickly coming to terms with the emerging grim reality and working through it to reorganize ourselves but more essentially our collective mindset. Along with intermittent phases of anger, bargain and depression, the entire process was almost reminiscent of Elisabeth Kübler-Ross’ famous five stages of grief! It was not easy to translate this into administrative actions. We all needed to rapidly accept the reality, adjust with it, and accommodate ourselves to live with the rapidly evolving situation and ensuing uncertainty while aspiring to do our best under the circumstances.

### Balancing of competing priorities

The first administrative challenge was balancing the competing priorities between the institutional and departmental needs and responsibilities. The institute needed more space to accommodate COVID-19 patients and related workstations for nursing and other staff, RT-PCR testing etc. This was a difficult balancing task, related to space requirements of the institute, adjustments in services and deputation of departmental human resources to meet the institutional needs, while trying our best not to substantially compromise our departmental needs! Some of these are mentioned below.

### Space requirements

A part of the psychiatry department area – consisting of two private rooms for psychiatry patients, the entire 9-bedded child and adolescent psychiatry (CAP) inpatient ward area, and two faculty offices – is adjacent to the Communicable Disease (CD) ward and the corridor opening to these spaces directly leads to the CD ward. Accordingly, per the directions from the institute administration, this entire area had to be given up to the COVID-19 team. This resulted in closure of the psychiatry private rooms and CAP area and displacement of the faculty.

### Human resources and duty adjustments (including care and cover for the sick members)

All the healthcare workers working in psychiatry had to undergo mandatory COVID-related essential training. More importantly, selected faculty members volunteered for COVID duty, all resident



doctors, nursing staff, medical social workers, clerical staff, hospital attendants and sanitary attendants had to be posted on COVID duties on rotational basis. Further, administrative and support staff were required to be reduced to 50% attendance to reduce risk of exposure while sitting in small closed offices/spaces. This necessitated major internal adjustments in duty rosters, initially on a weekly basis! Not only that, but also learning the 'new norm of work from home' for various categories of workers posed a challenge.

During the pandemic and especially during the second wave, a number of all categories of departmental faculty, trainees and staff fell ill due to COVID-19, often including their family members. Some even required hospitalization, and others had to be on home quarantine or isolation. All these required further rapid duty re-adjustments.

### Expanding and upgrading the “tele” mode of communication

A major corollary of the pandemic was minimizing in-person contacts of every kind in the department – with the patients and their caregivers, among the various categories of staff, and conducting meetings or academic sessions. The telepsychiatry mode using the Zoom online platform, which already existed in the department but in a limited manner and with restricted scope, came as a timely saviour! However, the existing services had to be rapidly upgraded and expanded to meet all the various needs – patient care, administrative meetings, and academic sessions. More telephone mobile communication facilities were arranged for expanded patient care through the telepsychiatry mode, and a separate account called “Tele-Academics” was created to handle the academic and administrative events. Later in 2021, separate tele accounts were created for Drug De-addiction and Treatment Centre (DDTC) to reduce the dependency on the general telepsychiatry services. The funding for these additional Zoom accounts and for the additional telephone lines had to be arranged from various sources: PGIMER, DDTC grant-in-aid, and even from the departmental academic Society named PSYPROM. Even then, this was not enough because of clashing events, and the CAP had to use other online

platforms like Google Meet to meet the academic and training needs.

### Training and academics

One of the curricular requirements of the departmental training program for the MD Psychiatry residents is involvement in the rigorous academic program. While this was mostly maintained using the tele-academics online mode of communication, the hands-on training and informal face-to-face teaching during ward rounds and OPD consultations took a hit.

Further, again there are curricular requirements for posting of MD and DM (Addiction Psychiatry and CAP) in various areas (both intramural and extramural) to fulfil the training obligations. This became a major issue because many of the services were closed or not accessible (e.g., community posting, neurology posting, and other extramural postings specific to DM students).

### Service adjustments

Unprecedented service adjustments were forced because of initial almost complete closure of all inpatient wards (and with limited resumption of admissions since the end of 2020), suspension of OPD services (except the emergency service, and opioid substitution therapy service, which could not be stopped because patients were dependent on medication supply from DDTC), community services, and special therapy services such as neuromodulation therapies. ECT service could not be stopped because of its acute and often life-saving nature, but had to be re-organized thoroughly. Out-patient care mostly moved to the telepsychiatry mode, and in-person OPD recently partly resumed on appointment-only basis. However, many patients are not coming to the OPD without prior appointments, and the resident doctors are struggling to “meet both ends”. On the other hand, the pressure on the Emergency services mounted steadily, necessitating re-adjustments. Further, with the inpatient service resuming since October/November 2020 but with limited capacity, the pressure on the already stretched bed-strength has worsened a lot, with current waiting lists for psychiatry admissions running

into months, and that too for acute patients. There are many other challenges with various aspects of the service, which are dealt with in more details in the respective chapters in this book.

### Vaccination

The first vaccine for COVID-19 became available in India by the middle of January 2021 and soon thereafter the vaccination service was started in PGIMER for its employees and trainees. Starting from 16<sup>th</sup> January 2021, all staff in psychiatry had to undergo vaccination. This too required repeated reminders from the administration and from our side. At times we had to fight “vaccine hesitancy” in our staff by counselling them.

### Managing conflicts, and keeping up the morale

All this was not easy! There were several kinds and sources of potential conflicts – between the departmental and institutional needs; among the faculty; between faculty and residents and among residents (especially related to duty allocations); between internal priorities such as bed allocation with very restricted bed strengths; between various categories of staff; ensuring safety at various levels and balancing with essential service needs; indeed, defining (and re-defining) what was “essential”! Some put themselves to undue risk by exposure and ignoring precautions. This was occasionally the case with resident doctors leaving without notice on weekends, eating or partying together, staff (including Faculty) huddling in small enclosed spaces at times without proper COVID-appropriate behaviour. There were issues about burnout and exhaustion especially among resident doctors and staff, grievances about inappropriate or excessive COVID

postings, demoralization, and a general prevailing sense of anxiety and apprehension. These were often managed at different levels by:

- Attending the institute-level meetings by the Head to be apprised of the situation and to put forth one’s views from the departmental administrative aspects
- Holding series of meetings with Departmental Faculty, both formally and informally
- Based on these two above, issuing “administrative notes” or guidance from time to time
- Maintaining close contact with all levels of trainees and staff to “keep an ear to the ground” to detect and manage early brewing conflicts and issues
- Keeping up the morale of the entire group – “taking everybody along”

### Preparing for the future

So, what have we learnt regarding managing the administrative challenges arising during the pandemic? And what can we do for future? Although no specific answers can be given or actually possible (because the responses would depend on the specific situation), some general “bullet points” are mentioned below.

- Identify the existing challenges
- Anticipate the emerging challenges
- Update information continuously – locally, regionally, nationally, and globally
- Prioritize “essential” needs in the face competing priorities
- Identify and rationalize existing resources (space, infrastructure, human resources, skills and expertise, material and instrumental resources) – and try to ramp up
- Consulting the group – “putting our heads together”!
- Be prepared for “surprises” along the way despite the best-laid plans – one may have to unlearn and re-learn the changing rules of the game without forewarning and act accordingly, akin to the Wisconsin Card Sorting Test!

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## Chapter-2

# Implementing home-based telemental health services during the pandemic

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### Introduction

The COVID-19 pandemic has not only radically altered our lives, but has also necessitated extensive changes in our healthcare services. The disease itself and the measures taken to control its spread have had widespread social and mental health consequences for the entire population including individuals with psychiatric disorders. Public health strategies such as lockdowns, quarantines, and social distancing have led to a massive disruption in traditional health services across all specialties including mental health<sup>1, 2</sup>. As a consequence, many countries have transited to telemental health (TMH) care in order to provide uninterrupted treatment to those with psychiatric disorders<sup>3-5</sup>. TMH is the most suitable alternative to in-person care because of its proven efficacy. The evidence for its efficacy had been accumulating for several decades, but its adoption by mental health services had been slow till now. This was primarily because of lack of resources, provider scepticism, and a number of legal, regulatory, and financial barriers impeding its use<sup>1, 3, 6, 7</sup>.

An aspect of this transition from in-person to TMH services has been the conversion of conventional outpatient clinics to virtual ones<sup>3, 8</sup>. Several reports have examined this change from in-person to TMH-based outpatient services. A recent review based on eight studies concluded that rapid deployment of TMH-based outpatient treatment is a feasible and acceptable option for providing care<sup>9</sup>. The removal of regulatory hurdles seems to have aided the expansion of TMH-based outpatient treatment<sup>3, 10</sup>. Patients, clinicians and hospitals administrations have quickly adapted to this new system of care<sup>11</sup>. The incorporation of a diverse range of services

such as home-based telemental health (HB-TMH) care and digital technologies such as smartphones has improved patient access and care. Apart from greater accessibility, TMH care has also reduced the risk of contracting the infection and has restored patient engagement to a great extent. However, these hurried conversions to TMH treatment have not been easy. Despite high levels of acceptance among patients and clinicians, there are ongoing concerns regarding poor connectivity, inequitable access, the variable quality of care, and apprehensions about the safety and privacy of the patients<sup>3, 10-12</sup>.

Moreover, most reports of these switches to TMH services have been from the developed countries. Unlike the developed world, rapid virtualization of outpatient services may be difficult in many low- and middle-income countries (LAMICs) because they do not have sufficient resources for converting to TMH care. The development of TMH services in these LAMICs has been plagued by inadequacies in communications networks, lack of public funding, and unavailability of trained staff<sup>13-15</sup>. The magnitude of problems such as poor internet penetration and connectivity, inadequate and inequitable access for patients, limited governmental support, absence of regulatory frameworks, unfamiliarity with digital technologies among users, and negative attitudes among clinicians are greater in these countries<sup>16</sup>. Therefore, the use of TMH care has been limited to a few programmes and research on the delivery and efficacy of TMH services has been relatively scarce<sup>17, 18</sup>. The situation in India before the pandemic was no different<sup>19, 20</sup>. Though it seems that there has been an upsurge in TMH services since the onset of the pandemic,<sup>21-23</sup> there are still large gaps in the delivery of these services.

### **Developing home-based telemental health services during the pandemic Converting from in-person to home-based telemental health care**

Given the prevailing circumstances, converting to a TMH-based outpatient service was always going to be a challenge. We were fortunate to have a HB-TMH service already running in the department since September 2018. However, the existing HB-TMH service was being run by a smaller team of psychiatrists and technical staff who were carrying out an average of about 120 consultations annually. It was an exclusively videoconferencing-based service, catering to a select group of patients who were being followed up after having received in-person treatment. Our outpatient services were shut down about a week before the nationwide lockdown in India in March 2020. Shortly afterwards, the department head decided to commit to a TMH service to provide care for our patients. We were allocated two residents and a senior resident that allowed us to expand these services. A dedicated HB-TMH service with a helpline for old and new patients was started in April 2020. The preparatory phase (trial-period) lasted six weeks, during which a team of two consultants and three trainee psychiatrists provided consultations to 234 patients (90 videoconferencing and 144 phone consultations). Several improvements were made to the existing HB-TMH service during this period. This included the use of Zoom for videoconferencing (VC) and supplementing VCs with landline or mobile phone consultations, WhatsApp video calls on smartphones, text and WhatsApp messages and e-mail communications. Written informed consents were replaced by verbal consents for consultations, electronic record-keeping and tracking of patients was introduced, and WhatsApp messages (e-prescriptions) were used to convey advice regarding medications and investigations. Patients and family members were informed about the new service and educated in its use. The entire outpatient staff was trained in the use of the HB-TMH service by circulating written guidelines, conducting group sessions using Zoom, and individual supervision during live

videoconferences. From May 2020, the institute administration also switched to telemedicine services for outpatient care and deployed additional resources for this purpose. These developments helped us in switching to an entirely HB-TMH-based outpatient service. There was further all-round expansion at this stage in terms of personnel (all staff running the outpatient clinic), resources (more dedicated smartphones), and additional services (e.g., social-work evaluations, psychological assessments, and VC-based psychotherapy). Patient access was further improved and safety measures were enhanced. Most VC sessions were recorded unless consent was refused. Some WhatsApp video calls and messages were also recorded. All recordings were stored securely and confidentially. Detailed assessments and follow-up sessions were arranged for new patients without in-person contact. For patients who had received in-person treatment earlier, follow-up sessions were conducted. Treatments offered included the usual medication-management sessions, but a greater emphasis was placed on home-based psychosocial treatments. The number of consultations slowly increased, though the bulk of them involved phone rather than VC consultations. The features of the new and expanded version of the HB-TMH service are shown in table-1.

### **Outcomes of the new model of HB-TMH care**

#### **Increase in service utilization**

The increase in patient numbers was evident right from the preparatory phase. In this six-week period, the number of patient consultations were about 15 times the number seen prior to the pandemic. By the first six weeks of exclusive HB-TMH care, patient visits went up to 1729 sessions (517 videoconferencing and 1212 phone consultations). This represented a seven-fold increase compared to the trial period. Table-2 includes the details of the adults, children and elderly people seen during the year of the pandemic (1 July 2020 to 30 June 2021) using the HB-TMH service. During this period, 8743 patients were seen in the walk-in clinic and 12,126 patients were followed up. About 5000 videoconferencing consultations (Zoom) were conducted. The child and

adolescent services provided consultations to 1436 patients. About 500 elderly patients were seen for the first time and about 300 of them underwent detailed assessment. Patients with substance use problems and those undergoing neuropsychological assessments have not been included because the de-addiction and psychological services branched

out after the first few months of the pandemic.

**Demographic profiles**

Table- 3 shows the demographic profile of the patients attending the HB-TMH service for the first time.

**Table 1: Key features of the new home-based telemental health service during the pandemic**

Access for patients	The department has three dedicated phone lines for patient access. Access is also provided through WhatsApp text messages. The institute has its own phone lines and online registration facility that offer additional access.
Procedures for consent	Verbal informed consent after brief explanation of the consultation process is usually sought during the phone and VC consultations.
Sites of consultations	The consultation almost always takes place at home and only occasionally at the work-place or other sites. Patients are almost always accompanied by family members. Clinicians can carry out consultations from different settings, but sessions are hosted by the team at the TMH centre.
Modes of consultations	The major modes of consultations include VC through Zoom or WhatsApp video calls, landline, mobile, or smartphone consultations, and text or WhatsApp messaging. Though the e-mail facility is available it is rarely used.
Model of care <sup>§</sup>	Direct HB-TMH care is being used. Both synchronous and asynchronous and modes of consultations are offered. The Medical Assistant Model or Tele presenter mode is being used. Hybrid care is being increasingly used as outpatient services are starting to open up.
Types of services offered	Services offered include psychiatric treatment, neuropsychological assessment, and social-work evaluations. Disability assessments are also being carried out.
Psychiatric Services	These include follow-up sessions for patients who have received in-person treatment as well as assessment, treatment, and follow-up sessions for new patients without previous in-person contact.
Psychiatric treatment <sup>#</sup>	The bulk of treatment consists of medication-management sessions. However, VC-based psychotherapy is being increasingly used.
Medical advice & prescriptions	A virtual OPD card with patients' details, medical advice, and doctors' signatures is sent through WhatsApp messages (e-prescription).
Treatment teams	All personnel of the department including consultant psychiatrists, senior residents, trainee psychiatrists, clinical psychologists, social workers, nurses, health assistants, and technicians are included.
Training patients and family members	Education of patients and family members is done individually a day before the live sessions. Guidance is provided throughout the consultation.
Training and support for staff	Written instructions for staff were circulated initially. This was followed by group sessions on Zoom. Supervision by consultants familiar with the technology and help from technicians is readily available.
Technical Support	Back-up technical support is available from the institute computer section.
Privacy	Only the staffs involved in the patient's care attends the sessions. All staffs are introduced at the start of the session. Patients are advised to have only family members with them during the sessions.
Security and confidentiality	Most VC sessions are being recorded initially unless consent is refused. Some WhatsApp video calls and messages are also being recorded. All recordings and patient-related information are stored securely and confidentially.
Record keeping	All patient data is stored electronically and updated on a live basis.
Safety	Patients are required to be accompanied by family members during sessions. Closer monitoring is instituted for high-risk situations. Family members are educated and helped to manage such situations at home in the first instance. For persisting safety concerns, patients and family members are guided and helped to attend the emergency services.

VC - videoconferencing

<sup>§</sup>Medical Assistant Model/Tele presenter mode - A medical assistant or technician helps the clinician by preparing the patient, initiating the TMH session, and maintaining records. This allows clinicians to focus more on the health needs of the patients.

<sup>#</sup> Medication-management includes discussions about medications, side effects, and adherence. Psychosocial treatments include psychoeducation, behaviour therapy (e.g., exposure and response prevention treatment), and supportive psychotherapy.

A comparison with patients seen by the HB-TMH service before the pandemic indicated that those seen during the pandemic were more likely to be older, married, better educated, and came from higher-income families located near the hospital.

### Diagnostic profiles

It is evident that the proportion of children and the elderly with psychiatric disorders has increased during the past year of the pandemic. Comparisons with the pre-pandemic period also suggest that patients with psychotic disorders, obsessive-compulsive disorders and dementia are being seen more frequently during the pandemic.

### Feasibility of implementation

The operational viability of the service is apparent from the fact that the service has been able to operate for about 14 months of the pandemic without any major problems. Moreover, the service is being constantly upgraded and the challenges faced during implementation are being addressed regularly. (A list of the principal challenges and the solutions being implemented are included in table-4.) Apart from these indicators of feasibility, dropouts have been low and only about 15% have not attended their VC sessions after their detailed assessments. Very few patients (about 5%-10%) have had to attend the emergency services and no serious adverse psychiatric events have been reported during the pandemic.

**Table 2: Patient volumes in one year of HB-TMH care during the pandemic #**

Walk-in clinic (New patients)	3442
Walk-in clinic (Follow-up patients)	5301
Patients who have undergone detailed assessments	2245
Videoconferencing-based follow-ups	12126
Videoconferencing consultations (Zoom)	4995
Children and adolescents (New patients)	200
Children and adolescents (Follow-up patients)	1236
Elderly (New patients)	477
Elderly (Detailed assessments)	308

# The period depicted is from 1 July 2020 to 30 June 2021. Patients attending the de-addiction and psychological services are not included.

**Table 3: The demographic profile of patients newly registered with the HB-TMH service #**

Variables		Walk-in (New cases) (N=3442) Mean (SD)[Range] Frequency (%)
Age (Years)		39.81 (14.85) [18-98]
Education (Years)		11.88 (4.78) [0-22]
Family income (in rupees/ month)		82996 (249,809) [1000-400,000] Median = 34,000
Gender	Male	1872 (54%)
	Female	1570 (45%)
Marital status	Currently single	1120 (32%)
	Married	2322 (67%)
Occupation	Employed	1909 (55%)
	Housewives, students, retired, unemployed	1533 (45%)
Residence	Urban	2024 (59%)
	Rural	1418 (41%)
Family type	Nuclear	1627 (47%)
	Extended/ Joint	1815 (53%)

#The period depicted is from 1 July 2020 to 30 June 2021. Patients attending the de-addiction and psychological services are not included.

### Satisfaction and acceptance among patients and clinicians

A satisfaction survey was carried out during the first six weeks of exclusive HB-TMH care. The satisfaction and acceptance rates were compared among patient-clinician dyads from the pandemic phase (n=157) with those from the period before the pandemic (n=79). The results showed that though almost all the patients and clinicians were satisfied with the different aspects of the service, only about half of the patients and about two-thirds of the clinicians rated different aspects of the service as good, very good or excellent. Moreover, only about 60% of the patients and clinicians said that they would prefer HB-TMH care in the future. Clinicians were more satisfied than the patients during the pandemic. Differences between them were less marked but still present before the pandemic. Comparisons between the two phases revealed that both patients and clinicians were more satisfied with HB-TMH care before the pandemic than during it.

### **Discussion**

Our experience of setting up an HB-TMH service during the pandemic suggests that despite the constrained resources, HB-TMH treatment is a viable option for care in our setting. The new HB-TMH service met the minimum standards required for TMH-based outpatient services<sup>4, 24-26</sup>. The use of Zoom as the main platform for videoconferencing was similar to other TMH services implemented during the pandemic. The Zoom is an easily accessible, secure platform with additional features such as "waiting rooms" and screen-sharing, which allowed clinical assessments, medication-management as well as psychotherapy sessions to be held<sup>11, 27, 28</sup>. Somewhat expectedly, phone consultations including those by smartphones were preferred over the traditional videoconferences in the newer version of the HB-TMH service<sup>10-12, 29</sup>. Smartphones have many advantages compared to desktop computers such as mobility and low costs, opportunities for closer monitoring and greater patient-engagement, and more realistic assessments of the patient's environment<sup>30</sup>. Smartphone ownership is growing in India and they are ideally suited to fill the gap created

by the poor access to psychiatric services and deficiencies in the current communications networks<sup>30</sup>. However, although smartphone-based treatment can effectively supplement videoconferencing-based care<sup>15</sup>, there are persisting concerns about the efficacy and safety of smartphone-based interventions<sup>17, 18</sup>. Nevertheless, the other components of the HB-TMH service such as patient-access, consent procedures, patient education, safeguards for ensuring privacy, confidentiality, and safety have led to an improved system of care<sup>10-12, 28, 29</sup>. As recommended, staff members have been trained by using written material, group sessions with the Zoom, and individual supervision during video conferences<sup>10, 11, 26, 29</sup>. Moreover, the framework of the service was in keeping with the recent standards of care advocated for TMH services in India<sup>21-23</sup>. TMH treatment normally uses one of the three models of care: direct care where the clinician provides treatment directly to the patient, consultation-care where the clinician provides consultation to the primary-care team, and collaborative-care where mental healthcare is provided jointly by the clinician and the primary-care team working in close coordination<sup>24, 25</sup>. Direct-care was used in our service because of the unavailability of options for consultative or collaborative care. However, direct-care is equally effective as the two other models and is especially appropriate for countries without adequate integration of primary and secondary care<sup>14, 24</sup>. As in our HB-TMH service, all models normally use a combination of synchronous and asynchronous methods<sup>24</sup>. We also chose what has been referred to as the "medical assistant model," where technical assistants take care of all aspects of the TMH session leaving the clinicians free to focus on patient-related tasks<sup>25</sup>. More pertinently, we used a hybrid model of care which employs multiple modes of patient-clinician communication such as VC, mail, text messages, and phones (particularly smartphones) to augment in-person TMH care. Hybrid models have been promoted as a potential solution for enhancing TMH care before as well as during the pandemic<sup>2, 3, 26</sup>. It has been proposed that the flexibility inherent in hybrid models enhances TMH care<sup>12, 31</sup>. This has become increasingly apparent in our HB-TMH service

over the past year of its implementation during the pandemic.

Since clinic or office based TMH services were not available, HB-TMH care was the only option left for us. HB-TMH care not only expands the reach of TMH services, but also promotes a greater understanding of the patient's home environment<sup>32</sup>. However, the wider implementation of HB-TMH services has been hindered by lack of evidence about their efficacy and safety. Though HB-TMH services have been in existence for more than two decades now, there has been resurgence in interest in these services during the

pandemic<sup>3, 4, 12</sup>. Our outcomes were similar to the few studies that have initiated HB-TMH services during the pandemic<sup>28, 29</sup>. The safety of patients receiving HB-TMH care is an important consideration. It has been proposed that a crisis-plan that includes awareness, screening, and monitoring of high-risk patients can reduce the probability of untoward events<sup>33</sup>. These measures were incorporated in our service and the absence of serious adverse events during the pandemic indicated their usefulness. There are very few reports of HB-TMH services from the developing countries<sup>17, 18</sup>. Despite the lack of a proper comparison,

**Table 4: Challenges encountered during HB-TMH care and solutions implemented**

Challenges encountered	Solutions implemented
<b>Logistical challenges</b>	
Poor network connectivity and technical glitches	Constant support and education of patients and family members. Switching between different modes of communications to deal with interruptions. Flexibility in arranging in-person consultations.
Patients' lack of familiarity with the technology	Support and education from team members. Involving family members who are more familiar to help patients.
Restricted patient access to the service	Expanding the different modes of access. Educating patients and family members about the methods of access.
Inadequate infrastructure and resources	Human resources and infrastructure are being augmented to keep pace with the patient numbers.
<b>Clinical challenges</b>	
Patient dissatisfaction with the quality of the service	Efforts are being made to improve providers' skills and to address deficiencies in the audiovisual quality.
Patients' concerns about consent, privacy, and confidentiality.	Efforts have been made to adhere to minimum standards of care regarding these issues. Patients and family members are explained about the safeguards that are in place.
Concerns about safety and security	A crisis plan is in place to be used in case of emergencies. Constant monitoring is being done for patients judged to be at risk.
Variable patient and family engagement	Greater flexibility in scheduling of appointments and catering to patient preferences regarding modes of communication have been incorporated.
Patients' and family members' preference for in-person treatment.	Hybrid models combining virtual and in-person care are being increasingly used.
Clinician scepticism and motivation	Constant encouragement and support as well as education of clinicians is being offered.
Efficacy of HB-TMH care	Efforts are being made to improve all aspects of HB-TMH care so that its efficacy approximates in-person care. Hybrid modes of care are being increasingly used to augment HB-TMH care.

it was apparent that our HB-TMH service was broader in its implementation. A wider range of patients were seen including those with psychosis and dementia who are considered to be poor candidates for HB-TMH care<sup>6</sup>. The

types of patients' services were also more wide-ranging than the other TMH-based programmes<sup>10, 12, 28, 29</sup>.

The feasibility parameters of the new HB-TMH service such as the initial six-week trial-



period<sup>11, 28</sup>, the gradual increase in service utilization<sup>10-12,29</sup>, improved service engagement, low rates of in-person and emergency service visits, and no untoward events<sup>29, 34, 35</sup> have all been reported earlier. However, the levels of patient and clinician satisfaction and acceptance were lower than similar studies conducted during the pandemic<sup>29, 34, 36-38</sup>. Clinicians' satisfaction and acceptance levels were higher than the patients, which was contrary to the trend in both pre-pandemic and post-pandemic era studies<sup>11, 29, 34, 39, 40</sup>. One of the reasons could be that the satisfaction survey was carried out right at the onset of exclusive HB-TMH care phase, when the system was not at its optimum level of efficiency. Moreover, the results of the comparisons between the two phases indicated that lower patient acceptability during the pandemic could also explain the divergence between the views of the clinicians and the patients. The lack of familiarity with TMH care and with clinicians providing the service could have led to the lower patient satisfaction noted during the pandemic<sup>39, 40</sup>. This fits in with the prevalent notion that the quality of care and patient-clinician alliances are equally, if not more important than the technical qualities of TMH services<sup>40</sup>. In conclusion our experience of HB-TMH care during the pandemic suggests that it is feasible

to deliver such a service for a large number of patients with a wide range of psychiatric problems. It has been suggested that a previously established TMH service, unequivocal administrative commitment to TMH services, allocation of additional resources, a period of preparation before switching, provider competence, education and support for patients, training of clinicians to improve their skills, technical support, and the use of hybrid models of care have all contributed to the success of transitions to TMH care<sup>10-12, 26-29</sup>. Thus, these features of our HB-TMH service could explain the relatively successful switch to virtual care in our centre. However, the service is far from perfect and many challenges need to overcome to improve its efficiency. The low satisfaction and acceptance rates, especially among patients during the pandemic were worrying and much more will have to done to enhance patient acceptability. Additionally, for the wider implementation and sustainability of such HB-TMH services, research on their effectiveness is clearly required. Though HB-TMH care appears to be useful, it is apparent that for HB-TMH services to become a part of mainstream psychiatric care in India, further efforts will be required to adequately address all these barriers.

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## Chapter-3

# Psychosocial interventions through videoconferencing: the case of exposure and response prevention for obsessive compulsive disorders

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### Introduction

The existing literature on the treatment of obsessive-compulsive disorder (OCD) indicates that psychotherapeutic treatment, especially exposure and response prevention (ERP), or cognitive behaviour therapy (CBT) is efficacious in treating OCD<sup>1,2</sup>. Moreover, the evidence also suggests that ERP or CBT are more efficacious than the medications used to treat OCD. However, combined treatment with medications and psychotherapy appears to be the most effective option and also the one commonly used in routine clinical practice. Then again, despite the availability of effective treatments very few patients can readily access evidence-based treatment for OCD<sup>1</sup>. The wider promulgation of psychotherapeutic treatments appears to be a particular problem because of the lack of awareness about these treatments among patients and the shortage of professionals with the skills to deliver these treatments. Moreover, these treatments are lengthy, require greater resources, and are more costly than medications. Finally, patient and family motivation to engage with these treatments are variable and dropouts are common especially during the early stages of psychotherapeutic treatment<sup>1</sup>.

For the last two decades or so, there has been a growing interest in the application of information and communication technologies to improve patient access to these forms of psychotherapeutic treatment<sup>3-7</sup>. The older forms of such telemental health (TMH) treatments for OCD included computerized CBT and telephone-based CBT with or without therapist support. These methods were supplanted by videoconferencing-based

psychotherapy with the earliest trials of this mode of treatment starting to appear by the 1990s<sup>8</sup>. The latest development in this field has been the use of online psychotherapeutic interventions for the treatment of OCD<sup>3-7</sup>. The most common form of such interventions are internet-based CBTs that patients carry out on their own, or with limited to full support from the therapists. Other forms of online interventions include web-based, self-help groups, virtual reality-based ERP or CBT, smartphone-based interventions, or hybrid forms of treatment that combine online and in-person interventions. It has been demonstrated that nearly all these kinds of treatments can lead to significant improvements in obsessive-compulsive symptoms<sup>3,4,9,10</sup>. Some of the evidence also suggests that there is no difference in efficacy between TMH-based and in-person treatments<sup>3,10</sup>, but this is not a consistent finding<sup>5-7</sup>. On the whole, despite the proliferation of TMH-based treatments for OCD, the evidence for their efficacy is still limited, especially when compared to in-person psychotherapeutic treatments delivered by qualified therapists<sup>3,5-7</sup>.

The onset of the COVID-19 pandemic has had a deleterious impact on a large proportion of patients with OCD and has led to a massive disruption in mental health services including the delivery of psychotherapeutic treatments for OCD. The infectious nature of the pandemic, the precautions that have been recommended, and the restrictions imposed by lockdowns have led to increased fear and anxiety among patients with all kinds of psychiatric disorders. The increased stress brought on by the pandemic has precipitated new-onset OCDs in some persons and caused

exacerbations of symptoms in those already suffering from OCD<sup>11</sup>. The lack of access to their usual treatment services has further worsened the predicament of those with OCD. At the same time, all over the world countries have switched to TMH services to maintain continuity of care. This has compelled therapists to increasingly use TMH-based psychotherapeutic treatments to treat patients with OCD. However, because of several ethical and practical considerations therapists have found it difficult to adapt to the changed circumstances imposed by the pandemic.

The situation in low and middle-income countries like India has been further complicated by many other obstacles. Firstly, psychotherapeutic treatments such as ERP are seldom used by mental health professionals in this country. Though videoconferencing-based TMH services have been used in India before the pandemic, and there appears to have been an upsurge in these services following the pandemic, there are large gaps in the delivery of these services.<sup>[12]</sup> More pertinently, research on the efficacy of TMH in the treatment of psychiatric disorders from developing countries is limited to a small number of trials among patients with psychosis, mood and anxiety conditions, and substance use disorders<sup>13,14</sup>. There are no trials on TMH-based treatment of OCD.

In such a situation, we had to start from scratch to make TMH-based ERP available for the patients with OCD who were attending our department for treatment during the pandemic. The next section describes our ongoing efforts to develop and deliver such treatment in the altered treatment environment brought about by the pandemic.

## **Videconferencing-based ERP for OCD through home-based TMH services**

### **A SWOT analysis**

**Strengths:** Two factors helped to make the switch from conventional in-person ERP to the TMH-based alternative somewhat easier. Firstly, the department has a long tradition of using ERP for the treatment of OCD with most patients receiving ERP on an inpatient basis. An examination of the outcomes of inpatient ERP from the department suggested that ERP was feasible and associated with

good short-term outcomes, but the long-term outcomes were unclear because of the high dropout rate after discharge<sup>15</sup>. Though the number of patients was relatively few, these results were similar to a study from the NIMHANS, Bangalore<sup>16</sup>. Nevertheless, the consistent use of ERP meant that we already had a standard protocol for delivering this treatment and most trainees had some experience of treating patients with OCD using ERP. Secondly, the department has been running a home-based TMH service since September 2018, though on a smaller scale. Therefore, we had some experience of using videoconferencing-based ERP for patients with OCD before the pandemic, though most of these patients had received inpatient ERP and were stable on videoconferencing-based follow-up. Following the shutdown of the outpatient clinics in May 2020, the home-based TMH service was upgraded and scaled up to cater to all outpatients. From July 2020 to June 2021, 3442 new patients were seen and 12,126 patients were followed up using these home-based TMH services.

**Weaknesses:** Before the pandemic, most of our staff including the trainees were not familiar with either TMH treatment or videoconferencing-based ERP for OCD. We had not developed a protocol for this treatment and there was no Indian literature to guide us. We could not treat patients in the OPD, because this was closed and we could not admit most of the patients because our inpatient services were greatly curtailed. Though our home-based TMH service started operating very early in the pandemic, we had to overcome several barriers to improve the efficiency of this service. Even after 14 months of running the service, we are beset by the usual problems such as poor connectivity, patients' lack of familiarity with the technology, and clinicians' scepticism about the utility of TMH services. Therefore, delivering a complex treatment such as ERP has proved challenging in the face of these impediments.

**Opportunities:** Paradoxically enough, the pandemic has provided us with greater opportunities to try and develop our skills for delivering TMH-based psychosocial treatments for different disorders including videoconferencing-based ERP for OCD. We were left with very little choice but to learn to use these psychotherapeutic treatments, if we had

to ensure adequate and uninterrupted treatment for our patients. These opportunities would probably have not arisen if there was no pandemic.

**Threats:** The challenges of delivering ERP through videoconferencing have already been mentioned. Other threats include the lack of evidence regarding the efficacy of videoconferencing-based ERP and uncertainty about the future of TMH-based ERP once the pandemic is over.

### Learning on the job

We decided that the best way to learn how to use videoconferencing for ERP was to learn on the job. So many of us who were involved in administering ERP and supervising the delivery of treatment started meeting in a weekly forum on Zoom from March 2021. The group consists mainly of trainee psychiatrists, a senior resident who has now left the department, and a consultant psychiatrist. The activities undertaken by this group have included:

- (i) Discussing and learning about the theoretical aspects of OCD and ERP,
- (ii) Discussing the progress of patients receiving videoconferencing-based ERP treatment,
- (iii) Attempting to develop minimum standards of care for videoconferencing-based ERP, and
- (iv) Developing written guidelines for clinicians and educational materials for patients and their families.

### What has been achieved

#### Discussions about the theoretical aspects of OCD and ERP

Examples of the topics that have been covered discussed are included in Box 1.

#### A standard protocol for videoconferencing-based ERP treatment

Based on our prior experience of in-person ERP and the current experience of videoconferencing-based ERP, a protocol was devised. This protocol is being followed for patients currently undergoing ERP by videoconferencing and modifications are being made based on feedback from the group. The details are shown in Box 2.

#### Differences between videoconferencing and in-person ERP

The differences between ERP by videoconferencing or by in-person treatment and the difficulties with conducting Videoconferencing-based ERP have been the primary focus of many group discussions. The consensus view on this aspect is included in Box 3.

#### Modifications in technique required for conducting videoconferencing-based ERP

##### *Introductory education sessions with the patients and their caregivers:*

These were felt to be essential to improve the motivation and the understanding of ERP. Although detailed psychoeducation sessions were expected to be carried out as a part of the ERP later, during this phase the objective was to provide enough information to ensure patients' and caregivers' cooperation with the process of assessment. A framework for clinicians and educational material for patients/caregivers has been developed and is being upgraded. A sample is provided in Box 4.

#### Modifications in technique required for conducting videoconferencing-based ERP

##### *Introductory education sessions with the patients and their caregivers*

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### Assessment

Standardized assessment procedures as shown in table 1 are being used. The YBOCS has been preferred for screening as well as rating the severity of obsessive-compulsive symptoms because it is the most commonly used instrument with reliable psychometric properties<sup>2</sup>. The behavioural analysis follows the standard ABC (antecedents, behaviour, consequences) approach with additional assessment of personal and environmental determinants as well as the motivation for undertaking ERP. Standardized schedules such as those by Hawton et al. <sup>[17]</sup> are used.

**Box 1 - Theoretical aspects of OCD and ERP**

- Diagnosis of OCD- key features of obsessions and compulsions
- Phenomenology- types of obsessions and compulsions- differentiating between form and content- Indian studies on phenomenology- factor analytic studies of OCD phenomenology
- Neutralization- differentiating between neutralization and compulsions- common types of neutralization strategies- how neutralization (escape mechanisms) can affect ERP
- Comorbidity in OCD- lifetime prevalence of anxiety, depressive, bipolar, personality, tic and psychotic disorders- distinguishing between true and spurious comorbidity- handling common comorbidities
- Neurobiological, psychodynamics and cognitive aspects of OCD
- Medications and other treatments- evidence- based guidelines for serotonergic reuptake inhibitor treatments- using benzodiazepines- role of ECT and brain stimulation in treatment of OCD
- Understanding of ERP- the five- step approach, types of exposure, systematic desensitization and flooding, mechanisms of change in ERP, efficacy of ERP, motivation and engagement

**Box 2 - A treatment protocol for videoconferencing-based ERP**

1. Detailed assessment of the patient, establishing diagnosis, formulating a management plan - investigations, medications, other treatments. Making the decision to start ERP.
  2. Introductory education sessions with patients and designated caregivers (diagnosis, prevalence, symptoms, aetiology, treatment options for OCD including ERP)
  3. Standardized assessment
    - a. YBOCS screen
    - b. YBOCS rating
    - c. Behavioural analysis (according to standard methods e.g., by Hawton et al. <sup>[17]</sup>)
    - d. Construction of ascending hierarchy of symptoms (0-100% scale)
    - e. Five-step ERP
      - (i) Psychoeducation - about OCD and ERP
      - (ii) Symptom monitoring by patients, caregivers, and clinicians
      - (iii) Relaxation exercises (preferably using Benson's technique <sup>[18]</sup>)
      - (iv) Exposure and response prevention sessions
      - (v) Processing
  5. Incorporation of additional techniques, e.g., thought stopping with ERP for those with predominant obsessions
  6. Booster sessions when ERP for all the steps in the hierarchy is completed
- YBOCS - Yale-Brown Obsessive- Compulsive Scale

Subjective units of distress (SUD) are used to rate the severity of behaviours and also construct an ascending hierarchy of problem behaviours. The construction of the hierarchy is a key step in the process of planning for ERP. Inputs are actively solicited from patients and caregivers during this stage. They are often asked to keep a daily record of their symptoms for about a week to make the hierarchy as comprehensive as possible.

The assessment process often takes up to two weeks, but a prolonged and comprehensive assessment has many advantages such as increasing the patients' awareness, reducing their distress, and acquainting them with the ERP treatment to follow. Finally, hierarchies can change due to various reasons. Therefore, the process of assessment is always an ongoing one.

**A five-step approach to videoconferencing-based ERP**

The five steps of ERP are based on standard protocols of ERP/CBT<sup>19-21</sup>. The only modification is that "processing" is used instead of cognitive restructuring. "Processing" involves discussing the patients' experience and understanding of the behavioural treatment<sup>20</sup>. This is preferred in our patients because they have some difficulties in comprehending and accepting the more elaborate cognitive model of OCD. Processing also allows a discussion on the reality of the patients' beliefs, greater opportunities for explanations about neutralization strategies, and encouraging the use of more adaptive strategies.

### Modifications to the exposure and response prevention sessions

Though prolonged exposure is the goal because of its greater efficacy<sup>19,20</sup>, it is quite difficult to have videoconferencing sessions of more than 30 minutes. Similarly, the frequency of sessions conducted by the clinicians could vary from once a week to sessions every 10-14 days. Flexibility is essential in deciding the duration and

frequency of sessions. Several other factors need to be considered, particularly patient/caregiver preferences, the stage of ERP, the severity of symptoms, and the availability of clinicians. Privacy is essential and patients should be informed about the people present in the room (e.g., technicians) when the session is being conducted. The patient should ideally be only accompanied by the designated caregiver at home.

### Box 3 - Videoconferencing-based and in-person ERP: differences, problems, solutions

1. **Understanding and motivation of patients and caregivers** -The principal problem faced with VC-ERP was that it is more difficult to explain the procedure to patients and caregivers. The motivation of patients and caregivers to engage in VC-ERP is often less than in-person-ERP, particularly when conducted in inpatient settings. It takes lot of time, effort, and patience for enhancing the understanding and motivation during VC-ERP when compared to in-person ERP. A suggested solution was to use hybrid modes (VC-ERP combined with as required in-person sessions) as often as possible.
2. **Difficulties faced during assessment in VC-ERP** - Apart from greater effort and time required, it is often difficult to explain the process of assessment. Patients and caregivers often complain about its length because they want ERP to start as soon as possible. Poor network connectivity leads to frequent interruptions and the need to restart the process over and over again. As a solution, it was decided that patients/caregivers should be informed about the likely timeframes for assessment and ERP during the introductory education sessions. If patients/caregivers want in-person contact, this should be arranged. This is particularly required when the patient is highly distressed by the symptoms and requires immediate relief. Benzodiazepines can be used for the initial six weeks after properly informing patients about the likely risk of dependence.
3. **Difficulties in conducting VC-ERP** - Group members conducting ERP sessions rated it about three times as difficult (3/5) compared to in-person ERP (1/5). Conducting weekly sessions of about 45 minutes as done in in-person ERP was difficult. Patient related issues included variable cooperation, discomfort and hesitation, worry about confidentiality, indulging in neutralization strategies during sessions, preference for in-person visits, and the timing of sessions. Caregivers may be poorly motivated and not engage fully. Technological issues such as poor connectivity, camera angles, availability of proper equipment, and time constraints can create further difficulties. Clinicians face difficulties in sustaining their motivation, dealing with the additional burden of VC sessions, and the need to adjust to a new medium. The solutions suggested were modifications in technique, greater flexibility regarding frequency and duration of sessions, ongoing education of patients and caregivers, and evolving minimum standards of care. Finally, both clinicians and patients/caregivers need to have realistic expectations from VC-ERP. It may be more difficult than in-person ERP, but the basic procedures are similar, skills required are the same and with proper implementation it can lead to similar outcomes. Group members agreed that VC-ERP has some advantages such as greater access, convenience of carrying out sessions at home, and lesser likelihood of late disengagement if motivation can be ensured.

### Box 4 - Content of introductory education sessions

1. What is OCD? What are O and C in OCD?
2. How common is OCD?
3. How does the patient feel while experiencing symptoms?
4. Why do patients develop OCD?
5. What are the types of treatment available?
6. What is the role of medications in treating OCD?
7. What is ERP and how does it work?
8. How will ERP be done?
9. How long will the treatment take?

Any recording should be done only with the patient's explicit consent. The patient's

camera should focus not only on the patient, but should also cover a significant portion of the room so that clinician can detect any



surreptitious compulsions or neutralizing acts. Neutralizing acts should be noted and discussed later during processing. The camera should not be switched off during the session. All parties including the clinician, the patient, and the caregiver should be actively involved in ERP. The clinician should engage with the patients at regular intervals to make sure that they are focusing on the treatment and to check the level of anxiety during sessions. However, constant talking should be avoided because this might distract the patient. Patient comfort with the level of exposure and their ability to tolerate anxiety is of overriding importance. They should never be forced to engage in something that makes them uncomfortable during the ERP sessions. Rather, each step should be undertaken after proper education and fully ensuring the patient's agreement. Videoconferencing-based ERP is expected to progress at a much slower pace than in-person ERP, but as long as this is explained to the patient/caregiver it should not present a problem. When caregivers are not available, self-exposure can be tried. A greater level of patient motivation is required for self-exposure and the pace of ERP is the slowest. Protocols that combine ERP with thought-stopping have also been devised and used successfully in patients with predominant obsessions.

### Using hybrid modes of treatment

The hybrid model of care employs multiple digital modes of patient-clinician communication to augment in-person care. Using this technique some of the initial sessions can be conducted on an in-person basis and the later follow-up sessions could utilize videoconferencing. Similarly, for each new step of the hierarchy, the initial session could be an in-person one followed by videoconferencing sessions. This might mitigate the problems of poor understanding and variable motivation noted in exclusive videoconferencing-based ERP. Requests from patients/caregivers for in-person sessions should be catered to as far as possible.

### Some figures

For the past year or so, following the lockdown and the switch to home-based TMH services, rough estimates indicate that 92 patients with OCD have sought treatment

from the department. This represents an increase in the number of such patients compared to the period before the pandemic. However, videoconferencing-based ERP could be initiated in about half (n=44) of these patients. ERP has been completed exclusively through videoconferencing in two patients. Videoconferencing-based ERP is currently being conducted in 26 patients. Three patients required hospitalization to complete their treatment. The rest have either refused ERP or have dropped out of treatment.

### Discussion

Videoconferencing-based ERP has several advantages compared to in-person treatment<sup>4,22,23</sup>. It leads to wider dissemination of ERP and greater patient access to evidence-based ERP. Home-based ERP allows greater flexibility, greater involvement of family members in ERP, and more opportunities to address the negative attitudes or accommodation in the family. It can be cost-effective because it reduces travel costs and absence from work. Since patients receive treatment at home, the stigma associated with seeking psychiatric treatment is less. However, videoconferencing-based ERP has its challenges. It is heavily dependent on external factors such as the technological infrastructure, internet penetration and affordability, network connectivity, and the user's familiarity with technology. Patient and family motivation might be poorer; forming effective treatment alliances may be difficult, and supervision and monitoring may not be optimal<sup>22-24</sup>. Lastly, good-quality evidence about the efficacy of videoconferencing-based ERP is scarce. Only three randomized-controlled trials (RCTs) were found<sup>23,25,26</sup>. These RCTs have shown that videoconferencing-based ERP is more efficacious than control treatments or in-person ERP even after several months of treatment. Videoconferencing-based ERP also has a more positive impact on the treatment alliance and patient engagement. Open trials have similarly shown that videoconferencing-based ERP is effective, feasible, acceptable, cost-saving, and can be used to supplement in-person ERP<sup>8,24,27,28</sup>. Nevertheless, without properly conducted RCTs with non-inferiority or equivalence designs, the evidence in favour

of videoconferencing-based ERP is still inadequate<sup>29</sup>.

Moreover, currently, there seems to be a greater emphasis on delivering online or internet-based ERP/CBT. Both modes of treatment have their advantages and disadvantages. The evidence seems to indicate that videoconferencing-based ERP could be more effective in severe OCD, while internet-based treatments are more useful in milder OCD<sup>4,5,22</sup>. Video conferencing-based ERP resembles the gold-standard in-person ERP more than online ERP. Finally, therapist contact during videoconferencing-based ERP is related to greater patient satisfaction, greater engagement, and stronger alliances, which makes it a better option than self-guided online interventions, particularly those with minimal therapist contact.

These problems and challenges were reflected in our experience of conducting videoconferencing-based ERP during the ongoing COVID-19 pandemic. Our efforts are at a very preliminary stage. We have focused exclusively on delivering ERP through videoconferencing because it fits in with the home-based TMH services currently available, because of our experience of in-person ERP, and because online interventions are not available. Despite these limitations, if our efforts are successful, videoconferencing-based ERP can enhance the existing options for the treatment of OCD. This is the hope that keeps us going.

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## Chapter-4

### Telepsychology: Setting up online psychological services

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CORONA VIRUS/SAR-2-CoV (COVID-19) pandemic had an outbreak in late 2019 in Wuhan, China. However, people across the globe were largely unaware of the same and they welcomed the New Year 2020 with their arms wide open without being aware of the fact that the said virus can spread very fast like the speed of light, and is deadly and dangerous. In India, it was merely hearsay till mid of February 2020. On 11<sup>th</sup> March 2020, World Health Organization (WHO) announced COVID-19 as pandemic. In view of the pandemic, sudden lockdown was announced in the entire country from 24.03.2020.

COVID-19 pandemic along with lockdown led to disruption of the mental health care services like no other event in modern history. It hindered the clinical practice of psychological assessment and intervention via face-to-face interaction. All over the world, initially people felt that this is a passing phase and expected that the pandemic will end soon. But unfortunately, the virus kept on spreading and resultantly, the routine outpatient services could not be resumed. Soon it was also realized that the COVID-19 pandemic was having significant negative impact on the psyche of people of all age groups. People were finding it difficult to cope with their own psychological problems due to the lockdown, social distancing, quarantining or home based isolation<sup>1</sup>.

Covid-19 pandemic obliged us to restructure the priorities and practices in clinical medicine. The spread of disease and continuation of the pandemic enforced physical distancing and simultaneously pressurized clinicians to enhance digital mode platforms for providing services. It was the need of the hour that psychological services must be made accessible during the COVID-19 pandemic i.e., delivered tenuously<sup>2</sup>. Telemedicine was not a new concept at

PGIMER, Chandigarh. Telemedicine and telepsychiatry were already functional but telepsychology services were not established. The clinical psychology team took the initiative to establish innovative ways for providing psychological services to patients while minimizing the risk of exposure or transmission of COVID-19.

#### Setting up telepsychology services: Keeping psychological services accessible to patients throughout COVID outbreak

Telepsychology is defined as the provision of psychological services using telecommunication technologies.<sup>3</sup> Telecommunication technologies includes telephone, mobile devices, interactive videoconferencing, email, chat, text, and material in written, images, sounds or data. The use of telecommunication for psychological testing services is a relatively new and challenging area. With the outbreak of the pandemic and closure of the routine outpatient services, the psychologists were encouraged to take the initiative to set up a platform for online psychological assessments, despite lack of proper guidelines for running the telepsychology services. The utility of administration of psychological tests in the online mode and interpreting the findings of the same was unpredictable. Therefore, the psychologist team decided to utilize the teleplatform to evaluate the feasibility of administering the psychological tests. The basic aim was to determine if the modality of service is appropriate, efficacious and safe.

The division of clinical psychology decided to start telepsychology services to restart psychological assessments and interventions. The team included psychology consultants, clinical psychologists, play therapists, assistant clinical psychologists and vocational guidance instructors. The team had several meetings to

organize and plan the services. The team was given training by the senior resident in charge of the telepsychiatry for using the zoom platform - scheduling the sessions, conducting them and keeping record of the patients seen. By July 2020, telepsychology got functional in the department of psychiatry.

Initially, a nodal person of telepsychiatry department fixed appointments through zoom application for telepsychology services. Zoom platform provided only half an hour meeting which posed a challenge for a psychological assessment, as each assessment required 1 to 3 hours' time. The clinical psychology team had meetings with the technical staff to overcome challenges faced in clinical applications. Hence, it was decided to set up a different clinical psychology ZOOM ID/Gmail ID with proper documentation in google sheets. The department provided official smart phones and computers with high-speed internet connection. Duty roster for OPD and ward was made for psychology professionals wherein one staff was assigned as the Host and other staff conducted the testing. The host received referrals from psychiatry and other medical departments. The host was supposed to contact patient and the psychologist for managing timings and slots for assessment/interventions using the dedicated mobile number and video conferencing through ZOOM platform. Staff on duty used to come to hospital following all the COVID appropriate behaviour and necessary precautions.

### **Psychological assessments:**

Psychological assessments including intelligence tests, projective psychodynamic tests, conflict, personality and neuropsychological assessments were initiated. We scanned the psychological tests- Intelligence tests (Vineland social maturity scale (VSMS), Coloured progressive matrices(CPM), Standard progressive matrices (SPM), subtest of Verbal Adult Intelligence Scale (VAIS) and Malin's Intelligence Scale for Indian Children (MISIC), conflict assessment -Sentence completion test [SCT-student form, general(G)& marital form(M)], Children apperception test [CAT]), Thematic apperception test [TAT] and objective personality tests- Hindi P.E.N Inventory, personality trait inventory [PTI], Millon

Clinical Multiphasic Inventory (MCMI-II) and Rorschach Inkblot Test. The soft copy was prepared in the form of power point and PDF with the purpose of sharing the test through a common screen. Though the journey was unpredictable, we kept our spirits high in order to help the patients to best of our potential and with the new Videoconferencing platform.

### **Psychological Intervention:**

Psychological intervention through online mode provided us some platform to reach to people at distant locations for psychological support. The same procedure was used for fixing appointments and sessions for psychological interventions. Psychoeducation for adults and children, relaxation exercises and activity scheduling were major services provided. Behaviour therapy principles were explained to parents of children suffering from attention deficit hyperactive disorder, and intellectual disability. Parents were taught token economy, differential reinforcement techniques, etc for the behavioural problems. Adolescents and adults were comfortable for online psychotherapy as there was no need to come to the hospital and they would get frequent sessions at their own place and time. However, it was difficult to engage children with autism spectrum disorder, and intellectual disability in therapy sessions. Although, in some cases of play therapy, parents were made co-therapist and they were taught how to intervene with children. Online stories and video clips were also used. Obstacles in tele psychotherapy included disruptions such as beeping notifications from smartphones and e-mails, and distractions such as viewing one's own image on-screen. There was lack of privacy at home for some patients.

Telepsychology was the only option for providing mental health care, though it has its own challenges and limitations.

### **Challenges faced during the psychological assessment**

1. For some of the patients, it was a difficult task to make them understand about ZOOM platform and sometimes it took 30 to 45 minutes with the patients to

- explain procedure for installation and login to zoom application.
2. Using Zoom platform was difficult for patients, especially those in rural areas.
  3. Sometimes there was poor internet connectivity on either side, i.e., either on the side of the psychologist or the patient.
  4. There was time limit for 40 minutes session slot which put pressure on the psychologist to finish the test, although there was window to fix another slot if needed
  5. Casual attitude of patients in the form of missed appointments and not picking up the calls at the fixed appointment time.
  6. In our experience, online assessment was more time consuming than face to face assessment.
  7. During the lockdown period, no problem was faced for appointments as both children and adults were available for sessions as they were at their respective homes. The real problem arose when unlock commenced. At this stage, it became difficult to fix appointment as the children and many working parents were not available during OPD timings i.e., 9 am to 5 pm. This situation was due to the fact that the children had to attend their online school classes, tuition classes and in case of adults – it was their office time and it was difficult for them to take leave as many faced financial crises during lockdown.
  8. With the passage of time three psychologists, one after another got quarantined after being suspected to have been exposed to persons with COVID-19.
- assessment included the examination of the potential risks and benefits to provide telepsychology services for the patient's needs and the ethical issues that may arise. For example, parent of a patient having Intellectual Disability asked for disability certificate even though he already had it from the government. He was psychoeducated and suggested to get a re-evaluation done after physical OPD starts or when there was an actual need of certificate (i.e., after expiry of the earlier issued certificate.)
- It was incumbent on the psychologist to engage in a continual assessment throughout the duration of the service provided.
  - Psychologists were encouraged to discuss fully with the patients their role in ensuring that sessions are not interrupted and that the setting is comfortable and conducive for psychological assessment (no help taken from caregiver), since the psychologist will not be able to control those factors remotely.
  - The process of explaining and obtaining informed consent, by whatever means obtained, set the stage for relationship between the psychologist and the patient. Psychologists made reasonable efforts to offer a complete and clear description of the telepsychology services they provide, and sought to informed consent when providing professional services.
  - Children were assessed after 4.00 pm according to their convenience of online classes and availability of a parent with them. In case of many adults, assessments were conducted in the evening hours between 6.00 to 7.00 pm.

### Turning challenges into opportunities

Psychologists were facing new practical challenges that required adaptation of psychological assessments through tele-mode. Gradually, we found alternative ways to deliver the services. Psychology team made every effort to ensure that standards of clinical care and practice were met.

Some of the important measures included

- For every patient, initial screening was done by one of the team members to evaluate whether the patient was a fit candidate for psychological assessment through the tele-mode. Such an

### Benefits of psychological assessment through the Telemode

Video-based telepsychology helped to meet patients' needs for convenient, affordable and readily-accessible mental health services. It can benefit patients in a number of ways, such as:

- Improve access to mental health services that might not otherwise be available (e.g., in rural areas)
- Bring care to the patient's location
- Reduce the need for trips to the hospital
- Reduce delay in assessment
- Improve continuity of care and follow-up

- Reduce the need for time off from work, child care services, etc. to access care
- Reduce potential transportation barriers, such as lack of transportation or the need for long drives
- Reduce the barrier of stigma

### Limitations of telepsychology services:

- Psychological assessment through telepsychology is time consuming, as lot of effort is made in fixing the appointment and availability of the patient.
- Texting and calling repeatedly for fixing appointment at times lead to less formal and shortened expressions which may carry a risk of eroding boundaries.
- Psychological assessment through telemode reduced the non-verbal clinical observations due to technological disturbances and this may lead to missing out on important information
- Psychological test findings were not valid for medico-legal purposes. The patients requiring psychological assessment for medico-legal purposes had to wait for physical appointments
- Children and elders were difficult to engage in psychological testing through video-conferencing. Therefore, psychological assessment could not be administered in some patients especially in remote areas with poor internet connection.
- The reduced opportunity for spontaneous clarification during the telemode testing may increase in potential for misunderstanding and further heighten this risk, particularly for those patients with poor ego strength, those with self-esteem issues or those with paranoid tendencies.
- Patients were more prone to “over disclose” or “under disclose”, as online platform has a limitation in establishing rapport.

### Implementation of services:

The world is not going to get rid of the pandemic easily and many more phases may come. The present system was adopted hurriedly, keeping in view the emergency

situation of the pandemic on ad hoc basis to reach people with mental health problems. Neither psychologists nor patients were trained to handle this web-based assessments and interventions. In spite of all difficulties, telepsychology services served as a boon in this time of pandemic as the team conducted 250 psychological assessments during the period of July 2020 to December 2020 and later the services picked up and we were able to carry out 610 psychological assessments during the period of January 2021 to August 2021. Over the period of one year, i.e., July 2020 to July 2021, the psychology team was able to carry out psychological interventions for 45 patients.

### Future of telepsychology

Telepsychology has the potential to address many of the key challenges in providing mental health services during challenging times, like that of the COVID-19 pandemic. Considering that, in future, the mental health services are going to be provided in the hybrid mode even after normalization of the current pandemic situation, the psychologists are encouraged to ensure that the psychometric properties of the test or assessment procedure (e.g., reliability and validity) are evaluated for the administration through the tele mode and the conditions of administration indicated in the test manual are preserved. Further, if any adaptations are made, then these must be documented. Psychologists should strive to use test norms derived from telecommunication technologies administration, if such become available in near future.<sup>4</sup> Psychologists are encouraged to recognize the potential limitations of all assessments conducted via telemode, and be ready to address the limitations and potential impact of those procedures. As new technologies are developed, it will be important to continue staying abreast of the evidence for specific methods, particularly for asynchronous telepsychology (email, automated internet or computer-based interventions), that is yet to demonstrate sufficient efficacy.

In future, we need to continue both assessment and intervention in physical and virtual mode not only for the pandemic phase but also otherwise, as this will help the patients who have to travel long distances to

access the health care facilities. There is a need to develop more computerized tests for online use. These measures can help to improve the telepsychology assessments and interventions.

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## Chapter-5

### Consultation-Liaison Psychiatry and Emergency services: modifications in running the services

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#### Introduction

COVID-19 pandemic brought in significant challenges in providing mental health services to the medically ill patients in various non-COVID areas, emergency setting and COVID areas. In the COVID wards, almost all the patients had some or the other mental health issues. Attending to the patients in the COVID wards involved exposure of the clinicians to the patients with infection. It further involved that the clinicians should use the personal protective equipments (PPEs) to reach out to the patient's in-person. Addressing the mental health issues of patients admitted to non-COVID wards and emergency also involved exposure to patients whose COVID status was not known and the clinicians were always at risk of developing the COVID infection. However, these challenging times required reorganization of the services to maintain continuity of care for people with medical illnesses. This article discusses how we reorganized the Consultation liaison (CL) Psychiatry services, Emergency services and expanded the mental health services to cater to the needs of the patients with COVID-19 infection.

#### Re-organization of the manpower

Before the pandemic, the CL Psychiatry Services of the department followed a three-tier system, which includes a team of Junior Residents (usually 3 in number), one senior resident and various consultants. The team runs the CL Psychiatry services for all the inpatients in other wards and intensive care units of the hospital, caters to the patients coming to the emergency settings (medical, surgical, trauma, and paediatrics), and also

provides electroconvulsive therapy (ECT). Besides these services, the CL team also manages the crisis helpline for the staff.

In terms of providing care to the inpatients, the services run on a 'consultation' model, with specialist (Faculty member, Senior Resident/Registrar, and Junior Resident) from any department can telephonically request for a consultation for any of their inpatients. The call is received by a junior resident, who carries out the initial evaluation and then the patient is reviewed by the senior resident, and finally by the consultant. Based on the detailed assessment, diagnoses (as per the International Classification of Diseases-10 (ICD-10) revision criteria) are made and management plan is formulated, which includes request for further investigations, prescription of psychotropics and non-pharmacological interventions. In the similar lines, assessment of patients coming to emergency is done. Usually, one junior resident is posted in the emergency and 2 junior residents attend to the calls from the various wards. The Senior Resident covers for both the CL Psychiatry services and also the emergency areas.

These CL psychiatry services and emergency cater to the needs of the patients during the daytime, with the on-call team taking over after the usual duty hours (i.e., after 5.00 PM for the ward calls and after 8.00 PM for the emergency calls). The junior and the senior residents are posted at a stretch for 3 months for the CL Psychiatry services and emergency services. Out of the 3-month period emergency rotation of one month is compulsory. The on-call rota also includes residents other than those posted in the CL Psychiatry and the Emergency services.

During the beginning of the pandemic, the services were reorganized in the form of stopping the on-call services, with the CL Psychiatry and the emergency team covering for the services round the clock to minimise the number of residents exposed to patients with unknown COVID status. The next decision involved limiting the work domain of

the senior resident to the CL Psychiatry service area only, with consultant directly coordinating with the junior resident posted in the emergency. This was also done to minimise the exposure of the senior resident to the emergency, as there were high chances of exposure to patients with unknown COVID-19 status compared to other wards.

**Table-1: Reorganization of services**

<p><b>General Reorganization</b></p> <ol style="list-style-type: none"> <li>1. Stop the on-call rota and the CL Psychiatry and the emergency team to cater the services round the clock</li> <li>2. Senior Resident to cover for patients seen in various wards only</li> <li>3. Patients seen in emergency to be directly supervised by the consultant</li> <li>4. Among the junior residents posted in the CL Psychiatry, one resident to see patients admitted in intensive care units only and the same resident to give ECT. The second junior resident to see all the patients in the various ward areas</li> <li>5. The rotation of Junior Resident and Senior Resident reduced to 1-2 weeks</li> </ol> <p><b>CL Psychiatry reorganization</b></p> <ol style="list-style-type: none"> <li>6. At the time of receipt of the call, the Junior Resident to confirm the COVID status of the patient. If the patient was suspected to be COVID positive or diagnosed to be COVID positive, then the consultation to be done telephonically.</li> <li>7. If the patient is not diagnosed with COVID-19, the residents to see the patient in-person with maintenance of adequate social distancing, and using proper N-95 mask</li> <li>8. The patient seen in person by a junior resident to be reviewed by the senior resident in person.</li> <li>9. Residents to monitor their own symptoms of COVID-19 and self-report if they developed any symptoms suggestive of COVID-19</li> <li>10. While prescribing, besides the usual prescriptions, ensure/recheck that patient is not taking any medications for prophylaxis or treatment of COVID-19, which could prolong the QTc interval. Take this into consideration while prescribing psychotropics, especially antipsychotics.</li> <li>11. After discharge, make a plan to follow-up the patient telephonically either by voice calls or video-calls</li> </ol> <p><b>Emergency reorganization</b></p> <ol style="list-style-type: none"> <li>12. The same resident to cover for 24 hours</li> <li>13. Patients to be seen by the psychiatry resident should have undergone screening for COVID-19, for fever and other signs, and symptoms of COVID-19 at the triage level</li> <li>14. All patients to be considered as possible case with COVID-19 appropriate precautions in the form of use of proper face mask, face shield, gloves, gown, and other PPEs.</li> <li>15. Maintain social distancing while evaluating the patient</li> <li>16. Minimize the duration of direct physical contact with the patient and the caregivers</li> <li>17. Treatment records to be reviewed electronically</li> <li>18. Residents to monitor their own symptoms of COVID-19 and self-report if they developed any symptoms suggestive of COVID-19</li> <li>19. Keep the patients in the emergency for a minimal duration</li> <li>20. Consultant to see all the patients either in-person or by using video-calls</li> <li>21. While prescribing, besides the usual prescriptions, ensure/recheck that patient is not taking any medications for prophylaxis or treatment of COVID-19, which could prolong the QTc interval. Take this into consideration while prescribing psychotropics, especially antipsychotics.</li> <li>22. After discharge, make a plan to follow-up the patient telephonically either by voice calls or video-calls</li> </ol> <p><b>Expansion of services for patients in the COVID ward</b></p> <p>The residents posted in CL Psychiatry services and the consultants to liaise with residents (psychiatry/other specialties) and consultants posted in the COVID ward</p> <ol style="list-style-type: none"> <li>23. Telephonically (voice/video) call the patients admitted in the COVID ward to screen them for any psychiatric morbidity and also to make a touch-base with the patients, to inform that they can call the team, if they face any mental health issues</li> <li>24. Provide psychological support to patients with psychological distress and psychiatry morbidity</li> <li>25. Inform the psychiatry resident posted in the COVID ward to see the patient in person</li> <li>26. Rationalize the psychotropic prescription of patients already on psychotropics in liaison with the primary treating team</li> <li>27. Provide telephonic consultations to the physicians/surgeons for patients under their care</li> <li>28. Maintain a liaison for the patients with psychiatric issues shifted from COVID to non-COVID areas and vice-versa</li> <li>29. To follow-up the patients after discharge telephonically (voice/video calls)</li> </ol>
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Other details of the expansion of the services are listed in Table-1. Besides the reorganization of the CL Psychiatry services, the services were also expanded to cater to the needs of the patients with COVID-19 infection, admitted in the COVID wards.

### Impact of Pandemic on the CL Psychiatry services:

In general, during the initial part of the pandemic, the number of cases referred to the CL Psychiatry services reduced, compared to the pre-pandemic time frame. On one of our analysis of data of initial 5 months of the pandemic, it was seen that for the period of 24.03.2020 to 11.10.2020, the total number of patients referred to CL Psychiatry team were 562 patients, which was significantly less than 1005 patients referred to the CL Psychiatry team during the same time frame in the previous year, suggesting a 44% reduction in the number of referrals made to CLP services. This suggested reduction in average number of patients seen per day reducing from 5.05 to 2.82 per day.<sup>1</sup> However, during the later part half of the pandemic, as the number of admissions in the non-COVID areas increased, the number of calls again increased. Analysis of data for initial few months also revealed reduction in the number of referrals for treatment of new disorders, and increase in referrals for abnormal behaviour/un-cooperativeness, self-harm and other reasons (i.e., evaluation for organ transplant, sleep disturbances) increased significantly.<sup>1</sup>

When the data was further analysed, compared to the period of 23.03.2019 to 22.03.2020, when the total number of patients seen were 1741, during the similar time frame during the pandemic, the number of patients reduced to 1172, suggesting about 32.5% reduction in the number of calls. From 23.03.21 to 19.08.21, the total numbers of patients seen were 678. When the number of patients seen per month was calculated, during the pre-pandemic period 145 patients were seen per month, and after March 2021, the mean number of patients per month reached to 135 patients per month, suggesting that, with the reduction in the number of cases of COVID-19, the mean number of patients seen per month has almost normalized.

### Impact of Pandemic on the Emergency services:

Managing emergency services during the pandemic times was very challenging. During the initial part of the pandemic due to sudden declaration of lockdown there was a surge in cases of self-harm with or without substance withdrawal.<sup>2-4</sup> Occasional cases manifested with self-harm arising due to fear of spreading COVID-19 infection.<sup>5</sup> Few elderly and teenagers also presented with anxiety related to COVID-19.<sup>6,7</sup> Some of the health care workers presented with anxiety related to use of personal protective equipments (PPEs).<sup>8</sup> As the pandemic unfolded and the telepsychiatry services, it became evident that management of patients with suicidality require liaising with the emergency services, and the patients in the catchment area evaluated by telepsychiatry were asked to attend the emergency.<sup>9</sup> These patients were evaluated in detail and after the assessment of level of suicidality, appropriate treatment was started for these patients and they were subsequently followed up through telepsychiatry. An initial analysis of the data for the period of 1<sup>st</sup> January 2020 to 25<sup>th</sup> July 2020 was done. Compared to the period of 1<sup>st</sup> January 2020 to 23<sup>rd</sup> March 2020 (83 days), during the subsequent 123 days (i.e. from 24<sup>th</sup> March 2020 to 25<sup>th</sup> July 2020) after the imposing of lockdown, the mean number of patients seen per day reduced from 3.5 per day to 2.4 per day.<sup>10</sup> This analysis further showed that compared to the pre-pandemic period, during the initial period of lockdown, the patients who attended the emergency were relatively younger, more educated, less often diagnosed with delirium, more often had psychotic disorders and more often had diagnosis of mania with psychotic symptoms.<sup>10</sup> When the data of 23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2020 was compared with the data of 23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021, the total number of cases seen in these two frames were 1103 and 1022 respectively, suggesting that during the latter part of the first wave of COVID-19, the situation normalized and there was only a marginal reduction in the number of cases seen in the emergency setting. In subsequent 5 months, i.e., from 23<sup>rd</sup> March 2021 to 18<sup>th</sup> March 2021, total number of cases seen in the emergency setting were 653, suggesting

overall increase in number of patients seen in emergency.

### **Liaison with the COVID ward:**

Liaison with COVID team formed a major expansion of the CL Psychiatry services during the pandemic. During the initial part of the pandemic, faculty members from psychiatry were part of the core COVID team, who were involved in screening patients being admitted to the COVID ward for psychiatric morbidity and providing psychological support to patients admitted to the COVID ward by using videoconferencing. These initial experiences provided insight about the experiences of the patients admitted to COVID ward<sup>11</sup>, and intensive care unit (ICU).<sup>12</sup> Additionally, this experience also helped in understanding the psychological issues related to children<sup>13</sup>, and how anxiety can be confused with worsening of physical health status and lead to shifting of patients to ICU.<sup>14</sup> The initial experience of working in the COVID ward also helped in understanding the mental health issues of various categories of health care workers.<sup>15,16</sup> These assessments led to detailed understanding of psychological issues related to being admitted to COVID-19 ward<sup>17</sup> and understanding the impact of substance dependence in achieving COVID-19 negative status.<sup>18</sup>

Subsequently residents from the Department of the Psychiatry were posted in the COVID ward and it was realized that it was not possible to assess all the patients by the psychiatry resident. Hence, a new CL model was developed, which involved assessing the patients having access to a mobile phone by using voice call or video call by a resident sitting in the psychiatry ward area. Further, the duty mobile phones in the COVID ward were also used to reach to the patients without access to phone.<sup>19</sup> The patients, who were considered to have psychological distress, and psychiatric morbidity including delirium, were informed to the resident posted in the COVID ward, who would evaluate these patients in person and then discuss with the consultants to seek supervision for management of these patients. The residents screening the patients also discussed the cases with the consultants to provide quality care to the patients. The patients with psychological issues were also

provided psychological interventions through the tele-consultation mode. This model was also used to manage HCWs admitted to the COVID ward, soon after an attempt with self-harm.<sup>20</sup> Additionally, patients admitted in the COVID ward were followed up after discharge to understand the psychological issues in the form of fatigue, perceived stigma, self-reported cognitive deficits and psychological morbidity in patients who had recovered from COVID-19 infection.<sup>21</sup>

The community encountered psychiatric morbidity in patients with COVID-19 infection induced delirium and anxiety. Besides these many patients reported depression, loneliness, social disconnectedness and social isolation. Delirium was mostly managed with the use of melatonin and haloperidol, whereas anxiety was managed with clonazepam.

The whole experience of working with patients with COVID-19 and the frontline HCWs was very satisfactory and gratifying. The pandemic brought forth the importance of recognising the mental health issues in patients with various physical illnesses and participation in the care of patients with COVID-19, possible led to reduction in stigma associated with mental health issues, at least among the HCWs and gradually, it became apparent that with passing time the clinicians were more open to psychiatric consultation. With time, there is increase in direct consultations between the psychiatrists and the physicians for patients admitted in COVID ward and the physicians were open to follow the advice given.

### **Impact of the pandemic on the residents posted in the CL Psychiatry and Emergency:**

During the initial part of the pandemic, the residents posted in the CL Psychiatry services, emergency services and COVID-19 ward showed a great deal of grit and were prepared to examine the patients, despite understanding the risk of exposure. Additionally, the teaching sessions and supervision of the residents provided a great opportunity for everyone to learn the issues pertaining to patients coming to the hospital in testing times and modifying the services as per the need with passing time. During the second wave of COVID-19, when the

emergency was full of patients with COVID-19, the residents cared for patients with various psychiatric illnesses with lot of dedication, zeal and enthusiasm to ensure that patients with mental illnesses were not discriminated against for the available resources. These efforts led to admission of many patients with mental illnesses in the COVID ward and coming out of the infection successfully. The testing time of pandemic also showed that, nothing can beat a team effort. Throughout the last about 1.5 years only 2 residents posted in the CL Psychiatry services and emergency services tested positive for COVID-19 and recovered from the same, without any complications.

### Impact on the pandemic on the training:

Compared to other services, the teaching and supervision rounds of CL psychiatry continued like before. In fact, it can be said that with reduction in the patient load and availability of more time to discuss, the CL services and emergency services ensured adequate training.

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## Chapter-6

### Impact of COVID-19 on the Inpatient setting: modifications and challenges

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#### Introduction

The COVID-19 pandemic has affected the routine health care services in a big way. All kinds of mental health services, including the inpatient services were affected in India and other parts of the globe<sup>1,2</sup>. At many places the psychiatry wards were converted into COVID wards.<sup>3,4</sup> At other places, separate wards were operated to accommodate persons with mental illnesses who developed COVID-19 infection.<sup>3,4</sup>

The centres which continued to run the inpatient units developed their own COVID-19 related protocols, with respect to the use of masks, social distancing, and hand hygiene.<sup>3-6</sup>

Some of the centres used innovative methods like tele-services for the inpatients too, to reduce one to one in-person contact between the patient and the health care providers.<sup>7,8</sup>

Fortunately, at our centre, we continued to run the inpatient services, throughout the pandemic, with certain modifications. The modification in the inpatient services throughout the COVID-19 pandemic went through many phases as the pandemic unfolded, with the aim to continue running the inpatient services. This paper discusses how we were able to manage the services in this challenging time.

#### Psychiatry ward setting

The Department of Psychiatry has 29 beds including the two private rooms in the psychiatry ward. Prior to the pandemic, out of the 27 beds in the general ward, 21 beds were used for routine care and 6 beds were used for rapid turnover (i.e., the patients admitted on these beds are usually discharged within two weeks of admission). Patients on the rapid bed

were admitted for 2-3 weeks, whereas the admission on the routine beds could extend up to 3 months, with a longer duration of admission for occasional patients. Besides admitting the patients in private wards attached to the psychiatry ward, rarely patients were admitted to the general private ward of the hospital. Before the pandemic, most of the admissions occurred from the outpatient services. During the whole period of admission, the patients were required to be accompanied by one to two caregivers, who were mostly the family members. The group ward activities included morning prayers, light exercise and few other group recreational activities in the morning coordinated by the nursing staff.

The general ward comprises of 4 cubicles, each with a maximum capacity of 6 patients. Additionally, there are 4 isolation rooms in the psychiatry ward that are used for 1-2 patients, as per need.

#### Phase-1: declaration of the lockdown and the initial reorganization

As the first lockdown was declared, initially there was lot of apprehension and after mutual discussion it was decided to discharge some of the patients who were in a state that they could be managed at home. However, the patients who were significantly disturbed and required continued admission were retained in the ward.

The inpatient facility was reduced to 15 routine beds in the general ward, and the admissions on the rapid turnover beds were stopped. Considering the proximity of the psychiatry ward with the isolation wards used for those with infectious diseases, the admissions to the private wards were stopped.

However, the patients could be admitted to the private wards in the general pool of the hospital. As part of the initial reorganization, it was decided to use the isolation rooms for the

initial 1-week period for the newly admitted patients. Protocols were developed for admitting the patients and following the COVID-19 related protocols (Table-1).

**Table-1: Measures implemented for the prevention of the spread of COVID-19 infection**

<p><b>Setting and broad principles</b></p> <ul style="list-style-type: none"> <li>• Occupancy rate reduced to about half</li> <li>• A cubicle to have a maximum of 4 patients (instead of usual of 6 patients)</li> <li>• Isolation rooms to be used for keeping the newly admitted patients for the first week or for patients who develop respiratory symptoms</li> <li>• All group activities suspended</li> <li>• Minimize the contact and interaction of a patient/caregiver with another patient/caregiver</li> <li>• Number of caregivers for each patient minimized</li> <li>• The same caregivers were required to stay with the patient for the entire duration of inpatient stay</li> <li>• Visitors were not allowed for the patients</li> <li>• As the main entrance of the Department of Psychiatry opened in front of the isolation wards, which were converted to COVID testing area, the main entry to the psychiatry ward was closed and the emergency exit was used</li> <li>• Admission and discharge coordinated in such a way that there was minimum contact of old patients with the new patients</li> </ul> <p><b>Preadmission procedures</b></p> <ul style="list-style-type: none"> <li>• Patient and caregivers were explained about the COVID-19 protocol to be followed during the inpatient stay and those caregivers who agreed to adhere to the same were considered for the admission</li> <li>• All the patients and their caregivers who had to stay with the patient were tested for COVID-19 and only those who tested negative were admitted</li> </ul> <p><b>Measures taken for patients and the caregivers during the 1<sup>st</sup> week of the Admission</b></p> <ul style="list-style-type: none"> <li>• New patients were kept in the isolation for the first week</li> <li>• Patient and caregivers were provided information about COVID-19, symptoms of COVID-19 infection</li> <li>• Encouraged to self-report if they develop symptoms suggestive of COVID-19 infection</li> <li>• The patient and the caregiver were explained about the need to follow the COVID protocol</li> <li>• The patient and the caregivers were told to use masks, follow hand hygiene measures and maintain social distancing</li> <li>• Avoid going out of the ward for any reason</li> </ul> <p><b>Measures for the staff</b></p> <ul style="list-style-type: none"> <li>• Requested to avoid unnecessary socialization in the off-duty hours</li> <li>• Encouraged to self-report symptoms suggestive of COVID-19 infection</li> <li>• Mandatory to use mask, follow the hand hygiene measures and maintain social distancing</li> <li>• Resident posted in rotation of 2 weeks</li> </ul> <p><b>Consultations for the patients from other specialists</b></p> <ul style="list-style-type: none"> <li>• Follow a combination of telephonic and in-person consultations</li> <li>• During the consultations, the patients and the caregivers to use proper masks and maintain social distancing measures</li> </ul> <p><b>Measures for patients receiving Electroconvulsive Therapy (ECT)</b></p> <ul style="list-style-type: none"> <li>• Patients receiving ECT to undergo rapid transcriptase-polymerase chain reaction (RT-PCR) testing prior to administration of ECT</li> </ul>
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### **Phase-2: Running of Inpatient unit during the first wave of the pandemic**

During the initial phase, we were able to manage the services without much problem, and the process of admission, isolation and discharge were further streamlined. Gradually, some synchronization was also made for the admission and discharge procedure with the changes in the rotation of duties of residents to minimize the change of therapists for a given

patient. The trainee residents were posted on a rotation basis for 2-4 weeks from April to Dec 2020. From Jan 2021, the postings of residents were extended for a longer duration.

### **Emergence of COVID Positivity and reaction to the same**

During the initial one year of the pandemic (i.e., 23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021), four patients or their caregivers tested positive



for COVID-19 prior to admission and resultantly could not be admitted.

For approximately initial 5 months of the pandemic, we did not encounter any COVID-19 positive patient, caregiver or staff and none developed symptoms of COVID-19, except for one patient developing severe respiratory symptoms. This patient was receiving ECT, was evaluated further and found to have pulmonary embolism. Later her ECT could be continued after the management of the pulmonary embolism.

The first person to test positive was a temporary staff posted in the inpatient area.

This led to a panic and all the patients, their caregivers and other staff members posted in the inpatient area were asked to monitor their symptoms and undergo COVID-19 testing. Within 4 days of the staff testing positive, the first patient tested positive for COVID-19. Following this, the hospital infection control team was consulted and it was decided to send the patient for home isolation. Following this, a protocol was developed about what to do, if a patient tests positive for COVID-19 after being admitted in the ward (Table-2).

**Table-2: Protocol to be followed if a patient/caregiver or a staff tests positive**

<p><b>Patient/Caregiver</b></p> <ul style="list-style-type: none"> <li>• If a patient tests positive, depending on the clinical severity of symptoms at the time of testing positive, they would be given an option of home isolation or being shifted to the COVID-19 ward. If the symptoms are reasonably controlled then the patient and the caregivers would be preferably asked to consider home isolation.</li> <li>• If only the caregiver tests positive for COVID-19 and alternate caregiver is available, then the caregiver would be sent home and alternate caregiver with COVID-19 negative report can stay with the patient; however, provided that the patient is COVID-19 negative.</li> <li>• If the patient/caregiver is sent for home isolation, then their management for COVID-19 to be facilitated by the ward team and the ward team to follow-up the patient for next 2 weeks to monitor the symptoms of COVID-19 and psychiatric symptoms.</li> <li>• If the patient requires admission due to worsening of the COVID-19 status then the admission to COVID-19 ward would be facilitated by the ward team.</li> <li>• If the patients psychiatric condition worsened after being sent for home isolation, then the patient would be reconsidered for admission to the psychiatry ward after 2 weeks period</li> <li>• All the patients and the staff to undergo risk assessment and depending on the outcome of the risk assessment, further course of action to be sorted out</li> <li>• Continuous monitoring of the all the patients and staff for next 1 weeks for any symptoms of COVID-19</li> <li>• If required, all the patient and staff to undergo COVID-19 testing</li> <li>• New admissions to be temporarily stopped for five days</li> </ul> <p><b>Staff</b></p> <ul style="list-style-type: none"> <li>• If a staff tests positive, depending on the clinical severity of symptoms of COVID-19 at the time of testing positive, they would be given an option of home isolation or admission to the COVID-19 ward.</li> <li>• All the patients seen by the resident and all the staff to undergo risk assessment and depending on the outcome of the risk assessment, further course of action to be sorted out</li> <li>• Continuous monitoring of the all the patients and staff for next 1 weeks for any symptoms of COVID-19</li> <li>• If required all the patient and staff to undergo COVID-19 testing</li> <li>• New admissions to be temporarily stopped for five days</li> </ul>
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Whenever a patient tested positive, the resident who was primarily involved in taking care of the patient was quarantined, and all the patients seen by the same resident were shifted to isolation rooms or were given an option of home quarantine. During the subsequent testing, none of such patients tested positive.

Whenever, a resident tested positive they were offered admission to the COVID ward or home quarantine. All the patients seen by them were kept in isolation in the ward, or were given option for home quarantine and

monitored and were tested after 5 days. None of the patients tested positive.

Whenever a patient, resident, nursing staff, or support staff tested positive, interaction between the staff, the patients and caregivers was minimised; everyone was monitored for symptoms of COVID-19. During such monitoring, at any given time, none of the patients and the other staff tested positive for COVID-19, except for possible transmission of infection from one nursing staff to another. Only on one occasion, we encountered

transmission from one person to the other in the ward.

With the development of this protocol, during the initial 1 year of the pandemic (23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021) only 3 (5%) residents (out of 59 Junior and Senior Resident posted in the ward), 3 (4.7%) nursing staff (out of 14 nursing staff and 50 nursing students posted in the ward), and 1 (6.66%) support staff (out of 15 posted in the ward), tested positive for the COVID-19. For all the residents and the staff testing positive for COVID-19 infection, the source was traced to interaction of the staff or residents, with people other than the patients or the co-workers posted in the ward. Patients were never found to be the primary source of infection.

During the first year of the ongoing pandemic (23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021), only 6 (3.8%) of the 158 patients admitted tested positive for COVID-19. All these patients were receiving ECT and were undergoing regular testing for COVID-19.

Another important fact which emerged was that out of these 6 patients, three were admitted in the private rooms and other three were admitted in the general ward. The patients admitted in the private ward had frequent visitors which were the possible source of infection to them. Following this, strict norms were implemented for the visitors. Throughout the one-year period, there was only one occasion, when two residents tested positive together; the ward resident team was completely replaced and ECT services were suspended for one week.

There was no mortality among the people who tested positive for COVID-19 infection.

### **Frequency of problematic behaviours and anger among the patients during the inpatient stay during the COVID-19-time frame**

With respect to COVID-19 precautions, during the one-year period of pandemic (23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021) only two-fifth (41.2%; n=63) of the patients were annoyed with the COVID-19 restrictions. Very few patients (n=8) required physical restraints during the inpatient stay. Only 2 patients were not able to adjust to the restriction and left against medical advice.

### **Impact on the admission rates and patient profile**

When we compared the data of one year period of pandemic (23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021) with data of 1 year before the pandemic (23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2020), the number of admissions reduced to 49.4%, i.e., from 312 admissions to 158 admissions. Another interesting fact was that there was significant increase in the proportion of patients admitted to the general private ward during the pandemic period. As published in one of our articles, compared to 1 year before the pandemic (23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2020), patients admitted during the pandemic were more educated, had higher family income, had higher number of previous admissions, were less often admitted for behaviour therapy or other type of special therapies, and more often admitted for ECT.

### **Second wave of COVID-19**

The second wave of COVID-19 in India started somewhere in late March 2021. However, from our experience from the first wave, we were able to handle the situation better. The ward admission and ECT services were never disrupted; instead, we were giving ECT to outpatients too. From 23<sup>rd</sup> March 2021 to 18<sup>th</sup> August, we admitted 83 patients. During this period of about 5 months, despite significant surge in number of cases in the country, only 2 (2.4%) patients, one caregiver and one resident posted in the ward tested positive.

### **Training and inpatient care**

During the ongoing pandemic, running of inpatient unit also provided an opportunity to the faculty and senior residents to continue teaching the junior residents. For the junior residents too direct contact with the patient provided them an opportunity to directly interact with the patient and continue their learning.

### **Reflecting back**

Managing the inpatient setting during the ongoing pandemic was a challenge. At a time when the psychiatry inpatient facilities were closed or curtailed significantly across the entire country, we were able to run the

services by following the COVID norms and had very low positivity rate. At any given time, we had the permitted number of patients and many still are in the waiting list. When any patient or staff tested positive, the subsequent one week was a nightmare for the whole team. The last one and half year taught us that things can be managed if we have a good team approach, dedication and honesty in our work and can achieve our goals. All the residents, nursing staff, and support staff worked hard to

manage the services in the challenging times. Throughout the period faculty and resident colleagues from other department too were very accommodative and helped us to reorganize the services. Similarly, the hospital administration was very considerate and allotted the private rooms to the needy patients, which is usually not possible, when the psychiatry patients have to compete with patients with other ailments.

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## Chapter-7

### Experiences from managing a deaddiction ward during times of COVID 19 pandemic

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#### Initial phase of lockdown and discharges

In March 2020 COVID 19 was declared as a pandemic by World Health Organisation<sup>1</sup>. During the last week of March Government of India declared an imminent complete lockdown to stem the spread of cases in India<sup>2</sup>. Due to declaration of the imminent lockdown, it was decided to discharge the 20 patients in DDTC ward as soon as possible so that they could reach their native places depending on their clinical condition. The family members of the patients were called for completing the discharge proceedings. Two of the admitted patients could not be discharged right away. One of the patients was having psychotic symptoms and would have been difficult to manage him at home and the other patient was destitute, thus, provisions for his stay after discharge had to be arranged before discharging him. Both these patients were discharged by 1/4/21 after discharge goals had been met (clinical stability and post discharge stay).

#### Suspension of inpatient services

After that the inpatient services of DDTC were suspended for approximately 9 months. During this time staff from DDTC ward was posted in the COVID ward by rotation as directed by the PGIMER administrative authorities. It was informed that the numbers of staff to be posted in the COVID ward can increase or decrease as per the evolving situation. Adjustment and posting of remaining staff in DDTC was done in a way to ensure adequate and continuous availability of staff for continuing the OPD services in DDTC. During this time patients were being

seen in physical OPD and through teleconsultation only.

Patients being seen in tele consultation and physical OPD would request for admission during this time but as admissions were suspended efforts were made to provide the best possible standards of care on OPD basis. There were disruptions in staff availability also due to some of the staff members testing positive for COVID 19. For example, once a senior resident tested positive for COVID 19 and another senior resident had to be quarantined due to high-risk contact. So, the number of senior residents available for duty was reduced to one for approximately one week. Such incidents also occurred with nursing staff and were managed accordingly to ensure the availability of staff.

#### Ward reopening

Eventually as conditions got better after 1<sup>st</sup> wave, decision was made to re-open admissions with COVID appropriate restrictions. The ward was re-opened for admissions in January 2020 and first patient was admitted on 2 January 2021. Changes were made in admission rules to avoid the spread of COVID 19 in patients and staff.

#### Preparations

A document containing the Standard Operating Procedures for admissions was circulated to minimise the risk of COVID 19 infection. The basic premise for admission was decided to be for maximally needy, with the minimum attendants, and for the shortest duration. It was decided to treat all beds as short stay beds (preferably a stay for up to two weeks but not exceeding 1 month other than in exceptional circumstances).

It was decided to keep the maximum number of admitted patients in DDTC ward to be limited to 11 so as to ensure that social distancing norms are followed in the ward. A maximum of 3 patients were allowed in a single big room. 2 small rooms were kept for isolating patients in case any of them had symptoms suggestive of COVID 19 or tested positive for COVID 19 during the course of admission. Patients were admitted only after a negative COVID 19 RTPCR test report. Furthermore, the patient was to be admitted within 72 hours of giving the sample to minimise the chances of a patient getting infected after giving the sample. If an attendant of patient was to stay with the patient in the ward, then a COVID 19 RTPCR test was also required for them under the same conditions. Attempt was made to admit patients without attendants except where it was absolutely necessary. Patients were advised to dine separately and following of these rules was enforced by on duty nursing staff. All the patients (despite having a COVID negative report) were screened for COVID 19 symptoms at the time of admissions and if any symptoms were present, the patient was kept in isolation room for 7 days. Posters containing pictorial representation of COVID appropriate behaviours were displayed in the ward premises to sensitise and provide information to the patients. Resident doctors and staff members were advised to follow the protocol of the PPE guidance statement for use in PGIMER, Chandigarh (which is modified from time to time as per guidance from Government of India), which was formed by PGI PPE committee, while interviewing and examining the patients. The residents were advised to preferably do assessments in open spaces or bigger rooms.

### Experience

In the initial months the number of admissions was less as patients gradually came to know about re opening of the ward. It also provided us the time to understand potential problems that might have occurred before admissions were started in full swing.

Many patients had problems with regarding the testing rules especially those not staying nearby. For some patients provision of taking sample within the DDTC was provided

(sample taken by a junior resident posted in DDTC) for their convenience and ease. Within the ward the patients were given triple layered surgical masks for wearing all the time. Some reluctance was shown by some patients regarding wearing the masks (as they and other patients had negative COVID reports). The risk of contracting infection from staff was explained to them and wearing of masks was regularly enforced and emphasised. All the staff members were also directed to wear masks at all times and travel advisory was given to avoid unnecessary travel and to stay in station to ensure availability. Staffs were advised not to travel without prior approval of Head of Department in case of emergency.

Regular monitoring for fever and oxygen saturation of all patients was done. Both patients and the staff were directed to follow sanitisation rules (frequent use of hand sanitizers, cleaning of instruments like thermometer, pulse oximeter and sphygmomanometer after every use). Patients were advised not to sit together in groups and compliance with this rule was ensured by the on-duty staff. They were advised to use sanitizer and soap liberally and frequently. Also visits by family members were limited to bare minimum and patients were allowed to keep phone with them so as to maintain contact with family members.

If a family meeting was to be arranged, it was ensured that social distancing was followed during the meet and to keep it as brief as possible. Also, all group activities were suspended (like group therapy sessions, group-based games) and individual activities were preferred (stationary cycle, stepping machine and treadmill etc). Also, celebration of festivals which was a regular practice before the pandemic started (done in the ward premises) was suspended indefinitely. The dresses allotted to the patients for in patient stay were washed and changed every day. Urine drug screening was done in such a way so as to ensure safety of staff and patients.

For consultation liaison with other departments slight modifications to the protocol were made. For consultations taken within the ward premises, proper wearing of masks and use of sanitiser was advised. For the patients being sent to OPDs of other departments (e.g., ENT, Dentistry) and for investigations such as MRI, CT scan, EEG and fibro scan etc a prior RTPCR test was sent in

PGIMER as required per protocol of various departments. Also, whenever the patients were sent for these services, an attendant would accompany the patients (maximum 2) so that they would be able to directly reach the place of consultation or investigation without getting too much exposure and to ensure that proper safety precautions were followed.

The ward rounds were taken either in large rooms with adequate cross ventilation or by means of video consultation (the patient would come to round room and one junior resident would facilitate the video consultation and all the other attendees would be in separate rooms).

Also, during the month of April and May, exam for MD Psychiatry and DM Addiction Psychiatry was conducted (one candidate each). Both the candidates were allotted 2 cases each from among the inpatients for management and presentation as long cases in the exam. All the COVID appropriate precautions were followed during conduction of the exam as well.

Sometimes the emergent conditions necessitated a change in rules e.g., one patient was admitted after showing a COVID 19 negative report from a private laboratory. But on next day of admission the patient received a call from a government agency (where he had also given COVID RTPCR sample but the result was delayed) informing him that he was COVID positive. Patient was discharged on the same day after discussing with COVID team he was sent home as he was clinically stable. After this incident, the rules were modified that the negative COVID 19 RTPCR test had to be done from a government lab only for admissions. There was another occasion on which a patient tested positive and was similarly discharged after discussion with the COVID team of PGIMER.

On few occasions when an admitted patient developed fever, he/she was kept in the isolation room and was regularly checked for temperature and oxygen saturation levels and a COVID 19 RTPCR sample was sent promptly. If the test reports came positive then contact was made with the community

medicine team and the patient was sent for home isolation or the COVID ward depending on the clinical status of the patient. New admissions were suspended for 5 days and all the other patients and attendants were monitored for fever and respiratory symptoms. If a patient developed any symptoms, then the COVID RTPCR sample was promptly sent and all the other patients and attendants were tested after 5 days and if all reports were negative, admissions were restarted.

Some of the doctors and staff posted in DDTC ward also tested positive during their duty and were sent for treatment/quarantine depending on the clinical status. Risk assessment of all other staff members was done and sampling was done of all the high risk contacts and they were quarantined for 5 days. Rest of the staff was advised self-monitoring of symptoms and to report if any symptoms developed. Also some of the DDTC staff (doctors, nursing staff and hospital attendants) were posted for duty in COVID ward by rotation. This impacted the availability of staff in DDTC but smooth functioning of ward services was ensured by arranging for substitute staff and the ward was never closed after being re-opened in January 2021. The total numbers of admissions from January to Aug 15 2021 are 87. The discharged patients are followed up in person or through telephone or video consultations depending on the COVID-19 related restrictions and patient's choice.

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## Chapter-8

### Continuing Care in the Face of Adversity: Experience from the Addiction Psychiatry Outpatient and Telemedicine Services

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The World Health Organization announced the Coronavirus disease (COVID-19) as a pandemic on March 11, 2020. The Director General's opening remarks on that day depicted the uncertainty of the course of the pandemic and a clarion call to prepare for the challenge posed by the pandemic for the healthcare system. At the same time, there was a strong hope for learning and innovation in healthcare delivery to mitigate the effects of mandatory stay-at-home orders, social distancing, and overwhelming pressure on the existing healthcare.

#### Initial phase: Closure of the routine in-person outpatient clinic:

Initially, measures like stopping all the human congregation and restricting human movement were the mainstay of the preventive approach. As a result, a nationwide lockdown was imposed on March 24, 2020. The regular outpatient (OPD) at Drug-Deaddiction and Treatment Centre (DDTC) was closed as a response to the pandemic. We were worried because the impact of restriction of access to treatment is likely to be disproportionate for patients with substance use disorders (SUD). According to the World Mental Health survey, only 39 % of patients with SUD recognized a treatment need, and 7% received minimally adequate treatment<sup>1</sup>. A nationwide survey published last year revealed a 75–80 % treatment gap for patients with drug use disorders<sup>2</sup>. An extended lockdown is likely to widen the treatment gap further. Therefore, we had to explore and implement alternative ways to reach out to our patients.

#### Opioid substitution clinic and the changes:

Buprenorphine-naloxone<sup>o</sup> (BNX), being a controlled substance prescribed at the opioid substitution clinic, was not available at the pharmacy on prescription; also, the telemedicine guideline of India does not permit electronic prescription of BNX. Broadly, we had to make the following adaptations in our practice: several changes in the service delivery-

- a. Increase in the number of doses of takeaway buprenorphine-naloxone (2–4 weeks), thus allowing for less frequent follow-ups;
- b. We have increased the days and hours of operation as well;
- c. We have initiated proxy dispensing of buprenorphine-naloxone to a responsible family member.

Some of these practices were in line with the changes made by the Substance Abuse and Mental Health Administrations (SAMHSA) of the US and Advisory Council on the Misuse of Drugs (ACMD) of the UK. Here are some salient features of our standard operating procedure:

#### A. Screening and protective measures

1. The security guard at the outpatient entry point checked the temperature using a contactless thermometer.
2. Masks were distributed to all the patients and their attendants.
3. Hand sanitizer and masks were distributed to all the visitors at the outpatient entrance.
4. The service providers were supplied with masks (N-95 or surgical masks, whichever were applicable), headshield, and alcohol-based hand sanitizers.

5. Every patient was screened for COVID-19 symptoms, travel history, and history of high-risk exposure at the registration counter. If suspected, patients were referred to the fever clinic for testing and risk assessment.
- B. Exposure reduction**
1. Instead of submitting the previous prescription to the registration counter, patients were asked to show the same to minimize touch.
  2. File tracing, the Signature of the patients at the OST register, routine urine screen for substances were also suspended to minimize exposure by touch.
  3. The outpatient functioned with half of its original strength
  4. Measures to ensure physical distancing:
    - a. We allocated three different areas for waiting, registration, and consultation.
    - b. We regulated the number to a maximum of five at any point in time in each of these areas
    - c. The sitting arrangement was changed to ensure social distancing
    - d. We tried to ensure rapid mobilization of the patients in the outpatient area
- C. Changes in service provision**
1. Increased duration of take-home medication. Medications were dispensed for two weeks and four weeks for those who were on the maintenance treatment for less than six months and more than six months, respectively
  2. We provided medication by proxy for patients who were unable to attend OPD.
  3. OST group counselling, urine screens for opioids and other substances were suspended.
  4. From March 24 to May 30, 2020, we could not enroll any new patients in the OST clinic; however, after initiating the telemedicine-based addiction treatment, we started to enroll patients on OST on an appointment basis.

The standard operating procedure was subjected to regular assessment and

modifications based on the changing COVID-19 scenario<sup>3</sup>.

### **Teleconsultation- The stepped care model:**

The telemedicine practice guidelines, India was published on May 14, 2020, and it was closely followed by telepsychiatry guidelines from the National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru. These provided a framework for 'setting up, implementation, administration and provision' of teleconsultation service to be integrated into the usual clinical practice<sup>4</sup>. Tele-addiction OPD started functioning on May 18, 2020.

We have adopted a synchronous, stepwise, direct care model with three hierarchical steps of service delivery: telephonic, video, and in-person consultation. Initially, the psychiatric social workers and counsellors recorded patients' sociodemographic data and motivation through telephonic contact. A psychiatrist with the designation of senior resident or higher provided all levels of consultations. See figure 1 for a comprehensive view<sup>5</sup>.

One dedicated phone number for registration in DDTC tele-OPD and two other contact numbers common for tele-OPD (psychiatry and DDTC) is used for registration. The initial telephonic consultation aimed for a brief history taking, basic clinical assessment. It helped choose the treatment intensity, provide brief psychological intervention, and explain further consultation and treatment process. Video consultation (VC) is considered for patients requiring more detailed clinical assessment (e.g., dual diagnosis, complicated withdrawals), prescribing medications, and confirming patient identity. The VC happened on a Zoom platform or through a WhatsApp video call. A proportion of patients were also advised for in-person consultation (e.g., cases that require detailed physical examination because of medical comorbidities, presence of severe withdrawals, risk of suicide or overdose, and prescribing medication that cannot be prescribed through telephonic consultation). The residents performed detailed case workups under the supervision of senior residents or consultants. Telephonic contact and video consultation (with Zoom or WhatsApp video calls) are used for thorough workups. As there were requirements for



multiple video conference slots, a new paid Zoom account was purchased for teletherapy, research, and clinical service. Please see Figure 1 for an illustration of the telemedicine-based service delivery.

**Opening of in-person OPD:**

The administrative decision to restart the physical OPD came in early November 2020. Initially, the number of patients visiting OPD was limited to 20, which gradually increased with time. The OPD appointment was based on initial teleconsultation to limit waiting time and senior residents were posted in the DDTC outpatient to manage the patient load. The OPD appointment was based on initial teleconsultation to limit waiting time and exposure. A group of nursing students performed the COVID-19 screening for rapid mobilization of the patients. By 2021, two senior residents were posted in the DDTC outpatient to manage the patient load. As there were increased movement restrictions of varying degrees in different areas in the surrounding states, the medication dispensing policy was changed on a case-by-case basis. OST was dispensed for a longer period to the patients with physical comorbidity, older patients, or those coming from faraway places or containment zones.

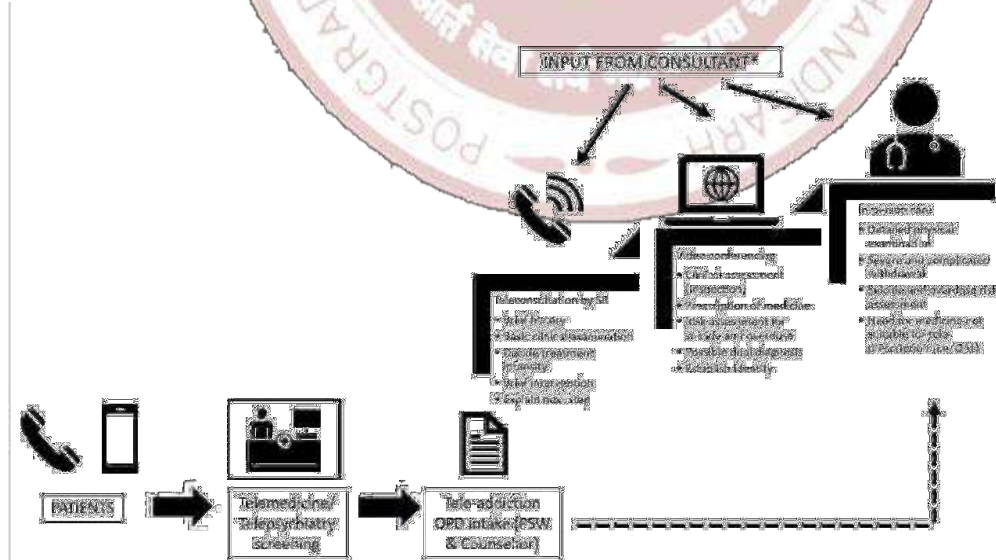
**Tele counselling service through videoconferencing:**

The DDTC teletherapy started at the end of June 2021. Both psychotherapy and family therapy are administered through virtual mode. The ward and the OPD are the sources of referral. Residents, counsellors, and psychiatric social workers are allotted slots for psychosocial intervention. Usually, the initial intake and assessment session is performed in person.

We have started brief intervention, motivational interviewing, relapse prevention therapy, and tobacco cessation counselling through teletherapy. Clinical psychology and Psychiatric Social Work consultants give their feedback whenever needed during the tele-counselling.

Separate desktops with cameras and headphones are installed for videoconferencing to ensure patient confidentiality. Teletherapy guidelines are formulated to help the therapist intake and assess the patients, prepare patient-specific intervention, and discuss various technical and legal know-how (like data security, confidentiality, consent, etc).

**Figure 1: The stepwise approach taken to manage the patients with different levels of need in the tele-addiction OPD.**



Schematic diagram of stepped care model in tele-addiction clinic at DDTC, PGIMER

SR- Senior resident

PSW- Psychiatric Social Worker

\* Consultant's inputs are solicited for decision making in difficult to manage cases

### Our experience with tele-addiction OPD:

By July 2021, we have consulted 862 new and 1961 follow-up patients through the tele OPD. We had initiated Buprenorphine-naloxone to 170 patients from tele-addiction OPD during this period. Thirty-six patients were recruited in the tele-counselling service. A preliminary assessment comparing teleconsultation and in-person consultation revealed that cordial therapeutic relationships and physician empathy could be established during teleconsultation, but these two parameters are more robust during an in-person consultation. Poor accessibility and privacy concerns are the main challenges for the implementation of teleconsultation.

In sum, we started our journey of adapting our service delivery to the new normal with many trepidations, questions, and concerns. However, there was a degree of optimism, a motivation to mitigate the sufferings of those with drug and alcohol use disorders, and a belief in the capability of the healthcare workers and paramedical staff. Our multidisciplinary team of doctors, nurses, psychologists, psychiatric social workers, counsellors, and pharmacists has stood up to the challenges, shared responsibilities, and extended their helping hands to each other during this extraordinary crisis. The teamwork has made it possible to maintain the quality and standard of care of the pre-existing services and start new services- truly, changing challenges into opportunities.

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## Chapter-9

### Child and Adolescent Psychiatry: meeting the needs of the children and the parents

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The history of childhood has been influenced by certain major developments in history of evolution of mankind. Certain landmarks like change of lifestyle from hunter gatherer to settling down for agriculture and industrializations along with urbanization have been major influences as we can think of today. But certain changes like wars, famines and pandemics have been significant adversities which have affected vulnerable portions of human demography more than others. Children and adolescents constitute the most important group vulnerable group. Adversities in a dose like that of vaccine (\*i.e., if it's quantum/dose, duration, type and timing are minimal as well as they do not overwhelm the resilience of children and adolescents) then they act as eustress leading to generation of biological, psychological, social and cognitive skills of flexible nature leading to good overall outcome and achievement later in life. COVID 19 is one such significant adversity posed to mankind and this vulnerable group globally. Though its effect as an adversity can be differential depending upon national, regional, state wise, economic, sociocultural, environmental, familial, and personal factors some of which are generic and some of which are unique to a particular group or individual child.

All these factors have interacted with COVID 19 leading to various effects in all aspects of development which are unique to demography of children and adolescents. This has affected health of children and adolescents particularly more than other sections of society through change of environment at home, no regular schools, restrictions at play, facing infection along with family members, parental loss for

many, financial adversities of family leading to continuous fear, uncertainty, helplessness continuously. Change of mode of education to online mode and its poor non equitable availability along with unpredictability of timing of assignments/homework's as well as unpredictability of assessments/ examinations have been a unique effect of COVID 19 on children and adolescents. School dropouts have increased during this time.

This has affected mental health of children overall leading to fear, irritability, anxiety, fear, and sleep disturbances like that of adults generating additional mental morbidity and need to tackle it at a broad level from public health point of view. There had already been a proportion of population with large unmet mental/ physical health needs ever and some of them were receiving one or the other form of intervention for these. In addition, there is a usual addition to total number of children having mental morbidity above that of COVID 19 related additional burden.

#### Structure of Child and adolescent psychiatry services:

Child and adolescents' psychiatry service of department of psychiatry at PGIMER Chandigarh is involved mainly in secondary prevention and tertiary prevention mainly. For more than 3 decades there has been services in the form of Child Guidance Clinic mainly provisions for outpatient services with assessment and intervention facility. Since 2013, dedicated 5 beds had been for inpatient service which had been increased to 9 beds in later half of 2018. A course for specialization

in child and adolescents' psychiatry is also running since 2015. There are 4 senior resident doctors at a time along with 2 junior resident doctors along with 3 psychiatry faculty members. Also, there are 2 play therapists cum clinical psychologists along with one clinical psychology faculty member. Also, one vocational guidance counsellor cum clinical psychologist also contributes to services. Also, there is provision of consultation liaison services from the department for children and adolescents but that is not provided by child and adolescents psychiatry services, consultation liaison services of department only provide it. Similarly, the emergency psychiatry services for children and adolescents are provided by consultation liaison services. In the following paragraphs I will try to discuss the ways or modifications in which we tried to somehow meet the needs of our clients.

### **Initial Phase of lockdown:**

In March 2020 after the declaration of nationwide lockdown most of the patients from inpatient services were who were stable had to be discharged and gradually because PGIMER was declared a designated regional COVID hospital administrative and structural changes were carried out. There are communicable and infectious diseases ward along with ICU in immediate vicinity of Child and adolescent psychiatry ward. Hospital authorities took over the ward with office spaces along with 2 semiprivate rooms to create a COVID sampling area and office/store space for COVID teams. Initially for next 7 months few very sick children and adolescents with acute needs was admitted in isolation rooms of general adult ward area.

During, this time OPD services were also closed totally. Gradually the departmental team worked out on alternate means for health care delivery. As has been mentioned in previous chapters already established telepsychiatry services became the natural choice. Till the portals of this service were fully developed with in fractural and administrative laydowns, we bank upon our good old practice of giving appointments and keeping record of our old patients. Those in need would contact there treating doctor or therapist telephonically by call, text messages and/or WhatsApp they were

attended in good spirit by all the doctors/therapists involved in their assessment and management previously.

They mostly knew their profiles and issues because in department of psychiatry in general a specific team consisting of resident doctor, clinical psychologist and supervising faculty is there for a particular client. Though there was difficulty in procuring medicines due to lock down, mostly doctors have to talk to pharmacists if they refused to dispense because of non-availability of revised updated prescriptions. During this process doctors also guided other clients from that area to buy medicine from the available stores who were considering verbal requests for refill.

A new initiative was developed since 2018 for running parent training groups for neurodevelopmental disorders like ADHD, ASD and Intellectual disability on both physical and online tele mode. We again started running new groups through the help of records and creating groups on WhatsApp through platform of google meet. Still, this was very minimal looking at the magnitude of needs which we discussed initially. Since late May June our telepsychiatry services started working and through newspaper as well as other media department reached out to public. Online appointments and assessments in detail were started. Prescriptions were given via WhatsApp or mail. During this time certain videos were released by our colleague in this service for helping families and children in general for tackling anxiety, maintaining a new normal ad communicating child regarding parental illness, quarantine and isolation for COVID.

### **Middle phase:**

After October 4 dedicated beds were allotted to child and adolescents services 2 each for male and female within isolation rooms of general adult ward area because of ongoing COVID and non-availability of designated child and adolescent ward area. Only those with acute disturbances which could not be managed at home or with emergency department visits were admitted. Before admission it was discussed in detail regarding what were the expectations and purpose of admission. As much as possible prerequisites were done before

admission to minimize duration of stay and exposure risk to COVID 19. as mentioned in previous chapters all the protocols for safety were followed. Luckily no child and adolescent had got infected during ward stay. Detailed work ups in online manner have picked up, especially resident doctors adjusted very well to the challenge of telework up, of course the families from all sorts of economic, urban / rural areas and needs adjusted more than anyone. Neighbours' and those more versed with zoom also came forward to help their families, relatives, and community people in arranging for structural/ technological aspects of online-meeting platforms. This again highlights the importance of family and social support in accessing the mental health care. Surprisingly significant percentage of children and adolescents either who were clients, or their siblings became very handy to their parents in this. Physical visits were very minimal.

### To ascertain diagnosis

1. Additional online meetings were carried out with multiple informants where time, additional effort of doctors and family participation were significant factors which made it not only possible but productive.
2. Clients are generally from distant places, so after discussion only indicated physical tests were prescribed and mostly families got these done from local resources. COVID forced us to be even extra judicious in testing during these initial months of lockdown.
3. Communication with local health care professionals, physicians and paediatrician had to be done with the help of family especially for remote cases regarding their physical examination. In the nearby states catered by PGIMER psychiatrist trained by our department only especially in Himachal Pradesh were contacted to help the client.
4. Through videos various behavioural issues of children were analysed over time for diagnosis like in dissociative disorder, tics, seizures, and neurodevelopmental disorders especially.
5. We also realized the importance of questionnaires and rating scales in assessment

especially during this time. It was very frequently used on tele mode.

6. The complete assessment involves clinical psychologists, psychiatric social worker, speech therapists and occupational therapists. Here separate referral as in physical OPD was difficult. It was decided that senior resident during walk in should highlight the significant requirements which will be confirmed by detailed work up. As it was done a day before, on case-by-case basis we started involving clinical psychologists and psychiatric social worker during detailed assessment only so that time, effort of treating team and family is well utilized. This makes all the stakeholders involved from the very beginning. During this time, we could not do it for speech therapy and occupational therapy. But on need basis it was done with paediatricians also. Mostly it was feasible and productive if done with planning.
7. Gradually on need basis families were called for play observations, assessments, and therapies on OPD basis with appointment during this time.
8. The modifications by clinical psychologists and Consultation liaison/emergency teams in assessment and management have already been put in respective chapters.

### Third Phase:

Since June gradually, more of OPD and in person visits for assessments, therapies have increased. Here also it is done with appointment and primary treating team is involved at every step. Since physical health needs of some children with neurodevelopmental disorders is also compromised, primary resident doctor also gets in touch with physicians on OPD basis to communicate specific issues and plans accordingly. During this phase our parent training groups for ASD have been made more structured and involvement of clinical psychologists, occupational therapists, speech therapists and even paediatricians' colleagues have been started. It is carried out online on google meet. Thereafter, on need basis the families can meet all therapists according to child's plan both online and offline with specific therapists. Also, we have started providing

online resource material for parents training for this group. Recently we have got our designated ward space and opened it for 5 inpatients as per COVID 19 patient norms.

As the schools are being reopened and children adolescents constitute the largest (35% of Indian population) vulnerable unvaccinated group. Trends in Western countries show that now these are also getting more severe infection though at a rate less than adults in 2<sup>nd</sup> wave, but the sheer numbers, non-existent ICU care for them can be very devastating. As the duration of this pandemic is increasing and mental health issues in public health are surfacing, we need to reach more to society, schools, parental organizations, organizations for special children. This is because the overall number of clients both new as well as old have decreased than baseline. So, still there seems to be significant barriers for families and children in need for reach out to services.

Telepsychiatry services, use of old methods more like rating scales, new methods of videos, multidisciplinary involvement at one place and time for assessment, judicious use of pre-planned yielding patient visits in physical basis and parent training programmes with family as a main resource have helped us in meeting whatever some needs of those who could approach us.

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## Chapter-10

### The care of the elderly with psychiatric disorders during the pandemic

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#### Introduction

India has nearly 104 million elderly persons (aged 60 years or above) who make up 8.8 % of its the total population. These numbers are projected to rise to 319 million by 2050. Not surprisingly, there is an ever-increasing concern about the healthcare needs of the ageing population in India. With the improvement in life expectancy, this epidemiological transition in India has shifted a major share of the country's burden of disease from the young to the elderly population<sup>1</sup>. Older adults have specific physical and mental health needs related to their advancing age. Moreover, they may experience additional stressors such as a gradual decline in their physical and mental capacity, a decline in their functional abilities, losses such as bereavement, a drop in their socioeconomic status with retirement, or other issues related to their physical and mental health. These can result in isolation, loneliness, psychological distress or other psychiatric illnesses, for which they often require long-term care<sup>2</sup>.

The key principles of adequate healthcare are access, affordability and quality of care. As people age, each of these issues is impacted by various factors such as geographical boundaries, increasing costs of care, and limited availability of high-quality specialist care<sup>3</sup>. The advancements in information communication technologies have paved the way for bringing healthcare closer to patients and increasing the range and quality of health services available to them. The field of mental healthcare has also benefitted from these advances.

Telemental health (TMH) refers to the delivery of mental health services using

telecommunication technologies to connect mental health professionals with patients over long distances<sup>4,5</sup>. TMH allows a core group of skilled mental health providers in a central location to provide timely local access to high-quality services for a broad geographic area. The real-time audio and video connections overcome many of the problems that confront the elderly, such as limited availability of specialist care, a geographical separation between patient and specialist, and difficulties in mobility and transportation. TMH has demonstrated the proven efficacy in improving access to mental health services, in provide these services in a cost-effective manner, and in delivering these services at a quality nearly equal to traditional in-person services<sup>4,5</sup>.

#### Prevalence of psychiatric illnesses among the elderly in India

According to the Longitudinal Ageing Study in India, mental and substance use disorders comprise of about 6% of the non-communicable diseases in the elderly leading to increased disability-adjusted life years among the sufferers<sup>1</sup>. The prevalence of mental illness among older adults may be higher than the reported figures, because of under-reporting due to the social stigma attached to mental illnesses and the lack of mental health professionals trained in treating the elderly with psychiatric problems. The fact that the prevalence of elderly psychiatric morbidity varies from 9% to 61% in community settings, endorses this notion<sup>6</sup>. The commonest mental disorders among the elderly in India are mood disorders, particularly depressive disorders and

dementia<sup>6</sup>. Suicide, mainly as a consequence of depressive illnesses is also common among the elderly in India. Other common psychiatric illnesses include anxiety disorders, substance use disorders, delirium and psychotic disorders. Furthermore, the elderly are more likely to experience multiple morbidities, i.e., the presence of multiple chronic medical and psychiatric conditions simultaneously. The presence of multi-morbidity presents further complications for the elderly and hinders the treatment of those with psychiatric disorders<sup>1</sup>. The WHO's Study on Global Ageing and Adult Health (SAGE) in India has shown that 61% of respondents aged 70 and above have more than one chronic condition simultaneously. [7] This is about five times the rate of multi-morbidity in younger people and indicates the greater need for comprehensive healthcare for the elderly. Unfortunately, the standard paradigm in medicine is that more complex and/or specialized the service, the poorer is its affordability and access<sup>7</sup>. Consequently, psychiatric morbidity among the elderly in India is not only characterized by its high prevalence, but also by the adverse socioeconomic conditions of the patients, and their restricted access to specialized facilities for psychiatric care of the elderly<sup>1,6,7</sup>.

### **Telemental healthcare for the elderly with psychiatric disorders**

Given these adverse circumstances, TMH services could be of great value for the elderly with psychiatric problems<sup>4,8</sup>. They are particularly suited to overcome several barriers to mental health care faced by the elderly such as inadequate care in rural and remote locations, limited access to specialist mental health services, problems of mobility and transportation, the stigma of seeking mental health treatment, and the presence of chronic multi-morbidity. However, research on TMH care in the elderly has been relatively limited compared to the younger population. Nevertheless, it appears to be a feasible option for the care of the elderly with psychiatric problems<sup>8-10</sup>. Although the data on efficacy is scarce, recent systematic reviews have concluded that videoconferencing-based interventions are comparable to in-person treatment for the elderly with depression and dementia<sup>8,11,12</sup>. Videoconferencing-based assessments of mental state and cognitive

function have proved to be as reliable as in-person assessments<sup>8,13</sup>. Lastly, the levels of satisfaction and acceptance among users, the quality of the treatment relationships, treatment adherence, and convenience are all similar in the elderly compared to the younger population<sup>8,12</sup>. The situation in India is not very clear, but recent reports suggest that TMH care for the elderly with mental health needs may prove to be a feasible option in the future<sup>14</sup>.

### **COVID-19 and the elderly population**

The elderly are more vulnerable to the physical and mental health consequences of the COVID-19 infection<sup>15-17</sup>. They may contract the infection more easily. The progression of the disease, the chances of getting hospitalized, and dying from COVID-19 are greater in the elderly. A review from India suggests that the elderly are more likely to experience the psychological sequelae of the COVID infection such as stress, anxiety, and depression<sup>17</sup>. The nationwide lockdowns imposed during the pandemic have led to isolation, loneliness, and disruption of daily lives more often in the elderly. The fear of contracting illness, uncertainty about the future, and poor social support due to restricted access predisposes the elderly to new-onset psychiatric disorders, or a worsening of pre-existing psychiatric illnesses. Finally, because of their restricted access to mental health facilities including TMH services, the treatment of psychiatric conditions in the elderly may suffer more than the young.

### **Telemental healthcare for the elderly in the department during the pandemic**

#### **Establishing home-based TMH services for the elderly during the pandemic**

There were several factors that helped us convert from in-person to TMH care for the elderly during the pandemic. To begin with, we had previous experience of using an online application for diagnosing commonly prevalent psychiatric disorders among adults<sup>18,19</sup>. This diagnostic tool was developed during a pilot project at the department and three remote sites in the hilly states of north



India. This application proved to be a reliable and acceptable way of diagnosing psychiatric disorders through videoconferencing. Of the 374 adults assessed, about 20% were elderly patients with delirium, dementia, mood disorders and other psychiatric conditions. The sensitivity and specificity of the diagnoses made using the online application were the highest among the elderly. Secondly, a specialized service for the elderly with psychiatric problems was started in 2017<sup>20</sup>. As a consequence, the process of assessment and treatment became more structured. This structuring was of great help when the switch from in-person to TMH care was made during the pandemic. Finally, the department had already been running a home-based TMH (HB-TMH) service since September 2018. However, this was being run on a smaller scale for a select group of patients who were being followed up after having received in-person treatment. About 10% of these patients were elderly persons with dementia and mood disorders. Once the outpatient clinics were shut down in March 2020, we started to scale up the HB-TMH services for our patients. In May 2020, the entire outpatient services were switched to a system of HB-TMH-based care. A new, expanded, and hybrid version of the HB-TMH service has been running in the department for the past 14 months. The key features of this new HB-TMH service are described elsewhere. The components of the service related to patient access, consent, privacy, security, confidentiality, safety, patient and family education, staff training, and direct-care using a hybrid model are particularly relevant for the elderly with psychiatric disorders. Moreover, the service meets the requirements for minimum standards of TMH care and adheres to the recent recommendations for TMH-based services in India<sup>21-25</sup>. The procedures developed earlier for structured in-person assessment and treatment of the elderly have been converted into virtual formats. Neuropsychological assessments are also being carried out virtually. This has been an innovative and useful addition to the assessment procedure, because incorporation of neuropsychological testing in TMH-based outpatient care is considered to be particularly challenging<sup>26-28</sup>. Medication management and follow-up care also follows the standards for in-person care in the new HB-TMH service,

but is conducted entirely online. We are also attempting to introduce videoconferencing-based psychosocial interventions, e.g., structured psychoeducation for caregivers of those with dementia.

### **The profile of elderly patients attending the home-based TMH services during the pandemic**

Between 1 July 2020 to 30 June 2021, a total of 3442 new patients attended the new HB-TMH service. Of this, 477 were elderly patients aged 60 and above. Thus, the elderly with psychiatric disorders made up 14% of all the new patients attending the service. Although in terms of absolute numbers this represents a fraction of the new patients attending the in-person elderly service before the pandemic<sup>20</sup>, it is evident that the proportion of elderly people attending the new HB-TMH service is greater than those attending either the in-person service (11%), or the older version of the HB-TMH service (10%) before the onset of the pandemic. Moreover, the dedicated weekly HB-TMH clinic for the elderly has ensured that 65 % of these new elderly patients (n=308) have undergone detailed evaluations.

### **Demographic profile of elderly patients attending the HB-TMH service during the pandemic**

This is depicted in table 1. Notable features of this profile included the fact that very old patients (about 70 years of age) were being assessed by the service. A comparison with younger patients attending same service indicated three major differences. The elderly were less educated, more likely to be retired and therefore not earning, and were more likely to come from joint or extended families. The extended family background has been a particularly helpful feature because the family members have been of great help during the entire process of assessment and treatment using the HB-TMH service, particularly the conduct of the videoconferencing sessions.

### **Diagnostic profile of elderly patients attending the HB-TMH service during the pandemic**

The types of psychiatric diagnoses are shown in table 2.

Not surprisingly, the two most common groups of elderly patients were those with depression and dementia. Moreover, the profile of psychiatric disorders among our elderly patients was in keeping with the global<sup>8, 9, 12</sup> as well as Indian trends<sup>6, 29-31</sup>.

As mentioned above, every effort is being made to ensure that the assessment, treatment, and follow-up of the elderly using the HB-TMH.

**Other aspects of HB-TMH care for the elderly during the pandemic**

**Table 1: Demographic profile of elderly patients attending the HB-TMH service during the pandemic #**

Parameters		Total patients (N= 308) [Mean (SD)(Range)/ Frequency (%)
Age (years)		69.62(7.34) [60-94]
Gender	Male	158 (51%)
	Female	150 (49%)
Marital status	Currently single	65 (21%)
	Married	243 (79%)
Education (years)		9.02(6.1) [0-20]
Occupation	Employed	68 (22%)
	Retired/unemployed	240 (78%)
Residence	Urban	203 (66%)
	Rural	101 (33%)
Family type	Nuclear	89 (29%)
	Extended/Joint	219 (71%)

# The period depicted is from 1 July 2020 to 30 June 2021

**Table 2: Diagnoses of the elderly patients attending the HB-TMH service during the pandemic #**

Diagnosis	Total patients (N= 308) Frequency (%)
Depressive illness	101 (33%)
Dementia	98 (32%)
Anxiety disorders	36 (12%)
Bipolar disorder	26 (8%)
Psychotic illness	22 (7%)
Others	25 (8%)

# The period depicted is from 1 July 2020 to 30 June 2021

service is similar to in-person care. Additional elements brought in by the service include an emphasis on videoconferencing-based psychosocial interventions, electronic record keeping, hybrid care, i.e., the use of multiple modes of synchronous and asynchronous digital communication in combination with in-person care, and a crisis-plan to deal with the physical and psychiatric emergencies that are more frequent among the elderly.

**Discussion**

The adoption of TMH care has been relatively slow in developing countries like India because of several hurdles such as lack of adequate communications networks leading to poor

internet penetration and connectivity, lack of institutional support and funding, shortage of trained personnel, lack of familiarity with digital technologies among users, and limited data on the effectiveness of TMH-based treatment<sup>32, 33</sup>. Despite the recent upsurge in TMH services during the pandemic in India, the state of TMH care for the elderly with psychiatric problems is not certain<sup>14</sup>.

Therefore, running a HB-TMH service for these patients was always likely to present several challenges. We faced the usual barriers to HB-TMH care common to all age groups including restrictions in patient access, poor connectivity and audio-visual quality of videoconferencing sessions, patients' lack of

familiarity with the technology, variable patient and family motivation, and clinicians' scepticism about the utility of TMH services<sup>34</sup>. Though age and educational level present a lesser degree of difficulty<sup>35</sup>, these could have been significant obstacles among our elderly patients. The proportion of patients from rural backgrounds was much smaller, which was perhaps a reflection of poorer awareness about TMH services and unavailability of internet services in rural and remote areas. Though TMH services were originally conceived to meet the mental health needs of users in remote, rural, and inaccessible locations, it appears that they are being increasingly used in urban areas compared to rural areas<sup>32</sup>. Apart from these hindrances, there are some additional issues related to the elderly patients<sup>14</sup>. The elderly are more likely to be unfamiliar with digital technologies or have poor access to computers and smartphones. However, we found that because they came mostly from extended families, they could always rely on the help provided by the younger family members who were more used to these devices. The presence of sensory deficits makes the process of consultation more difficult compared to in-person alternatives. In many instances we had to help the patients to get adequate treatment for their sensory impairments. The inability to perform physical examinations was another major limitation that often required referral to in-person or the emergency services. The severity of cognitive impairment also interferes with the treatment process, though this was compensated to an extent by increasing the family's involvement in TMH care. Finally, physical and psychiatric emergencies are more likely in the elderly. Therefore, HB-TMH services for them must include a clearly defined plan to deal with these emergencies, and work in close coordination with the psychiatric emergency services. This feature for ensuring safety was incorporated in our HB-TMH service.

Lastly, even with this limited experience, it was apparent that there were some advantages of TMH care for the elderly in our setting. The fact that a larger proportion of them was using the HB-TMH services and that the average age of patients was about 70 years indicated that HB-TMH services were reaching out to a wider group of the elderly, particularly those with mobility and

transportation difficulties. Then again, since our programme is in its formative stages, the greatest challenge from now on would be to provide TMH care that is accessible, efficacious, safe, and acceptable to the elderly. In the final analysis, it seems that TMH care can never be a substitute for in-person care for the elderly with psychiatric problems. However, they can serve as a useful adjunct to the more traditional modes of service delivery. If the TMH services settles into this niche, they should be in a position to enhance mental healthcare for the elderly during the pandemic, as well as in the future, when it is over.

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## Chapter-1 1

### Electroconvulsive therapy: challenges faced in continuing the services during the COVID-19 pandemic

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#### Introduction

The COVID-19 pandemic affected health care services adversely. Almost all mental health services, including Electroconvulsive Therapy (ECT) services, were affected<sup>1,2</sup>. However, as the pandemic unfolded, clinicians across the globe felt the need to continue the ECT services and described the different modifications and protocols during the ECT procedure to maintain the safety of the patients and the staff<sup>3-13</sup>. Some of the modifications and the change in protocols included structural and functional changes in the ECT suite, screening patients for COVID-19 infection, adaptations during the ECT procedures (personal protective equipment, airway management, changes in the recovery room, transportation of the patient from one place to other), and ECT procedures for the management of patients with COVID-19, and reduction in aerosol generation<sup>3-11</sup>. These changes have been carried out across different countries and allowed the ECT services to be continued for needy patients.

At our institute, the ECT services were not disrupted completely for the majority of the part of the pandemic. In this article, we discuss the efforts made to continue the ECT services. A brief report of the same has been published<sup>14</sup>.

#### Immediate Impact of the pandemic

After the declaration of the first national lockdown, the ECT service for the outpatients was suspended. Only those outpatients who were started on ECT before the declaration of lockdown were allowed to come for completion of the ECT course. The ECT for

outpatients on maintenance ECT was also stopped from April to August 2020.

#### Changes made in the protocol for the continuation of ECT services

Patients receiving ECT underwent rapid transcriptase-polymerase chain reaction (RT-PCR) testing before administering the first ECT from April to August 2020. They were screened for symptoms of COVID-19 before each ECT. If any patient had a fever or respiratory symptoms, then the ECT was withheld, and they had to undergo RT-PCR and were required to be COVID-19 negative before giving ECT.

Before administration of ECT, the COVID protocol in the form of reduction in the number of staff involved in the ECT procedure, the Anaesthetist were required to use full PPEs, other team members involved in the ECT procedure used the surgical gowns, face shield, and mask during the ECT procedure. All the staff involved in the ECT procedure were asked to monitor their symptoms and self-report their symptoms, and immediately report if they came in contact with any person suspected of having COVID-19 infection or detected to have COVID-19 infection. If anyone disclosed the same, they underwent risk assessment as per the institutional protocol.

The ECT suite was sanitized after the completion of the ECT procedures for the day. All the patients and their caregivers were encouraged to maintain social distancing, hand hygiene, use masks regularly, and minimize their movement out of the ward area.

Additionally, the interaction among the patients and their caregivers with fellow

patients/caregivers was restricted. If they had interaction, they were asked to maintain the social distancing and use the three-layered mask. All the group ward activities were cancelled.

The trainee residents were posted on a rotation basis for 2-4 weeks from April to Dec 2020, after which the posting was of an extended duration of 1 to 3 months. The Anaesthesia residents were also posted on a rotation basis of 1 to 2 weeks.

Initially, the ECT was continued thrice weekly on Monday, Wednesday, and Saturday, but from May 2020, the ECT days were changed to Tuesday, Thursday, and Saturday. This was done due to the logistic reasons for the anaesthesia team.

### **Mandatory RT-PCR before each ECT**

The outpatients were again considered for ECT from September 2020 onwards. However, after this, all patients receiving ECT had to undergo RT-PCR testing before each ECT as the hospital protocol required testing negative for COVID-19 on RT-PCR in the previous 48 hours before undergoing any surgical or aerosol-generating procedure.

The patients and the caregivers of patients coming for ECT on an outpatient basis were explained about the precautions to be taken with respect to interaction and preferably use their transport rather than public transport.

### **Impact of the Pandemic on the ECT services**

To understand the impact of the pandemic, the data of the number of patients who received ECT during the period of 23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2020 was compared to those who received ECT during the period of 23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021.

It was seen that there was a significant reduction in the number of patients who received ECT during the pandemic period. Compared to the 312 patients receiving ECT during the period of 23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2020, only 90 patients were administered ECT during the period of 23<sup>rd</sup> March 2020 to 22<sup>nd</sup> March 2021. This meant that only about one-fourth (28.84%) of the patients were started on ECT when compared to the corresponding time frame in the previous year (Table-1). The reduction was

consistent for all the months when the data were compared on month-to-month basis (Table-1).

When the demographic and the clinical profile of the patients who received ECT during the two-time frames were compared, few significant differences were noted (Table-2). The important differences included a higher proportion of patients receiving ECT during the pandemic being inpatients, having a history of receiving ECT in the past, currently receiving clozapine, and a higher proportion of the patients receiving more than 6 ECTs. During the pandemic, only a small proportion (n=4; 4.4%) of patients receiving ECT tested positive for COVID-19 infection on the RT-PCR. An important fact to note was that all these patients were administered > 6 ECTs at the time of being tested positive for COVID-19 and all of them were asymptomatic for COVID-19. These patients tested positive for COVID-19 at different time-frame, indicating that there was no spread of infection from one patient to the other. When attempts were made to trace the source of infection, the source was traced to the staff not involved in the ECT procedure.

Patients who tested positive were sent for home isolation and were monitored on a regular basis by teleconsultations. All these patients improved without any complications. Only once throughout the year, ECT services were suspended for a week.

### **Major Challenges faced**

The major challenges involved in continuing ECT services included training of the staff, and ensuring that the precautions were followed by the patients and the caregivers. Due to the frequent changes in the staff in the initial phase of the pandemic, the residents from both the Departments of psychiatry and Anaesthesia would require orientation to the existing protocols. Additionally, getting the RT-PCR test was a major challenge. Initially the test would be done for the outpatients from the emergency setting of the hospital. However later due to the logistic reasons this was not possible. Hence later the testing was done for all the patients (both inpatients and the outpatients) in the psychiatry ward premises; this streamlined the process and ensured that the ECT procedure was not cancelled because of the lack of RT-PCR report.

**Table-1: Number of Patients started on ECT during the period of 23<sup>rd</sup> March 2019 to 22<sup>nd</sup> March 2021**

Time Frame	Number of ECTs 2019-20 N= 312	Number of ECT 2020-21 N= 90
23 <sup>rd</sup> March to 22 <sup>nd</sup> April	32 (10.25%)	4 (4.44%)
23 <sup>rd</sup> April to 22 <sup>nd</sup> May	28 (9%)	7 (7.8%)
23 <sup>rd</sup> May to 22 <sup>nd</sup> June	24 (7.7%)	7 (7.8%)
23 <sup>rd</sup> June to 22 <sup>nd</sup> July	19 (6.1%)	5 (5.55%)
23 <sup>rd</sup> July to 22 <sup>nd</sup> August	21 (6.73%)	10 (11.1%)
23 <sup>rd</sup> August to 22 <sup>nd</sup> September	26 (8.33%)	9 (10%)
23 <sup>rd</sup> September to 22 <sup>nd</sup> October	30 (9.6%)	11 (12.2%)
23 <sup>rd</sup> October to 22 <sup>nd</sup> November	21 (6.56%)	9 (10%)
23 <sup>rd</sup> November to 22 <sup>nd</sup> December	24 (7.7%)	2 (2.22%)
23 <sup>rd</sup> December to 22 <sup>nd</sup> January	27 (8.65%)	7 (7.8%)
23 <sup>rd</sup> January to 22 <sup>nd</sup> February	32 (10.25%)	14 (15.55%)
23 <sup>rd</sup> February to 22 <sup>nd</sup> March	28 (9%)	5 (5.55%)
Total number of patients who received ECT	312	90

The Department of Anaesthesia supported the services wholeheartedly. For challenging cases, which required more intensive monitoring, the Department of Anaesthesia ensured the continuation of ECT services in the emergency operation theatre complex. Further, when the

anaesthesia workstation of the Department of Psychiatry went out of order, the Department of Anaesthesia ensured the continuation of ECT services in the emergency operation theatre complex.

**Table-2: Comparison of sociodemographic and clinical profile of those with and without post-ECT delirium**

Variables	19-20 N=312	20-21 N=90	Chi-Square test/t-test (p-value)
<b>Age</b>	43.9 (15.73)	44.2 (17.11)	0.16 (0.86)
<b>Age groups</b>			
< 60 years	240 (76.9%)	64 (71.11%)	1.28 (0.25)
≥ 60 years	72 (23.1%)	26 (28.88%)	
<b>Gender</b>			
Male	161 (51.6%)	48 (53.33%)	0.681 (0.41)
Female	151 (48.4%)	42 (46.67%)	
<b>Socioeconomic status</b>			
Low	36 (11.53%)	5 (5.55%)	5.511 (0.06)
Middle	256 (82.05%)	74 (82.22%)	
High	20 (6.41%)	11 (12.22%)	
<b>Education (in yrs)</b>	10.82 (4.71)	11.73 (4.48)	-1.63 (0.10)
<b>Source</b>			
Inpatient	119 (38.14%)	76 (84.44%)	59.98 (<0.001 ***)
Outpatient	193 (61.86%)	14 (15.56%)	
<b>Diagnosis</b>			
Schizophrenia	66 (21.15%)	23 (25.55%)	0.78 (0.37)
Bipolar Disorder	53 (17%)	8 (8.88%)	3.55 (0.059)
Depression	77 (24.67%)	16 (17.78%)	1.87 (0.17)
Recurrent depressive disorder	97 (31.1%)	34 (37.77%)	3.59 (0.058)
Acute & Transient Psychosis	2 (0.64%)	-	FE= 1.00
Psychosis NOS	3 (0.96%)	3 (3.33%)	FE=0.128
OCD with Depression	4 (1.3%)	-	FE=0.57
Schizo-affective	6 (1.9%)	3 (3.33%)	FE=0.42
Organic psychosis	4 (1.2%)	2 (2.22%)	FE=0.61
<b>Physical comorbidities</b>			
Diabetes Mellitus	12 (3.84%)	3 (3.33%)	0.051 (0.82)#

Hypertension	25 (8.01%)	13 (14.44%)	3.37 (0.066)
Hypothyroidism	15 (4.8%)	10 (11.11%)	4.75 (0.029)*
Coronary artery disease	1 (0.32%)	1 (1.11%)	FE=0.39
Bronchial asthma	2 (0.64%)	-	FE=1.00
Chronic obstructive pulmonary disease	1 (0.32%)	-	FE=1.00
More than one	41 (13.14%)	23 (25.55%)	8.04 (0.005)**
Others	106 (33.97%)	10 (11.11%)	17.78 (<0.001)***
<b>Medical comorbidities</b>			
None	109 (34.93%)	30 (33.33%)	0.08 (0.78)
Present	203 (65.1%)	60 (66.66%)	
<b>Reasons for giving ECT</b>			
Poor response to medications	226 (72.43%)	62 (68.88%)	0.263 (0.60)
Medications contraindicated	11 (3.5%)	1 (1.11%)	1.38 (0.24)
Poor Oral Intake	92 (29.5%)	17 (18.88%)	3.77 (0.05)*
Suicidality	146 (46.8%)	40 (44.44%)	0.09 (0.76)
Require early response	189 (60.57%)	48 (53.33%)	1.34 (0.25)
ECT considered as the treatment of choice	141 (45.2%)	29 (32.22%)	4.51 (0.03)*
Catatonic Symptoms	40 (12.8%)	13 (14.44%)	0.19 (0.66)
Psychomotor retardation	47 (15.1%)	16 (17.78%)	0.44 (0.51)
<b>History of receiving ECT</b>	97 (31.08%)	46 (51.11%)	12.8 (<0.001)***
<b>Response to ECT in the past</b>			
Satisfactory	91 (93.8%)	46 (100%)	2.99 (0.083)#
Non-satisfactory	6 (6.2%)	0	
<b>Antidepressants</b>			
Venlafaxine	57 (18.26%)	14 (15.56%)	0.35 (0.55)
Mirtazapine	9 (2.81%)	4 (4.44%)	0.16 (0.69)#
Fluoxetine	21 (6.73%)	3 (3.33%)	0.89 (0.34)#
Bupropion	6 (6.2%)	3 (3.33%)	0.15 (0.69)#
Escitalopram	50 (16.02%)	22	3.36 (0.066)
Imipramine	-	1 (1.11%)	FE=1.00
Sertraline	15 (4.8%)	-	3.25 (0.07)#
TCA	20 (6.41%)	10 (11.11%)	2.23 (0.13)
SSRI	11 (3.5%)	3 (3.33%)	0.008 (0.93)
None	114 (36.53%)	28 (31.11%)	0.901 (0.34)
<b>Mood stabilizers</b>			
Lithium	30 (9.61%)	8 (8.88%)	0.043 (0.83)
Valproate	11 (3.5%)	1 (1.11%)	0.69 (0.40)
Lamotrigine	1 (0.33%)	-	FE=0.22
Carbamazepine	0	1 (1.11%)	FE=1.00
None	270 (86.53%)	80 (88.9%)	0.34 (0.55)
<b>Antipsychotics</b>			
Risperidone	8 (2.56%)	3 (3.33%)	0.15 (0.69)
Olanzapine	124 (39.74%)	34 (37.77%)	0.11 (0.73)
Quetiapine	38 (12.17%)	11 (12.22%)	0.00 (0.99)
Clozapine	29 (9.29%)	17 (18.88%)	6.34 (0.011)*
Aripiprazole	11 (3.5%)	5 (5.55%)	0.31 (0.57)
Trifluoperazine	2 (6.41%)	-	FE=1.00
More than one	8 (2.56%)	-	FE=0.20
None	92 (29.48%)	20 (22.22%)	1.83 (0.17)
<b>Benzodiazepines</b>			
None	139 (44.55%)	43 (47.77%)	0.29 (0.58)
Lorazepam	78 (25%)	10 (11.11%)	7.88 (0.005)**
Clonazepam	87 (27.88%)	35 (38.88%)	4.00 (0.04)*
Nitrazepam	-	1 (1.11%)	FE=0.22
Zolpidem	-	3 (3.33%)	FE=0.01**
Others	-	6 (6.66%)	FE<0.001***
<b>Anticholinergics-yes</b>	10 (3.2%)	2 (2.22%)	0.017 (0.89)
<b>ECT Parameters</b>			
Mean charge (millicoulombs)	210.34 (118.24)	232.79 (150.78)	-1.376 (0.17)



Mean seizure duration (seconds)	34.84 (16.15)	33.75 (34.03)	0.38 (0.70)
Mean energy	35.36 (27.53)	59.51 (87.21)	-2.58 (0.01**)
Mean number of ECTs	7.96 (5.01)	9.09 (5.01)	-1.86 (0.06)
<b>Number of ECTs</b>			
1-3	16 (5.12%)	8 (8.88%)	27.83 (<0.001)***
4-6	136 (43.58%)	22 (24.44%)	
7-9	90 (28.84%)	23 (25.55%)	
10-12	34 (10.89%)	16 (17.77%)	
> 12	36 (11.53%)	17 (18.88%)	
<b>Number of ECTs</b>			
≤ 6	150 (48.1%)	30 (33.33%)	6.14 (0.013)*
> 6	162 (51.9%)	60 (66.66%)	
<b>Number of patients started on maintenance ECT</b>	8 (2.56)	3 (3.33)	0.001 (0.97)
<b>Overall Improvement</b>			
< 25%	4 (1.3%)	2 (2.22%)	2.79 (0.43)
25-50%	20 (6.41%)	2 (2.22%)	
> 50%	288 (92.3%)	86 (95.5%)	
<b>Reasons for stopping ECT</b>			
Response plateau in last two ECTs	284 (91.02%)	84 (93.33%)	0.48 (0.48)
Complications	4 (1.28%)	2 (2.22%)	FE= 0.61
Contraindicating further ECT	10 (3.2%)	2 (2.22%)	0.017 (0.89)#
No improvement	8 (2.56%)	2 (2.22%)	0.03 (0.85)
Withdrew consent	6 (6.2%)	-	0.69 (0.43)

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## Chapter-12

### Experience of providing Psychosexual clinic services through Telemode

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COVID-19 pandemic and the subsequent lockdown led to closure of routine outpatient services both in government as well as in private sector<sup>1,2</sup>. Soon, to cater to the needs of the patients, at our centre too telepsychiatry facilities were developed, in parallel with the similar developments across the country<sup>3-5</sup>. Telepsychiatry services of the Department of Psychiatry, PGIMER, Chandigarh picked up the pace in providing consultations since the early weeks of May 2020 and very soon became the major source of providing mental health care to the patients with mental illnesses connecting to our centre from various parts of India. The online services were developed in line with the existing in person services prior to the nationwide lockdown. Initially patients were evaluated by a Senior Resident by voice/video calls and were started on the treatment. After the initial evaluation, the patients were given a date for the detailed evaluation. Then the patients were evaluated in detail by a Junior Resident and discussed with the consultant. The evaluation by the Junior Resident was done by voice/video calls. However, the detailed evaluation by the consultants was done by the video calls, which could be recorded with the consent of the patients. Subsequent follow-ups are done by the Residents and the Consultants by voice/ video calls.

The Department of Psychiatry, PGIMER, Chandigarh had been running various specialty clinics as part of the outpatient services. Marital and Psychosexual clinic (MPC) of the department caters to the marital and sexual issues of the patients. Patients with sexual problems and marital discord are registered in

the MPC clinic at the walk-in level and subsequently undergo detailed evaluation and treatment.

Providing psychiatric consultations for psychosexual problems through the Telemode was a unique experience. We anticipated that patients may not be comfortable in discussing about their sexual problems while being evaluated through the tele-consultations. Further, we were unsure whether the patients would give consent for the video recording of the sessions. In contrast to our anticipation, we found that patients were comfortable in discussing their psychosexual issues through the Telemode and were not averse to providing informed consent for recording of the tele-consultation sessions, when approached. Another, unique experience was about the marital discord. In few cases of marital discord, although the partners had temporarily separated, they were prepared to join for the conjoint sessions through the tele-consultation mode from different locations. In some of the therapy sessions it was also possible to make partner join first and the second partner later on, so that they could be heard separately too.

In terms of discussing the psychosexual issues over the Telemode, our experience suggests that the patients were not uncomfortable about discussing their sexual issues with the treating resident/consultant through the Telemode. There was no difficulty in building rapport and patients provided information about the sexual issues without any hinderance, which is usually delayed unless rapport is built up in physical visits. Moreover, some patients would go to a secure place (roof top, park, away from their home)

while attending the teleconsultations for sexual problems, which denotes stigma or fear about being open to sexual discussion. Such patients usually do not prefer to come to physical outpatient services because of the above-mentioned reasons and telepsychiatry MPC consultations made it possible for them to avail the services. Another one important advantage of providing MPC services through the Telemode was availability of the partner in the discussion/therapy sessions which is often difficult in the physical outpatient services, because of the feasibility issues. The female partners were also quite comfortable during the MPC teleconsultations and actively participated in the assessment and therapy sessions, because they were being assessed at their home environment. Another interesting fact which emerged was that the patients from far distance availed the services, who could never have come to the clinic, if the services were provided only by physical attendance to the outpatient services.

After the case discussion and reaching to a final diagnosis, pharmacotherapy and psychotherapeutic interventions were planned for the patient. Therapy sessions were also conducted by the residents under supervision of the consultants through Telemode for different psychosexual problems such as Master and Johnson's techniques for erectile dysfunction, behavioural techniques (Start-stop and Squeeze techniques) for premature ejaculation, detailed psycho-education for the Dhat syndrome, and relaxation exercises etc. For some sessions, images and videos were used to psychoeducate the patient and their partner about the techniques to be used. Some of the patients, undergoing behaviour therapy for psychosexual problems were followed up and interviewed by the consultant every fortnightly along with the resident to monitor the progress, to identify lacunae/pitfalls in the therapy sessions (if any) and enquire about any emerging new issues. All these proved to be quite beneficial as direct supervision as well as active learning of the residents on treatment of various psychosexual problems took place simultaneously. This was possible because of the flexibility of timings, which were acceptable to the treating team and the

patient. It was also noted that incorporation of teleconsultations led to better follow ups of patients with erectile dysfunction and premature ejaculation as compared with physical OPD consultations.

When we compared the data of 24<sup>th</sup> March 2020 to 23<sup>rd</sup> March 2021 (Pandemic time frame) with that of 24<sup>th</sup> March 2019 to 23<sup>rd</sup> March 2020 (one year before the onset of pandemic), it was seen that the number of MPC cases in the walk-in drastically reduced to 112 from 307. However, when the proportion of the MPC cases vis-a-vis the total number of walk-in (24<sup>th</sup> March 2019 to 23<sup>rd</sup> March 2020: 307 out of 15420 = 1.99%; 24<sup>th</sup> March 2020 to 23<sup>rd</sup> March 2021: 112 out of the 3203 = 3.49%) was evaluated, there was 1.75 times increase in the number of patients with MPC problems who sought help when the services were provided by the Telemode. Of the 112 walk-in, only 46 (41.07%) patients could be assessed in detail while the services were provided through the Telemode, which was significantly higher as compared to the data of previous year for the same time frame. This increase in percentage of cases could be a result of impact of the pandemic, as has been suggested by the findings of various online surveys, which suggest there was increase in the psychological distress and the pandemic also had an impact on the sexual functioning<sup>6</sup>. In terms of profile of the patients, when the data of pandemic timeframe was compared with the data of the previous year for the corresponding timeframe, it was seen that when the services were provided through Telemode there was increase in the proportion of the patients who were younger, females, from urban locality and being referred by self/caregiver. Further, the mean distance in terms of kilometres was also longer during the pandemic timeframe, suggesting that patients from far off could connect with the clinic.

In terms of specific diagnosis, as compared to the year prior to the pandemic, during the ongoing pandemic, significantly higher proportion of patients were diagnosed with PME and comorbid PME and ED.

However, we also felt that providing services only by Telemode had certain disadvantages. This included difficulty faced by the patients

to register with the services, especially, those referred from other departments. Further, in the informal discussions the faculty colleagues from other departments also agreed that they have stopped referring the patients, because of their assessment of the patients' problems to be of non-serious or not of acute nature which require urgent attention.

Further, some patients could not follow up or faced difficulty in connection during teleconsultations due to poor network

coverage at their side, lack of technical knowledge and found telemode to be cumbersome despite providing adequate information about the same.

Despite all these challenges, the experience of providing care for psychosexual problems through telemode can be said to be quite fruitful and it is expected that after the pandemic, shifting to a hybrid mode would enhance the reach of the marital and psychosexual clinic.

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## Chapter-13

### Attempts to reorganise community service during the ongoing pandemic

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The emergence of an outbreak of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2), also known as COVID-19, has created a panic worldwide<sup>1</sup>. The World Health Organization (WHO) recognised it as a public health emergency of international concern on January 30, 2020. The rapid spread worldwide led the WHO to declare COVID-19 as a pandemic on March 11, 2020. Following this on March 24, the government of India declared a complete lockdown across the country to prevent the spread of the virus. The COVID-19 posed an additional risk on the health and social system, especially for those already suffering from psychological problems and living in rural areas, as lockdown led to complete closure of the community mental health services at most places<sup>2</sup>. The pandemic also presented a serious threat to the continuity of treatment for the patients with various psychiatric illnesses.

Before the pandemic, Department of Psychiatry, PGIMER, Chandigarh, was running community outreach clinics four times a week (i.e., on Tuesday, Wednesday, Thursday and Saturday) at different places in Haryana and Punjab. On Tuesdays of every week, our team (which included a Junior Resident, a Senior Resident, a Medical Social Worker and a consultant) were going to Raipur Rani (Haryana) at the Community health services. We were seeing 7-10 patients/day and evaluated 244 patients in the year 2018-19. Every Wednesday, our team used to provide community outreach service at Naraingarh, a sub-district hospital in Haryana, about 70 km from our centre. Besides the usual team members, for this centre, a team from the drug deaddiction centre would also accompany the psychiatry team to examine the patients. As per the available data for the

year 2018-19, our team examined 712 patients. The number of patients increased tremendously at Naraingarh, and before the pandemic, our team examined 100-120 patients/day. On Thursdays and Saturdays, our team was going to Kharar and Nandpur Kalor, respectively, in Punjab. In Kharar, our team has been providing community outreach services from the civil hospital. In years 2018-19, our team evaluated 212 patients. The department of psychiatry adopted Nandpur village to provide door-to-door services. The primary aim of this service is to assess the villagers for psychiatric disorders and educate them about psychiatric problems, including substance-related disorders. In the year 2018-19, a total of 126 patients were identified by our team. Apart from providing clinical services, our team did awareness camps and programs on the occasions like World Mental Health Day and Tobacco Day to make society aware of the mental health issues and the available treatments. Apart from that, with the help of local organisations and health workers, our team identified patients with severe mental illnesses who were homeless, had poor social support or were homebound; we provided treatment to these patients at their homes.

After the lockdown, all the community mental health services were closed, and this presented a formidable challenge for continuity of care at the community level.

#### Reshaping of community services in the COVID-19 Era

Our team considered a spectrum of service delivery options, including in-person care at the community level with appropriate preventative measures; clinic-based care in a larger room that allowed physical distancing;

clinic-based telehealth, in which the client could be accommodated in a private clinic office for a telepsychiatry session with their provider; clinic-based care in a standard office in a manner consistent with local public health guidelines; and telehealth encounters with clients at their home or in the community by using smartphones.

Clinical based in-person services or care in a larger room with physical distancing was not feasible for our team as transportation services were at a halt and the community clinics were transformed into specialised COVID care centres. Hence, our team stopped going to the above centres to provide in-person care. Second option which we considered was providing service through telephone or mobile. For this, we traced the contact details of the patients from the patient's record. While doing so, we found out that majority of the patients did not provide their personal contact details, and some of them provided numbers that were either not in an operational mode or were wrong. Further, when some of the patients were contacted, we realised that the patients were not educated enough to deal with the various platforms like zoom. Although we tried to provide consultation by using WhatsApp, but it had its limitations in the form of poor connectivity, and even though the prescriptions were generated, the patients were either not able to procure the same from the local centre or purchase the same from the market due to various logistical reasons. We also tried to communicate with the local health team (community clinic) but had major limitations that these centres were not upgraded to provide tele healthcare and to start such services required due permission from higher authority.

With all these limitations/obstacles, telepsychiatry was the only option that could bridge the gap. We evaluated various telepsychiatry models like SCARF telepsychiatry in Puddukottai (STEP) model, The Ganiyari model, Hub and spokes model, Clinical based decision-making model, E-learning, etc.

Our team decided to start telepsychiatry services with Hub and Spoke model. The Hub and Spoke model was started by the National Institute of Mental health and Neurosciences (NIMHANS), Bangalore, and continued to date, even during the pandemic.

The “hub” was named for the centres that would provide the services, and their outreach centres are understood as “spokes”<sup>3</sup>. Accordingly, in this model, community health clinics like Naraingarh and Raipurani will act as outreach centres (spokes). Our centre, i.e., the Department of Psychiatry, PGIMER, will be a hub. In this model, the first contact will be made to the health professional at the spokes, and they will discuss the clinical issues with the psychiatrist at the hub. The consultation with the hub psychiatrist will be scheduled based on the clinical details and demographics sent by the mental health professional from the spoke. The average duration of the consultation will be 10–15 minutes. The main obstacle to us can be lack of infrastructure, active participation of the government of Haryana and Punjab, and the interest of the professionals working at spokes. Our team is in discussion with the government of Haryana and Punjab to execute this plan as early as possible in view of providing feasible, accessible, regular and affordable services to the patients at distant places.

During the COVID-19 pandemic, our community psychiatry team was actively involved in the IEC activities at the community level. Our community psychiatry team prepared the document on information, education and communication (IEC) activities uploaded on PGI Website. These activities inform people about the common mental health problems, the preventive measures for COVID-19 and the association of COVID-19 with mental health. The community psychiatry team prepared the psychological self-help document in collaboration with other centres under the aegis of the Indian Psychiatry Society (IPS) Community psychiatry team. The community psychiatry team prepared the videos and documents for the patients and uploaded them on social sites such as YouTube. Community psychiatry team collaborated with other health professional groups to take care of patients with COVID-19 and contacted the patients' family members in case of crisis or perceived mental health issues.

During the COVID-19 pandemic, a consultant of the community psychiatry program was a member of the Institute COVID-19 IEC committee. The inputs were based on the experiences in the community services. The community psychiatry team

prepared documents on information, education and communication (IEC) activities which were hosted on the PGI Website. These activities were aimed at informing people about the common mental health problems and the preventive measures for COVID-19 and the association of COVID-19 with mental health. The community psychiatry service also prepared a psychological self-help document for patients in isolation and quarantine. The community psychiatry team prepared the videos and documents for the patients and uploaded them on social sites such as YouTube. Community psychiatry team collaborated with other health professional groups to take care of patients with COVID-19 and contacted the patient's family members in case of crisis or perceived mental health issues.

### Conclusion

The COVID-19 emerged as a national crisis, which led us to reshape community services to provide better care for people with psychiatric disorders. For mental health services, lack of visibility on the crisis impact on mental health and difficulties in defining their place in the overall health strategy appeared as the main challenges to overcome. Any strategy developed must ensure that every person enjoys the highest attainable standard of physical and mental health. In this context, we think that telepsychiatry appears as a ray of light at the end of the deplorable tunnel.

The lesson which we have learnt during the pandemic is that it psychiatric services at the local level through teleconsultation and organize for the availability of adequate services.

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## Chapter-14

### Psychiatric social work services during COVID-19 pandemic

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#### Introduction

The outbreak of the Coronavirus Disease-2019 (COVID-19) has caused significant changes in the lifestyle of humans globally. Among the most discussed topics during this pandemic has been the adverse impact of the pandemic on the mental health and required psychosocial interventions to address the same. Immediate adaptation to a new lifestyle was a challenge, especially for the vulnerable population. Social distancing and uncertainty in economic, academic, and social activities had a catalytic effect for adverse mental health outcomes. Studies report that the general public displayed symptoms of depression, anxiety and stress related to COVID-19 as a result of disruption in the routine activities, fear of illness, fear of adverse economic condition and other lockdown measures<sup>1,2</sup>. This high prevalence of poor mental health outcomes suggested the need for psychosocial interventions.

#### Psychosocial issues and need for interventions

By definition, psychosocial care intervention refers to the “comprehensive interventions directed at addressing psychosocial and mental health problems due to COVID-19 outbreak”<sup>3</sup>. It alleviates the perceived and actual stress and prevents adverse psychological and social consequences. In a pandemic situation such as COVID-19, it is a great challenge to provide psychosocial interventions, be it individual, group or family therapy through online mode even though it is an absolute necessity.

#### Psychosocial problems during COVID-19: a case presentation

Mrs. K, a home maker, belongs to a middle socio-economic status, from a rural background. Her husband, working as a hotel attender, recently lost his job due to the lockdown in their place. The husband became frustrated as he could not find another job and due to the prevailing financial constraints in the family. He gradually started to remain aggressive towards his wife. Initially, it was about the comments on her inefficiency in cooking delicious meals, but later he started being critical in everything she was doing. Besides, he started taking the locally available liquor frequently. This contributed to further stress in the family, and gradually she started to remain sad and withdrawn from most of the activities. It became difficult for her to take care of her 8-year-old hyperactive child.

This is a case where psychosocial interventions are needed at both individual as well as family level. The problems or basically the needs of this family are:

- Occupational need – the person lost his job and the distress associated with the same
- Financial needs – already existing financial constraints in the family
- Hyperactivity in child – already existing condition. Later parents couldn't pay attention to child and it may exacerbate the symptoms
- Substance use – leading to further exacerbation of the existing stressors
- Family interaction – strained interpersonal relationship among the couple

The individual interventions that can be offered include:

- Address the stress reactions as “normal reaction to an abnormal situation”
- Encourage the person (husband) to explore the new sources of income



- Provide information on available Government / Voluntary agency support and resources
- Help husband to change his maladaptive coping strategies to adaptive one and enhance the coping skills
- Interventions / referral for husband's substance use

To address the interpersonal relationship issues among couple, a family intervention focusing on altering the interaction pattern is essential. However, the question is, how can the therapist provide these individual or family interventions when COVID-19 situation does not allow any sort of in-person meetings? Is it possible for the therapist to assess and deliver the appropriate and adequate interventions via online / tele mode? What are the precautions that should be taken care of? Are there any guidelines available?

A proper guideline is desirable for using any kind of technological aids while providing psychosocial interventions. The Guidelines for Tele-Psychiatric Social Work Practice published by Department of Psychiatric Social Work & Tele-medicine, NIMHANS in association with India Network of Professional Social Workers' Associations (INSPSWA) gives directions in this regard.<sup>4</sup> In general, tele-sessions are to be offered completely online (Audio, Video, Text or a combination) or with in-person services as seems fit to the situation existing then. A tele-session may comprise of sessions of case management, group intervention, family intervention, crisis intervention, community work conducted using technological tools, which is documented and is of the same duration as in-person sessions. But prior to initiating any session, a decision about the suitability of the client/ family for the tele-session is required. This can be made either by in-person evaluation or via tele mode. Tele-sessions for a client who is having intense suicidal ideations or a tele family therapy session for a family reported with significant physical aggression might not sound as a good plan. A referral to the emergency service would be the best strategy in such critical situations. But if the client/ family is suitable for tele-sessions, further sessions can be planned after obtaining the informed consent. If the therapist decides

to conduct tele-sessions, then the client's knowledge about the use of technology should be evaluated and a brief demonstration session may be helpful.

### **Psychiatric Social Work Services at PGIMER during COVID-19**

In the aftermath of the country wide lockdown, the in-patient services in the Department of Psychiatry (Adult Psychiatry, Child Psychiatry and Drug De-addiction & Treatment Centre [DDTC]) were impacted. Admissions were totally stopped or restricted; OPD services later resumed through tele-mode. Considering the COVID-19 protocols and precautions, the strength of Psychiatric Social Workers (PSW's) at the Psychiatry and De-addiction OPD were reduced to half and they were attending the duties in turns. In the earlier days, PSW's were doing only socio-demographic profile assessments via mobile phones allotted to them. Later, a Standard Operating Procedure for tele-PSW interventions was prepared, following which PSW's started offering psychoeducation, supportive interventions and family interventions apart from making referrals for disability certificate, job placement assistance and resource mobilizations. Psychiatric Social Workers and consultant contributed to the development of family intervention guidelines with the tele-counselling service through video conferencing initiated at DDTC. They also formed an integral part of the stepped care model in tele-addiction clinic at DDTC<sup>5</sup>. Community outreach programs (camps) at PHC / CHC's and the periodical IEC programs organized in collaboration with voluntary agencies in villages, schools/colleges and industries had to be stopped temporarily. The group therapies offered for the Dual Diagnosis and opioid substitution therapy (OST) patients by the PSW's also had to be suspended. The orientation programmes offered to Department of Social Work and allied sciences could not be organized after the outset of COVID-19 pandemic.

### Opportunities and challenges for tele-mode psychiatric social work services

The pace of the vaccination drive is picking up in the country. Normalization and restarting of the full-fledged routine activities at OPD, Wards and Community may take some more time. However, the tele mode of Psychiatric Social Work interventions started during the COVID-19 period is going to stay due to the following factors:

1. Tele mode (mobile, video) of psychiatric social work practice provides an opportunity for reaching and providing interventions to patients and families from remote areas of the country and outside.
2. To some extent, due to tele mode option, PSW's can understand the family situation of the patients without having to make a home visit for the same
3. Flexibility of time beyond working hours agreeable to both patient / families and the therapist is a possibility.
4. Travel, waiting time and financial gains are involved in the tele-mode interventions
5. COVID-19 pandemic has opened up the possibility of conducting IEC programmes by PSW's via ONLINE mode using various available platforms. Familiarity of school / college children with online teaching modes enhances its scope.

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6. Tele-group therapy program for the OST / Dual Diagnosis patients and online support groups are a possibility.

However, the tele-mode interventions are not completely free of drawbacks; a few are mentioned here:

1. Poor quality of internet services especially in the rural areas is a major challenge
2. Unfamiliarity with electronic devices and the logging in/out practices are complicated for some of the clients
3. Ensuring the confidentiality and privacy is a concern that can hamper proper assessment resulting in poor quality interventions.

### Future directives and conclusion

The COVID-19 pandemic necessitated exploration of alternative ways such as tele-PSW interventions to continue the psychiatric social work services. The extent of psychosocial distress among people and the measures available to overcome these distresses need to be studied thoroughly to develop newer strategies to deal with psychosocial problems in the context of any mass-scale contagious disease outbreak or similar disasters in the future. Definite assessments and systematic interventions will help to deal with such issues to certain extent.

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## Chapter-15

### Virtualisation of academics

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#### Academics take a backseat & a tryst with asynchronous tele-academics

The Department of Psychiatry at PGIMER is known for its structured, rigorous and high-quality academic program since its inception almost six decades ago. The Department runs a postgraduation course in Psychiatry (MD), super-specialisation courses in Addiction Psychiatry (DM AP), Child and Adolescent Psychiatry (DM CAP), as well as a post-doc fellowship in Consultation Liaison Psychiatry (CLP). It has approximately a total of 40 trainees at any given point of time. For each of the courses, the departmental manual chalks out a detailed semester-wise distribution of topics that are covered through lectures, tutorials and departmental seminars. Other than that, the Department holds case conferences, journal clubs, psychosomatic meets, research forums and psychotherapy group discussions to provide an enriching and wholesome training to its residents. The lectures are delivered by the Faculty, whereas the other academic activities usually involve presentations made by residents under the guidance of a faculty member. Also, several of the teaching sessions are attended by non-resident members of the Department including clinical psychologists, psychiatric social workers, nursing students and their teaching staff, PhD scholars and research workers. Overall, there is a rich mix of didactic, facilitative and interactive teaching and learning methods.

In March 2020, with the lockdown imposed, all academic activities in the Institute were suspended in keeping with the guidelines for physical distancing<sup>1</sup>. The focus shifted completely to prioritising and re-organising clinical services, with several residents and

other staff posted in COVID areas. For the first few weeks, everyone was adjusting to the situation at not only a professional, but also at a personal level. Training, and more specifically, academics had taken a completely backseat. Around that time, the idea of 'asynchronous' resumption of academics was floated by senior faculty members. Even prior to the lockdown, hand-outs for seminars and case conferences (without specific patient details) were circulated via electronic mail (email) to all the academic members of the Department. It was decided that the concerned resident should email the power-point presentation of the seminar along with the handout. All members were requested to go through the presentation and ask questions, seek clarifications or make comments – all of course by email, within 48 hours of the receipt of the mail. The decision to resume in whatever manner we could was mainly to reduce the impact (even if to a slight degree) on the training, and to bring back some degree of normalcy. Case conference presentations were not circulated as discussing cases in this manner with back-and-forth clarifications might have been too cumbersome. Also, a very central component of a case conference – the patient interview – would not have been possible.

#### So how did this tryst with tele academics go?

The response to mailed seminars was quite lukewarm, with only a couple of active participants. The time lag between comments/questions and their replies could not hold the interest of the those very few who actually showed the interest. It was very doubtful if the others had actually gone through the

presentations that were made so painstakingly. The presenter (maker and sender for then) and the chairperson were bound to feel discouraged. So, the lack of time-boundness of the discussion and sparse participation from the recipients made it clear that it was not possible to maintain the interactive nature of the discussion via emails.

### **Decision to virtualise - go live**

By the end of April 2020, it was quite clear that COVID and the resultant restrictions were to stay. The academic semester ended in mid-May, so there was time to think, plan and prepare for the academics commencing from mid-July.

### ***A small experiment – Drawing lessons from Departmental Telepsychiatry experience***

Till 2017-18, the Department had garnered experience in telepsychiatry, mainly through an extensive research project (that involved development of a clinical decision support system)<sup>2</sup> and preliminary clinical services in asynchronous form, i.e., by replying to emails received from other psychiatrists in the district hospitals of Punjab. During 2017-18, we conducted virtual grand rounds (case-based discussions) with those psychiatrists under the PGIMER-Punjab ECHO clinics<sup>3</sup>. It involved a case/ vignette presentation and discussion using shared PowerPoint presentation and live interaction amongst 20-25 participants. Subsequently, we ran a multi-point videoconferencing project that involved group sessions over 10 weeks with 6-10 families of children having ADHD, using licensed version of the Zoom platform<sup>5</sup>. The parents logged in from their homes or offices, and the therapists from our Telepsychiatry centre<sup>4</sup>. These sessions again involved live interaction and screen sharing (for presentation). On the heels of these developments, we started with synchronous Telepsychiatry services for our long-standing, follow-up patients (one to one videoconferencing). The clinician uptake was dismal (pre-COVID) [submitted for publication], as must have been described and discussed in another chapter. However, with these small but definite developments, we had

gathered experience in conducting group sessions on Zoom portal, generating and holding meetings, employing security measures (such as using auto-generated passwords for each meeting, locking the meeting, etc.), using multimedia during sessions, and most importantly, basic videoconferencing etiquettes and dos/ don'ts! Based on this experience, a small experiment was conducted. A Faculty member working in Telepsychiatry proposed that she can deliver her pre-scheduled lecture via multi-point videoconferencing using the licensed account. With the approval of the HOD, all the Junior residents were instructed to download the Zoom application on their devices, i.e., personal desktops, laptops, tablets or smartphones. The telepsychiatry staff co-ordinated the conduct of the meeting, i.e., generating meeting id, communicating via group email to all participants and holding the meeting. Though it seemed like a fun experiment at that time, as most of the residents were unfamiliar to the Zoom application, or 'online classes', the class was much more successful than expected. There were some connectivity issues, and problems about 'muting' and 'unmuting' oneself to communicate, but the interaction was close to what used to happen in a lecture theatre. The overall feedback was positive. This might have been partly because of the fact that, after a long time everyone was seeing each other, at least on a screen! Encouraged by this, it was decided to virtualise all the academics from the coming semester (July 2020 onwards) till the pandemic ends.

### **Defining our specific needs**

Thinking about virtualizing academics and executing the same was not a one-step procedure. Multiple factors needed to be considered like the approximate number of participants who would join the academics (it would vary largely between whole-departmental activities and the DM course-specific lectures or seminars), the type of the academics (didactic lectures, interactive seminars and psychotherapy group discussions, case conferences which included interviewing of the patient etc.), the degree of inter-departmental collaboration needed

(psychosomatics), timings and duration of the academics (as some platforms had a time limit on meeting duration) and how to go about it if there were parallel academics for different courses. [Table-1]

## The actual virtualisation

### Nuts and bolts

The major challenges facing the Telepsychiatry team were to accommodate the specific needs as outlined before and re-purpose the resources that were available for distant patient management for arranging the Tele-academics. Multiple rounds of discussions involving the Faculty, Senior and Junior residents were done to streamline the whole process. Platforms other than Zoom such as Webex<sup>6</sup>, Google Meet<sup>7</sup>, Say Namaste<sup>8</sup> etc. were considered and the features were explored. Mainly due to previous experience, the Zoom platform (licensed) was thought to be feasible and easy to use mainly for larger group sessions. To allay security concerns, all the recommended steps were undertaken<sup>9</sup>. Also, Google meet (free version) was considered suitable for smaller group academics such as DM academics and psychotherapy group sessions. Initially, as the same paid Zoom account was being shared between the clinical services and the academics, all the academic activities were planned in the afternoons to prevent any compromise of the tele OPD functioning. Later, considering the increasingly evident continued need for physical distancing restrictions, a separate Zoom account was subscribed specifically for the purpose of academics with this, the classes were scheduled as before the pandemic. Once the classes appeared to be happening smoothly, rosters were re-scheduled to sweep up and complete the missed classes from the first month of pandemic.

Scheduling the meeting, circulating the link to the group and hosting the meeting for the academic were the daily technical needs for which assistance from telepsychiatry centre staff and residents was enlisted. We did face

certain obstacles regarding getting a stable internet connection in the Conference Hall (the hall where ordinarily lectures and seminars are conducted), operationalising a seamless method for organising and hosting the meetings, without overburdening a single person, and technical difficulties of video-based lectures such as difficulty in uploading or streaming a presentation. A Wi-Fi router was installed in the Conference Hall, which can be accessed by various laptops, instead of a single machine as supported by the LAN connection. Learning the technicalities of the Zoom application needed a learning curve for all the departmental members, but over next 2-3 months, it became as normal to attend a seminar over Zoom as it was to attend in the Conference Hall.

Each weekday was assigned to one Senior Resident, so that they could perform/supervise the required tasks for that specific day's academic especially the morning lectures). The presentations were shared via Screensharing. Some of the faculty members would mandatorily ask the residents to keep their videos on to ensure attentive participation. Seminars and Journal clubs would be hosted by the presenters themselves. In the case conferences, the in-person patient interview (an integral part of a case conference during pre-COVID times) was attempted to be replaced by pre-recorded videos of the patient and their family members (after seeking patient's consent). This was done for a few case conferences. However, by end of the July- December 2020 session, the general public (patients and families) were adequately accustomed to using online platforms including Zoom for connecting to others. So, patients were also provided login details, they were asked to join half an hour into the presentation, were 'kept in the waiting room' on joining, given entry into the virtual main meeting hall after the initial round of clarifications following case presentation. Chairpersons could interview/clarify with patients and others in the group could also do the same on invitation from the Chairperson.

**Table 1: Different Requirements for different types of academics**

Type of Academics	Approximate number of participants	Participation of patient	Type of Academic	Inter-departmental collaboration	Approximate duration
Departmental faculty lectures	30	X	Didactic	X	1 hour
Case Conference- whole department	60-70	√	Didactic+ Interactive	X	1 hour
Case Conference-DM specialities	~ 10	√	Didactic+ Interactive	X	1 hour
Journal club/Tutorials- DM specialities	~ 10	X	Didactic+ Interactive	X	1 hour
Departmental Seminars/ Journal Clubs	60-70	X	Didactic+ Interactive	X	1.5 hour
Psychosomatic Rounds	~ 80	X	Didactic+ Interactive	X	1 hour
Psychotherapy Group Sessions	6-7	X	Interactive	X	1 hour
Research Forum	30	X	Didactic+ Interactive	X	1 hour
Senior Resident's evening class	~ 20	X	Interactive	X	1-1.5 hour

Even the evening lectures by senior residents as well as psychotherapy forums were successfully shifted to online platforms. For the psychotherapy groups, which are multiple groups with 1 Faculty member and 5-6 residents each, occurring at the same time for a duration of about an hour, Google Meet turned out to be a better mode. The meeting id generation and hosting were the responsibilities of each group. A similar model was followed for the DM academics, where the presenter resident generated and hosted the meeting.

For the inter-departmental psychosomatic sessions, WebEx and Google Meet were used as per the choice of the collaborating department.

A WhatsApp<sup>10</sup> group of all the academic members of the Department was created for the ease of sharing the meeting details for the different academics, so that there were lesser chances of missing out on any session. This group, of course also came in handy to disseminate quick information about any other academic activity like a webinar or a CME session.

### **Conducting exams**

From June 2020 onwards, conducting final exams for the academic courses was another

exciting challenge ahead of us, with the travel restrictions and safety risks still quite relevant. Though the June 2020 exam was managed by inviting the external examiners from Chandigarh and Punjab, but in Dec 2020 and May 2021, two MD and two DM Addiction Psychiatry final exams were conducted via the virtual mode. In all these exams, the external examiners joined the exam meetings via Zoom, while physically being in their home Institutes. A link was created from our account and shared with them prior to the day of exam. A trial run was done in the very first attempt at the virtual exam pattern, but since then we never faced much difficulty. An indefinite online meeting was started at around 9 am and it would go on till around 4-5 pm till all the rounds of the exam would be over. A wide-angle webcam with a broader visual coverage and a good microphone were used to make it easier and comfortable for the examinees to communicate with the examiners. Special arrangements were made for conduct of physical and neurological examination rounds. Patient bed was set in the Conference Hall under the focus of the webcam. Though the aspects of demonstrating physical examination and interviewing of patients was difficult in this set-up, but the other aspects of assessment went as per usual standards.

## Learning on virtual platforms – what we learnt?

### Some disadvantages

1. Difficult to make out if the participants are attentive or not, especially when video is turned off!
2. Easy to just join a session and then not be a part of it by switching off video and audio from one's side → decreasing the quality of learning from these classes.
3. Focussing on technological aspects decreases the focus on the academic aspects
4. Technical problems like audio related issues (echo/ poor audio connection); internet related issues (poor internet connection/ unstable internet/ finishing off daily data package in 1-2 hours of Zoom meeting), etc.
5. Privacy breach: However, we never encountered any event of data breach, privacy concern or any unknown participant in our academics.

Overall, potential compromise in quality of learning remains the biggest concern.

### Some advantages

1. Freedom to join from anywhere, the flexibility might improve participation
2. Easier to record the classes for future use
3. Option to write down questions in chat might help better interaction – especially for students who take time to open up

### Some ways to decrease negative impact on learning

1. More interactive elements in any session – audio-visual as well as to-and-fro interaction
2. Quick quizzes or questions to generate discussion and hold the attention of the participants
3. Coercive ways such as marking attendance at beginning and end, keeping the videos on, etc. may be needed

## All in all, a good learning experience, really!... not just virtually!!

The pandemic forced us to exploit technological advancements. Although newer technologies appear alien and difficult to start with, after a learning curve, they end up becoming a part of life. Needless to say, good teamwork is necessary for the successful organisation of academics. Participation can be improved as the mentors also learn newer ways to use the technology. Having said that, whether or not the mental presence in an online class is as effective as that in a physical class might be the point for debate and assessment in upcoming days.

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## Chapter-16

### Challenges faced while conducting MD/DM exams during COVID 19 pandemic

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Currently the Department of Psychiatry, PGIMER runs four regular training programs. These include MD (Psychiatry), two DM programs (DM Addiction Psychiatry and DM Child and adolescent Psychiatry) and one Fellowship (Consultation-Liaison Psychiatry). The final examination for each includes 3/4 theory papers and a practical examination. The practical examination comprises of a long case (chosen by the examiners from the outpatients), 1 to 2 short cases from Neurology or Medicine (chosen by the examiners from the Neurology or Medicine inpatients), a short case (managed by the Resident in the ward for a few weeks), and a grand viva.

During the ongoing pandemic due to the lockdown, closure of the outpatient services, and the social distancing restrictions, the usual pattern of final examination required modification. In this chapter we discuss our experience of conducting the final examinations for the three semesters over the past one and a half years with the modifications made depending on the COVID situation.

Prior to COVID-19 pandemic, there were preparatory examinations (both theory and practical) conducted a month before the final examinations. But due to the lockdown in March 2020 the examinations were postponed as it was not possible to conduct the examination in-person. Later when the exam dates for April/May 2020 were announced, the closure of routine outpatient services forced the need to modify the mode of examinations from in person to other modes of examination. The whole faculty of the Department discussed the format of

practical examinations and it was finalised that 'live' long cases may be replaced by 'case vignettes and short cases managed by the candidate in the ward may be replaced by the patients admitted to/retained in our wards due to emergency like situation of those cases. The theory examinations were conducted following all COVID related precautions. The answer sheets were checked online, unlike earlier when the answer sheets would be checked by the examiners during the practical examinations.

The only hitch in May-June 2020 examinations was that the pre-fixed (approached in April and consenting) external examiners from long distances got ruled out by the COVID-19 travel restrictions. The PGIMER administration decided to allow cancelling invite to pre-fixed distant external examiners and inviting consenting external examiners who were locals or from nearby distances for in-person examinations. This required quite a lot of back-and-forth phone calls and emails and nervous waiting for yes or no responses and repeating the cycle a few times till a new final schedule was fixed. The exams were conducted in a large hall with all COVID-19 related precautions. The Residents and the examiners used masks and maintained social distance throughout the examinations. The examinations were completed without any major problems.

In the latter half of 2020 as the COVID situation got better the restrictions were gradually relaxed and the outpatient services were restarted with limited number of patients. The Residents started having regular postings although for brief periods and outpatient workup and follow-ups were



conducted using ZOOM platform. The dates for the exams were announced for November/December 2020. Confirmation from the external examiners for in person examination was obtained.

The preparatory exams were completed a month before the actual date of the final exams. The theory examination was carried out in a big hall and practical examinations were conducted using telepsychiatry format and ZOOM platform.

Although the Residents were regularly doing the detailed OPD patient work ups online, they were not comfortable with the online evaluation of the patients. This was mainly due to the issues of connectivity which made them more anxious. Hence, they requested for in-person examination of the patients. After due discussion it was decided to concede the point and we agreed to have in person evaluation for the long cases and specialty (neurology/medicine) short cases. The cases for the examination were shortlisted from the patients registered in the outpatient using telepsychiatry format, were contacted on phone and were requested to come in person for the detailed evaluation. As we were expecting some dropouts, we called three times the number of cases required for the examination. The cases and family members were given reminder calls and also educated about precautions which needed to be taken. Two to three days prior to the actual practical examination date a re-confirmation was obtained from twice the number of cases required. Finally, we short listed these patients, and the external examiners were sent the summaries of these patients. They discussed among themselves the relative suitability of the shortlisted cases and prioritised them. The understanding was that of their shortlisted cases whichever cases reported to the OPD on the exam day, those would be taken up for the long cases based on random chits picked up by the examinees. For practical examinations all the rooms were sanitised ensuring social distancing and materials like masks, gloves and sanitizers were kept handy for use.

The theory exams went on smoothly with all the precautions and same procedure as

followed in the previous semester were followed.

However, as the date of the examination neared, the second wave had just started and again the restrictions were put in place to prevent further worsening of the status. The external examiners requested for online examination and permission was obtained from the PGIMER administration for the same. A trial run for the ZOOM platform with the examiners was done and real or potential problem areas were identified and solutions found for them. As the Residents were posted in wards for short period of time it was decided that examination of the in-patient-managed short case will be replaced with discussion based on case vignettes. The case vignettes were prepared and circulated to the external examiners for choosing the most appropriate ones.

The day before the practical exam the confirmed cases were re-contacted and re-confirmed for their visit to the OPD. As there were several restrictions to enter the outpatient's premises due to second wave of COVID-19, they were also informed that whenever they reach close to the outpatient premises, they should call the Senior Resident who will make arrangements for their safe receipt at the OPD. On arrival these cases/families were guided to the outpatient area and made to sit in separate rooms with proper social distancing. The in-person follow up of the non-exam patients in the outpatient on that day was kept to minimum to avoid crowding. The patients who were called for the examination, were requested to stay back till the time cases were discussed with the examiners by the exam going Residents. A provision of videoconference was also kept so that external examiners could evaluate these cases. For Neurology or Medicine, cases were selected from the patients admitted to the Neurology or Medicine wards. The examinations were done in a large hall with all the precautions. Arrangements were made for Neurology or Medicine examination in a big hall so that the examiners could observe the exam going residents eliciting the neurological or physical signs in the cases.

The practical examination was conducted in a large hall with internet facility. The

examination was concluded smoothly without major problems.

For the examination of April-May 2021, we followed the same procedure and precautions which we took for the Nov-Dec 2020 examinations. As the COVID situation was getting better the Residents' postings started resuming the pre-COVID fixed time postings in different areas of the department. This time as the postings were structured, the exam going Residents admitted patients (and the relatives) to the wards after COVID negative reports and managed them independently for being considered for the short cases. However, a few weeks before the final practical examination, one of the patients admitted to the ward and managed by an exam going Resident tested COVID positive. The patient was sent for home isolation, as per the advice of the physicians and the Resident and other staffs underwent risk assessment and were kept in observations. All of the 'exposed' staff and the Residents were considered to have low risk exposure. They were followed up closely and none of them developed any symptoms and were COVID negative. All the MD and DM candidates had independently managed two short cases for at least 3 weeks before the final examination. The patients managed by the Residents who had improved were discharged and informed that if needed, they will be contacted by

videoconference for examination for the examiners.

During the exam period as the COVID status was fluctuating throughout the country the Residents from different parts of India were getting information about family members getting COVID-19 positive and in some cases death of the close family members. In spite of all these happenings around them, with help from the colleagues and support from other staff, the Residents were able to appear in the examinations.

Thus, during the last one and a half year of the COVID-19 pandemic we faced several hurdles in conducting the examinations. For the first time the practical examination evaluation was done without the cases being examined/assessed by the Residents. Later as the situation was fluctuating, with proper planning and co-operation from the external examiners, patients and their family members, Residents and the staffs, we were able to conduct the examinations to the approved format of the Institute, and the satisfaction of all concerned. All the examinations were conducted smoothly without major problems. The main lesson we learnt was to have a backup plan and being flexible in the format of the examination without diluting the seriousness of the examination.

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## Chapter-17

### Crisis Helpline and addressing the Mental Health Issues in the Health Care Workers

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#### Introduction

During the ongoing pandemic, mental health issues of the Health Care workers (HCWs) received significant attention. Data from different parts of the globe, including India, reported high rates of depression, anxiety, insomnia, and burnout among the health care workers of all the categories<sup>1</sup>. In view of the same, the mental health services across the globe were expanded. At our institute too, the mental health services were expanded. This article focuses on how the mental health services were expanded during the COVID-19 pandemic to address the need of the HCWs.

#### Service structure prior to COVID-19 pandemic

The Department of Psychiatry runs a crisis helpline for all the staff round the clock. Any staff can contact the crisis helpline number, which is handled by a Senior Resident. Once the call is received, the Senior Resident meets the caller in the emergency OPD or the psychiatry ward premises at a mutually agreed time for an in-person evaluation. The timing is usually kept flexible by keeping in mind the availability of the person seeking help. Besides the persons themselves contacting the crisis helpline, at times the persons in crisis are identified by the faculty members of various departments and they facilitate the consultation for the staff in their department. In case, a person requires immediate help the same is provided. Once the person is initially evaluated by the Senior Resident, the person is reviewed by a consultant. After the initial evaluation the management is started and alongside the detailed workup is completed

and a final diagnosis is considered. After the detailed evaluation, the management is continued, mostly on an outpatient basis, with exceptional persons requiring inpatient care. Besides the crisis helpline, any staff could approach the psychiatry outpatient services for help directly.

Before the pandemic, the commonly noted problems among residents include adjustment disorder, depression and anxiety disorder. Some of them also report ideas of self-harm or indulging in self-harming behaviour.

#### Help-seeking from Crisis Helpline and Expansion of services Crisis Helpline:

During the ongoing pandemic, much higher number of staff contacted the crisis helpline services compared to the pre-COVID times. Besides the usual diagnostic issues, during the ongoing pandemic, the helpline services were contacted for some of the specific issues related to the pandemic. During the beginning of the pandemic, when there was a significant emphasis on wearing personal protective equipment (PPEs), some of the HCWs contacted us for experiencing significant anxiety and suffocation while using the PPEs<sup>2</sup>. Other unique issues encountered included discrimination of the frontline health care workers by other staff, especially while they were on duty. This stigmatization led to a psychological breakdown in some of the HCWs<sup>3</sup>. All these issues were addressed at the individual level and the HCWs were provided psychological support. Additionally, the mental health professionals, who were part of the training the HCWs for working in the

COVID area were informed about these issues and the same was addressed in the training sessions.

### **Expansion of services- reaching out to frontline workers:**

During the ongoing pandemic, the mental health services for the HCWs were expanded beyond the crisis helpline. During the initial phase of the pandemic, when the various HCWs were staying in isolation while being on duty in the COVID areas of the hospital, they were called up by the psychiatry team to do a touch base, inform them that the help is available and they can contact the mental health services anytime if they feel the need. This kind of screening revealed a prevalence of anxiety disorder and depressive disorder among HCWs to be 15.9 and 13.6%, respectively. Additionally, about one-fifth to half of the participants reported experiencing feelings of loneliness, social disconnectedness, and feeling of being used. Some of the HCWs also reported feeling like running away from work, were tensed about contacting the COVID-19 infection, and unknowingly spreading the infection. Some of the workers had anger because of the lack of adequate safety equipment<sup>4</sup>. When a similar inquiry was done for the sanitary workers, the prevalence of depression and anxiety was relatively lower<sup>5</sup>. Availability of mental health professionals led to seeking help for sleep disturbances and psychological distress due to being alone. The emerging issues were addressed on an individual basis.

### **Exemption from duty at the high-risk areas:**

Due to the nature of the infection and those with comorbidity at high risk of developing COVID-19 infection, there was a need to exempt certain staff in the frontline areas. Considering this, as per the hospital policy, one of the faculty members was a part of the multidisciplinary team to assess the mental health issues and consider whether the HCWs could work in the COVID area or not. For this kind of work, whenever any staff requested being exempted on the ground of mental health issues, they were evaluated for the clinical stability, duration of being

clinically stable, and their apprehensions related to working in the COVID-19 ward. A balanced approach was taken, in that, if the person had certain apprehension but was willing to work in the COVID area they were provided psychological support and were reassured that if there is a crisis, then the team will facilitate their exemption from working in the COVID area. As an alternative, in liaison with the hospital administration, many of the staff were given administrative duties in the COVID ward area, which did not involve direct exposure to the patients.

### **Services through the telepsychiatry:**

Some of the staff contacted the telepsychiatry services directly, which was working as an alternative to the routine outpatient services during the pandemic. Their care was facilitated by early workup and regular follow-up. At times the residents and staff in crisis who contact us while in isolation following their COVID-19 duties were assessed and followed up by using WhatsApp calls. The staffs who were admitted in the COVID-19 ward were also monitored through WhatsApp video and voice calls whenever they were under a crisis situation<sup>6</sup>.

### **Informal consultations and chats:**

Many of the colleagues and staff were averse to seeking formal consultation, but would vent out their feelings and experience about how they were feeling about the available resources. These often provided a platform for ventilation for other health care professionals and also provided significant insight about what was happening in handling the issues emerging due to the ongoing pandemic.

### **Conclusion**

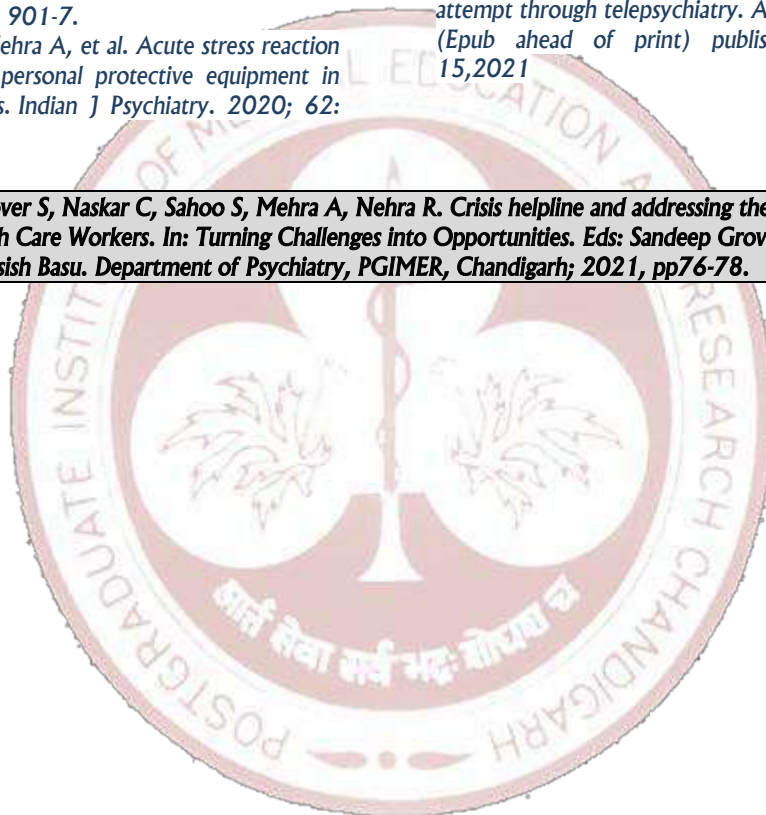
The pandemic has brought mental health issues among the HCWs to the forefront. It also possibly helped in a reduction in stigma in seeking mental health services. The experience of the pandemic suggests that, in the future, if a similar crisis emerges, the mental health services should be expanded in a big way for all health care professionals.

The whole experience of providing mental health services to the HCWs suggests that the stress is not always related to the workplace, and multiple stressors together lead to decompensation. Ensuring availability to the HCWs and attending to them at their convenient time often improves follow-up rates, as well as adherence to medication and advice.

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## Chapter-18

### Experience of working in the COVID wards

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#### Introduction

The COVID-19 pandemic necessitated unprecedented responses in the healthcare sector and the Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh is no exception. These responses include but are not limited to the setting up of a dedicated COVID-19 hospital and other far-reaching changes in the working of almost all other health care areas including surgical and outpatient settings<sup>1</sup>. These changes are subject to revision from time to time depending on requirement and new evidence. The COVID-19 hospital (Nehru Hospital Extension Block) is a dedicated facility for the healthcare of patients with COVID-19. This chapter deals with the experiences of the author (SMS) as one of the clinical consultants in this hospital.

The staffing of the hospital includes senior consultants who are involved on a long-term basis; junior floor consultants, resident doctors and other staff that are posted in the hospital for a period of usually a week and are then replaced by others as per a roster system. Clinical issues of patients admitted in the hospital are discussed by a team of senior consultants from various specialties (including the author) based on inputs from floor consultants and residents, lab work and other details. These decisions form the basis of treatment of the patients which are then implemented by the floor consultants and other staff.

This part of India has so far experienced two waves of the COVID-19 pandemic with peaks in approximately September 2020 and May-June 2021. In the experience of the author, the two waves and peaks of the pandemic gave rise to different challenges and experiences. This chapter is organized in two

sections based on the chronology of the first wave and the second wave. The subsections deal with the issues relevant to the health care workers (HCW) and patients with COVID-19 admitted in the COVID hospital. This chapter is based on the experience of the author as of August 2021.

#### 1st wave and peak

COVID-19 burst into national consciousness with the announcement of a nation-wide lockdown at a short notice in March 2020 for nearly 2 months to break the viral transmission chain. As a result, usual healthcare services and training in the hospital were affected. This period in the COVID-19 hospital was characterized by preparation for the expected increase in the number of patients presenting with clinical features of COVID-19 infection. The initial phase of the pandemic largely had patients who received immense misinformation from print- and press- news reporters and social media outlets. There was a lot of confusion and anxiety about what to expect. The situation was exacerbated by reports of panic buying of essential supplies leading to an artificial acute shortage of daily consumables. Expectedly, this had an impact on the health care services as well. As doctors, we were incessantly keeping ourselves updated with constantly and rapidly revising guidelines from various Indian resources and receiving an information overload via the social media.

#### Experiences with HCW

HCW posted in the COVID hospital were trained in the use of personal protective equipment (PPE) and other procedures. They were expected to stay away from families and

also stay in quarantine for varying periods of time post-rotation. This post-duty quarantine lasted a couple of weeks which was subsequently reduced further. Finally, it was done away with completely. Each duty rotation was usually for a week. They were allowed to re-join duties after mandatory testing for COVID-19.

The concerns of the HCW in the initial phase reflected those observed in the society and also were work related. These were in the following areas.

Doctors and HCW working in COVID areas were concerned about their personal safety and of their families<sup>2</sup>. Each HCW had to analyse his or her own situation and find motivation to carry on with their duties<sup>3</sup>. Many initially experienced symptoms of anxiety, worry and insomnia. Expectedly, many were fearful about handling patients with COVID-19. There were concerns about the availability and usage of the PPE. While PPE was considered a necessity, some HCW found the usage of Ebola-level PPE extremely uncomfortable and experienced claustrophobic symptoms. This was especially so in those who had a pre-existing history of anxiety disorders. Often, reassurance and explanation helped them in alleviation of their anxiety. Post-duty mandatory quarantine away from family was inconvenient for many HCW especially those with dependents such as elderly or children at home. A major source of anxiety was the procedure involved in testing for COVID-19 in those who had undergone their rotations in COVID-19 areas<sup>4</sup>. A supportive work environment and gradually gaining more experience in handling with this situation over the few weeks had resolved these issues. Another major issue was that of stigma and avoidance experienced by HCW in their communities and neighbourhoods<sup>5</sup>. Some HCW also experienced such behaviours from their families. Fortunately, such behaviours were self-limiting and reduced over time as everyone became more informed about the nature of infection and significant role played by HCW in curbing this infection. It also led to acknowledging medical doctors and other hospital staff in COVID hospital as "COVID-19 warriors".

Most HCW found personal methods of coping with their rotations in the COVID hospital and subsequent quarantine and testing. Faith in religion, breaking the rotation down into days and later hours, finding support from peers, and telephonic contact with family members were frequently employed. The first peak in September 2020 found HCW well prepared and experienced. They were able to handle the demands of the situation satisfactorily.

It is a measure of resilience of the HCW that most coped well with the initial stresses of the situation. Most HCW with psychological symptoms did not require any major intervention. The fact that a mental health professional was available in case of any need was reassuring. The telephone was of use in communication with staff that was otherwise quarantined. Simple words of reassurance were usually enough. Occasionally a mild sedative for a few days was required. It was noticed that the incidence of COVID-19 infections from the workplace was much lower than expected. This eased concerns of personal safety to a large extent. As the experience of handling patients with COVID-19 increased, there was progressive easing of PPE and quarantine norms. This led to an improvement in the quality of life of HCW.

### Experiences with Patients

Initially, as per the guidelines from the Government of India, all patients and their contacts who traced through snow-balling technique were mandatorily admitted. The initial patients included people who had recently returned from foreign countries. These were followed by outbreaks in localized areas in the city. Most of these patients and contacts were young and otherwise free of comorbidities. Thus, this population had an overall good prognosis. The main concerns at the presentation for many of them were psychological symptoms of anxiety and depression, experience of stigma from community and family and worries about personal health<sup>6</sup>. However, most these symptoms were transient and as their symptoms improved and prospects of well-being increased, their symptoms quickly resolved. HCW posted in wards were able to

reassure them. Some required mild sedatives for a few days. Our follow-up study shows that many of these patients remained well post-discharge.

After the easing of norms, the number of patients with comorbidities and with severe COVID-19 disease increased. This group of patients presented a distinctive challenge. In this group of patients, substance abuse and dependence were more common and often clinically significant, they were also more debilitated and were more prone to developing delirium. These patients were often moribund. As family members were not allowed, they found it difficult to look after themselves. The main aspects of management were to screen for and manage substance abuse, and manage delirium wherever indicated. We were able to identify patients on oral substitution therapy for opioids and ensure uninterrupted therapy from the deaddiction centre in the hospital. Strengthening of nursing care was done to ensure care of patients who found it difficult to take care of themselves. We encouraged patients to keep in touch with family members over the phone. Disinformation over social media also meant that many patients and attendants were worried about rumours about body organ harvesting and forced hospitalizations. We also posted staff who were responsible for keeping patients in touch with their family members and keeping the latter apprised of the status of the patient. All these measures went a long way in keeping the psychological health of patients in a reasonable state. Many patients were worried that if they died, their bodies would not be given to the family members as per the government norms. Misinformation based on this rule also fuelled this anxiety.

We also wrote and disseminated psychological self-help reading material (paper and electronic) which was found to be useful by the patients.

HCW diagnosed with COVID-19 were initially mandatorily admitted and later admitted only if they did not have quarantine facilities or were living in hostels or if their clinical status necessitated hospitalization. These HCW usually made uneventful

recoveries. This also raised the morale of the HCW.

### **2nd wave and Peak**

The 2nd wave started about February-March 2021 and peaked in May-June 2021. The second peak was characterized by a record number of patients and deaths all over the country. Health systems everywhere were reported to be overwhelmed, many hospitals faced acute shortage of oxygen and beds and people were reported to be dying on the streets and in their homes because of lack of healthcare. Chandigarh was better placed with regards to the pressure on the health care services. Due to quality health care facilities and a lower population base, the number of patients although was higher than before but had never become unmanageable. This had important implications.

However, as the basic setup was already in place and there was experience in dealing with COVID-19, the second wave could be well-handled despite the number of patients and increased morbidity. The model and systems in place were seen to be scalable and effective.

### **Experiences with HCW**

The reactions of the HCW in the second wave and peak were different from that observed in the first wave due to several reasons. Firstly, the prevalence of infection contracted from the workplace was very low as compared to that derived from the community. This was due to the robust infection control practices in place. This also led to simplification of the PPE practices. The Ebola-level PPE was simplified to much more comfortable and simple equipment with no apparent loss of effectiveness. Secondly, HCW who were admitted in the COVID hospital by and large had an uneventful course and outcome. This was in contrast to the high levels of morbidity and mortality observed elsewhere. Thirdly, the system of weekly rotations and the manageable levels of patient numbers prevented burnout and fatigue. There was no instance of stigma or abusive behaviours experienced in their communities unlike before. To the contrary, as the prevalence of



COVID increased in the community, HCW became sought after and valuable acquaintances. As the number of patients increased, more staff were diverted from other parts of the hospital to more frontline duties. Many professional staff also perceived increased meaningfulness in their work, enjoyed more freedom and a democratic setup and found that their experience was positive and enriching rather than cumbersome or dangerous unlike before<sup>7</sup>. The availability of vaccinations also played an important role and may have contributed to the low levels of morbidity due to COVID-19 in the HCW population.

Another important aspect was the reaction to increased levels of mortality. The author personally observed that there were times when patients in whom a lot of time and effort was invested but ultimately could not be saved. Many of these deaths had affected the staff and the doctors at a personal level but one had to carry on.

At a personal level, the author found the experience to be enriching. There was ample opportunity to develop a new skill set, independence to employ these skills and also contribute to the healthcare setup with pre-existing knowledge. The most important aspect is the enduring camaraderie and cooperation amongst team members coming from various disciplines of medicine.

### Experiences with patients

The second wave was characterized by a greater number of patients and more sick patients than seen earlier. In fact, it would be safe to say that almost everyone knows someone who had been either severely ill or had died due to COVID-19. As a result, the wards were filled and for some days, extra beds had to be created. The hospital was also able to maintain adequate levels of oxygen and other supplies. However, there was undoubted pressure on intensive care beds. This was compounded by the fact that an intensive care bed once occupied would take days to weeks to become available again.

As per hospital policy, most patients did not have any attendants unless we could admit a COVID positive family member to fulfil that role. The psychological impact of loneliness,

sickness and being unable to look after self was significant. Many patients were unable to use the phone and felt abandoned by their family members. The constant plea by many patients was to be discharged so that they could go home. Special efforts were made to ensure that they could talk to their family members and be reassured. These measures were found to be useful. The author was often called upon to visit particular patients where there was a diagnostic or a management issue. The most common issues encountered were demoralization and anxiety in patients. These patients would usually improve with change in clinical situation or once they were discharged. Clinical evaluation at the bedside was often adequate. The emphasis was on pragmatic, here-and-now based interventions rather than starting long-term treatments such as antidepressants. We had a few patients with pre-existing mental illness and on long-term psychotropic medications. They were stable with regards to psychological symptoms and most clinical decisions were taken based on their COVID status and cross-sectional severity of illness.

We also advised family members to try to improve the morale of their patients. Occasionally, there would be a miscommunication due to which there would be dissatisfaction on part of the patient or the family members. Depending on the facts of the case, efforts were made to resolve any issues. The author was involved in some of these cases.

Another issue was the greater number of comorbidities in severely sick patients. As a result, delirium was more commonly observed and managed. Substance abuse and withdrawal was also managed as per requirement. Effective liaison with the Deaddiction Centre was useful in ensuring buprenorphine substitution therapy for a few patients who would have otherwise undergone potentially dangerous withdrawal.

It was observed that there was less than expected incidence of steroid-related psychological morbidity. This was despite the high doses of intravenous steroids and other medications with potentially adverse effects used.

## Conclusion

The COVID-19 pandemic is a unique disruptive event facing humanity. While the future course of the pandemic is not yet certain, it is probable that COVID-19 will continue to challenge health, economic and social sectors. It is also conceivable that humanity will arrive at some degree of uneasy coexistence with COVID-19 as it has with various other maladies. In such a scenario, health care services will continue to play an important role. Based on our learning and working experience during the past two waves, wide and aggressive immunization coverage for all age groups, management of substance use disorders, medical and psychiatric illnesses in community healthcare settings, and avoiding dis- and misinformation about effective management of COVID to the public can help in mitigating adverse consequences in the future. It is also advisable that COVID hospitals have mental health professionals and HCW be trained in identification and management of psychological morbidity. It is hoped that this chapter may contribute to this endeavour in some small way.

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## Chapter-19

### Working with the migrant workers during the ongoing pandemic

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We have seen that as a fast-spreading virus, the COVID 19 pandemic has elicited a wide range of negative emotional and cognitive reactions in the vulnerable population. Consequently, besides the detrimental effects on physical health, the COVID-19 pandemic can cause persistent psychological symptoms such as sadness, worry, fear, and psychosomatic manifestations. We have seen how this pandemic has made life difficult for individuals all over the world. The effects, however, may be more severe for some than for others.

Though all sections of society have been influenced, the impact on the lives of migrant workers/ labourers, especially internal migrants (within the country) have been more pronounced. As we know that migrant labourers make up a sizable portion of the workforce in many regions of India. Many of these workers are paid on a daily or weekly basis, with little job stability. When they are relieved of their employment responsibilities, these folks have no other option than to return to their homes<sup>1</sup>. They usually stay away from their homes for an extended period (months or even years) and only return at festivals, weddings, harvest season or when they are free.

During India's lockdown period, a sudden nationwide ban on travel, a lack of work that resulted in no financial means to cover daily food expenses, and quarantine rules contributed to the high levels of anxiety, which induced socially irresponsible behaviour and panic attacks among migrant workers. The exodus of these migrant labourers was seen at the railway stations and bus stands in a frantic attempt to return to their home states

while disregarding lockout restrictions. This led to a vicious circle of infection susceptibility, quarantine, stress, and noncompliance with preventative measures. Anxiety levels were rising among these migratory workers, causing many of them to walk thousands of kilometres on foot to their homes, with little provision for food or shelter along the way<sup>2</sup>.

The Government of India was keeping a very sharp eye on every aspect of the effects of the pandemic and other issues arising as a result of the imposition of strict lockdown. The problems of migratory workers were on the priority list of the Government, and they were taking every possible step to help these migratory workers. They were being provided with food and shelter (24\*7). The Government was taking care of their physical needs and very much concerned about the mental health of this very group. Central and State Governments appointed several mental health specialists and a team of health workers for their physical and mental health care. In a similar vein, as a government initiative for taking care of mental health of these migratory populations, we received a letter from The Director of Health & Family Welfare, Chandigarh Administration, along with Supreme Court Order- regarding Counseling of migrant workers (Memo No GH-II-2020/7872-74, dated 13/4/2020) which was a crucial step at that moment. As mental health professionals, we were very much aware of the psychological and behavioral problems that are very common during this type of crisis. To understand the problems faced by the workers, we started visiting various shelter homes, daycare

centers, and other community centers of Chandigarh where migrant workers were staying. We interviewed them to understand their problems, and we found that the common problems included a sense of insecurity, fear of uncertainty, missing family and financial stress<sup>1</sup>.

To better understand their problems, we planned a cross-sectional study on these migrant workers in Chandigarh. We assessed approximately 100 such migrants residing in shelter houses provided by the public administration. They were contacted over the phone as well as in person, following the social distancing norms. All the participants were males, with a mean age of around 32 years. Before the lockdown, they were earning approximately eight thousand rupees per month. Most of the participants were married, i.e., 69%. Almost three-quarters of the individuals (73.5%) screened positive for depression, and about half (50%) screened positive for anxiety on Patient Health Questionnaire-2 items and Generalized Anxiety Disorder-2 item scales, respectively. Almost half of the individuals (51%) screened positive for both anxiety and depression. Approximately two-thirds (63.3%) of the individuals reported a significant increase in loneliness<sup>2,3</sup>.

Furthermore, a substantial number of migrants reported negative emotions and feelings of loneliness, stress, irritation, sadness, irritability, fear of death, and social isolation on a self-designed questionnaire. These data imply that the lockdown and the ongoing

pandemic had a substantial detrimental influence on migrant labourers' mental health. The findings of our study showed two times higher rates of depression and anxiety compared to an online survey of the general public conducted during the lockdown time. A higher frequency of depressed mood in the participants indicated a difference in the type of stress experienced by persons from various social levels, even though they are confronted with the same pandemic and lockdown. This high-level detrimental influence on migrant labourers' mental health could be due to income loss, resulting in severe financial uncertainty and anxiety about the future. Second, the high degree of psychological discomfort might be linked to concerns about one's own and their loved ones' health at home. Another important reason could be being away from their loved ones and lack of social and family support. These findings implied that, in addition to providing logistical assistance such as food and housing, migrant labourers should be thoroughly checked for mental illness also. Conclusively we felt a need to devise a strategy to offer them psychological support.

Keeping this in view, we planned a counselling/psychotherapeutic management to deal with mental or behavioural problems of the migrants. This psychological first aid (PFA) included general awareness about the COVID symptoms and COVID appropriate behaviour, supportive and relaxation sessions, and stress management (Table-1).

**Table-1: The therapeutic management is done for the Migrant workers staying in shelter homes**

**Counselling session** (Brief counselling (2-4) sessions) was planned for migrant worker

- **Educational sessions:** These sessions included providing information about the COVID pandemic, its symptoms and precautions like hand washing, social distancing, and use of the mask.
- **Awareness about Government aid:** We provided information regarding the assistance provided by the Government to the persons in the shelter homes, especially in Union Territory
- **Supportive session:** Psychological supportive sessions helped them to deal with their psychological problems effectively.
- **Stress Management:** For the better management of their stress, anxiety and depression, participants were taught stress management techniques and positive coping skills. Persons with increased anxiety/stress were taught Jacobson Progressive Muscle Relaxation (JPMR) was taught.

## Conclusion

This was a very different kind of crisis we all are going through. We had to develop some specific plans and policies to deal with it

effectively though all society sets were under its pangs. But some population groups were at high risk and were more vulnerable. Migrant workers were among the worst affected

group. During the lockdown period, they lost their jobs and migrated back to their homes or native cities.

The issue of the migratory population caught our eye as we saw the exodus of these workers migrating to their native places, which was the major threat to the spread of the virus. The Government of India came to the forefront to deal with their problems, and they assured to provide them with basic amenities like food and shelter and their physical and mental health care. In a quick response the Government and Supreme Court of India issued an advisory to take care of their mental health. Medical and health care professionals were appointed. In this regard, we, as mental health professionals, got associated for counselling with this particular group to deal with their psychological issues. We interviewed them to understand their problems, and we found a sense of insecurity, fear of uncertainty, missing family and financial stress among most migrants. We also noticed significant issues of anxiety, depression, stress, and loneliness in migrant workers in the present pandemic that the COVID-19. We provided them counselling and psychological first aid to better deal with their psychosocial problems. During this process of dealing with

the problems of migratory workers, we felt that while developing the COVID-19 pandemic strategy, public health authorities must pay close attention to the psychological concerns of internal migratory labourers. Building a holistic intervention approach including psychiatrists, clinical psychologists (mental health professionals), allied health workers/paramedical staff might prove very effective in dealing with any psychological problems of these populations.

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## Chapter-20

### Going through covid 19 infection: lived experience of mental health professionals

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Covid 19 has created havoc in lives of most people via direct (self & family infection/loss/continued sequelae) or indirect ways (near & dear ones' infection/loss). The first wave of Covid 19 shook everyone with its unprecedented consequences and the highly transmissible nature of the virus and associated mortality added to the fear and uncertainty hovering around it. Here, we present narratives from three mental health professionals of having lived through the experience of Covid 19 and the ways and means of coping with their mental state.

#### **Nidhi Chauhan**

##### ***Fear of uncertainty***

It was on 21<sup>st</sup> August, 2020 that my husband (frontline warrior) tested positive after having fever and myalgias for two days. Even for these two days, we as a couple were contemplating (not able to accept the fact that Covid has struck us) whether to get tested or not but after my daughter had high grade fever with loss of taste and smell, we as doctors were almost sure that covid was with us. I tested positive but was asymptomatic for 3-4 days during which my husband and daughter had started their way to recovery. The dilemma at this point was whether to get hospitalized or not as three out of four members had tested positive, and the youngest, my 7year old son was negative. If the three positive members get hospitalized, where would my son stay; if we opt for home isolation, we are exposing him to the virus? Finally, we decided to home isolate ourselves and isolating our son to the best possible extent. My fears started mounting when even after 10 days of taking symptomatic

treatment (as was being recommended by experts and self-reading), high- grade fever (102-103°F), severe headache, myalgias, loss of appetite, extreme weakness did not seem to resolve. I still remember having cried a few times, sitting alone thinking what if something happens to me? My kids are too young to take care of themselves, my family will wither, my kids need me for their upbringing!! I prayed to God to help me recover and by God's grace I started to improve after 15<sup>th</sup> day of onset of symptoms. HRCT done due to tachypnea and shortness of breath even after miniscule exertion revealed bilateral fibrosis in lungs after 17 days of isolation; started treatment for the same but was now hopeful that I'll recover and do everything in my capacity to improve my lung functions.

##### ***A near death experience***

It seemed to be going well for 2-3 weeks after mid- September, 2020 till around 1<sup>st</sup> week of October, when my son started complaining of vague stomach ache. I gave him home made remedies not ever thinking that this could be a harbinger of something dreadful coming our way. About 7-8 days of onset of complaints of vague stomach ache, he developed high grade fever on day 9, which persisted despite antipyretics. On day 10, he complained of extreme pain while micturating and screamed in pain. On day 11, considering it to be a presentation of urinary tract infection, I gave him alkalizer and a dose of antibiotic, but it didn't seem to help. Just randomly thought of getting his urine sample tested for routine and microscopic examination at a private laboratory on day 12. The result of proteinuria surprised myself and my husband. Day 13, gave a repeat sample at PGIMER and

spent the whole day worrying the result. I still remember when on 13<sup>th</sup> October, my husband called me and asked me to pack some clothes for my son as his urine sample had tested positive for proteins and ketone bodies and had to be tested for blood glucose levels, as ketone bodies are found positive in diabetic ketoacidosis (medical emergency). Not able to absorb either the test result or the likely diagnosis, I did what my husband asked me to do. At the same time, explaining to my 13-year old daughter that she'd be alone for some time and to take care of herself while, her parents were away to the hospital with her brother. At APC (Advanced Pediatric Center) emergency much to our disbelief and relief at the same time, his glucose levels were within normal limits, but what puzzled us was the cause of urine ketone bodies. Within next 2-3 hours, we were told that he also had decreased platelet count and RAT (rapid antigen test) for Covid tested positive. To our utter disbelief, it was diagnosed as post-covid related MIS-C (multisystem inflammatory syndrome in children). We readied ourselves for the next course of action (amidst fighting rage and anger within myself for having exposed him to the virus) which included my son's admission to pediatric ICU for intravenous immunoglobulins at the designated covid hospital (NHE) at PGI. Much to my and his relief, they allowed an attendant and I accompanied my son to NHE Pediatric ICU. When I looked back at my husband, while going inside NHE there were mixed feelings of despair, fear, uncertainty and a reassurance that we'll take him back home. His treatment started with regular monitoring of vitals but it was difficult for me as a mother to see him in pain & distress every time he was pricked for a blood sample or insertion of IV cannula. It took 36 long hours of continuous IV infusion of immunoglobulins and by then the cannula site was inflamed; he cried in pain every time drip was changed. Also, hyperalgesia experienced as a part of his illness made it worse for him and myself witnessing it. The feelings of helplessness, despair, fear that something untoward might happen grew further when the subsequent day, his condition deteriorated further and he developed cardiogenic shock

and a cytokine storm that was unimaginable (values of markers running into many thousands). I wasn't able to fathom this deterioration and felt like screaming out loud at what was happening to my child. I remember having begged the Pediatrics faculty to save my child, crying inconsolably. My husband being a critical care neuro-intensivist judged the criticality of the situation, discussed with the treating team to procure a central line access for inotrope administration. His senior colleagues immediately managed everything and in a span of half an hour, my son was being given nor-adrenaline through central line access. Remembering that half an hour still makes me cry and have a sinking sensation. The entire day, my eyes were on the monitor, taking note of his heart rate, ECG rhythm, respiratory rate; for any minor fluctuations that occurred. The next day onwards, his condition started improving, he tested covid negative and was shifted to PICU (Pediatric ICU) at APC. The following days, me and my husband were juggling between guilt (at not having recognized his initial symptoms as marker of something sinister, at not having sent him away when we all had tested positive) and trying to rationalize our thoughts (where could we send him- others would have been put to risk; he was so young to stay alone & that would have led to anxiety in him). But, 'All is well that ends well'. I'm grateful to GOD for having mercy on my family; words cannot express the gratitude I have for the pediatrics team, anesthesia team and my family & friends, colleagues, staff, students at my previous work place who prayed constantly for my son's health. It's been 10 months that I experienced this, but it's still fresh in my memories; it makes me think- Am I having post-traumatic symptoms, then I reassure myself- that's not the case. Probably, the fear of losing a part of you, helplessness despite best doctors at work, guilt of having disregarded initial symptoms, take a toll, even now!!! I often ask to myself- I being a psychiatrist, probably processed the situation and thoughts more rationally. What about those who also were/are in a similar situation but do not have the means to access or the expertise to console oneself. Covid 19 has left long lasting memories- some good, some bad!!

### Devender Kumar Rana

My experience goes back to 11th April, 2021, the day my father was undergoing knee surgery at Paras hospital, Gurugram. As an elder son, out of emotional bond, I visited him during his illness taking all the COVID related precautions with diligence. On 12th, April, 2021 he was shifted back to a private room after a successful surgery and was discharged on 15<sup>th</sup> of April. We headed back to my home town, Rohtak. As I was being extra cautious, I never took off my mask, even during sleep. On 17th April 2021, I returned to Chandigarh, but during the journey, I felt odd, a feeling of not being well. On reaching home, I talked with my wife for around 10 minutes from a distance of about 2 meters, but, without a mask. Thereafter, I developed a fever of 100°F for 2 days. The next day, I tested RT-PCR positive for COVID-19 infection. On 20<sup>th</sup> April 2021, my wife developed fever and son started complaining of sore throat and both of them tested RT-PCR positive. We isolated ourselves on the ground floor and my daughter who was negative, quarantined herself in a separate room on the second floor. On the third day, my fever crossed 100°F and it remained high till 9<sup>th</sup> day even after taking 4 doses of T. Paracetamol 650 mg. We all three continued to take medications as suggested by the treating team. We tried all different methods of treatment i.e., steam, Giloy, T. Coronil etc. along with allopathic medications. Prof. D. Basu was taking our daily updates. Pulse oximeter readings were within normal range till the 9th day, but fever was not subsiding. On 9th day, pulse oximeter reading dipped to 85% within 2 hours, warranting a decision for admission. My son's fever subsided on the 5th day, and he remained well thereafter, but my wife had on and off fever even after taking T. Paracetamol 650mg. We contacted Prof. D Basu and Dr. Shubh Mohan Singh for my admission and an ambulance was sent to pick me for PGIMER emergency. In emergency, on evaluation my pulse oximeter reading was 85% and I was immediately admitted in emergency and was given few injections. Within 2 hours, I was shifted to Female medical ward where I experienced breathlessness and it was difficult to walk

about 40 meters without oxygen. To cope with breathlessness and reach washroom, I used to do deep breathing while walking. Treatment team, headed by Prof. A Bhalla, treated me with exceptional skills. As I was on continuous oxygen support and it was difficult to navigate around, on the 3<sup>rd</sup> day, I requested Dr. Bhalla to shift me to NHE. He acted on my request and in the evening around 9:30, I was shifted to NHE. In NHE, I was asked to walk for about 6 minutes without oxygen support, while monitoring my oxygen saturation. Even though I felt breathless, but I was able to walk with my saturation level falling to 90%. Next day, I was shifted to DKA room and the facilities were very close to my bed. In the following 2 days, I felt very odd and sad with thoughts of it being "better to die". It was a strange thought which was very prominent and accompanied a feeling of hopelessness. During this time, support from PGIMER was enormous. Prof. D Basu and Prof. Sandeep Grover were taking my daily updates, which would boost my morale and give me mental strength to overcome COVID-19. Dr. Shubh Mohan Singh was on COVID-19 duty and was my immediate face to face support. I also received calls from DDTC ward sisters who supplied Coconut water on demand. Dr. Promil and Dr. Shubham were posted in the COVID ward, and they would also take my daily updates. I was worried about my wife's health, as she was deteriorating day by day. I asked her to stay in touch with Prof. D Basu, who would repeatedly assure her and pacified her anxiety. He assured of admission if need arose. Due to excessive anxiety her SpO2 level was going down to 75% but would come back to normal within 5 minutes as soon as she would relax. Struggling through feelings of sadness and apprehension, I introspected and started sleeping in prone position. For about 4-5 days, I would spend most of my time lying in prone position, trying to bring my oxygen saturation level to normal. My Chest X-ray had indicated some damage. As a mental health professional, I tried changing my negative cognition with positive ones and I was doing my own therapy. I decided that I am going to survive, that I would fight back and get normal again. There was a time when



I was not able to breathe without oxygen support or even have food properly. I used to take off my oxygen mask during eating and it became a fast pace exercise to avoid breathlessness. Doctor's treatment, my will and support of others brought results and my oxygen saturation started improving. Support of my departmental faculty, residents and staff was proving efficacious. After a phase of sinking feelings, it was a phase of active struggle, an effort to bounce back with a strong desire to survive. On 8<sup>th</sup> day of my admission, I became stable and my oxygen support was taken off. I would now talk to my siblings over video calls. They were very supportive and motivating. There were prayers from all corners for my well-being. Sister Kamlesh in charge DDTC ward, also prayed for me. I was listening to their prayers and it was proving fruitful and my morale was becoming high. I was discharged after twelve days of admission.

Today, we all have recovered from COVID-19 but can't forget the help rendered by people mentioned above. They will always be within my heart. Special thanks to Dr. Lokesh Saini, who supported us by giving online treatment. Last but not least, "Never give up". Circumstances may change if you take help of right people and keep your morale high with a will to fight back.

### **Navigating through crises** **Shalini S Naik**

Unlike my co-authors, I have not contracted COVID-19 infection, however, had been through a series of perturbing moments since the pandemic started. During the first wave of COVID-19 infection, people seemed to make sense of its grimness by tracking score board that showcased number of people infected and died due to COVID-19 world over. Uncertainty of the situation kept rising high and working through this period was indubitably challenging. However, this crisis felt like a universal phenomenon. Albert Camus, French author, in his book "The Plague" highlighted the how events such as fascism, pandemic initially curtail the freedom of individuals and slacken off individual's rational thinking with constant fear of death and suffering. He instilled hope discussing how

humans would eventually come out of their self-centeredness, recognize the 'commonness' of suffering, further hold collective concern allowing them to bridge the gap between each other and give meaning to their lives by choosing to rebel against death. Innumerable discovery of effective drugs and vaccines against COVID that can potentially cease the pandemic are the collective and persistent efforts of very many doctors, researchers and paramedical staff globally. Today in hindsight, I, along with many can vouch for Camus's veracious account given in his quasi-fictional monograph. The two waves of COVID have left me today with heaps of personal losses.

### **A state of senselessness**

In May 2020, one of my closest uncles developed flu-like symptoms; he had sudden onset of dyspnoea at 2am and went unconscious with Oxygen saturation (SpO<sub>2</sub>) hovering around 40-50%. We rushed him to emergency department where his SpO<sub>2</sub> stabilized close to 80% with mechanical ventilation. His CT Chest showed severe near-total involvement of lungs. His family was completely oblivious to hear or see any hint of his poor recovery chances coming from me. I coped by voraciously reading up all the updates on treatment options and their efficacy thus far (early May 2020) available to treat SARS-CoV2. While he began to make a good progress on ventilatory support, I was overjoyed about it too prematurely, not foreseeing the possible upheavals. On day 11, at 4am, he had cardiopulmonary arrest. While the family was in sorrow, I remained in shock and despair grappling with how to make sense of this loss, limitation of medical intervention in such severe cases, wondering what life is about. While I struggled with these thoughts in my mind, the reality in front of me was jarring. His wife and children were tested COVID positive and were home-isolated. His body was shifted to crematorium where the municipal corporation officials performed his final rites after 3 days. In the meantime, his family desperately wanted to see and touch him at least. Their rues and insensitive remarks from crematoria staff had baffled me with questions on purpose of 'life', inevitable characteristic of 'death' and wondered if life ever holds any meaning after all. Above all,

the least I wanted to fight for, was urging for 'dignity in dying' for COVID patients at that moment.

### ***Fears, anxieties and bereavements***

During the early phase of second wave, the whole country ran into a state of havoc with acute shortage of oxygen, bed availability, poor vaccination coverage, etc. I swayed between the comfort of having both my parents fully vaccinated and fretting about newer mutant strains of COVID that cause severe course of illness despite recent history of immunization. I vividly remember witnessing the death toll from COVID reaching at its worst peak in May 2021 in India. I kept receiving information about many close relatives, friends and their parents, neighbours contracting infection, unable to access medical facilities and some near and dear ones died despite intensive medical interventions. It was a series of losses and my emotional turmoil was unfathomable.

Amidst this widespread chaos in many parts of the country, my father had myalgia after a weeklong strenuous work masquerading the initial course of his infection. A few days later, he complained of feeling easily fatigued, loss of smell and taste that have not improved to date. I started him and my mother on Favipiravir 1600mg/day pre-emptively. He was later tested RT-PCR positive for COVID while my mother and I were tested negative. I kept performing serial monitoring of vitals, blood markers of COVID. On day 8, he developed dyspnoea with SpO<sub>2</sub> dropping to 80-86%, improved on proning and O<sub>2</sub> support (using concentrator). The following night, my mother developed chest pain and breathlessness, found to have pneumonia on CT chest. This escalated my concerns about their survival (there was nearly a week-long waiting period to get a bed in any hospital in the city). My parents were increasingly worried and have been expressing their wishes and dreams for me which felt like those might turn out to be my last few moments with them.

I was very much caught between fears of losing them, a sense of isolation while taking care of them, frustration about my helpless state as I kept failing to get them a hospital bed at the earliest, overwhelmed and exhausted at grieving serial losses of many of my near and dear ones. My attempts to instil hope about my parents' recovery had at times raised doubts in me, wondering "Am I in denial as I was when my uncle's radiographic findings reflected his critical condition? (It was compounded by anniversary grief reaction of losing uncle)". They recuperated in a week with the entire medical management conducted by me at home. My nursing and medical care for my parents had gone beyond the recommended period of observation. I kept monitoring their vitals and blood markers even after 3 weeks of COVID infection due to my anxiety around not-to-miss any sign of clinical deterioration. Now I understand all of my redundant efforts were essentially to overcome my fears since a part of me was persistently denying that my parents had already recovered and also I was scared of being at ease while attending them. I would like to emphasize that I was able to sail through this worst phase, mainly with the help of clinical management protocol laid out for SARS-CoV2 by expert physicians across the country and the abundant literature available in the public domain helping me and many to understand the disease process and treatment. This pandemic has not only tested my resilience but also given me an opportunity to reconsider 'what makes a good life' and 'how good life is' I am grateful for every bit of kindness and support coming in my way. I certainly value my life and significant people in my life more than ever before.

The three authors have got an opportunity to '*ventilate*' via this narrative, but there must be many others still struggling to come to fact regarding the reality/change/loss/pain/grief ushered in by Covid. This gives the mental health professionals an opportunity to prepare themselves to gear up for the unseen tsunami of mental health issues in the population.

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## Chapter-21

### Grief during the COVID-19 pandemic: Lived experience

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#### Covid: Beginning of trauma (November, 2020)

Initially I did not have worries about the pandemic in my mind as in my entire life, I never imagined something like this to happen in my life, but of course saw in movies only. Yes, I heard about it in news, that an infection has spread out, Soon I learnt that elderly, especially those with physical morbidities are at a higher risk of developing the infection.

#### My worries and Apprehensions

I just wanted my parents safe and healthy! My parents were in seventies, Papa was approaching 79 and mother is now 73-year-old. So, I had this constant fear of losing them. I was so concerned for their safety that I did not visit them at home nor did I ask them to meet me at my place so that we do not infect them unknowingly. I used to remind them constantly about the importance of taking precautions and following all the guidelines. Fairly they did follow all the precautions to the best of their knowledge and as a result they successfully managed to stay away from any infection in the first wave of COVID-19 pandemic but who knew by then that history would be repeated in future. Initial months of the 2021 were very crucial and dangerous for all with number of patients mounting and number of deaths increasing silently.

. I would often call and remind my parents to be cautious and alert but always had deep in my mind a strange fear which I often used to share with my spouse who herself lost her father only in the month of April 2021 due to Cerebral attack and later COVID-19 related issue. That was a big setback for her

and me and we were trying to move forward from that terrible jolt.

#### Persistent Helplessness

Those days of struggle were painful in the sense that I was at Lucknow in very dreadful situation as all the Government hospitals got full of the COVID patients and casualties were increasing fast. Whole of the Lucknow witnessed paucity of oxygen; people were dying because of the absence of the oxygen cylinder. Caregivers of the patients were waiting outside of refilling centre with hope in their eyes and commitment to the save the life. During this period my parents developed COVID-19 infection. For me wait for the betterment of the parent's symptoms that too not being able to stay with them, only receiving feedback shared by brother was quite distressful. I only prayed and expected their speedy recovery. I was restless but could not do anything. Within few days, my mother started showing some improvement and was manageable but Papa was still symptomatic. His condition kept on deteriorating and he developed severe respiratory symptoms. He had poor appetite, discomfort in the chest, severe bronchitis, and sleeplessness. My brother would stay awake whole night by his bedside to give herbal medicine to manage the discomfort. It is disturbing to imagine all that particularly when you are not there My elder brother was taking care of both parents alone with minimal staff in such environment where almost no medical help at any government or private hospital at Sitapur. There was only bleak hope to get my father admitted at Lucknow for which none of them had thought nor was my Papa mentally prepared due to the impression that nobody gets back if one

reaches at the hospital. Overall, the scenario was really frightening and pessimistic everywhere.

### The day when it happened

Papa was in the hospital on night of 24<sup>th</sup> April as he reported discomfort and chest congestion. Putting up the Oxygen mask was unpleasant to him so he would not put mask in spite of many requests. Papa reported restlessness and unease at the hospital and his complaint was somewhat apt as frequency of causalities in the hospital and nearby beds were increasing and Papa and brother both got frightened after seeing the plight of admitted patients as there was no one to care for them and decided to get him back to home in early morning without realizing the consequences of dropping of oxygen level. Me and my brother were on phone and trying of manage the availability of cylinder by contacting different people. In the meantime, two more people in my family (cousin elder brother and brother-in-law) were struggling for life at Kanpur with the same problem. On 23<sup>rd</sup> April my cousin brother expired, we did not tell this to Papa.

I also enquired and contacted for the availability of Oxygen cylinder and ICU bed at another hospital in the morning of 25<sup>th</sup> April. I informed elder brother about it and suggested him to bring him at once. But papa and bhaiya were not in favour of any more admissions in the hospital after watching pathetic condition of fellow patients in the hospital at Sitapur. Papa was anxious, restless and not comfortable for admission in the hospital. Papa could not realize that his ignorance and fear were going to worsen his condition.

On 25<sup>th</sup> April, while I was going through the distress, one of my psychology colleagues who was familiar with Reiki therapy contacted me with helping gesture and offered her healing session for Papa's symptom management. To my surprise she told me on the morning of 25<sup>th</sup> April that today is very crucial for Papa's life. There is "MRITUYOG" on him, and we should chant Mahamritunjay Mantra for safety of his life. I could not resist her suggestion and started chanting the mantra. I was not aware

that her information is going to be true by the night.

As the day passed, Papa's condition started deteriorating more, he was restless, talking irrelevantly, was not able to balance himself while walking. By evening his condition got more serious, we saw poor cognition, decision making, and orientation. He suddenly came out from his room and started pouring water on him with the help of tumbler under the impression that he has not bathed since morning, which was not true. It was clear that his cognition started getting dysfunctional, that was enough for us to take a quick decision to rush him to, KGMU, Lucknow. I have my friend in the Department of Psychiatry; I explained her and requested her to arrange a bed in the COVID ward. She somehow arranged and booked one bed, in the meantime brother arranged ambulance and oxygen cylinder and asked Papa to get into the ambulance. By now clock indicated 7 or 8 pm, I was arranging bed on phone and checking the availability of oxygen cylinder. Somewhere around 10.30 pm father reached hospital. On reaching the hospital my brother informed me that he was not getting the place to admit Papa, while I was on my way to join him in the hospital. After 5-7 minutes I noticed that my brother was not calling me. I somehow reached the hospital running, crossed the upstairs, with pain, fear in the eyes and mind, and strange weakness in the entire body. Persistently looking for Papa and brother, someone noticed me and directed me to go in one direction. I saw someone lying on the stretcher, my brother standing close to him. It was Papa, lying, still, with open mouth, closed hand and eyes, wearing pyjama and shirt. My brother did not say anything to me. I almost yelled on the attendants to put him on the bed and to give him oxygen. My brother said that papa have left us, there is nothing left now. I did not believe what he said, went to the doctor and urged to examine, but they were taking time to examine Papa. One of the assistants came and tested oxygen level, showed us the oxygen level which was 95%, but it was not true. My Papa was lying still on the bed. I saw my brother rubbing gently his hands on the face of Papa, loving him, cleaning droplets of

blood which he vomited while being shifted from ambulance to the hospital stretcher. Suddenly I started feeling guilty that I should have been there in the hospital before my father arrived. That time I wanted to be punished hard. Biggest punishment is that I would never be able to forget this truth that I got late to meet him, attending him when he was taking his last breath, when he was shifted to stretcher of the hospital. Sometimes, I sit and think "Could I have saved him, if I had been there with him when he was being shifted. Only God knows this truth but my truth is that I was not there in his last moments. We did not say anything to each other. We were numb, speechless, we were blank, we could not cry, scream or say anything but the truth was that we were standing in the hospital with our Papa who was no more. I touched, felt and saw my Papa who was lying on the bed never to come back. Yes, we lost him forever.

Some more time passed and concerned doctor came, sent us out and checked for the vitals, discussed something to other colleagues. They did not tell me or my brother directly but we both knew the truth. My friend from KGMU called me up and informed me doctor's version. We requested hospital staff to arrange and complete the formalities so that we can take Papa back to Sitapur. I informed my spouse and all others about the sad demise of Papa. We headed towards Sitapur.

Throughout the way, none of us could dare to talk. We were shattered, in pain, and strange situations, approaching home rapidly, I felt that time was running fast, I wanted the journey to never end, I did not want to face Ma. We reached Sitapur around 3.45 am in the morning. Out there every one was standing, skeptical; we shifted Papa on the ground from ambulance, sat quietly with dry eyes. Everyone was crying like anything, I was surprised that I could not cry, though I wanted to cry but don't know why I could not cry like others. We were sitting next to Papa whole night, my mom observed me sitting quietly and said to me "*thoda ro lo. Man halka ho Jaigea*" but I could not. My brother was crying a lot, like a child, I tried to console him. We saw the dawn, black one for us. We

proceeded for last rite rituals of Papa. I was suggested by Ma to complete the rituals of Papa. I was in the cremation ground with Papa. We performed all rituals as suggested by the person in charge at cremation ground, waited some time there and returned back empty-handed like a defeated one. We all three, me, my brother and Ma were trying to be normal but is this so easy?

### Personal discourse

Everybody thinks differently, acts differently on the basis of their perception of reality. If individuals are not really concerned for any particular event and it happens, we don't accept it. Individual starts contemplating on his events, experiences and tries to rationalize, try to find the reasons for the events. Same happened with me; I started looking for the explanations regarding the event. My brother had some cough and cold somewhere around Holi festival, I am not sure if he was infected or not, but he had it since quite few days, and he did not go for investigations, he took some local medicine and he was okay after it. This was the time when my parents decided to go to his place to stay with him, as Papa would love staying with my elder brother. I even asked and checked with my elder brother "Is it okay if parents come to stay with you". As per his understanding, he couldn't find any grounds on which they shouldn't come and approved it although I was not comfortable with this decision but any ways, me not echoing with my brother could not change my brother's and my parent's decision. I often feel that I should have pressurized my brother not to let them come at Sitapur, I should have used loud voice and words to make them realize the threats of infection and virus, then probably conditions would have been better. But who knew the future, If something is destined to occur, it will against all your determination and consistent effort to stop it. They both had fever only after a day of their arrival at Sitapur at Uttar Pradesh which is working place of my brother. That was enough for me to imagine and expect the further consequences which I never wanted to be true. But life doesn't offer you all that you wish. Life comes to you in multidimensional and multicolored format.

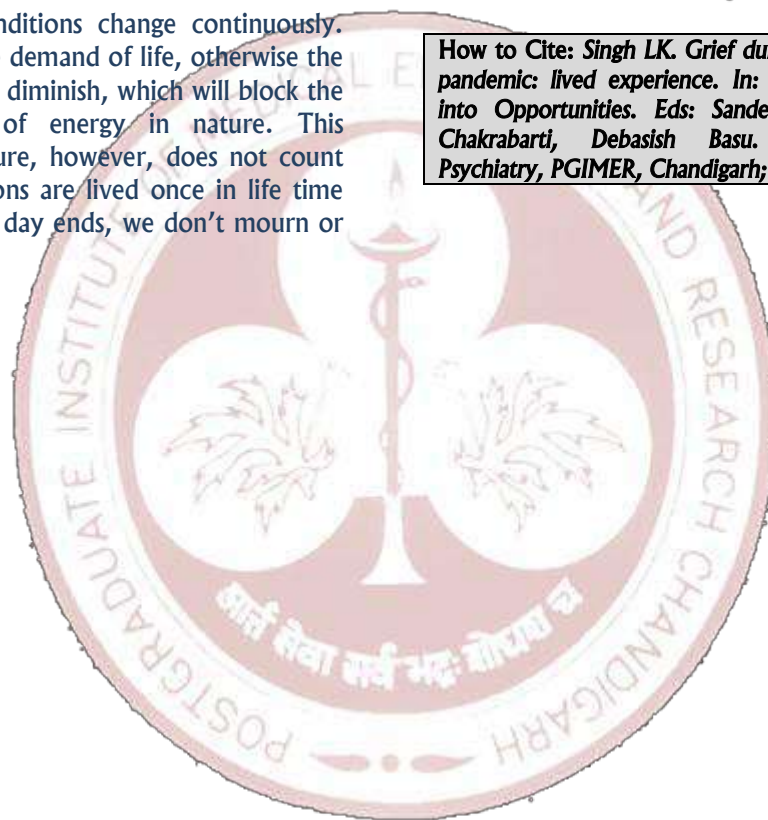
Yet another challenge was that soon after the demise of my father, my elder brother and his family members were also found to be positive for COVID-19. We all got so anxious and frightened, different frightening thoughts and images started appearing in mind. We were already shocked and jolted and did not want anything more. I reached his place and tried to help whatever I could. Thankfully, after initial struggles, he recovered. That was the only silver lining in my otherwise clouded mental sky.

### Life needs flow

Life and its conditions change continuously. Continuity is the demand of life, otherwise the essence of it will diminish, which will block the dynamic flow of energy in nature. This principle of nature, however, does not count relations. Relations are lived once in life time mostly. When a day ends, we don't mourn or

feel sad because we know, it will come again, we know seasons are also determined to be repeated. Can relations be repeated? Usually not. I think this is why we feel anxiety, fear, threat and pain when we think of them or lose it. We know that if once lost, we will not get those relations again ever in the life. We are not mentally ready to live without our loved ones. You will be surprised to discover that this realization is so powerful and threatening that it is difficult to keep in the mind consciously. It silently goes deep down in our unconscious mind and rest there only to be surfaced when any such event occurs.

**How to Cite: Singh LK. Grief during the COVID-19 pandemic: lived experience. In: Turning Challenges into Opportunities. Eds: Sandeep Grover, Subho Chakrabarti, Debasish Basu. Department of Psychiatry, PGIMER, Chandigarh; 2021, p92-95.**



## Chapter-22

### Experience of working in a COVID ward as a trainee resident

Gopika Jagota

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COVID-19 was declared a pandemic by the World Health Organization on 11<sup>th</sup> March 2020, and in no time the country went into a nationwide lockdown on 24<sup>th</sup> March 2020. Outpatient services were suspended for some time, wards had lesser patients and everyone started preparing for what was to come. As a resident, I knew, it would only be a matter of time, that I would have to work with patients infected with the virus.

From March to May 2020, what ensued could only be described as total chaos. Everyday news from all over the world was pouring in about the complications of the disease, the deaths and the grief that followed. All the discussions would revolve around the number of cases and how they were rising, about how the whole world had come to a standstill by a mere virus. Conspiracy theories were galore and so were different trends on the social media. The bad outweighed the good on most days and everything seemed bleak. In around April 2020, we were asked if we wanted to do duties in the COVID wards, and I volunteered. Why I volunteered, was a question I would at times ask myself later. Maybe it was to be useful, play my part or lessen the burden I had been feeling.

In May 2020, I got posted in the COVID ward and the roster came out a week before. I was to be in the evening shift, looking after the private wards in the COVID ward area, i.e., Nehru Hospital Extension Block. Although, I had been anticipating the duty, I felt a range of emotions on seeing the roster. Among most of my friends, I was amongst the first few to go to COVID duty. A lot of news regarding lack of masks, personal protective equipments (PPEs) and violence against doctors were doing rounds at that time. My

family and friends would call me after watching the news, scared and proud at the same time. Then came the training, we were called to the auditorium on a particular day and were told about the donning, doffing procedures and about what was required of us. The fear of unknown was palpable in the air. We were asked to remain in touch with our friends and families, to “gear up” for an invisible enemy and were given the title of “COVID Warriors”. I came back home, thinking whether this is how warriors felt? The fear, the uncertainty and the sense of loss. This lasted for a day, and then the acceptance washed in and I was ready for the duty.

The first day of the duty, I found everyone to be very cooperative around me. There was a nurse helping us in donning and telling us how to navigate around the ward. I was the only doctor on the floor and on first two days, the patients were less. Being the only doctor there, I quickly realised that it wasn't just tending to the patients that I had to do. I had to look after the administrative stuff, coordinate with the nursing staff and other hospital staff and also with the administrative and medical staff working from the control room. Doing all this wearing PPEs became a challenge. Moving away from the fan meant that you were completely drenched in sweat and the sweat would even block your vision. These were not the challenges that I had anticipated and this was not something I was prepared for, but something that I learnt along the way. As a trainee in psychiatry, I had cultivated my empathy, but to see patients who were medically sick was not something I was used to on a routine basis. To see even a few patients worsening and shifting to the Intensive Care Unit (ICU) was a part of

re-training for me. First two days went more or less smoothly though. The cooperation and support pouring in from the staff, the department, friends and family was immense. A sense of accomplishment over the arduous duty hours had begun to set in. Video calling family, reassuring them on a daily basis became a routine. Mid-week of the duty, cases suddenly surged. We were getting a lot of positive cases and the ward was almost full no time. The duty phone kept ringing continuously, with different listings of the patients being asked for from the hospital administration, the UT administration and different government offices. That day became frustrating. The quality of care one wanted to give couldn't give, just because of sheer lack of manpower. Patients had just come in, they had to be monitored and their grievances had to be heard, which was getting difficult. As nobody had expected such a surge in cases, there was only one resident posted in the ward. That day was tough and when I went back to my room, I was too exhausted to think and process about what had happened and could only feel frustration washing over me. Next day onward, two more residents were posted in the ward on an immediate basis and it was a relief. Now, I found myself training them regarding what was expected of us and what was to be done. I had been lucky in being posted with two very cooperative co-postgraduate residents. The rest of the week went smoothly, with some discomfort in PPEs, but making new friends and working was gratifying. The duty came to an end, and quarantine started. A week of no work and free food in a hotel. It felt like a reward to the duty that had just ended. The cherry on the top was the appreciation that started pouring in; from the department, friends and family alike. I might've had to spend the quarantine period alone, but I knew that I was surrounded by a lot of well-wishers and people who cared. In between this period, I did feel whether I had done justice to the duty or not, whether I deserved the applaud I was receiving. As at the end, it was a duty I had to do, to uphold the Hippocratic oath I took when I became a doctor. A mix of emotions were swirling

through my mind and I let them wash over me and accepted the mixed bag.

After a week of quarantine, we had to get tested for COVID-19. The day after giving the sample, felt the longest during the whole duty. Multiple questions running through my mind and multiple scenarios taking shape in my mind. I wasn't able to rest till the report came negative. And then, just like that, it came to an end.

Working in the COVID ward during the pandemic, made me a part of something that was much bigger than me. It shaped my thinking in a different way, taught me a little administration and brought me back in touch with my medical side. I will always cherish this as an opportunity I got to learn and grow, not just as a doctor, but as a person.

**How to Cite:** Jagota G. *Experience of working in a COVID ward as a trainee resident.* In: *Turning Challenges into Opportunities.* Eds: Sandeep Grover, Subho Chakrabarti, Debasish Basu. Department of Psychiatry, PGIMER, Chandigarh; 2021, pp 96-97.



## Chapter-23

### Experience of a trainee following COVID infection

Sabaresh Pandiyan

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I would like to share my experience as a student, a patient and a doctor.

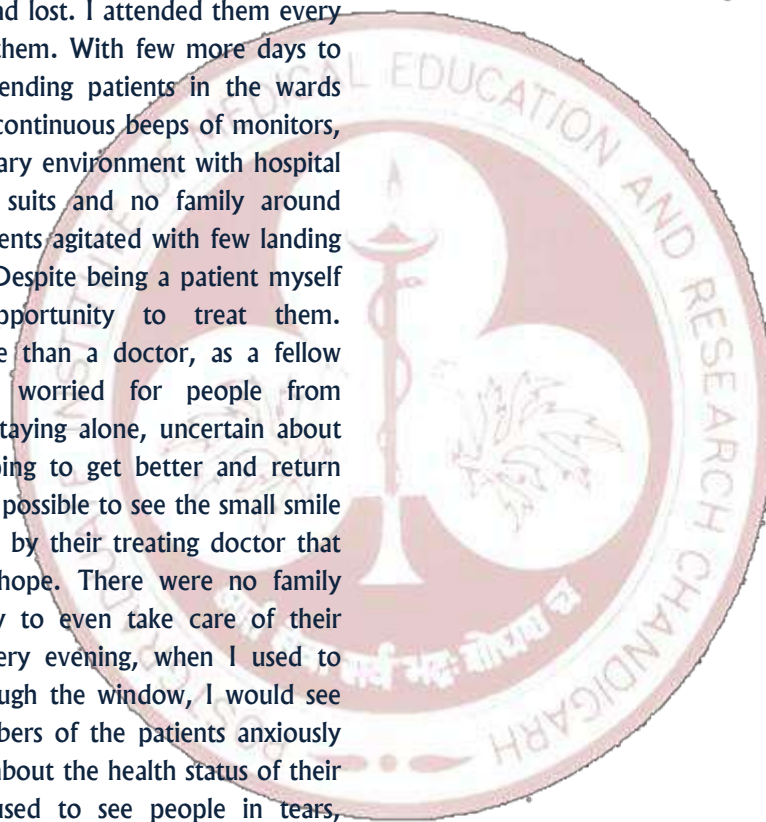
I was in the last year of my MD psychiatry with 2 months for my exams, when I developed symptoms of COVID-19. I developed fever, cough and rhinitis when I was posted in outpatient area. I was hopeful that it would be just a normal upper respiratory tract infection. But the fever persisted and rose up to 102°C, with severe headache and lethargy for next 24 hours. I got tested for COVID hoping that it would turn negative. As I was waiting for my reports, anxiously, I couldn't stop the thoughts racing in my mind, what if the report turns out positive, what about my exams, what if I had come into contact with any of my batchmates during this period. What if I develop a severe illness, how would I let my family know? as they were already terrified with the news reports. During this time, I got a call from one of my friends in medicine department asking that someone with my name had turned positive and if it was me. Seemed like a good way to break the bad news. Yes, I turned out to be COVID positive. The very moment, I was feeling guilty, was it my fault that I contracted COVID?, was it due to my carelessness?, With these going on, I got continuous calls from my batchmates, friends from other departments and my teachers supporting me and asking me to decide the place of quarantine. I was suggested to stay in NHE COVID hospital as there was no better place

than that. But I was worried that I had to be in quarantine for 16 days and how I could carry on with my studies. I prepared myself and called the ambulance and reached NHE. I was directed by the staff in Hazmat suits, as I was walking through the empty corridors, with lots of worries and little courage, I was a bit relieved when two of my friends on duty were there to receive me in the ward. They made the mood light, reassured me and walked along with me during the 6-minute walk test. I was relieved when the Spo2 was around 97%. I was allotted a room in the private ward where 3 of my colleagues were already admitted. I didn't want to scare my parents and just informed my brother about my infection and hospital stay. With new environment and my exams nearing and the stiff hospital bed and thin blanket with the oxygen pressure alarms beeping frequently in the night... I had difficulty in sleeping. The initial days were rough due to the severity of symptoms. My friends who were on duty used to regularly visit me during their shifts and along with that my colleagues around me and calls and visits from my teachers helped me to overcome my worries related to health and exams. I was fortunate that I developed a mild COVID, with the infection clearing, gradually more worries related to my exams came popping. The model exams for my whole batch were postponed due to my hospital stay. As I gradually improved, provisions were made to continue my exams from the hospital. I started reading the documents my batchmates used to send every day and we

had Google meets almost every night discussing topics, so that I could stay in my exam mode. As my symptoms subsided, with one more week of quarantine, I received a call from my consultant if I could attend a family admitted in NHE in which all the family members were admitted in the hospital and one of the family members had expired that morning. It was this time I came face to face with the harsh reality of COVID, that helpless situation of the family, if they should worry about their own health or grieve their close one who they had lost. I attended them every day to counsel them. With few more days to go I started attending patients in the wards and ICUs. The continuous beeps of monitors, in an isolated scary environment with hospital staff in hazmat suits and no family around made many patients agitated with few landing up in delirium. Despite being a patient myself I had the opportunity to treat them. Sometimes more than a doctor, as a fellow patient, I was worried for people from faraway places staying alone, uncertain about their future hoping to get better and return soon. It was not possible to see the small smile or a reassurance by their treating doctor that gives a ray of hope. There were no family members nearby to even take care of their basic needs. Every evening, when I used to look out through the window, I would see the family members of the patients anxiously waiting to hear about the health status of their loved ones. I used to see people in tears, praying for their loved ones, I heard about a father who was willing to donate his lung for his severely ill daughter and many more. I realized that not only the healthcare workers but the caregivers play an important role in recovery. I had my colleagues and friends throughout my hospital stay who helped me to sail through the hard time. I realized that a strong moral support is equally important to the medications in bringing back the patient to normalcy. The presence of a caregiver or a support system nearby would have made

everyone's journey a bit easier. Those five days during my admission when I started seeing patients gave me a different perspective towards the illness and life.

**How to Cite: Sabaresh P. Experience of a trainee following COVID infection. In: Turning Challenges into Opportunities. Eds: Sandeep Grover, Subho Chakrabarti, Debasish Basu. Department of Psychiatry, PGIMER, Chandigarh; 2021, pp 98-99.**



## List of COVID Warriors of Department of Psychiatry

<b>Faculty</b>		
SK Mattoo Adarsh Kohli Debasish Basu Subho Chakrabarti Ritu Nehra Sandeep Grover	Shubh Mohan Singh Subodh BN Ruchita Shah Akhilesh Sharma Aseem Mehra Renjith R Pillai	Krishan Kumar Soni Swapnajeet Sahoo Nidhi Chauhan Shalini S Naik Devender Rana Lalit Kumar Singh
<b>Senior Residents</b>		
Anish Shouan Devakshi Dua Dalton N Fazl e Roub Ravikanth Tangella Venkatesh Raju Jyoti Singh Sai Chaitanya Seema Rani	Tathagata Mahintamani Rahul Chakravarty Yumnam Sana Kshitiz Sharma Pranshu Meha Verma Chandrima Naskar Gayathri Rajan Shantanu Shukla	Kartik Singhai Himani Adarsh Bhavika Rai Komal Kohat Ajaypal Singh Gopika Jagota Sabaresh P Velprasanth
<b>Junior Residents</b>		
Ankit Sinha Kushagra Tamta Vijeta Rajeet Kumar Abhilaksh Kango Honeydeep Singh Parvaiz Alam Fareed Omer Ashish Bansal Akshayee Kale Sauvik Das Sanjana Kathiravan Aarzo Suman	Abhinav Aditya Amit Jindal Nidhi Yadav Raj Laxmi Babita Sharma Shaheena Parveen Manpreet Singh Eepsita Mishra Priyanka Paliana Shivaneer Kumari Rika Rijal Harshit Navdeep Singh	Kanwar Bir Singh Amandeep Kaur Pranshu Sharma Nikhil Kamal Shubham Tiwari Kanika Sethi Promil Redhu Jaspinder Abbal Devika Chauhan Namrata Chaudhary Nishtha Chaurasia Surabhi Gupta
<b>Clinical Psychologists/ Play therapist/ Vocational Guidance Instructor</b>		
Rama Malhotra Satwinder Singh Saini	Deeksha Sachdeva Sushma	Shobha Yadav Tarsem Sekon
<b>Psychiatric Social Workers</b>		
Manpreet Kaur Neetu Rani O.P Giri	Senthil M Krishan Kumar	Pritpal Vikram Yadav
<b>OPD Staff</b>		
Sarika Sharma Devender Kaur Austin Stanley Reena Dhiman Raina Sharma	Aarti Chawla Sukhdev Sahota Kishan Kumar Geeta Rani Piar Singh	Sukhwinder Singh Sushil Kumar Bhinder Kaur Renu Bala Jimmy Goyal
<b>Ward Staff</b>		
Jaswinder Kaur Veena Rani Deepinder Kaur Ranjit Kaur Reeta Ahuja Santosh Devi Parveen Lal	Ravneet Kaur Kamal Kumar Deepesh Soni Manisha Sharma Rajesh Bijarniya Simran Grover Sukhbir	Mukesh Kamlesh Sidam Balinder Angrezo Vinod Kapil

Sonia Manoj Kumar Parmod Kumar Himshikha	Sachin Sunita Veer Singh Surinder	Khajani Mukesh Sachin
<b>DDTC Staff</b>		
Kamlesh Venus Bhatti Vimal Dhawan Asha Rajani Handa Renu Bala Sukhdeep Kaur Radha Krishan Jala Ram Pardeep Kumar Ranveer Sarbjeeet Kaur Asha Dembla Anwar Ahemad Naveen Kumar Sunita	Ashu Sohan Puneet Hemant Kiran Kashmir Chand Verma Rajinder Kumar Raminder Dhawan Gurwinder Hari Singh Lalit Mohan Bhandri Rajesh Kumar Ankush Kumar Pawan Bharti Jagdish	Sandeep Situ Ram Such Nirmala Rajesh Pardeep Sachine Jaspreet Singh Gurvinder Singh Pardeep Kumar Shri Ram Taranjeet Singh Monika Sharma Ran Vijay Ram Sukh Sarabjit Kaur
<b>Office/ Telepsychiatry Staff</b>		
Harinder Kaur Lalita Maggon Anita Malik Vinod Kumar Gupta Bal Kishan	Nitesh Amita Thakur Sachin Satpal Hemant	Amarpreet Singh Hariprasad Meena Kiran Pradeep

## List of papers on COVID-19 published from the Department

### Position Statement/SOPs/Guidelines

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1. Ghosh A, Mahintamani T, B N S, Pillai RR, Mattoo SK, Basu D. Telemedicine-assisted stepwise approach of service delivery for substance use disorders in India. *Asian J Psychiatr*. 2021;58:102582.
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2. Basu D. Sophie's Choice: The costs of the COVID-19 pandemic versus the costs of its "Treatment". *Indian J Soc Psychiatry* 2020;36: S93-4.
3. Basu D. *The Plague* by Albert Camus, The COVID-19 Pandemic, and the Role of Social Psychiatry – Lessons Shared, Lessons Learned. *World Soc Psychiatry* 2020; 2:51-6.
4. Grover S, Rani S, Mehra A, Sahoo S. COVID-19 pandemic: A crisis for health-care workers. *J Mental Health Hum Behav*.2020; 25:1-4.
5. Grover S. COVID-19 and cognitive impairment: A new challenge for the elderly. *J GeriatrMent Health*.2021; 8:1-2.
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## **Position Statement/SOPs/Guidelines**

1. Basu D, Ghosh A, Subodh BN, Mattoo SK. Opioid substitution therapy with buprenorphine-naloxone during COVID-19 outbreak in India: Sharing our experience and interim standard operating procedure. *Indian J Psychiatry*. 2020; 62:322-6.
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MISCELLANY

# Opioid substitution therapy with buprenorphine-naloxone during COVID-19 outbreak in India: Sharing our experience and interim standard operating procedure

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## ABSTRACT

Coronavirus disease 2019 (COVID-19) has been declared as a pandemic by the World Health Organization on March 11, 2020. It has affected most countries of the world, including India. Both the disease and the unavoidable national response to it have posed unique challenges to our health-care system. A particular vulnerable group of patients is those with opioid dependence maintained on opioid substitution therapy (OST). These patients are pharmacologically dependent on the OST medication (buprenorphine, buprenorphine-naloxone combination [BNX], and methadone) for their healthy functioning and recovery. COVID-19 outbreak, lock-down, and difficult access to medical care, all are likely to induce stress and withdrawal, which is a potential risk for relapse among individuals with opioid dependence, who are anyway more vulnerable due to social, housing, living, and medical conditions. In this context, it is essential to re-strategize the existing OST services to adapt to the challenging circumstances. In this communication, we share our experience and formulate interim standard operating procedures (SOPs) for running a hospital-based OST service utilizing take-home BNX. The challenges, principles to meet the challenges, and interim SOPs are shared as being currently practiced in our center. Individual institutes, agencies, hospitals, and clinics running OST service with BNX can adapt these SOPs according to their characteristics, needs, demand, and resources; so long as, the basic principles are adhered to.

**Key words:** Buprenorphine-naloxone, coronavirus disease 2019, opioid substitution therapy, pandemic, standard operating procedures

## BACKGROUND AND RATIONALE

Coronavirus disease 2019 (COVID-19), caused by the coronavirus severe acute respiratory syndrome

coronavirus 2, was first detected in Wuhan, China in December 2019 and rapidly spread to most other parts of the world including India. It was declared as a “Public Health Emergency of International Concern” by the World Health Organization (WHO) on January 30, 2020, and further as a “Pandemic” on March 11, 2020.<sup>[1]</sup> In India, the first case of COVID-19 was detected in the last week of January 2020. The number of confirmed cases has

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been rapidly rising (more than 3000 as of this writing on April 4, 2020), with no signs of relenting as yet. The Government of India believes that, barring a few high-risk areas (or states), widespread community transmission of COVID-19 (stage 3 of an epidemic) has not started yet. As an aggressive precautionary measure to break the chain of viral transmission, the government has imposed an unprecedented whole-country lockdown since March 25, 2020, for 3 weeks as of now. The inter-state borders have been sealed to restrict nonessential movement. All modes of public transport have been shut down; all services other than essential services have been closed down. Moreover, all outpatient-based medical services (nonemergency) have been withheld for indefinite periods. Finally, some states and union territories have actually imposed a legal curfew.

Opioid substitution therapy (OST) for opioid-dependent patients is an evidence-based, effective outpatient department (OPD)-based treatment. In view of the lockdown, curfew and other restrictions on movement and supplies, a potential suspension or glitches in maintaining the OST service is a real threat. The disruption might result from limited availability of staff, difficulties in procuring the agonist medication from the manufacturers, and barriers created by the lack of transport and restricted movement to access treatment. The consequence of such disruption of service would be both immediate and far-reaching. COVID-19 outbreak, lock-down, and difficult access to medical care, all are likely to induce stress and withdrawal, which is a potential risk for relapse among individuals with opioid dependence, who are anyway more vulnerable due to social, housing, living, and medical conditions.<sup>[2,3]</sup> We suspect that the availability and access to illicit opioids and injection equipment would also be restricted under the current circumstances, which would encourage individuals to take resort to high-risk patterns of drug use (a transition from inhalational to injection route and sharing injection paraphernalia).<sup>[4]</sup> In the long run, we might expect patients to dropout from the OST, digressing from the path of recovery with serious socioeconomic and health-related complications.

In this context, it is essential to re-strategize the existing OST services to ensure the availability and access to services in the face of several structural (limited availability of human resources, restricted supply of medications) and attitudinal (fear and anxiety of health-care workers) problems.

There are a few recent guidelines from the USA<sup>[5,6]</sup> and Europe<sup>[7]</sup> regarding this and related issues, but the infrastructure, resources, regulatory provisions, and administrative procedures are different from those of our country. As such, there is an urgent need to formulate guidelines and standard operating procedures (SOP) aligned to our settings.

In this regard, we share our experience from the Drug De-addiction and Treatment Centre (DDTC), Department of Psychiatry, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, and provide interim SOPs as being currently practiced in our center. We believe our experience may help other OST facilities to reorient their OST programs according to their characteristics, priorities, needs, and resources. Further, these may also help to make decisions during future epidemics should they occur.

## SHARING OUR EXPERIENCE

DDTC, Department of Psychiatry, PGIMER, Chandigarh, has been running its OST service since October 2013. In this service, selected patients with opioid dependence meeting certain selection criteria are put on buprenorphine-naloxone (BNX) sublingual tablets after obtaining written informed consent and counseling. They are examined medically and undergo appropriate investigations. They move through induction, stabilization and maintenance phases, and are provided BNX take-home doses along with group counseling sessions during the initial two phases followed by individual counseling on as-needed basis at the maintenance phase. They are dispensed BNX on a daily basis during the induction phase (about 1 week), weekly basis during the stabilization phase (about 6 months), and fortnightly basis during maintenance phase (after 6 months). If a patient misses the take-home dose for more than a month or drops out and return with relapse then they are freshly re-assessed for OST. The tablets are dispensed by a pharmacist who keeps record of the tablets dispensed with signatures of the patients. A "Recovery Model" of OST is adopted whereby each patient is periodically assessed for recovery goals in terms of abstinence from opioids and other substances, educational/vocational functioning, family functioning, social functioning, pursuing hobbies and other goals in life, and reintegration with the broader society in general. The OST clinic is run on OPD basis on Tuesdays and Wednesdays. We receive about 60–70 OST patients every Tuesdays and Wednesdays, and a trickle of patients on other working days for scheduled (government employee or other professionals on Saturdays) or unscheduled visits.

## CHALLENGES FACED DURING COVID-19 OUTBREAK FOR THE OPIOID SUBSTITUTION THERAPY SERVICE

- How to run the OST service in the context of complete closure or severe restrictions on OPD functioning
- How to carry on in-person medication dispensing (in view of the fact that buprenorphine and other controlled substances under Schedule X and Narcotic Drugs and Psychotropic Substances Act are not permitted for prescription under the recently approved Telemedicine Practice Guidelines)<sup>[8]</sup>



- How to maintain social distancing among patients and staff at the OST Clinic
- How to maintain supply of BNX to patients on OST in the context of travel restrictions
- How to maintain supply of BNX to the center
- How to manage the service with less-than-usual workforce.

### PRINCIPLES TO MEET THE CHALLENGES

- Emphasize more on maintaining OST supply to those who are already stabilized on it, and relatively less on diversion and misuse issues at this time
- Enhance social distancing at the OST clinic by mechanical segregation and improvising the patient access to service area
- Maintain the service for already existing patients
- Enhance the duration of take-home doses
- Minimize service requirements
- Enhanced flexibility in the system
- Openness to revise the program based on experience.

### INTERIM STANDARD OPERATING PROCEDURES AS BEING CURRENTLY PRACTICED IN DRUG DE-ADDICTION AND TREATMENT CENTRE, POSTGRADUATE INSTITUTE OF MEDICAL EDUCATION AND RESEARCH, CHANDIGARH

Note: Individual institutes, hospitals, and clinics running OST service can adapt these SOPs according to their characteristics, needs, demand, and resources; so long the basic principles as mentioned above are adhered to.

1. OST group counseling on face-to-face basis to be suspended as of now. Meetings may be attempted using online platforms (e.g., Zoom) if feasible
2. Urine testing for drugs to be suspended as of now, other than exceptional cases on strong medical suspicion
3. No new patients to be started on OST induction at this time. Patients in acute need of treatment, for example, overdose, acute withdrawal, should present in emergency medical OPD, briefly assessed, and depending on assessment may be either provided with a short-term provision of BNX for withdrawal management, or admitted to de-addiction indoor facility for proper OST induction
4. For stable/maintained patients attending the OST clinic, medicines will be dispensed but case record files will not be taken out of the reception area
5. The patients will be allowed to enter the (a) outer hall, (b) reception/registration area, and (c) treatment area by batches of 5 each, controlled by personnel at each entry point
6. Everyone (including staff) will be asked to maintain a distance of about 6 feet from one another
7. The registration clerk will register the patients on the hospital information system as usual, but will also note down the mobile number of each patient so that later a tele-group meeting may be arranged by distance meeting software like Zoom
8. After entering the treatment area, nursing staff will carry out screening for COVID-19 by asking about the presence of symptoms, having a close contact with the disease or with symptoms suggestive of COVID-19, and international travel history in the past 1 month. If any of these is positive, the patient (after the doctor's consultation) will be referred to the emergency for further assessment of "suspected" COVID-19
9. Following the screening, the patients will be briefly seen by the duty doctor (Senior Resident) who will write prescription for 2 weeks (instead of the usual 1 week), specifying the exact number of tablets of BNX dispensed
10. After this, the pharmacist on duty will dispense the tablets. He/she will sign the medication-receipt register on the patient's behalf
11. The patient will immediately exit after collecting the medicine, and the cycle will continue
12. At no point in time will there be more than five patients in any given area. The personnel at the various entry points will coordinate the flow of entry and exit of the patients
13. Alcohol-based hand sanitizers will be kept at the point between outer hall and reception area for use by the patients. Another one will be with the registration clerk and a third one in the treatment area
14. For patients attending unscheduled or out-of-turn, they will be provided BNX till their next scheduled visit on Tuesday/Wednesday, maximum up to 2 weeks supply
15. For those patients earlier on OST but now missed their medications up to 4 weeks, or one or two scheduled OST attendance (depending on the stage of treatment), they will be provided BNX at their usual maintenance dose
16. However, those patients earlier on OST but now missed their medications beyond 4 weeks will require fresh induction on OST with the usual protocol
17. As of now, there will be no provision of home delivery of BNX for isolated/quarantined patients
18. Patients having difficulty of access to our OST service due to travel restrictions will be encouraged to access local OST services such as those for injecting drug users (IDUs) operated under the National AIDS Control Organization (NACO), other government or private OST facilities, Outpatient Opioid-Assisted Treatment Clinics (Punjab), or Drug Treatment Clinics (DTC) operated under the DTC Scheme of the National Drug Dependence Treatment Centre (NDDTC), All India Institute of Medical Sciences (AIIMS), Delhi
19. Arrangements will be made to procure and stock sufficient supply of BNX as per anticipated requirement, ahead of time
20. A message has been put up at PGIMER website that OST services for already registered patients will continue

in PGI but no new patients can be seen till the OPD is closed

21. Those presenting at Emergency Medical OPD with acute substance-related complications (including acute withdrawal or toxicity) will be reviewed by the Consultation-Liaison Team of the Department.

## OPERATIONAL ASPECTS

### Structural aspects for enhancing safety of patients and staff

The OST clinic area has been divided into three sections – waiting area, registration area, and consultation area. There are two glass doors separating these three areas. A maximum of 10 patients (preferably five) are allowed in the waiting area at any time, and five in each of the other two areas. A minimum physical distancing of 5–6 feet is ensured between patients and staff. All patients enter the registration premises after self-hand sanitization and take a seat. He/she does not have to stand in the queue and is called by the registration clerk on completion of one registration. A registered patient can enter in the consultation area if the consultation area has less than five patients.

In the consultation area, there are three consultation rooms. The COVID-19 screening by a trained nursing staff takes place in the first room. If the screening is positive, it is marked and the patient then sees the doctor. The doctor, in addition to prescribing BNX, refers the patient to the emergency COVID-19 desk (situated in a different building). Finally, the patient would take medication from the pharmacist and leave the clinic after self-hand sanitization.

### Functional aspects for enhancing flexibility of operation

#### *Schedule of the clinic*

The standard OST clinic for patients in the stabilization or maintenance phase runs twice a week in the afternoons. However, during the time of COVID-19 outbreak, the clinic was kept open for all working days, throughout the entire working hours (8:30 AM–5 PM). We are thus able to accommodate maximum number of patients, to avoid episodic gathering of patients, to minimize exposure both for the patients and health-care professionals (HCPs).

#### *Duration of the take-home-dosage*

All patients, irrespective of the phase of treatment (stabilization or maintenance), are given take-home medications for 2 weeks.

#### *Dispensing medication to a “reliable” third-party*

Patients' relatives, friends, and acquaintances are allowed to pick-up the take-home dosage of the patients. To ascertain reliability, patients are contacted on telephone, and the following points are clarified: the third party should be patient-designated; he/she will make sure that

the medication will be delivered to the patient as early as possible.

### Public health aspects for enhancing response to COVID-19 outbreak

#### *Information dissemination*

We believe that contact with the HCP during the OST clinic visit is an opportunistic setting to educate patients about the risks, prevention, and management about the COVID-19. All the patients are asked to self-administer a knowledge assessment questionnaire. Colorful posters explaining the mode of transmission, preventive measures, and symptoms are displayed in the waiting and registration areas. In the consultation area, we played the videos released by the government of India. Patients are also encouraged to ask questions to HCPs (nurses and doctors) about any questions on COVID-19.

#### *Minimize exposure and maximize the output*

Half of the workforce is working from home without compromising the multi-disciplinary nature of the clinic. However, all group sessions and individual-based sessions are suspended as of now.

All the HCPs are encouraged to wear three-layered surgical masks, single-gloves, and to wash their hand before wearing and after removing the gloves. HCPs practice social-distancing and ensure that the patients maintain the same too. The chairs, desks, and tables and door knobs/handles are cleaned every 2–3 h.

## UNMET NEEDS AND CHALLENGES AHEAD

There are a number of unmet needs and challenges ahead, some of which are mentioned below, with tentative suggestions:

- How to ensure regular supply of OST medication, in view of the restrictions on interstate transport of goods? (This is a major problem. The Government of India should declare buprenorphine, BNX and methadone as essential medications [this is also per the WHO List of essential medicines] and allow the transport of such medication, of course, with proper paperwork)
- How to induct new patients with opioid dependence on OST in view of OPD closure, patient and staff safety, mandated need for in-person assessment, and limited health-care workforce? (Tentative suggestion: such patients in acute need of treatment, e.g., overdose, acute withdrawal, should present in emergency medical OPD, briefly assessed, and depending on assessment may be either provided with a short-term provision of BNX for withdrawal management, or admitted to de-addiction indoor facility for OST induction)
- How to reach medication (BNX) to patients already on OST who are currently under quarantine, in prison, admitted elsewhere or self-isolated? (Tentative

suggestion: As mentioned above, BNX may be dispensed to their family members or close relatives after proper identification of the patient and the relative [who must carry both the patient's prescription OPD card and their own identification such as Aadhar Card] till the crisis period is over. Specific NGOs working in this area might be authorized to carry BNX for homeless persons on OST, though there are logistic and practical issues there).

#### Caveats

- The situation regarding COVID-19 outbreak has been evolving rapidly. Hence, the current SOPs as mentioned above are clearly interim. These may require further changes depending on the situation. However, they do lay down a framework for further action keeping in view the challenges and the principles to deal with the challenges
- These recommendations are for centers such as ours, prescribing and dispensing BNX only (not plain buprenorphine) and permitting take-home doses after induction. These may not fully apply to those OST facilities dispensing plain buprenorphine or methadone on daily directly observed treatment basis. It is recognized that settings operated under various government programs may receive and follow the guidelines/instructions from their competent authorities. For example, OST facilities operating under NACO for IDUs dispensing plain buprenorphine have been instructed that "OST drugs may be distributed for at least 7 days, based on the daily dosing and adherence level of IDUs, with issue of appropriate instructions."<sup>[9]</sup> Similarly, NDDTC, AIIMS has developed its own instructions for the DTCs including the methadone clinics operating under the DTC Scheme, which are broadly similar in general principle to those mentioned above.

#### CONCLUDING NOTE

These are difficult times for everyone, but more so for patients with addictive disorders, and especially those opioid-dependent patients pharmacologically dependent on OST for their healthy functioning and recovery. We hope that sharing our experience and these interim SOPs can

help those opioid-dependent patients on OST to continue to receive their medication. It is to be reiterated these are the SOPs being practiced in our center as of now. Individual institutes, hospitals, and clinics running OST service can either follow or modify these SOPs according to their characteristics, needs, demand, and resources; so long, the basic principles as mentioned above are adhered to.

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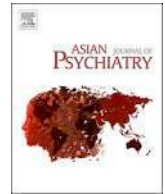
Nil.

#### Conflicts of interest

There are no conflicts of interest.

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## Why all COVID-19 hospitals should have mental health professionals: The importance of mental health in a worldwide crisis!



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### ABSTRACT

COVID-19 pandemic has led to a worldwide crisis. At present, everyone is focusing on the prevention of COVID-19 infection, preparing and discussing issues related to physical health consequences. However, it is important to understand that the life-threatening negative physical health consequences are going to be faced by a few, but everyone is going to face the negative mental health consequences of the pandemic. At various places COVID-19 hospitals are being established, to address the physical health consequences of the pandemic. However, mental health professionals have not been very actively involved in the management of people going through this pandemic. This viewpoint discusses the mental health consequences of the pandemic for the health care workers, people who are undergoing quarantine, people who are admitted to the COVID-19 hospitals, and those who have recovered from the infection. The article also highlights the mental health needs of people at different levels and the kind of interventions, which may be carried out.

### 1. Introduction

To say the least, the Coronavirus disease (COVID-19) has taken the world by storm. Within a short span of about 3 months, more than one-third of the world population is under lockdown and the infection has been declared a pandemic. Every day, the number of cases and the number of deaths related to COVID-19 are increasing. The COVID-19 infection has been mainly reported to be associated with respiratory symptoms, with the deaths being attributed to acute respiratory distress syndrome (Huang et al., 2020). From this point of view, COVID-19 appears to be a pure medical emergency. Keeping this in mind, across the globe, including India, many hospitals have been converted into COVID-19 hospitals or have opened COVID-19 wards. In most of the wards and the hospitals, the people involved are from Internal Medicine, Pulmonary Medicine, Intensive Care Specialists, experts from community medicine, etc. Mental Health Professionals (MHPs) are either not involved or are given roles in taking care of some of the administrative duties, with possibly little role in the clinical management of people with COVID-19 infection. MHPs have also possibly accepted this marginalized role in the management of this global crisis, considering we are dealing with a medical emergency.

### 2. Is this approach correct- are there mental health issues?

It is important to understand that the impact of COVID-19 pandemic extends beyond that of physical illness, and in fact, we would say that, it has mental health impact on more number of people than those experiencing the physical health impact. The numbers of people affected by the fear of COVID easily surpass those infected with it. We all will agree that the pandemic is going to affect everyone, sooner or later. Further, we all have to follow the lockdown, preventive measures of social distancing; face the fear of possibly getting infected, of infecting others, possible hospitalization, the uncertainty of getting a bed in the hospital at the time of the need, getting a ventilator at the time of the need, possible death, and if dead, a respectful cremation or burial as per our religious affiliations. Thus, compared to the physical health impact, which is likely to be characterized by flu-like symptoms for most, and a small but significant proportion developing severe symptoms and needing intensive care, the general population at large is braving the psycho-social impact of the illness (Asmundson and Taylor, 2020). Further, given the lockdown, significant socio-economic repercussions can be anticipated, which is again going to lead to a lot of psychological issues (United Nations, Social Impact of COVID-19, 2020). Similar situations have not been dealt with at this scale in the recent past. The novelty of the situation is perplexing for the lay public and health care

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workers (HCWs) alike.

### 2.1. Impact of Service reorganization and establishment of COVID-19 wards on HCWs

In terms of the hospital setting, till now, possibly, all the specialists were working independently in their departments, following hierarchy. Suddenly, the pandemic has called for the pooling of manpower from different departments to work together. This in itself is leading to a crisis. The majority of the people involved in the establishment and management of COVID-19 wards and hospitals are those, who are at the senior levels. These senior officials are typically used to giving orders, rather than taking orders. Further, for the first line HCWs, starting from doctors, nurses, laboratory staff, hospital attendants, people involved in security, etc, it is a different kind of crisis. They are worried about their safety and the personal protective equipment (PPEs), duties in the COVID-19 wards, need to be quarantined after the duty, worried about themselves getting infected and spreading the infection to their family members, etc. Further, they are haunted by some of the ethical dilemmas they are going to face, such as, what to do- if they have symptoms (to report or not to report- if they report, they would be considered as someone, who is trying to avoid the duty; on the other hand, if they don't, then what if they end up spreading the infection to others), what are they going to do when they have to prioritize death saving devices, such as ventilators, if the number of patients exceeds the resources (Kang et al., 2020; Rajkumar, 2020). Further, the treatment protocols are changing daily and many a time, there is no clear consensus on which medications or strategy to follow. The protocols for managing the COVID-19 positive cases are modified as per the settings and availability of medications/technologies/machinery. The guidelines made in one country do not suit the others and therefore, till now no universal management guidelines have been developed (WHO, 2020, CDC, 2020, MOHFW, 2020). This creates further doubts about the decision-making process of HCWs. Another important issue is whether or not to resuscitate with differing protocols across countries and settings. Therefore, many a time, the HCWs may face the dilemma of doing the best for the patients or risking a significant increase in exposure to aerosols. The HCWs may end up visualizing death helplessly, in contrast to their usual practice of making their best efforts (Edelson et al., 2020). Moreover, the COVID-19 wards have patients of all age groups ranging from new-born babies to elderly patients with multiple co-morbidities. All these issues create 'panic' and a 'worrisome' picture in the minds of the front line HCWs and it further adds to their anxiety.

### 2.2. Use of PPEs

In terms of PPEs, the whole process of donning and doffing the PPEs, have converted the HCWs to look different to their patients, who also have to learn to control their instincts and at the same time care for others. The HCWs are expected to be fully trained and prepared to use PPEs for a long duration. Moreover, the training needs are to be modified as per the educational status of the HCWs (for example training of PPE for doctors and nurses may not apply to other class of HCWs; the details need to be told in a more simplified manner as per the needs and exposure to patients with COVID-19).

Further, this is compounded by the fact that we have to economize the use of PPEs, so that no retakes are allowed, once they are in PPEs. Further, the HCWs are facing other issues like, going in close contact with the patient to collect the throat swab and carryout certain aerosol-generating procedures, all of which can lead to significant anxiety.

### 2.3. Managing quarantine centres

Personnel who are maintaining the quarantine centres/facilities are facing challenges of keeping the situation under control, so as not to

spread the infection.

### 2.4. Emergent mental health issues in HCWs

All these situations are bringing up a lot of mental health issues, like anxiety, fear, depression, insomnia, low self-esteem, excessive use of substances, etc, to say the least. Further, these problems are leading to frequent interpersonal issues among the HCWs, between the first-line workers and the administrators; HCWs, and human resource administrators. Literature suggests that "Every clinician, is also a patient"(Lai et al., 2020).

### 2.5. Emergent mental health issues in patients with COVID-19 infection, those in quarantine and their family members

Besides, the HCWs, there are 3 other categories of people, who are facing a mental health crisis, i.e., those who are quarantined, those who have been diagnosed with COVID-19 infection and their family members. Those who are quarantined, especially, at the facilities outside their home are facing an unprecedented situation of social isolation, social disconnectedness, loneliness, anxiety, depression, phobia, fear of getting the infection, etc(Brooks et al., 2020). Further, if they are being tested, they have to face, the uncertainty of the test results. Those who have been diagnosed with COVID-19 infection are getting hospitalized, and rightly so. However, they are facing, similar mental health issues of social isolation, social disconnectedness, loneliness, anxiety, depression, phobia, fear of getting the infection, etc (Brooks et al., 2020). Additionally, they are feeling stigmatized, in the hands of the HCWs, with a reduction in empathy due to the use of PPEs, while being taken care of. Further, they are facing uncertainties towards the late stage of their admission, with respect to test reports being positive or negative. These people are also going through the psychological issues of anger (who infected me), guilt (spreading the infection to their family members and others), self-stigma, and anticipatory stigma (how are people going to react to them, after they get well). It is also often seen that it is not one person, but often the whole family or multiple members of a family are found positive. Due to this, people, while being in the hospital are also worried about the health of their near and dear ones, are seeing their relatives being put to the life support devices, and are facing the death of their near and dear ones. They are also acting as caregivers for their relatives if they are in hospitals. The family members, who, fortunately, have not been infected, are facing a situation, which is beyond, imagination in a country like India, i.e., your relatives are admitted in the hospital, and you are locked down at home, and cannot do anything beyond providing logistics.

### 2.6. Worsening of pre-existing mental illnesses

The role of stress in precipitation of a new episode and relapse of mental illnesses is well known. Accordingly, at the time of the pandemic, people with pre-existing mental illnesses are more vulnerable to develop symptoms. Further, this is compounded by the fact that due to lockdown many patients are running out of their ongoing medications. Further, these people may be more vulnerable to the COVID-19 infection, because of difficulty in remaining confined to one place or inability to follow the measures required to avoid infection. Accordingly, people with pre-existing mental illnesses should be considered more vulnerable to the infection and their health care need to be addressed adequately.

## 3. What is the role of MHPs in this crisis?

In light of this unparalleled situation, it is imperative to highlight the work laid out for MHPs. Mental health care often takes a back seat where physical health is at risk, but it is actually the cause of substantial distress and disability when faced with a serious physical illness, which

threatens life. In the current scenario, everyone is going through mental distress, which requires attention. In fact, it is said that the COVID-19 pandemic is actually accompanied by a mental health pandemic, which is going to last beyond the COVID-19 pandemic (Asmundson and Taylor, 2020). In this scenario, the MHPs have to not only address the mental health needs of their patients but need to focus on the general population at large. Community psychiatrists have a big role in addressing the general population at large, by imparting correct knowledge/information, teaching self-care skills, and the required behavioural changes. However, certain vulnerable groups such as HCWs, people in quarantine, patients diagnosed with COVID-19, and caregivers/family members of people in quarantine or those diagnosed with COVID-19, require specific interventions to address their psychological distress and despair. As most of these vulnerable groups, will be part of the hospital taking care of COVID-19 cases or will be in contact with these hospitals, the Consultation-Liaison (CL) Psychiatrists have a big role to play. The CL psychiatrists have to justify their role as medical experts, a good communicator, collaborator, a manager and a supervisor, a leader, a health advocate, a scholar, a researcher, and a true mental health professional (Grover, 2011).

#### 4. Mental health issues of the HCWs and how to address the same

HCWs including doctors, nursing staff, and other professionals have risen to the challenge posed by the pandemic. Data suggests that more than 3000 HCWs were infected with the virus in China ("ICN COVID-2019 Update," 2020), more than 9000 in the USA ("CDC report finds 9,000 health-care workers are infected with coronavirus and 27 have died - The Washington Post," 2020) and they constitute about 10 % of total infected cases in Italy. It is natural for the HCWs to harbor the fear of infection and its consequences. HCWs world-over are struggling with the fear of, and being infected with COVID-19. Another issue, which is of concern, is violence against HCWs who are involved in providing the services at this crucial time. This is making the HCWs very apprehensive and vulnerable to the negative psychological consequences. Despite education modules, protecting oneself from being infected is always a priority and rightly so. It is necessary to address the concerns of the HCWs at various levels. An MHP can help in easing the worries. The availability of an MHP as part of the COVID-19 unit can help in allaying some of the concerns of the HCWs. In addition, continued support for professional help through tele-facilities can aid in addressing the daily struggles, frustrations, and anxiety that are expected to occur. Various issues of HCWs are listed in Table 1.

An MHP can help in identifying vulnerable individuals who are beginning to manifest symptoms or already have pre-existing symptoms in the face of this unusual stress. Of particular importance are HCWs with personality traits, particularly anxious/avoidant and anankastic traits, which can impair their functioning. These individuals can benefit from individual sessions, with a focus on problem-solving through brief psychotherapy sessions. HCWs with obsessive-compulsive symptoms/disorder, whether pre-existing or new-onset can particularly benefit from the presence of an MHP. Mood and substance use disorders may need to be addressed. Nicotine withdrawal in itself can be a significant cause of distress and has to be kept in mind, especially considering the possibility of use with PPEs.

Additionally, the MHPs have an important role in boosting the team morale, motivating the team members to continue on the mission, addressing the interpersonal issues among the HCWs, addressing the issues between HCWs and the administrators, teaching self-care skills, and maintaining positive thinking. The MHPs can be instrumental in improving mental health as well as addressing new and existing issues in the context of this pandemic. Moreover, the basic communication skills required to address patients with COVID-19 infection are found to be lacking among the already stressed and burnout HCWs. In many scenarios, it has been seen that many doctors who are from different specialties' are being posted in the COVID-19 wards, who might be

having minimal patient interaction in the past and, resultantly have poor communication skills to allay the patient's anxiety and stress. MHPs can play an important role in teaching communication skills to deal with already aggrieved patients, in team-building exercises, by identifying compatible people who can work together or forming teams of members who can complement each other rather than disrupt the work.

The decision-making role which is likely to be imposed on some doctors may be unprecedented, leading to significant discomfort. Protocols regarding triage and allocation of resources should be available to ease functioning. Keeping in mind the expected distress and level of functioning required in the COVID-19 wards/hospitals, it may be necessary for the MHPs to screen HCWs prior to their posting, and consider intervening in vulnerable individuals. As the pandemic is going to continue for some time, it is expected to lead to physician burnout. The MHPs have to screen the HCWs for the same and address the emergent issues. As the pandemic has led to reorganization or is going to lead to reorganization of the services and roles of many people, it is also going to lead to heartburn among people with respect to the administrative roles and importance given to them. This is going to lead to new interpersonal issues, which must be anticipated and solutions must be kept in place so that the morale of the team is maintained.

MHPs also have a big role in terms of assuming the leadership role, acting as negotiators, good communicators, and collaborators in instilling the team approach in the whole process. MHPs should also involve themselves in the policy-making, motivating the people to work as a team and acting as a role model for others in the wake of the crisis.

MHPs can also act as advocates, for certain HCWs, such as those aged > 60 years and/or physical comorbidities, with respect to their posting in the high-risk areas. Further, MHPs should also play a role in advocating stipulated working hours, which can be less stressful for the HCWs and recommend rotation of HCWs between the low risk and high-risk area.

MHPs can provide general aid by formulating schedules, sleep hygiene, screen media use, and relaxation exercise which can be circulated in audio and video format for easy use.

While prescribing medications for HCWs, the psychiatrist must consider the severity of the symptoms. Drug interactions and comorbidities must not be ignored to ensure minimal adverse reactions with maximal effectiveness. Various measures which can be formulated and carried out for HCWs are listed in Table 1.

#### 5. Mental health issues of people in quarantine

Quarantine in the context of the COVID-19 pandemic is understood as "strict isolation imposed on a person to prevent the spread of the disease". However, here there is a need to also clarify the term social distancing, which has become a buzz word in the wake of the COVID-19 pandemic. The term 'social distancing', is actually a misnomer, and should be understood as physical distancing, without any "emotional distancing". The word quarantine and social distancing are being considered as some kind of torture, rather than preventive measures. Governments of all the countries are taking measures to provide all kinds of facilities to people in quarantine so that they can be in comfort. Despite all this, people are feeling unsafe about going to quarantine. Resultantly, they are hiding their travel history and symptoms. Resultantly, for some, the quarantine is a forced activity and some of the people are taking it by choice, as their duty to prevent the transmission of the disease.

However, both groups are vulnerable to adverse mental health outcomes. The various issues can range from mild anxiety to various other psychological reactions, development of new psychiatric syndrome, or worsening of pre-existing psychiatric disorder (Das, 2020) (Table 2). Beyond these, there may be interpersonal issues, with the HCWs. The different measures which can be taken are listed in table-2.

**Table 1**  
Mental Health Issues among the Health Care workers working in a COVID-19 Hospital/Ward and the required interventions.

Issues	General Intervention	Mental Health Interventions
<b>Protecting Self from Infection</b> <ul style="list-style-type: none"> <li>● Risk of exposure while on duty (in other wards, OPD, Emergency)</li> <li>● Risk while posted in COVID ward</li> <li>● Risk while posted in COVID ICU</li> <li>● Exposure while performing procedures</li> <li>● Fear of contracting the infection</li> </ul>	<ul style="list-style-type: none"> <li>● Educating about precautions to be taken</li> <li>● Providing adequate PPEs</li> <li>● Proper use of PPEs</li> <li>● Be sensitive to the needs of HCWs</li> <li>● Training for Donning-doffing</li> <li>● Teaching communication skills</li> <li>● Keeping the team morale high</li> <li>● Freedom of expression</li> <li>● Addressing the genuine issues</li> <li>● Avoid overworking people</li> <li>● Respect disclosure</li> <li>● Motivating the workforce</li> <li>● Cohesive approach</li> <li>● Educating the HCWs about risk assessment versus providing medical care</li> <li>● Avoid heroics at the cost of infecting self and others</li> <li>● Follow the Standard Operating Procedures</li> <li>● Respect self-disclosure and take appropriate measures</li> <li>● Take precautions to best of your abilities</li> <li>● Follow the advice for donning and doffing</li> <li>● Follow the advice given for the quarantine</li> </ul>	<ul style="list-style-type: none"> <li>● Assess the specific concerns of HCWs</li> <li>● Screen for mental disorders, pathological anxiety versus genuine concern</li> <li>● Availability to talk before being posted in a COVID unit (in person)</li> <li>● Training for the new role</li> <li>● Teaching Self-care skills to maintain proper mental balance</li> <li>● Availability in person or through tele-facilities for HCWs posted in COVID units</li> </ul>
<b>Ethics versus Duty</b> <ul style="list-style-type: none"> <li>● Guilt of improper/partial examination of patients</li> <li>● Guilt of lack of proper contact with patients</li> <li>● Reporting their own symptoms</li> </ul>	<ul style="list-style-type: none"> <li>● Education regarding the proper use and discarding</li> <li>● Training for donning and doffing</li> <li>● Screening people for anxiety disorders</li> <li>● Disclosing agoraphobic symptoms, upfront</li> </ul>	<ul style="list-style-type: none"> <li>● Provide psychological support</li> <li>● Address anxiety</li> </ul>
<b>Fear of spreading infection</b> <ul style="list-style-type: none"> <li>● To other patients</li> <li>● Colleagues</li> <li>● Taking the infection home to the family</li> </ul>		
<b>Use of Personal Protective Equipment</b> It can lead to significant anxiety, especially in the initial stages due to unfamiliarity of use <ul style="list-style-type: none"> <li>● Suffocation</li> <li>● Whether using it properly or not</li> <li>● Agoraphobia</li> </ul>		<ul style="list-style-type: none"> <li>● Instructions about breathing and relaxation</li> <li>● Prepare for the required behavioural change</li> </ul>
<b>Dealing with death</b> <ul style="list-style-type: none"> <li>● Death of patients</li> <li>● Death of colleagues</li> <li>● Family members</li> </ul>	<ul style="list-style-type: none"> <li>● Preparing people, as if we are in a war situation, the aim is to win the war, we will lose some of our warriors</li> </ul>	<ul style="list-style-type: none"> <li>● Crisis intervention</li> <li>● Use of adaptive coping</li> <li>● Ventilation (address guilt if any)</li> <li>● Reassurance regarding decisions made</li> <li>● Managing anxiety, guilt, and other psychiatric morbidities</li> </ul>
<b>Ethical Dilemmas</b> <ul style="list-style-type: none"> <li>● Triage</li> <li>● Lack of resources</li> <li>● Allocation of ventilators</li> </ul>	<ul style="list-style-type: none"> <li>● Hospital/Unit protocols</li> <li>● Availability of senior officials to guide the decision-making process</li> </ul>	
<b>Stigma</b> <ul style="list-style-type: none"> <li>● Self-stigma: why am I in this profession</li> <li>● Anticipated Stigma: May will adversely react if they know that I am an HCW</li> <li>● Public stigma: Others may fear that the HCW will spread infection, Being ostracized by neighbors, Eviction notices from landlords/ housing societies</li> </ul>	<ul style="list-style-type: none"> <li>● Education of the public</li> <li>● Anti-stigma campaigns</li> <li>● Rewarding the HCWs</li> <li>● Glorifying their contribution</li> <li>● Raise voice against stigma</li> <li>● Legal provisions to protect HCWs against stigma</li> </ul>	
<b>Quarantine</b> <ul style="list-style-type: none"> <li>● Social isolation, Loneliness, disconnectedness, depression, anxiety, panic, insomnia, substance use</li> <li>● Being away from family and worrying about them</li> <li>● Access to the outside world (by means of the internet)</li> <li>● Guilt about not performing the duties</li> </ul>	<ul style="list-style-type: none"> <li>● Involvement in various activities while maintain quarantine</li> <li>● Avoiding screen use for long hours</li> <li>● Restricting the time spent reading/watching news</li> </ul>	<b>Through tele-facilities</b> <ul style="list-style-type: none"> <li>● Self-care skills</li> <li>● Screen for mental health morbidity, including the risk of suicide</li> <li>● Maintaining activity schedules</li> <li>● Relaxation training</li> <li>● Ventilatory sessions</li> <li>● Problem-solving</li> <li>● Use of adaptive coping</li> <li>● Avoid the use of substances</li> <li>● Keep away from Infodemics</li> <li>● Detoxification from social-media</li> <li>● Adequate sleep</li> <li>● Mental health professionals can assume the leadership role</li> <li>● Allow everyone to speak out</li> <li>● Encourage leadership to interact with front-line workers and consider suggestions</li> <li>● Group sessions with various teams to improve communication</li> <li>● Address physician burnout</li> <li>● Appropriate assessment/screening prior to posting in high-risk area to ensure smooth functioning</li> <li>● Ensure compliance</li> <li>● Supportive psychotherapy</li> <li>● Making appropriate recommendations about posting to various areas of work</li> </ul>
<b>Interpersonal Problems</b> <ul style="list-style-type: none"> <li>● Work allocation: "not my job"</li> <li>● Who will get exposed: Senior vs Junior</li> </ul>	<ul style="list-style-type: none"> <li>● Pre-defined work roles of different personnel</li> <li>● At whatever position, you were prior to the pandemic, now should be prepared to follow the advice and suggestions</li> <li>● Amicable resolution of conflicts by the appropriate intervention of seniors</li> </ul>	
<b>Health care workers with known psychiatric morbidity or new-onset psychiatric morbidity</b> <ul style="list-style-type: none"> <li>● Likelihood of exacerbation/decompensation in a high-risk unit (especially if relating to washing/cleaning)</li> <li>● Current level of functioning</li> </ul>	<ul style="list-style-type: none"> <li>● Accept self-disclosure</li> <li>● Provision for mental health assessment and management</li> <li>● Provision for providing medications and leaves as per requirement</li> </ul>	

**Table 2**  
Mental Health Issues among those in Quarantine and the role of the MHP.

Mental Health issues	General Measures	Mental Health Interventions
<ul style="list-style-type: none"> <li>● Fear, anger, panic, anxiety, depression, frustration, Insomnia</li> <li>● Isolation, disconnectedness, loneliness</li> <li>● Uncertainty about the outcome</li> <li>● Fear of unknown</li> <li>● Fear of death</li> <li>● Dealing with not being tested, but have to remain confined</li> <li>● New-onset psychiatric morbidity</li> <li>● Apprehension about developing the infection</li> <li>● Pathological anxiety in response to normal physical changes</li> <li>● Hypochondriasis-linking any small thing to developing of infection</li> <li>● Withdrawal from substances</li> <li>● Accepting food, which may not be of their own choice</li> <li>● Not accepting the social confinement</li> <li>● Need to use the substances</li> </ul>	<ul style="list-style-type: none"> <li>● Preferably advise for home quarantine, if this is feasible and is acceptable as per the requirements to prevent the spread of the infection</li> <li>● Quarantine in a comfortable place</li> <li>● Provide the basic amenities</li> <li>● Wifi/internet connectivity</li> <li>● Entertainment facilities- television, provision for listening to music</li> <li>● Availability of books</li> </ul>	<ul style="list-style-type: none"> <li>● Screen and surveillance for any psychiatric morbidity including substance use and suicidality, and appropriate management</li> <li>● Preparing the person for quarantine- clarifying the myths, listening to the concerns and addressing the same</li> <li>● Encouraging abstinence</li> <li>● Encouraging emotional connectedness with people by using phone/video calling</li> <li>● Breaking the bad news</li> <li>● Mediating and addressing the interpersonal issues with the administrators/ managing the quarantine facilities</li> <li>● Encourage them to honestly disclose worsening of physical health condition or emergence of new physical symptoms</li> <li>● Encourage them to cooperate with the health surveillance activities</li> <li>● Encourage diary writing/writing emails/blogs, etc</li> </ul>

## 6. Mental health issues of people infected with COVID-19 infection

People diagnosed with COVID-19, naturally are expected to be anxious and concerned. With the circulating media reports and a reported death rate of almost 15 % in some countries (Baud et al., 2020), the general public is obviously afraid of contracting the virus. This fear can substantially rise once diagnosed, as the focus then shifts to “life or death”. Many people may not have faced as grave a situation in the past and may find it difficult to understand what is going on around them. Many people who are admitted may be asymptomatic or have minimal symptoms, and are only admitted for testing positive. There may be ambivalence regarding admission in such patients. People may be distressed by the presence of disabling symptoms, such as fever, cough, and respiratory distress. Additionally, they, have to face the possible changed attitude of the clinicians and other HCWs, with respect to the way they are examined and tested. For patients who are looking for support, there may be a perception of rejection even from HCWs as they try to protect themselves from exposure by limiting contact and examination.

### 6.1. How to address the mental health issues of people diagnosed with COVID-19 infections

All the COVID-19 hospitals/units should have Wi-Fi facilities so that these patients can be attended by using different Telemedicine modes and their psychological issues can be evaluated at the baseline, monitored continuously and psychological interventions can be carried out, even by staying physically away from the patients. The MHPs can be of aid in explaining the nature of the illness and the need for admission and isolation to address the discomfort of patients. May be initial screening may be done by the psychiatrist, who on the basis of severity of the psychological issues and kind of psychological help required, can determine the person who will provide psychological help to people with COVID-19 infection. A stepped care approach, in which those who require only simple interventions like activity scheduling may be attended to by less trained people, and those patients who have higher psychological needs may be attended by those with a higher level of training and expertise.

### 6.2. Addressing pre-existing mental health illnesses among those with COVID-19 Infection

Pre-existing psychiatric disorders need to be addressed with a special focus. With the onset of the viral illness, mental health issues are often forgotten until they become unmanageable and impede treatment. Medications may be forgotten, or intentionally stopped, leading to exacerbation of symptoms. It can be particularly problematic in patients with depression and anxiety disorders, especially those with obsessive compulsive disorder, which may colour the perception of the illness. In addition, there can be a significant behavioral disturbance and poor cooperation for treatment which can also generate ill-will in the treating team. An MHP attached to the COVID unit, may even observe the situation in the wards and ICUs, even if it is by tele-facilities, and identify patients who require targeted intervention. Similarly, people with mental illness, who become violent during their ward stay or while staying in the quarantine facility, may require the use of injectables. In such a scenario, the MHPs must take into consideration all the ongoing medications and their side effects, before choosing a psychotropic medication.

People with pre-existing mental illnesses can benefit from the support and reassurance of a trained MHP. Another concern likely to emerge is that of withdrawal symptoms in patients with substance dependence. With the high rate of nicotine/tobacco dependence and opioid dependence in certain areas, it is likely that a significant proportion of patients will develop withdrawal symptoms. Effective management of the same can lead to improved communication, treatment adherence, and experience of the patients. It will also help in avoiding miscommunication and friction between the treating team and patients.

### 6.3. Addressing issues of families admitted with COVID-19 Infection

Some of the individuals may be admitted with their family members because of them testing positive together. In this scenario, some may take the blame upon themselves and hold themselves accountable for spreading the virus to their near and dear ones. It may lead to significant psychological distress and even amount to depressive and psychotic reactions. The same needs to be adequately addressed in a timely fashion. This may progress further if family members are sicker than self, or one wants to give up treatment to ensure that their loved ones get the necessary resources to survive. The patient may desire to



stop treatment prematurely or give up hope when there is a likelihood of improvement. Such decisions may be undertaken when patients lack mental capacity and have irreversible consequences. Thus, the HCWs must be attentive and involve an MHP with the slightest doubt. Patients should also be regularly be monitored for suicidality. In addition, with increasing severity and need for intensive care, patients are likely to develop delirium.

Close to recovery, patients may face the stigma associated with COVID-19 infection, unlike any other illness in recent times. It can even be compared to the plague and is substantially more than that associated with the AIDS epidemic (Logie and Turan, 2020). One may fear the reactions of loved ones and society at large. A significant fear is of persecution: being penalized for hiding an illness to the tune of breaching national security. These issues are difficult to deal with on their own, but when isolated in a hospital ward, with minimal contact with the outside world and loved ones, it can have a catastrophic impact.

As it is mandatory, prior to discharge, the patient must test negative for the virus on 2 occasions before they are discharged. While going through the same, patients are always faced with the apprehension of test coming positive again, this can generate a lot of anxiety because it can lead to a continuation of hospitalization. MHPs should prepare the patients for all possible outcomes. Throughout the hospital stay and

after that too (Table 3), an important role of MHPs for patients admitted with COVID-19 infection is to instill hope, teach self-care skills, ensure a good sleep, help the patients follow an activity schedule, evaluate and address the spiritual distress.

## 7. Issues among the family members of people quarantined or diagnosed with COVID-19 infection

Family members of patients diagnosed with COVID can be expected to be worried and concerned. In a typically Indian setting, when someone is admitted to the hospital, particularly in the government set up, the family members are expected to take over at least some of the caregiving roles. They are expected to stay with the patient in the wards, and run around, such as bringing medications, bathing/sponging, and feeding the patient. Even in the ICUs, family members are expected to be available at all times, for various reasons. The COVID-19 infection is novel, also because to ensure safety, family members are expected to stay away, from the patients, wards, and even the hospitals. This can lead to a lot of uncertainty and distress among caregivers. Some of them have to undergo self-quarantine, anticipatory grief, and other negative psychological consequences (Table 4). This group of people can have the need of getting updates about their relatives in the hospital. The MHPs can also connect with them by using

**Table 3**  
Mental Health Issues among people who are diagnosed with COVID-19 infection and the required interventions.

Issues	Mental Health Interventions	
<b>Pre-existing mental and physical health issues</b> <ul style="list-style-type: none"> <li>● Patients with known psychiatric disorders</li> <li>● Patients with substance dependence</li> <li>● People with predominant Personality traits/disorder- Anxious, Anankastic, Cluster B</li> <li>● New-onset mental morbidity</li> </ul>	<ul style="list-style-type: none"> <li>● Screen all patients for mental morbidity</li> <li>● Carry out a baseline assessment of the mental status</li> <li>● Prepare the patient for the period of confinement and what they are going to face</li> <li>● Prepare the HCWs dealing with such patients to fulfill the expectations of the patients, with respect to their physical health care needs</li> <li>● Mediate between patients and the HCWs to minimize the psychological distress</li> <li>● Use appropriate psychotropics</li> <li>● Consider medications and relevant interactions with prophylaxis/treatment such as Hydroxychloroquine</li> <li>● Appropriate assessment/screening -Evaluate the psychological issues as a result of being diagnosed with the infection</li> <li>● Screening for mental health problems should be an ongoing process</li> <li>● Regularly assess for suicidality</li> <li>● How is the person taking the diagnosis, confinement in the COVID-19 ward</li> <li>● Evaluate their concerns and expectations</li> <li>● Provide psychological support, crisis intervention</li> <li>● Self-care skills- activity scheduling, sleep hygiene, diary writing, listening to music, talking to near and dear ones</li> <li>● Address the interpersonal issues between patients and the HCWs</li> <li>● Provide spiritual and religious support</li> <li>● Mindfulness training</li> <li>● Preparing for death</li> <li>● Address spiritual distress</li> <li>● Instill hope</li> <li>● Listen to the patient's fears, hopes, pain, dreams</li> <li>● Attentiveness to all dimensions of the patient and patient's family: body, mind, and spirit</li> <li>● Be honest and compassionate</li> <li>● Providing psychological support, supportive psychotherapy</li> <li>● Breaking the bad news</li> </ul>	
<b>New Issues close to diagnosis</b> <ul style="list-style-type: none"> <li>● Who infected me? – Anger</li> <li>● Did I infect others? – Guilt</li> <li>● Who all have got infected with me? – what is happening to my parents, children, spouse, colleagues, etc</li> <li>● Will I survive? – Fear</li> <li>● Will I get the ventilator- Anticipatory Anxiety</li> <li>● Acute Stress Reaction</li> <li>● Anxiety, Depression, Insomnia</li> </ul>		
<b>Issues during the stay in the COVID-19 ward/Hospital</b> <ul style="list-style-type: none"> <li>● Loneliness, social disconnect, social isolation</li> <li>● Depression, Anxiety, Disturbed sleep, Agoraphobia</li> <li>● Hypochondriasis, Somatosensory Amplification</li> <li>● Uncertainty about future</li> <li>● Discrimination by the health care workers</li> <li>● The feeling of not being cared for</li> </ul>		
<b>Issues close to recovery</b> <ul style="list-style-type: none"> <li>- Feeling of relief</li> <li>- Apprehension about repeated test results- what if it is not negative</li> <li>- How are people going to react to me- Stigma</li> <li>- My family members (are they going to blame me)</li> <li>- My neighbors (are they going to discriminate me)</li> <li>- My employer (will my job continue)</li> <li>- My clients (will people come to my shop)</li> <li>● Encountering bad news- losing a family member/colleague/friend</li> </ul>		
<b>Beyond recovery from COVID-19 infection</b> <ul style="list-style-type: none"> <li>● Psychiatric morbidity- depression, anxiety, substance use, Grief, PTSD</li> <li>● Guilt about themselves being responsible for their death</li> <li>● Guilt about damage to society per se</li> <li>● Issues of financial instability, loss of job, stigma</li> </ul>		
<b>Addressing issues in patients in ICUs</b> <ul style="list-style-type: none"> <li>● Delirium</li> </ul>		<ul style="list-style-type: none"> <li>● Supportive psychotherapy</li> <li>● Treat psychiatric morbidity appropriately</li> </ul>
		<ul style="list-style-type: none"> <li>● Reorientation cues</li> <li>● Multimodal intervention</li> <li>● Use of psychotropics- consider drug interactions, avoid psychotropics if the patient has hypoactive delirium</li> </ul>

**Table 4**  
Issues for the Caregivers/Family members of people with COVID-19 infection or those in quarantine.

Caregivers/Family/Contacts	Mental Health Interventions
<ul style="list-style-type: none"> <li>● Uncertainty about the outcome</li> <li>● Self-quarantine</li> <li>● Anticipatory grief</li> <li>● Anxiety</li> <li>● Depression</li> <li>● Stigma</li> <li>● Isolation</li> <li>● Not able to attend the funeral or carryout the rites as per the religious norms</li> </ul>	<ul style="list-style-type: none"> <li>● Screening for mental morbidity</li> <li>● Provide Psychological support</li> <li>● Update them about the progress</li> <li>● Preparing for any eventuality</li> <li>● Breaking the bad news</li> <li>● Mindfulness training</li> <li>● Relaxation therapy</li> <li>● Spiritual care</li> </ul>

the technology of teleconferencing and address their issues such as preparing them for all kind of eventualities, breaking the bad news if any unfortunate outcome occurs for the patient (Table 4)

## 8. Pandemic as an opportunity for research

As the COVID-19 is unfolding, more and more mental health issues are emerging. Hence, this should be viewed as an opportunity to innovate and carry out research on various aspects of symptomatology and interventions. The researchers should focus all the groups, i.e., the general public, people with COVID-19 infection, those in quarantine, family members of patients, and those undergoing quarantine and HCWs. The pandemic also provides an opportunity to look at the health care systems and how these can be improved.

## 9. Conclusion

It is not the time for the MHPs to sit back and look at the COVID-19 pandemic as a medical emergency, in which MHPs have no role to play. In fact, if any specialty is going to have a much bigger role during the pandemic and beyond the pandemic is psychiatry. MHPs should look at the pandemic as an opportunity to emphasize the fact that physical and mental health go hand in hand. The MHPs should also carry out research to evaluate the newer methods of communication with the patients and their effectiveness. Further, the research should also focus on the impact of the pandemic on the HCWs, patients with diagnosed psychiatric illnesses including substance dependence, ethical aspects related to death and dying, decision making in medicine, etc.

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VIEWPOINT

## Electroconvulsive therapy during the COVID-19 pandemic

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ABSTRACT

The COVID-19 pandemic has forced substantial changes in the practice of psychiatry, including that of electroconvulsive therapy (ECT). There is higher risk of transmission of the SARS-CoV-2 virus during ECT unless due care is taken. However, in many cases, ECT cannot be avoided. In this paper, we discuss various measures that may be adapted to reduce the risk of transmission of the virus during ECT. We also suggest certain modifications to the practice of ECT in order to achieve a balance between risks and benefits of the procedure during the pandemic.

**Key words:** COVID-19, electroconvulsive therapy, pandemic


COVID-19 pandemic and the ensuing lockdown have impacted mental healthcare services across many countries in various ways. This holds true for India as well. Most hospitals have actively discharged relatively stable patients, shut down outpatient services, and limited themselves to providing only emergency services. This has resulted in inability to access nonemergency clinical consultation, maintenance medications, psychotherapy, and other nonpharmacological interventions. During the pandemic, lockdowns and the resultant economic difficulties have caused additional stress to many individuals. In this background, there is high likelihood of patients relapsing or worsening with severe symptoms, which may necessitate electroconvulsive therapy (ECT).

ECT services, however, have also been impacted. As the procedure itself has high chances of spreading the COVID-19 virus to healthcare personnel and other patients, it has either been stopped entirely or reduced drastically. Some patients were already in the middle of their ECT course, some were on maintenance ECT, while others were still under evaluation for the commencement of ECT; their treatment has become uncertain. It is critical to have directions for appropriate ECT practices. The International Society for ECT and Neurostimulation has provided guidelines for its members in this regard.<sup>[1]</sup> In addition, groups from Singapore<sup>[2]</sup> and Ireland<sup>[3]</sup> also recently published the process followed at their respective places. Any position with respect to ECT would depend on factors listed below; these factors may change rapidly in the current scenario and decision regarding ECT may change accordingly: (1) phase of spread of the virus worldwide, in our country and in the region; (2) availability of resources, particularly of personal protective equipment (PPE), in the given healthcare setting; (3) ECT-related recommendations

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for COVID-19 pandemic available from other sources; (4) clinical condition of COVID-19 in given patients and safety of anesthesia and ECT in them.

The following factors make ECT riskier than routine clinical care in terms of spread of the COVID-19 virus to healthcare professionals and other patients: (a) the virus has been shown to be present in aerosols;<sup>[4]</sup> (b) bag and mask ventilation and suctioning of secretions, as a part of ECT procedure, are known to produce aerosols;<sup>[5]</sup> (c) asymptomatic carriers are known to shed the virus,<sup>[6]</sup> which makes clinical screening dubious, but at the same time, laboratory tests for COVID-19 infection may not be conducted for such patients. However, ECT can be vital and inevitable for patients with marked suicidal behavior, catatonia, agitation, and refusal to feeds and medications, with the risk of deterioration of general health, particularly in the elderly. On a balance, it is essential that efforts should be made to administer ECT when it is life-saving and other modes of treatment are unhelpful. ECTs may also be indicated if there is a risk of violation of social distancing due to severe mental illness (i.e., patients' inability to keep the recommended distance from others to avoid the spread of COVID-19 virus due to severe agitation despite attempts for chemical restraints). Following steps may be considered in this regard:

1. Avoid ECTs for elective indications even if patients are not suspected cases of COVID-19 and when patients are medically unstable
2. The benefits of administering ECT should clearly outweigh the risks of transmission of COVID-19 infection, during the procedure. Hence, it is preferred that the decision of administering ECT may be taken independently by two psychiatrists
3. Screening questionnaire to assess the risk of COVID-19 infection to be applied. Each center may develop screening tools to assess the risks according to its local realities regarding the COVID-19 pandemic and may modify them according to the changes in the pandemic situation
4. All these steps to be followed before each ECT session for each patient
5. While obtaining the consent for the ECT, the possible risk of COVID-19 infection to the patient should be informed to the patient and his/her family.

We recommend following steps to be followed ideally to avoid any possibility of COVID-19 transmission. This becomes particularly important in situations where a patient who has tested positive on COVID-19 test has to be administered ECT. In such cases, all following measures would have to be taken in designated wards away from the usual ECT setup, and the staff would then have to be in isolation as per the prescribed standards.

1. Complete PPE, consisting of shoe covers, outer and inner gloves, gown, N-95 mask, surgical cap, goggles, and face shield, should be donned by all medical personnel involved in ECT procedure. As the status of

PPE will differ for each establishment, each can have a different threshold for consideration of ECT. Places where adequate precautions cannot be taken could refer such cases to other establishments

2. General safety precautions for COVID-19 have to be taken at all times while conducting ECT procedure. It has to be ensured that social distancing is practiced in the waiting area as well as in the ECT administration and recovery area
3. Minimum number of professionals (such as 1 anesthetist, 1 psychiatrist, and 1–2 nursing staffs) to be involved at a given time. Staff could be specially designated for ECT who could work for 2–3 weeks in a rotating schedule
4. All necessary anesthesia equipment such as bag, mask with tubing, and suction cannula with catheter, the pulse oximeter probe, and the blood pressure cuff with tubing attached to the vital signs monitor along with ECT machine and its electrodes should be soon discarded/disinfected with hypochlorite solution or 70% alcohol disinfectant. This process should be repeated after every patient to avoid transmission of infection to the next patient
5. There should be designated places for donning and doffing PPE separately. The disposal of PPE of all persons should be done together appropriately as per the ICMR guidelines<sup>[7]</sup>
6. Specially designed aerosol box shields can also be used to better contain the spread of aerosols from the patient during the procedure
7. In consultation with an anesthesiologist, disposable high-efficiency particulate air filters can be used during bag and mask ventilation to prevent potential viral contamination of the anesthesia breathing circuit and thus reduce the risk of cross-infections.

We also suggest following steps in the ECT procedure so that patient gets maximum effectiveness in minimum number of sessions. This may be appropriate even at the cost of cognitive deficits.

1. Brief-pulse ECT with bilateral (bifrontal or bitemporal) ECTs may be preferred to unilateral and ultra-brief-pulse ECT
2. To avoid the possibility of a failed seizure, particularly during the first session, ECT psychiatrists may consider administering a higher stimulus charge; for example: 120 mC in relatively younger patients; 180–240 mC in those aged >45 years
3. If patients are on antiepileptic medications, the charge may be adjusted keeping in mind possible higher threshold
4. It is also advisable to discuss with the anesthetist about the routine use anticholinergics to reduce secretion formation and aerosolization, unless contraindicated

At present, there is inconclusive information with respect to utility of testing during the early quarantine period for detecting asymptomatic COVID-19 patients. Till additional information

is available, testing each patient for COVID-19 before ECT may not be feasible. We believe that all these measures will help in ensuring a safe ECT practice and hopefully encourage more use of ECT during the ongoing pandemic.

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## The “World Association of Social Psychiatry Position Statement” Revisited in Light of COVID-19 Vaccination

After the onset of the COVID-19 pandemic, scientists, as early as March 16, 2020, started working in earnest to develop a vaccine against the virus.<sup>[1]</sup> In their write-up in June 2020 in *JAMA*, Bollyky *et al.*<sup>[1]</sup> reported that across more than 12 countries, there were eight vaccines undergoing clinical trials and around 100 were in preclinical phases. As of now, it is known that there are three vaccines, i.e., Pfizer BioNTech, Oxford Uni-AstraZeneca, and Moderna, that are potentially available for use and awaiting approval in various countries.<sup>[2]</sup>

The readers of the *World Social Psychiatry Journal* may be wondering as to why are they having to read about a medical topic of vaccination in their journal of social psychiatry? To understand the basis of that, I would like to focus the readers’ attention on the Position Statement by WASP, which outlines the various responsibilities and activities to be undertaken by WASP and its member societies in combating COVID-19.<sup>[3]</sup>

Although work had been on in full swing, and at breakneck speed, to develop vaccines against COVID-19 virus, there had been additional work occurring in parallel to deal with other concepts key to the effective uptake and delivery of vaccination later on. Vaccine hesitancy, i.e., people choosing not to vaccinate, was named as one of the top ten threats to global health in 2019 by the World Health Organization (WHO).<sup>[4]</sup> The reasons for “vaccine hesitancy” are complex, but lack of confidence in vaccine safety, driven by concerns about adverse events, has been identified as one of the key factors,<sup>[4]</sup> which in the case of COVID-19 assumes significance as the vaccines are being developed at a pace which outstrips the development rate of any routine vaccine; the time mentioned being typically between 10 and 15 years.<sup>[5]</sup>

Apart from “vaccine hesitancy,” the pandemic has led onto significant and far-reaching adverse social and economic consequences due to which delivery of vaccines in an equitable manner across the whole world assumes additional importance using principles of flexible, trusted governance and open collaboration.<sup>[1]</sup>

Currently, the concept of Vaccine Nationalism (policy of countries to secure doses of vaccines for its own citizens through prepurchase agreements with manufacturers before they are made available in other countries) is operating as nearly 50% of the COVID-19 vaccine under production has been booked by the rich countries (USA, United Kingdom [UK], Australia, Japan, European Union, Switzerland, Israel, Hong Kong, and Macau) which is putting poor countries at risk, and it seems that

we have not learned from our previous mistakes of the H1N1 (Swine Flu) outbreak when a similar situation occurred.<sup>[6]</sup> This will have prolongation of the pandemic, leading to potentially disastrous physical and mental health and economic and social consequences. In fact, the WHO Chief Tedros Adhanom Ghebreyesus has appealed for equitable distribution of COVID-19 vaccines and adequate funding for the WHO COVAX facility.<sup>[7]</sup>

In addition, the WHO has a dedicated webpage on COVID-19 vaccines<sup>[8]</sup> addressing various facets related to the same. Through its Strategic Advisory Group of Experts (SAGE) on Immunization, the WHO has further brought out two key documents in September 2020 and November 2020, respectively, viz., (i) “The WHO SAGE Values Framework for the allocation and prioritization of COVID-19 vaccination,”<sup>[9]</sup> (ii) “The WHO SAGE Roadmap for prioritizing uses of COVID-19 vaccines in the context of limited supply,”<sup>[10]</sup> and (iii) vaccine-specific recommendations (*this document to be brought out yet*). In addition, much before that in June 2020, trans-Atlantic work had occurred from the John Hopkins University, USA, in terms of a policy document on “Readying populations for COVID-19 Vaccines.”<sup>[11]</sup> Along with this, policy documents have emerged at different time frames from other countries such as the UK, Australia, Germany, and Canada.

The underlying reasons that probably can be linked with the intensive work from different countries across the world, especially WHO and USA, are that breaking of transmission of the pandemic can occur through successful vaccination, which is possible only if there is adequate “herd immunity,” which requires vaccine uptake rate of minimum 70%.<sup>[12]</sup> This can only be achieved if one is able to also address the generic threat of “vaccine hesitancy” which is more significant with COVID-19 vaccines.<sup>[9]</sup>

In fact, being cognizant of the above issues, scientists and researchers from across the world have been working in parallel during the course of development of COVID-19 vaccines, a key among them being anthropologists, psychologists, internists, public health specialists, etc. Opinion pieces and surveys have been published/written which have looked at the public response rate for vaccine uptake, being as low as 33% in the early May 2020<sup>[13]</sup> to 58% in November 2020 in the USA.<sup>[14]</sup> On the other hand, a survey on 1252 parents and guardians in the UK found that nearly 90% were willing to take the vaccine, but those from lower-income households and ethnic minority groups were more likely to reject it.<sup>[15]</sup> From Germany, a survey on 30,000 adults in the months of June to July 2020 revealed that 70% were willing for voluntary vaccination if the

vaccine was without any side effects.<sup>[16]</sup> Another survey from Turkey in May 2020 on 3936 respondents had shown a “vaccine hesitancy” rate of 34%, i.e., vaccine uptake of 66%.<sup>[17]</sup> In fact, concerning, most of the 15 countries polled in a World Economic Forum/Ipsos poll in August 2020 and October 2020 showed a decrease in overall respondents from 77% to 73% who said they would take a COVID-19 vaccine.<sup>[18,19]</sup>

Hence, we can see that the figures for COVID-19 vaccine hesitancy are quite variable and tend to be on the higher side, which will probably not lead onto production of adequate herd immunity. To address this issue, behavioral scientists and public health researchers have put forward suggestions to facilitate vaccination uptake and reduce “vaccine hesitancy,” viz., removal of physical and psychological barriers to vaccination, establishing incentives, preparing healthcare providers, turning to experts and authority figures, and making concessions and direct and honest communication.<sup>[13,20,21]</sup>

Nevertheless, keeping in view that vaccination has started with the Pfizer BioNTech vaccine in the UK where two National Health Services workers experiencing an anaphylactoid reaction has been reported,<sup>[22]</sup> such adverse events will not lift the confidence of the public, especially where the vaccine uptake is linked with the notion of the absence of side effects,<sup>[16]</sup> or this vaccine requires two doses and people may miss out on the second dose. It is well spelled out that COVID-19 vaccination will be rolled out in various phases, and it will only be till mid-2022 that the whole population is most likely to be vaccinated.<sup>[8]</sup> Hence, mental health professionals (MHPs) can draw upon the principles enshrined under the Position Statement of WASP, i.e., *professional societies and professionals in the field of mental health to act in coordination with the relevant agencies working in the area in their respective fields and geographical locations, and to encourage all the citizens to get information about all aspects of the COVID-19 vaccine only from reliable scientific sources such as the WHO and authorized local government and health services through their media and websites.*<sup>[3]</sup> Working under these principles, MHPs can work in a collaborative manner with key vaccine specialists (anthropologists, epidemiologists, public health specialists, etc.)/organizations and the government over a sustained period of time in enhancing the vaccine uptake and reducing “vaccine hesitancy,” addressing social inequality, and managing psychosocial issues arising in relation to the vaccination process. To buttress my statement, I quote from a recent special issue of *Frontiers in Immunology*, where Geoghegan *et al.*<sup>[4]</sup> emphasized that “Healthcare workers remain key influencers on vaccine decisions.”

At the time of writing of this Editorial, it was only 5 days prior that the first vaccine outside of trials was administered in the UK.<sup>[23]</sup> Before this, and as an

ongoing exercise, experts are attempting to determine the priority candidates for vaccination. The WHO and countries across the world have come up with their own criteria, frameworks, and lists. In the USA, the National Academies of Sciences, Engineering, and Medicine have proposed an ethical framework for equitable allocation of COVID-19 vaccine.<sup>[24]</sup> On similar lines, the WHO has also proposed its framework. There are three universal ethical principles, viz., (i) harm minimization and maximization of benefit; (ii) prioritizing of populations that may experience greater health burdens due to their age, profession, medical status, or socioeconomic factors; and (iii) during allocation and prioritization, everyone is treated equally with respect, worth, and dignity and has equal opportunities.<sup>[25]</sup> The common priority groups for all countries are people aged above 65 years and those with severe medical comorbidities.<sup>[26-29]</sup>

In this context, it is important and relevant to highlight that people suffering from severe mental illnesses (SMIs) actually are part of this priority group simply due to the fact that they commonly suffer with comorbidities (cardiovascular diseases, diabetes mellitus, respiratory tract diseases, malignancy) which predispose them to developing COVID-19 infection, apart from having a 3.7 times higher mortality rate than the general population.<sup>[25,30]</sup> High rates of nicotine use, homelessness, noncompliance, overcrowding, anosognosia, being “socially distanced,” etc., all contribute to patients with SMIs being “at high risk.”<sup>[25,30]</sup> In fact, a very recent case-control, population-based study from the USA using e-health records and representing 20% of the total population showed that patients with a recent diagnosis (in the last 1 year) of mental disorder (especially depression and schizophrenia) were at a significantly high risk of developing COVID-19 infection.<sup>[31]</sup>

Hence, based on the above-mentioned compelling evidence, a strong argument for patients with SMIs to be prioritized and be included in the first phase of vaccination has been put forth.<sup>[25]</sup> Most recently, further support has been lent by the Joint Committee on Vaccination and Immunisation, the UK, who in their advice dated December 2, 2020, have included “severe mental illness” under the *risk group* (i.e., where there is good evidence that certain underlying health conditions increase the risk of morbidity and mortality from COVID-19). To the best of our knowledge, the UK is the only country to do so and must be commended for this progressive act.<sup>[26]</sup>

Working on the aspect of getting SMI included as a “high-risk illness” and “people suffering with SMI” included as a priority category will need robust service delivery, advocacy, and coordination as outlined in the following components of its Position Statement, i.e., “WASP appeals to its 27 member societies and specialty sections to offer expert services and support to the affected populations in their respective countries and to assist local agencies in

*offering psychosocial support” and “WASP appeals to all professional societies in the field of mental health to provide comprehensive services in mental health care and psychosocial support to the COVID-19 affected populations and act in coordination with the relevant agencies working in the area in their respective fields and geographical locations.”*<sup>[3]</sup>

Last, but not the least, in the process of delivery of COVID-19 vaccination, we MHPs should not forget to continue to emphasize the ongoing role of “social vaccine” (social distancing of at least 6 feet, wearing of mask, and adequate sanitization)<sup>[32]</sup> in keeping everyone safe and preventing morbidity (and mortality). By this, we MHPs will deliver care as per another component of the Position Statement of WASP, i.e., “WASP also appeals to local communities worldwide to follow the general instructions being issued by their local governments for preventing the spread of COVID-19, especially social distancing, the use of personal protective equipment such as masks and hygienic practices like frequent washing of hands to contain community spread.”<sup>[3]</sup>

To conclude, the year 2020 draws to a close with the pandemic still raging on! COVID-19 vaccines have started to arrive – a glimmer of hope on the edge of the horizon! However, our work as MHPs (under the rubric of social psychiatry) in caring for the general public, people with SMI, and others, will continue ... and continue ... and continue ...!

*The woods are lovely, dark and deep.*

*But I have promises to keep,*

*And miles to go before I sleep,*

*And miles to go before I sleep.*

*(From: Stopping By Woods on a Snowy Evening by Robert Frost, 1921)*

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## Proposed Service Models

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# A Review of Models and Efficacy of Telepsychiatry for Inpatient Service Delivery: Proposing a Model for Indian Settings

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## ABSTRACT

**Background:** The use of telepsychiatry (TP) for inpatient service delivery is still an emerging field and there is limited literature on its practice and evidence. This review was conducted with the objectives of (a) exploring the models of TP for inpatient service delivery, (b) qualitative synthesis of the efficacy of TP in inpatient settings, and (c) proposing a best-fit model of TP-based inpatient care for Indian settings.

**Methods:** An electronic database search was conducted on July 22, 2020, in PubMed, Directory of Open Access Journals, and Google Scholar for relevant articles. Seventeen articles were included in the review.

**Results:** The review revealed three models for TP-based inpatient care; direct care model, teleconsultation model, and the collaborative care model. Preliminary evidence suggests that TP is cost-effective and reliable, and that patients and service providers are highly satisfied with this approach. Evidence gaps were seen for some diagnostic categories such as psychosis and for extremes of age groups. Based on the existing models, we propose an Indian model for implementing TP in inpatient settings.

**Conclusion:** Promising initial results and the evidence gaps highlight the need for further research in this area.

**Keywords:** Distance education/telecommunication, health services research, literature reviews, telemedicine/telecare

**Key Messages:** Telepsychiatry services can be provided to remote rural hospitals and medico-surgical wards. The direct care model can also substitute temporary absence of psychiatrist. Telepsychiatry-based inpatient care is cost-effective and reliable.

The National Library of Medicine has defined telemedicine as the use of electronic communication and information technologies to provide

or support clinical care at a distance.<sup>1</sup> The WHO's definition includes preventive services and research as well.<sup>2</sup> Telemedicine, when applied to psychiatric care, is telepsychiatry (TP). TP can be synchronous (consisting of live, two-way interactive communication between patient and provider at distant locations) or asynchronous (involving storing of clinical information in multiple formats such as audio, video, email, or web applications for later access by patient and provider). None of these definitions or modalities specify the treatment settings.

Nevertheless, TP has been extensively practiced and researched in the context of outpatient care.<sup>3,4</sup> The scarcity of available literature regarding inpatient TP care is evident in reviews and meta-analysis. For example, a recent review paper on TP outcomes included 134 articles, of which only two focused on the inpatient delivery of TP services.<sup>5</sup> Inpatient TP care could significantly expand the scope of TP. The use of TP in inpatient settings has become particularly relevant during the COVID-19 pandemic. In this article, we reviewed the available literature regarding TP services in inpatient settings. The objectives of the review are to (a) conduct a qualitative exploration of TP models implemented in inpatient settings, (b) provide a qualitative synthesis of the efficacy of TP in inpatient settings, and (c) propose a best-fit model for TP-based inpatient care in the Indian context.

## Search Strategy

Using the following search words: telepsychiatry OR "telepsychiatry" OR "videoconferencing" OR "Telemental health" OR "Tele-mental health" OR "Videoconferencing" AND "Psychiatry" OR "Mental health" AND "Inpatient," we carried out an electronic database search on July

22, 2020, in PubMed, Directory of Open Access Journals (DOAJ), and Google Scholar (without including any limitations on time). This retrieved 28 articles in total, out of which 11 were excluded given that 10 of these dealt with "inpatient care planning" or "alternatives of inpatient care" or "reduction in number of inpatient cases" or "nursing home residents," and one article was not available. No meta-analysis or reviews were found specifically addressing TP service in inpatient settings.

## Models of Telepsychiatry for Inpatient Care

TP models for outpatient and community populations have been adapted for inpatient service delivery. These models can be, specifically, categorized as follows: direct care model, teleconsultation, and collaborative/integrated care. Most of these models involve multidisciplinary team-based care. In a few of the studies, these models have been coupled with a "stepped-care approach." The target populations are patients admitted in rural psychiatry hospitals, psychiatry units for special populations, consultation-liaison (CL) with medical or surgical units, and in an emergency area waiting for admission to inpatient care.<sup>6-23</sup>

## Collaborative Care Model (CCM)/Integrated Care Model

This model is the most commonly used and studied regarding TP service delivery in inpatient settings. This model follows a patient-centered approach where the TP provider collaborates with the primary care provider by supervising the onsite service provider regularly (daily

to weekly rounds). This model relies on a dedicated onsite “care manager.” The care manager is a mental health professional with additional training in TP who administers screening tools, coordinates with primary care providers and TP providers, and also ensures adequate treatment adherence.

Several notable features and modifications of the CCM have been adopted in studies examining the use of TP in inpatient settings. These include (a) stepped-care, which involves referring patients with complex needs to tertiary care centers, where the onsite psychiatrist is available; (b) hub and spokes, which consists of a center with telepsychiatrists (hub) providing services to multiple centers (spokes); and (c) multidisciplinary, which involves a team of dedicated professionals at the center receiving TP services.

TP services provided to a geropsychiatric unit operated under a multidisciplinary team (program director, registered nurses, licensed clinical social workers, nurses, certified nurse aides, activities coordinator, and a physician’s assistant)<sup>6</sup> is an example for the CCM model. Here, the registered nurse was the point of contact for daily psychiatric rounds through telemedicine, and she did a physical examination of patients, recorded orders, and noted medication changes.<sup>6</sup> In another setting for detained patients (a medical center with no psychiatric unit), TP used the CCM model—the resource person here, however, was a mental health professional (social workers or psychologists). TP consultations were arranged after the patients were “boarding” on the medical wards rather than for initial evaluation.<sup>7</sup> In the CCM model, the overall decision-making is in the hands of primary care providers at the spokes, working in liaison and supervision with the telepsychiatrist.

### Teleconsultation Model

This model has been used to provide CL services using TP for patients admitted in medical/surgical units. In this model, the TP provider is a CL physician working at a specialized center, and the medical/surgical unit requesting consultation may comprise one or more mental health professionals (trained nurse or psycholo-

gist) and the primary care provider. The initial evaluation is done by the telepsychiatrist, with or without the support from onsite mental health professionals. The TP provider consults with the primary care provider regarding ongoing treatment, and treatment recommendations are given to the primary care provider. The TP provider does not deliver ongoing care, instead assists the primary care provider. Treatment decisions are those of the primary treating team, in contrast to the CCM above, where the decisions are made jointly. Merits of this model include higher utilization of resources, easy accessibility, and opportunity to strengthen the skills of primary care providers for caring for mental health issues in their patients.

TP provided by a university medical center to a small academic hospital that did not have its own onsite CL psychiatry team is an example of this model.<sup>8</sup> A resource nurse at the center receiving TP service operated the telemedicine cart and maintained records. In another university setting providing TP to peripheral hospitals, a psychologist was available as part of the primary medical/surgical team at the periphery, who did the initial assessment.<sup>9</sup>

### Direct Care Model

This model involves a telepsychiatrist from a specialized center seeing patients admitted at another distant center for situations where the local psychiatrist is not available due to any reason (vacations, personal emergency, etc.). In this model, the telepsychiatrist does the initial evaluation using videoconferencing and is responsible for ongoing sessions and treatment recommendations. The telepsychiatrist may coordinate care with primary care providers, but TP providers hold primary responsibility for the care of patients. The model has the advantages of easy accessibility, ensuring continuity of care, and higher quality of care, but falls short on comprehensive and collaborative care. Since the burden of care is entirely on the TP provider, it does not meet the aim of increasing the number of patients seen via TP.<sup>10</sup>

Essential illustrations of these models appear in **Figures 1–3**.

## Evidence for Inpatient Telepsychiatry (TP)

The available literature on TP in inpatient settings comes from high-income countries such as the United States, Australia, and countries from the European Union such as Finland. Studies compared either face-to-face with the TP consultations or were intended to show the effect of TP in a pre-post design. Outcomes were focused on effectiveness, cost-effectiveness, satisfaction, and reliability.

### Effectiveness and Cost-Effectiveness of TP

The effectiveness of TP across studies was evaluated by examining clinical outcomes. A study from Australia showed that TP could be an effective medium for patients admitted with psychosis. This TP service was a direct care model. The reduction of symptoms on the brief psychiatric rating scale preadmission and discharge were significant in the TP group.<sup>11</sup> Another study from the USA assessed treatment effectiveness with a patient self-assessment survey and staff’s assessment of clinical outcomes. They found that direct care TP, as a model of service delivery, was effective in both patient and staff-rated outcomes. Interestingly, patient-rated development of rapport and effectiveness of treatment were higher than staff ratings.<sup>12</sup> Both of these studies had a prepost design and did not have any comparison group.

When it comes to literature on cost-effectiveness, there were very few studies. Mielonen and colleagues studied the delivery of TP via videoconferencing, which was limited to counseling, therapy, consultations, and teaching at Finland University Hospital.<sup>13</sup> Authors found videoconferencing as a relatively inexpensive method compared to the conventional mode of service delivery. A study from forensic settings also showed that TP was a cost-effective alternative.<sup>14</sup> Although not as a primary outcome, another study from Australia found that TP improved the acceptability of treatment by curbing the travel cost.<sup>15</sup> In D’Souza’s study, although satisfaction and improvement of symptoms were primary outcomes, the authors found that re-

FIGURE 1.

### Model For Inpatient Telepsychiatry (TP) Delivery in Psychiatry Units: Collaborative Care Model/ Integrated Care Model

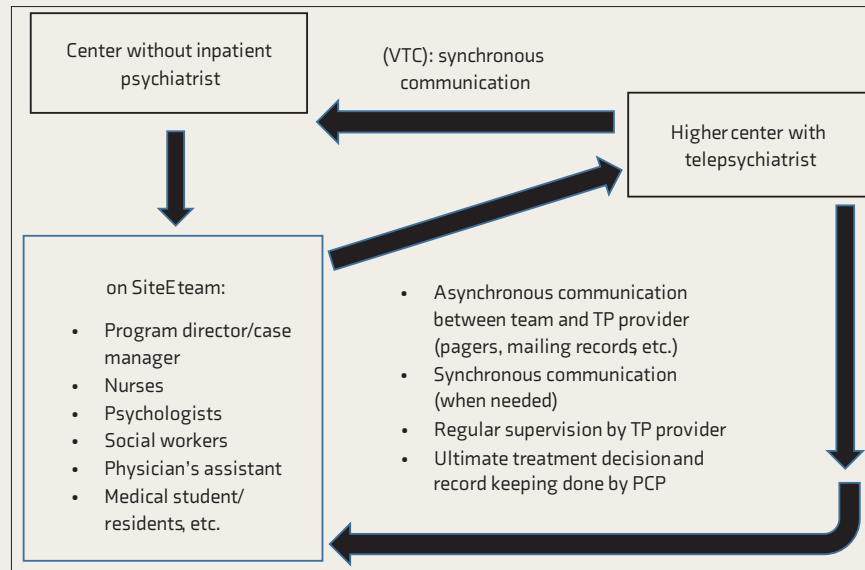


Figure 1 illustrates a model where center receiving TP services has a multidisciplinary team; one member of team is assigned to be “care manager.” Physical examination and emergency management is done by on-site team and request for consultation along with communication of case history is done by asynchronous communication. TP provider then assesses patient with collaboration with care manager and addresses the treatment concerns. Regular supervision is ensured by TP provider.

FIGURE 2.

### Model for Inpatient Telepsychiatry Delivery in Medical/Surgical Units: Extension of Traditional Consultation–Liaison (CL) Model/ Telemedicine-Based Care Model

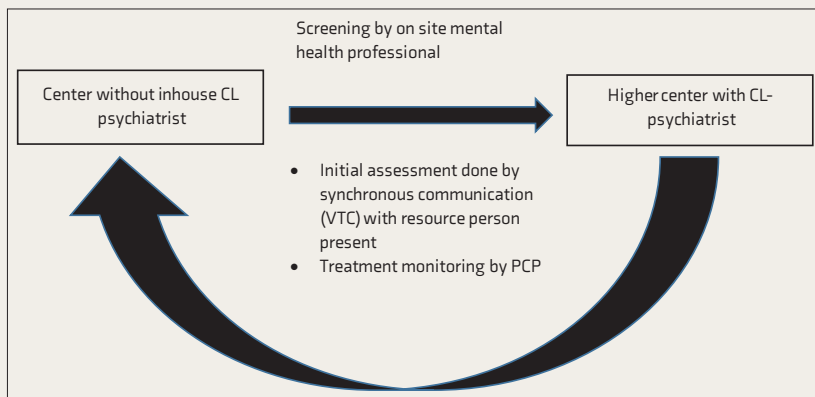


Figure 2 illustrates a model where consultation calls are assessed by an on-site mental health professional and screened for need of TP consultation. TP provider is often contacted by asynchronous communication after which initial assessment is done by the TP provider in the presence of an on-site resource person and treatment recommendations are made. Primary care provider (PCP) remains in-charge of all treatment decisions. Abbreviations. CL: consultation–liaison, PCP: primary care physician.

duction in travel costs was a significant factor for acceptance by service users of treatment via TP.<sup>11</sup>

## Reliability

Several authors have assessed for the reliability of TP vis-a-vis conventional face-to-face treatment. Reliability was

evaluated by comparing the scores of assessment and the diagnoses made by at least two raters—either both done using TP or one rater using conventional methods of assessment.<sup>16</sup> In a study from Australia conducted over 14 months in a psychiatric inpatient unit, specialist psychiatrists interviewed sub-

jects using a semistructured interview alternating interviewer and observer configuration. Diagnoses and ratings were recorded at the end of the interview. The main instrument used was the brief psychiatric rating scale. This study compared the agreement between the observer and interviewer. The authors concluded that diagnosis was reliably made using TP.<sup>17</sup> Another study that focused on inpatients with depression also found that TP could be reliably used to assess patients with the Hamilton depression scale.<sup>18</sup> Furthermore, a recent study conducted in an inpatient department of a university-affiliated hospital in Iran evaluated the diagnostic agreement between TP assessment and face-to-face assessment and revealed that the diagnostic agreement between the two interviewers was 75%.<sup>19</sup>

## Satisfaction

The majority of studies summarized “patients” responses to quantitative self-report questionnaires with descriptive statistics for assessing satisfaction. A study from Finland found that TP had high patient satisfaction when evaluated on a self-report questionnaire (80% considered it to have been useful).<sup>15</sup> Another study assessed satisfaction on a five-point Likert scale and found TP to have high patient satisfaction. However, the authors found that patients admitted with psychosis reported more difficulty hearing the doctor than patients without psychosis. Patients incorporated virtual teleconferencing into delusions, which may seem to make TP an unfavorable mode for treatment for patients with acute psychosis, who require inpatient care.<sup>12</sup> Another study from California used a direct care model for two days, and “patients” feedback was collected after every session. Patients expressed a positive experience with telehealth and no preference for in-person care; moreover, all patients seen by the tele-provider preferred the TP approach. Other studies, too, showed high patient satisfaction for TP in inpatient care.<sup>7,11,17–20</sup> All studies are summarized in **Table 1**.

## TP in Different Age Groups

Most of the studies have assessed inpatient TP in general adult patients, and

FIGURE 3.

## Direct Care Model

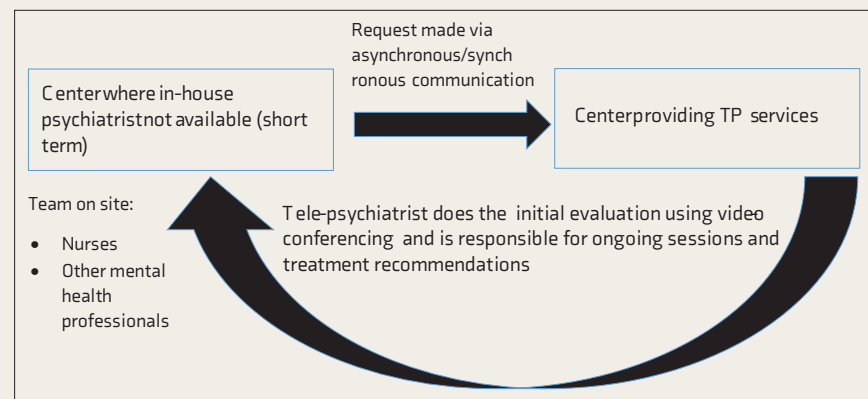


Figure 3 illustrates a direct care model which has been used in situations where an inhouse psychiatrist was not available for service delivery for a short period of time. In this model, the on-site team, often consisting of residents or medical students do initial physical assessment and ensure patient's safety, following which request is made for TP consultation. TP provider does the initial evaluation and is responsible for ongoing treatment recommendations along with training and supervision of the on-site staff.

there were only a handful of studies in extremes of age groups. Studies have evaluated this model of service delivery in geriatric patients residing in nursing homes and have found TP to be reliable after comparing assessment scores to in-person assessment.<sup>21-23</sup> One study from Oklahoma assessed the use of TP in an inpatient geropsychiatric unit at an under-served facility using a multi-

disciplinary treatment team model. The authors analyzed patient and family satisfaction survey data for a period ranging to 12 months before the inception of telemedicine and 12 months after inception. Results showed a positive correlation between telemedicine and patient/family satisfaction.<sup>6</sup> Studies for inpatient TP delivery for children and adolescents are still lacking.

## Opportunities and Proposed Model for Inpatient Telepsychiatry in India

With over 560 million Internet users, India is the second-largest online market in the world, ranked only behind China. By 2023, there will be over 650 million Internet users in the country.<sup>24</sup> India has a predominantly rural population, constituting around 72% of the total. In 2019, rural users outnumbered urban Internet users by 10%, thereby progressively narrowing the digital divide that had existed earlier.<sup>24</sup> A huge opportunity lies in using TP as a primary mode of service delivery in remote areas, where specialist psychiatry services are not available. The availability of psychiatrists (per lakh population) as found in the National Mental Health Survey states varied from 0.05 in Madhya Pradesh to 1.2 in Kerala, with most states even falling short of the requirement of at least one psychiatrist per lakh population.<sup>25</sup> The availability of psychiatric social workers, psychologists, and psychiatric nurses was more sobering. The limited availability of specialist mental health human resources has been

TABLE 1.

### Summary of the Evidence of Telepsychiatry-Based Service Delivery for Inpatient Care (N = 17 Studies)

Author & Year	Setting and Population Studied	Mode of Telepsychiatry Used	Model	Outcome Assessed	Result/Comments
Baigent et al., 1997	Adult state hospital inpatients	Videoconferencing	Compared face to face interviews with video consultations	Reliability and satisfaction	Reliability: BPRS ratings similar, though difficulty with "overall concern" and affect. Many patients were satisfied and preferred it instead of in-person
Ball et al., 1997	Adult inpatients	Videoconferencing	Only tele-assessment	Satisfaction	Good satisfaction compared with in-person, telephone, and hands-free telephone
Montani et al., 1997	Geriatric inpatients	Videoconferencing	Psychometric evaluation of face to face versus tele-assessment	Reliability of psychometric tests	Small differences in mean scores between video and face-to-face administration
Mielonen et al., 1998	Adult inpatients	Videoconferencing	Direct care model	Satisfaction and costs	High patient satisfaction (80% considered it to have been useful). Savings in health care costs, reduction in travel, and ease and speed of consultation
Alessi et al., 1999	Adult forensic inpatients	Videoconferencing	Direct care model	Cost-effectiveness	Telepsychiatry is cost-effective
Ruskin, 2000	Adult inpatients with depression	Videoconferencing	Direct care model	Reliability	Reliability coefficients similar for in-person and telepsychiatry
D'Souza, 2000	Acute Psychiatric inpatients from 15 rural hospitals	Videoconferencing	Direct care model	Satisfaction and treatment outcome	Significant improvement in the mean total BPRS scores from initial assessment to follow-up with good inter-rater reliability. Reduction in travel costs with high patient satisfaction

Menon et al., 2001	Elderly patients admitted to the acute medical unit or the geriatric evaluation and management unit of a veterans affairs medical center	Videoconferencing	Direct care model	Reliability (scores of assessment)	Remote assessment of depression and of cognitive status was comparable to in-person assessment
Jones et al., 2001	Geriatric psychiatry inpatients	Videoconferencing	Psychometric evaluation of face-to-face versus tele-assessment	Reliability for diagnosing depression	Good agreement between a face-to-face observer and the telemedicine interviewer
Holden & Dew, 2008	Community-based inpatient setting (gero-psychiatric unit)	Videoconferencing	Collaborative care model	Patient/family satisfaction 12 months prior to inception of telemedicine and 12 months post that	Positive correlation was found between telemedicine and patient/family satisfaction with perception of benefit from treatment
Grady et al., 2011	Rural inpatient psychiatric unit	Teleconferencing (VTC)	Direct care model	Psychiatrist's efficiency and consistency	Patients with psychosis reported more difficulty hearing the doctor than without psychosis. Patients rated development of rapport and effectiveness of treatment higher than staff ratings. Telepsychiatry services were more effective with higher functioning patients.
Devido et al., 2015	Psychiatric inpatients in a general hospital	Videoconferencing	Teleconsultation model	Asses model of inpatient consultation-liaison psychiatry services	Telemedicine is a viable model for inpatient consultation-liaison psychiatry services to hospitals without onsite psychiatry resources and represents a viable alternative model of service delivery
Graziane et al., 2017	Psychiatric inpatients in a general	Videoconferencing	Teleconsultation model	Common consultation questions, patterns of diagnosis, and recommendations	Most common diagnosis was delirium followed by dementia. Investigations were recommended and medications were started or changed
Evangelatos et al., 2018	Case series involving 12 inpatients (24 visits)	Videoconferencing	Direct care model		No differences between telehealth and non-telehealth patients in use of emergency medications, codes, and length of stay. Patients expressed positive experience with telehealth and no preference for in-person care; high preference for TP for maintaining continuity
Kimmel & Toor, 2018	Initial and follow-up consults of inpatients in medical ward	Videoconferencing and phone calls	Collaborative care model	To develop the first US program covering the consult service to patients in the medical wards of unaffiliated, rural hospitals	Benefits noted by consultants, patients, and community hospital medical staff
Kimmel et al., 2019	Inpatient and outpatient services in a critical access hospital	Videoconferencing	Collaborative care model	To develop service delivery model	Telepsychiatry was useful for supporting inpatient care at critical access hospital by regular access to psychiatrists
Mazhari et al., 2019	Adult inpatients	Videoconferencing	Compared face-to-face interviews with video consultations	Reliability (diagnostic agreement) and satisfaction	Diagnostic agreement between the two interviewers was 75% and was acceptable by majority of patients

Abbreviation. BPRS: Brief Psychiatric Rating Scale.

one of the barriers in providing essential mental health care to all. Limited availability contributed to the treatment gap of around 85% for mental disorders. The use of TP could expand access to a larger, difficult-to-reach population. TP may also provide training opportunities for health care staff working in inpatient wards to address the basic mental health needs of their patients.

All of the models we reviewed were developed and studied predominantly in a Western context. Thus, given the differences in infrastructure and human resource capacity, these models need to be adapted for consideration in the Indian setting. Therefore, we propose a model for inpatient TP delivery in an Indian setting, as illustrated in **Figure 4**. The model would be based on the CCM working on the principles of the “hub and spokes” model. The hubs could be tertiary care centers like government medical colleges with psychiatrists, which would deliver TP services to one or more spokes such as community health care centers and district hospitals (where psychiatrists are not available for inpatient care). This model would require building infrastructure, including installation of delivery systems, ensuring adequate internet connectivity. The peripheral centers would need to have a team dedicated for TP, preferably multidisciplinary comprising (a) one medical officer, (b) a nurse for clinical assessment and day-to-day clinical care, (c) technician with training in operating and smooth functioning of the delivery system, and (d) other mental health professional staff such as psychologists and social workers. However, the existing pool of human resources in the country might not always allow such a resource-intensive plan. Hence, the system should be flexible in accordance with localized contexts. The “hub” will involve in the capacity building of the existing human resources.

An induction and experiential training would be required for all the staff at the remote sites. Having adequate technical infrastructure and training have been documented as necessary requisites for optimizing the successful implementation of TP.<sup>3</sup> The TP service provider and centers receiving services should aim to build a proper working and professional relationship.

The primary team of medical professionals would initially assess admitted patients. TP providers could have access to the clinical assessments and medical records of admitted patients through asynchronous communication so that they could review it before the scheduled videoconferencing-based inpatient rounds. The “hub” could hold regular rounds with each center; the frequency could be dictated by the case-load of the particular remote site. The TP providers would plan the ongoing treatment in collaboration with the primary team. The care managers would be responsible for its timely implementation, and the nursing professionals would carry it out at the ground level. Teams of all the remote sites could attend rounds to encourage vicarious learning and discussion, and ongoing training and capacity building should be supported.

### Challenges for Inpatient TP Model in Indian Setting

There could be structural, systemic, and attitudinal barriers to implement this model.<sup>3,4</sup> Lack of existing infrastructure and problems with internet bandwidth

are structural barriers. There is a shortage of mental health professionals. And there is limited experience with TP (or telemedicine in general) for existing professionals. These can act as systemic barriers. There is also a lack of governance for developing TP initiatives. The legal aspect of TP remains another roadblock. Other challenges include issues of feasibility and concerns of the medical staff regarding providing treatment via TP to certain types of populations like patients with psychotic illnesses. The problems of privacy, the possibility of stigmatizing, and marginalizing by the health care system also may interfere.<sup>3</sup> Research also shows that patients may also have concerns about TP, such as loss of human contact, limited technological competencies or skills, concerns about privacy, quality of audio and video transmission, and reliability of videoconferencing for diagnostic assessment. Therefore, concerns of patients about TP require further consideration.<sup>26</sup> It is important to note that telemedicine guidelines focus on outpatient care, and health insurance may cover out-patient-based telemedicine consultations only.

FIGURE 4.

#### Proposed Model for Inpatient Telepsychiatry Delivery in India (Public Sector)

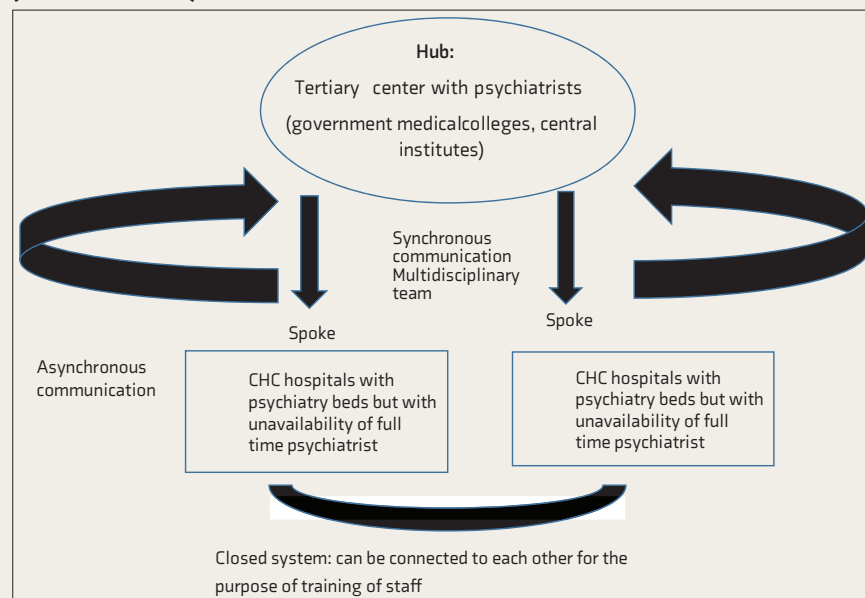


Figure 4 illustrates the proposed model where tertiary centers would provide TP services to one or more peripheral centers. The peripheral centers would have an onsite team, including one trained care manager. Care manager would request appointments, send medical records and relevant physical findings using asynchronous communication and then higher centers would use synchronous communication to assess patient in presence of care manager and discuss treatment plan. Regular supervision would be ensured. Multiple attached centers will have provision to attend rounds for the purpose of learning.

Abbreviation: CHC, Community health center



## Conclusion

TP is an evolving field that shows great potential to address the mental health needs of a large number of people who otherwise do not have access to mental health services. The available literature, in the context of inpatient settings, has shown TP to be a widely accepted, cost-effective, reliable, and effective mode of treatment. This mode of service delivery warrants further research and consideration for Indian inpatient psychiatric settings.

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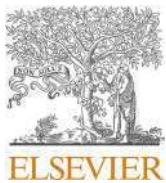
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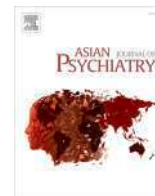


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# Asian Journal of Psychiatry

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Letter to the Editor



## Bridging the emergency psychiatry and telepsychiatry care: Will COVID-19 lead to evolution of another model?

Telepsychiatry is understood, as a subset of telemedicine, which involve providing a range of services including psychiatric evaluations, therapy, patient education and medication management through Telepsychiatry services (American Psychiatric Association, 2020; Chakrabarti, 2015). According to American Psychiatric Association, the term telepsychiatry should be limited to video conferencing (American Psychiatric Association and The American Telemedicine Association, 2018). The ongoing COVID-19 pandemic has brought the video-conferencing based Telepsychiatry services to the forefront. The Government of India (GOI) notified the Telemedicine guidelines on 25th of March, 2020 (Medical Council of India and Niti Aayog, 2020). This provided a boost to the Telepsychiatry services. According to the Telemedicine Guidelines, as issued by GOI, telemedicine services should be avoided for emergency care, when alternative in-person care is available. Emergency telemedicine consultation should be limited to first aid, life-saving measure, counseling and advice on referral (Medical Council of India and Niti Aayog, 2020). Further, these guidelines state that in all emergency cases, the registered medical practitioner (RMP) should notify the emergency to the patient and advise an in-person interaction at the earliest. However, during the Telepsychiatry consultation, the RMP is required to take adequate desired steps that could be life-saving. The RMP is also required to provide guidance and counseling.

It is seen that, during the ongoing pandemic, there has been an upsurge of mental health issues (Tandon, 2020a,b). However, due to lockdown various mental health services, such as inpatient, outpatient and other services have been reduced; there was an expansion of the Telepsychiatry services, both in the institutional set-ups and the private practice set-up across the country (Grover et al., 2020a,b). In psychiatry, one of the major emergencies is the suicidal behaviour of the person. Telemedicine guidelines have specifically not addressed this issue. Hence, psychiatrists are not clear, as to how to handle such a situation, while providing Telepsychiatry services and there are no clear-cut answers to the same. In general, it is suggested that, in case of emergency, the patient should be advised for in person consultation or should be advised to seek help at the local medical facility. Keeping the issue of suicidality, having two phone numbers of the patients (one of which is of the relative of the patient, preferably staying with the patient) at the time of registering the patient, and ensuring that someone is present with the person while providing Teleconsultation can help the psychiatrist in ensuring that the person is guided for the in-person consultation and first aid care is ensured.

An important aspect of medical practice is supervising or guiding other colleagues in providing care to the patient. This can involve patient to be seen by a local physician, who shows the patient to a specialist (in this case psychiatrist) through video-teleconferencing, during which patient is also independently assessed by the specialist

sitting at the remote place. The specialist is able to make his independent impression about the patient's problem, advises the physician to carry out the physical examination as per the requirement, and advises for investigations. The patient is retained at the local health care facility and the patient is again reviewed by the specialist with the available investigation findings and treatment plan is formulated, which is executed by the physician seeing the patient locally. This ensures care at the local health care facility without having the patient to travel to long distances. In the western countries, emergency Telepsychiatry services have been growing steadily (Reinhardt et al., 2019). These services involve providing psychiatry services to various emergency set-ups through video-conferencing. For this, a psychiatrist at the remote location assesses the patient through video-conferencing, facilitated by the emergency physician. Based on the assessment, the advice is made for pharmacotherapy, discharge and admission to an inpatient facility. The emergency Telepsychiatry services are considered to be acceptable, feasible, possibly cost-effective, and leads to a reduction in waiting time in the emergency for the patient (Reinhardt et al., 2019).

At our centre, which is a tertiary care hospital, psychiatry services are provided to all the emergency set-ups (medical, surgical, pediatrics, trauma) by the consultation-liaison psychiatry team. This is a 3-tier system, in which the patient is assessed by a trainee psychiatrist, who is present in the emergency setting (rather than being on call). This has ensured increase in overall referrals from various emergency physicians (Grover et al., 2015). Once the emergency trainee resident assesses the patient, the patient is seen by a senior resident, who is a qualified psychiatrist, who carries out the further assessment. Finally, the patient is seen/discussed with the consultant and final treatment plan is made and patient is managed in the emergency setting for duration varying from 2 h to 72 h, with occasional patient kept in emergency for longer duration.

During the ongoing COVID-19 pandemic, the routine outpatient services have been substituted with the telepsychiatry services. Keeping the issue of suicidality in mind, we have tried to embed the emergency and telepsychiatry services (Fig. 1). Accordingly, if any patient seen at the telepsychiatry services requires an emergency care, patient and family are encouraged to attend the emergency services, where the team is already alerted about the patient's possible arrival. Once the patient arrives at the emergency, patient is evaluated by the emergency team, appropriate management is carried out and then patient is attached back to the telepsychiatry services. On the other hand, when a patient directly comes to the emergency, patient is assessed by the emergency team, and the patient is attached with the telepsychiatry services for further follow-up. This system of combining both the services has ensured that patients, seen in the telepsychiatry services, can assess the emergency in-person consultation and those directly seen in emergency are being seen through the telepsychiatry services ensure continuity of care. However,

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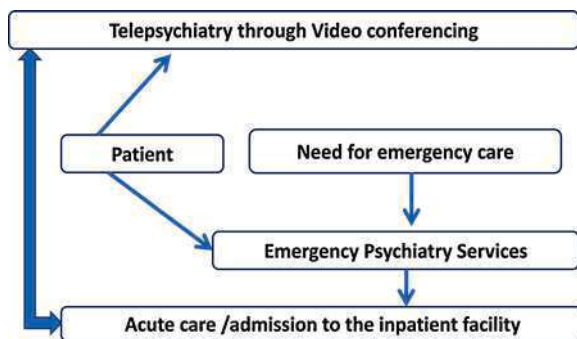


Fig. 1. Embedded Emergency and Telepsychiatry Model.

it is important to note that this may not be feasible across the country, but similar models, needs to be developed, where the patient can be seen by a local physician to provide emergency psychiatry care, under the supervision of the psychiatrist. This also requires modification of the telemedicine guidelines to incorporate the tele-supervision. If this modification is done, in long run, this can lead to evolution of a Telepsychiatry model, where the patients at the remote rural places can be managed by the specialists with the help of local physician, without having to travel for long distances.

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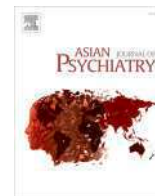
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## Letter to the Editor

## New consultation liaison model of providing care to COVID patients



COVID-19 pandemic has emerged as a major public health issue for the mankind and every human being has been affected by the pandemic in one or the other way (Tandon, 2020a, 2020b). COVID-19 has been considered to be a mental health crisis, not only for those infected with the same, but also for the health care workers (Grover et al., 2020a). Throughout the world makeshift COVID ward have been created to provide care to people infected with the COVID-19 virus. Further, doctors from the different specialties have been pooled together to provide care to persons infected with the virus. Although everyone, who is infected with the virus does not develop the severe symptoms of the infection and do not require the life support measures, but most patients encounter the mental health issues while in the COVID ward and after recovery from the same (Sahoo et al., 2020b,a). Due to this it is suggested that everyone infected with the COVID-19, should be provided with mental health support (Grover et al., 2020a). Considering the importance of mental health consequences, at many places, mental health professionals (MHPs) have been posted in the COVID ward to cater to the mental health needs of the persons with COVID-19 infections. At some places, these services are being provided in-person, with MHPs assessing the patients with the COVID-19 infection in the COVID ward and at other places these services are being catered through the telephone or video-conferencing (Grover et al., 2020b; Sahoo et al., 2020b,c). However, it is humanly not possible for the MHPs to assess all the patients in the COVID ward for the mental health issues. This is not a cost effective model as this requires MHPs to be present round the clock, in the personal protective equipments (PPEs). The use of PPEs takes away the advantage of face-to-face interaction, and resultantly a therapeutic alliance is not established properly (Padhy et al., 2020; Sagar et al., 2020). Further, this model requires large manpower of the MHPs to meet the requirement and also exposes them to the risk of infection. Further, if the MHPs are posted for only few hours, this restricts the availability of mental health services to few hours of the day, as MHPs are not posted during all the shifts. On the other hand, while providing services telephonically or through videoconferencing it is often not possible to reach to all the patients, especially those who are admitted in the ICUs and are suffering from delirium. Hence, both the models have their limitations and there is a need to evolve a model, which can improve the mental health care for patients with COVID-19 patients, without exposing all the MHPs to the risk of COVID-19 infection, while providing the services.

Keeping this in mind, we evolved a model (Fig. 1), which involved the modification of usual consultation-liaison (CL) Psychiatry model of providing care to patients in other inpatient setting. In the usual model whenever a call is received by the CL Psychiatry team, the junior resident/trainee resident first examines the patient under the supervision of a senior resident/registrar. Then the case is reviewed by the consultant incharge and final plan of management is decided and executed (Grover

et al., 2017). Additionally, for providing CL services to the emergency, one of the junior Resident/trainee resident is stationed in the emergency and any patient who requires mental health care is attended. This has led to overall increase in the psychiatry referrals in the emergency set-up (Grover et al., 2015).

During the COVID times, the CL Psychiatry model was modified to provide round the clock services to the patients with COVID-19. In this model, psychiatry residents are involved at 2 levels- one involved some of them being posted in the COVID ward and some are involved in providing services telephonically and/or through videoconferencing (Fig. 1). Both the set of residents are supervised by the same team of senior resident/registrar and the faculty members. The junior resident/trainee posted at providing services telephonically and/or through videoconferencing, makes the telephone calls to the patients (who have access to a personal phone in the COVID ward) in the COVID ward within 24–48 hours of their admission, carries out a brief assessment and screens them for psychological distress and any diagnosable psychiatric disorders. He/she also provides psychological support in the form of reassurance and hope for recovery. Patients experiencing anxiety and sleep disturbances are managed with melatonin or benzodiazepines on SOS basis, depending on the respiratory status (SpO2). Patients found have severe mental illnesses are monitored more closely for the need for use of psychotropic medications, ongoing symptoms including suicidality, medication compliance and possible drug interactions. Those patients who are considered to have higher level of psychological distress are managed with video-conferencing. Patients are also informed that they can store the phone number of the mental health team and can initiate the call on their own, in case they feel the need for further psychological support. Patients with significant psychological issues are followed up till they are discharged from the COVID ward. Patients considered to have more severe ailment or at risk of self-harm are intimated to the mental health team posted in the COVID-19, which examines the patients personally and carries out the required intervention. On the other hand, the psychiatry resident posted in the COVID ward or resident/ consultant of any other specialty can initiate a psychiatry consultation telephonically/ videoconferencing with the consultant to discuss the case, show the patient to the consultant through video-conferencing and seek advice. This model works well for patients who have delirium, are uncooperative for any kind of assessment or intervention for their physical ailment, are experiencing substance withdrawal in the intensive care set-up, and are experiencing catatonia. The resident/consultant of any specialty has the liberty to contact either of the psychiatry teams (that is posted in the COVID ward or the team available for Teleconsultation) for the consultation.

Usually, one or two psychiatry residents are posted in the COVID ward at shifts of 6 h, who not only provide mental health care but are also involved in taking care of physical health issues of the COVID-19

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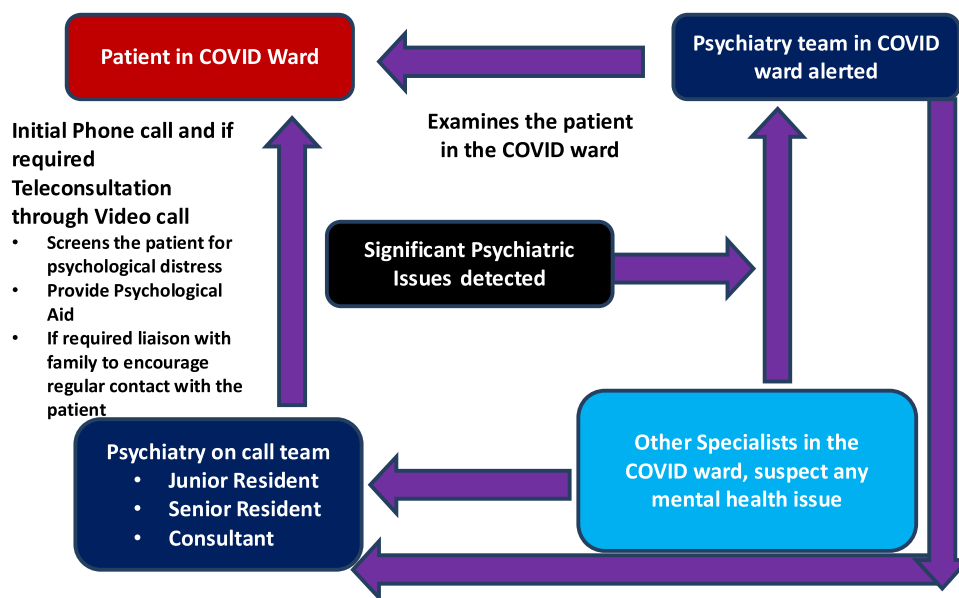


Fig. 1. Emerging Consultation-Liaison Model for providing care to patients with COVID infection.

patients. On the other hand, 2–3 residents are posted for providing the telephonic/videoconferencing services, along with 3 psychiatry consultants available round the clock. These teams also address to the psychological issues among the health care workers. Further, the same team tries to follow-up the patients with significant psychological issues after discharge from the COVID ward. This model draws some or other principles from other CL Psychiatry models (Grover, 2011) and helps in not only providing patient care, but also involves teaching the psychiatry residents and specialists from other departments, providing supervision and resolving crisis. This model also incorporates the telepsychiatry.

We found this model to involve fewer mental health professionals with proper coverage of the mental health services. There is a need to use this model at a wider scale, to improve the mental health care of the patients with COVID-19.

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#### Declaration of Competing Interest

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# How to Organize Mental Health Services in the Era of Unlockdown

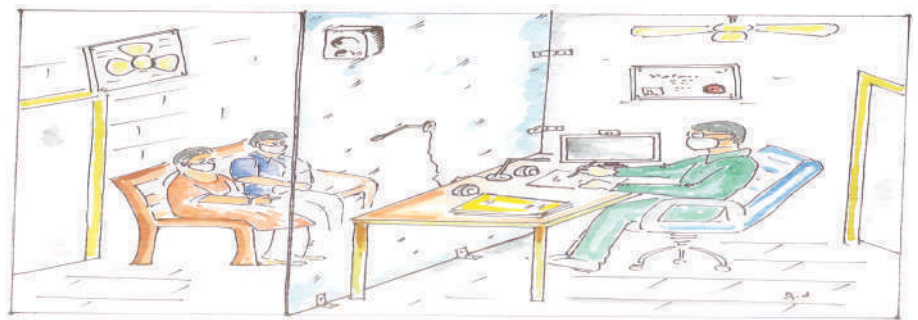
Sandeep Grover<sup>1</sup>, Swapnajeet Sahoo<sup>1</sup>, Aseem Mehra<sup>1</sup>

**L**ockdown across the world in response to the COVID-19 pandemic had led to several significant consequences such as a decline in the global economy, problems in providing essential services, the agony of the migrant population, and the difficulty in attending the emergency medical services.<sup>1</sup>

Of all these issues, the effects of the closure of routine medical services on patients and caregivers have been tremendous. The patients on regular psychiatric care (follow-up visits, psychotherapy services, periodic/scheduled brain stimulation services, etc.) or requiring mental health care have been significantly affected.<sup>2-5</sup> Moreover, at some places such as Massachusetts General Hospital, Boston, considering the increase in the need for inpatient care, new acute inpatient units have been opened to cater to patients who have psychiatric disorders. These patients with various psychiatric disorders have additionally got infected with COVID-19 that is medically not serious, to the extent of admitting the person in infectious disease units or intensive care units.<sup>6</sup>

Data from India also suggests that the COVID-19 pandemic and the lockdown have affected the mental health services

significantly in both government and private sectors.<sup>7,8</sup> There are also reports of private-sector health care staff getting infected due to the continuation of medical services, and subsequently, some of the health care workers (HCWs) facing legal actions too.<sup>9,10</sup> Recently, reports



have emerged from different parts of the country about HCWs working in various institutes catering to patients with COVID-19 having got infected with the virus.<sup>11</sup>

To overcome these issues, telemedicine and telepsychiatric services were started or resumed actively in many hospitals across the world.<sup>12</sup> Pre-existing guidelines were renewed and new telemedicine and telepsychiatric guidelines were formulated.<sup>13-15</sup> India's government too issued the Telemedicine Guidelines

may be out of reach for the poor and people who do not have a telephone.<sup>17</sup> Hence, in-person consultation will remain a preferred method of seeking professional help and need for inpatient care, and special treatment (e.g., electroconvulsive therapy, which will require

on the March 25, 2020, to ensure care to the needy patients.<sup>14</sup> However, there are many limitations of telemedicine services such as lack of the humane touch, being an indirect mode of communication, inability to carry out detailed physical examinations, difficulty in tele/internet connectivity in rural and difficult-to-access areas, lack of overall public acceptance, difficulty in diagnosing with accuracy and providing tele-psychotherapy services, issues related to confidentiality and security, etc.<sup>14,16</sup> Further, these

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direct contact with mental health professionals [MHPs]), cannot be underscored.

The recent studies on the impact of COVID-19 pandemic on mental health outcomes of the general public and HCWs suggest that there has been a significant rise in the mental health morbidity, mostly common mental disorders, across the world.<sup>18–21</sup> There is every possibility that MHPs would see an upsurge of the psychiatrically ill population shortly, that is, in the unlockdown phase, across the world. Further, at this moment, there is a steep rise in COVID-19 cases. It is said that there are many more undiagnosed asymptomatic or mildly symptomatic cases of COVID-19 for every diagnosed case.

In the post-lockdown/unlockdown phase, there is possibility of a flurry of new patients with psychiatric disorders and those experiencing a relapse of illness, coming for psychiatric con-

sultations. Patients with mental illness have an added vulnerability to develop COVID-19 for several reasons such as difficulty following the infection control measures due to disturbed mental state, poor cognitive skills, and heightened risk due to the low immune response in chronically mentally ill persons.<sup>22</sup>

MHPs will be facing an ethical dilemma of whether to see or not to see patients, as the unlockdown progresses, in the background of a rising number of cases of COVID-19. If someone decides to see the patients physically, they run the risk of getting infected; if they do not see the patients, they will go through the ethical dilemma and guilt.

Because of this, there is an urgent need to reorganize the services to practice safely. The reorganization of the services has to keep the HCWs' and patients' safety into account. A few authors have tried to put forth the essential case man-

agement practices amidst the pandemic about tele-case management, preparing for surge capacity, discharge planning, transitions of care, ethical and legal obligations, etc.<sup>23–25</sup> Some of the authors have also discussed the necessity for expanding the roles and responsibilities of every specialty, ranging from pharmacy to public health, to reorganize the services back into the track.<sup>26</sup>

In India, most of the health sector, especially in the government sector, does not work on the appointment basis—the patients can walk into the hospital at their own will. The government hospital outpatient services may get crowded with the unlocking and reopening of the services. There would also be a lot of pressure for admission to the inpatient units. Hence, if appropriate planning is not done, the outpatient and the inpatient settings themselves can become hotspots for the spread of infection, all

TABLE 1.

### Standard Procedures to Be Followed for Running the Mental Health Services

#### Outpatient services

1. Online appointment system, with no or minimal walk-in patients.
2. For online appointments, verify the patient's identity based on government documents such as Aadhar card, voter ID, driving license, etc.
3. Review the travel history.
4. Review the history of COVID-19 in any family member and at workplace or neighborhood.
5. Check the area from which the patient is coming, i.e., does it fall in the red, orange, or green zone.
6. Review the medical history for comorbidity, i.e., the presence of various chronic physical illnesses.
7. Does the patient have access to a smartphone for videoconferencing?
8. If feasible, advise the patient to travel by their own conveyance.
9. A day before the appointment, review the patient's health status for fever, cough, and respiratory symptoms (recent onset, worsening of pre-existing symptoms).
10. At entry point, make arrangements for hand-washing and sanitizer for all persons entering health facility.
11. Have infrared thermometers system to monitor the body temperature of the patients and their accompanying family members; avoid seeing patients with fever (i.e., temperature more than 37.5 °F).
12. Use pulse oximeter at the entry point to evaluate the oxygen saturation.
13. Maintain the waiting in such a way that social distancing can be managed.
14. Manage the appointments in such a way that there is no or minimal waiting time.
15. Online payment methods must be used to collect the fee to minimize the contact of patient/family with other HCWs.
16. Review the previous treatment records and investigation reports in the softcopy format.
17. If feasible, take the history on the phone by using the telecommunication modes, even though the patient is in the waiting area or nearby room, to minimize the direct contact time.
18. If direct contact is to be done, maintain proper social distancing and keep a distance of 1–2 meters.
19. Consultation in well-ventilated area/room instead of AC cabins.
20. Alternatively, can use two rooms with glass partition: patient in one room and the therapist in another room, with both able to see each other physically, with the communication system in place so that they can listen to each other even by sitting in different rooms.
21. Use proper masks while carrying out direct contact with the patients.
22. Follow-up appointments to be made by teleconferencing.
23. Avoid or minimize the visits of medical representatives.
24. Inform the patient and the family about the changed functioning, with clear information about what you would be and would not be able to do.
25. Frequent disinfection of waiting area/reception and cabins as per the recommendation.
26. Avoid generation of aerosols: use vacuum cleaners and mopping, instead of using other cleaning measures such as brooms.

**Inpatient services**

1. Inpatient area should be separate from the outpatient area and preferably away from the latter, so that the number of visitors can be minimized.
2. Reduce the number of patients to ensure social distancing; percentage reduction in an inpatient facility to be decided based on the number of isolation rooms available at the given facility.
3. Minimize the number of caregivers/family members accompanying the patient during the inpatient stay.
4. Avoid change of caregivers/family members during the inpatient stay.
5. Minimize the number of visitors to the inpatient area.
6. Screen all the patients for COVID-19 before admission.
7. Inform the patient and the family about the risk of acquiring COVID-19 infection in the hospital.
8. Minimize the number of HCWs at a given time to reduce the chances of infection and have a back-up team in case of crisis.
9. Be vigilant about signs and symptoms of COVID-19 in your patients and their caregivers.
10. Inform the patients and their caregivers about the signs and symptoms of COVID-19 and request them to report the same.
11. Use pamphlets and display boards to convey the messages related to COVID-19.
12. Psychoeducate the patients and the caregivers about social distancing, use of masks, hand hygiene, sanitizers, and restricted mobility in the inpatient setting.
13. Avoid all kind of group activities in the ward area.
14. The admission and discharge plan of patients should be organized so that there is minimum contact of old patients with new patients.
15. Minimize the physical contact.
16. Look for the feasibility of reviewing the health status of inpatients by teleconferencing.
17. Have isolation rooms to accommodate the new patients during the initial few days and to accommodate patients who develop respiratory symptoms.
18. Have isolation rooms for the staff, so that they can be kept there if they have symptoms of COVID-19.
19. Have separate staff and inpatient facility for admitting medically fit COVID-19 positive cases.
20. Rotate the staff to reduce the risk and spread of the infection.
21. Maintain a close liaison with the other specialties and COVID team of the hospital.
22. Arrange for back up of specialists and tie up with a physician in case of a medical emergency (related or not to COVID) to address the issue and for a seamless transfer of the patient to the required facility.

**Consultation-liaison psychiatry (CLP) services**

1. Try to provide the consultation online, if feasible.
2. If it is not feasible to provide online consultation and the COVID-19 status of the seriously medically ill patient is not clear, use a proper mask (N95) to examine patients with respiratory symptoms.
3. At the institutional level, rather than the whole CLP team examining the patient at the bedside, only one person can be at the bedside and others could examine and monitor the patient's status using teleconferencing.
4. Liaison with the primary team to review the patient by teleconferencing.

**Emergency services**

1. Consider all patients to be a possible case with COVID-19 and take all precautions, such as proper face mask, face shield, gloves, gown, and other PPEs.
2. All patients should undergo screening for COVID-19, for fever and other signs, and symptoms of COVID-19.
3. Maintain social distancing and minimize the duration of direct physical contact.
4. Review the treatment records electronically.
5. Keep the patients in the emergency for a minimal duration.
6. At discharge, make a plan to follow-up the patient by teleservices.

**ECT services**

1. Choose patients for ECT carefully.
2. Document the indications for ECT.
3. Avoid giving ECT on an outpatient basis as ECT procedure can involve aerosol generation and patients asymptomatic for COVID-19 may spread the infection to others.
4. Screen the patient for signs and symptoms of COVID-19.
5. Get a test for COVID-19, if there is suspicion of COVID-19.
6. All medical personnel involved in the ECT procedure should don complete PPEs (including shoe covers, outer and inner gloves, gown, N-95 mask, surgical cap, goggles, and face shield).
7. Have designated donning and doffing areas.
8. Maintain social distancing in the waiting area, during the administration of ECT, and in the recovery area.
9. Minimal number of professionals (such as one anesthetist, one psychiatrist, and 1–2 nursing staffs) to be involved at a given time.
10. ECT staff should avoid mingling with patients in other medical wards.
11. Discard the disposables after one use.
12. Disinfect the reusable equipment after use for each patient.
13. Ensure proper disposal of PPEs.
14. Use aerosol box shields to better contain the spread of aerosols from the patient during the procedure.
15. Hand hygiene needs to be strictly followed before and after every patient procedure.

HCWs: healthcare workers, ECT: electroconvulsive therapy, PPE: personal protective equipment.



TABLE 2.

### Required Changes in the Role of HCWs, Administrators/Supervisors, Teachers/Trainers and Trainees

#### Norms for the staff

1. Check the body temperature daily at the time of reporting for work.
2. Encourage the staff and students to report their health status before starting the work.
3. The staff should disclose their travel history, which can include visiting the nearby city/town, epidemic area/red zone.
4. Review the history of staff for recent duty in a COVID hospital/ward.
5. Allay the anxiety of the HCWs.
6. Encourage the HCWs in all levels to use the proper mask and other protective instruments, depending on their level of involvement with the patients and the procedures carried out.
7. Avoid all kinds of in-person staff meetings and preferably use online platforms to carry out the meetings.
8. Use psychological tests that can be administered by using smart devices.
9. Ensure hand hygiene and social distancing norms at all office areas.

#### Roles of administrators/supervisors

1. Be a leader, rather than a boss.
2. Take care of the mental health of yourself and your staff.
3. Encourage self-reporting of symptoms—physical and psychological.
4. Allay the anxiety of your team and ensure the safety of your staff.
5. Provide adequate safety gears to your staff.
6. Value your staff.
7. Avoid job terminations due to financial crunch.
8. Discuss things with your staff, rather than taking a unilateral decision.
9. In case there is no other option than salary cut, make decisions in liaison with the staff, give an adequate explanation, and assure resuming typical salary with improvement in the situation.
10. Always insist on teamwork rather than individual work.

HCWs: healthcare workers.

can be followed/developed. These include different departments developing standard operating procedures based on the number of cases they used to see in the pre-COVID era. There can be a partnership among the government sector hospitals as well as between the government and private sectors, for helping out in segregation and providing care to COVID and non-COVID patients. Some designated centers can be earmarked for admitting suspected COVID patients. It is also likely that in the future, there may be a need for having separate COVID wards for patients with mental illnesses, which have to be managed jointly by people from other specialties and MHPs. Hence, in cities and towns where there is more than one mental healthcare facility, MHPs need to reorganize the services so that some of the centers provide care to patients without COVID-19 and other centers provide care to those with suspected or confirmed COVID-19. Once those suspected to have COVID-19 are cleared, they can be shifted to the place where people without COVID-19 are cared for. There is also a need to develop proper procedures and standard operating procedures for moving patients from one place to another. If these measures are not planned on time, we may soon see closure of services in some areas and HCWs getting infected. If such reorganization with a futuristic viewpoint to protect the people with mental disorders and MHPs is not undertaken, we may be heading for another disaster.

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the HCWs working in a particular unit getting infected, leading to complete closure of the services.

All these require planning and reorganizing the services both in the government and the private sectors. Reorganization of the services will be required in the form of working with appointments, reduction in the number of patients attending the services, minimization of the waiting time, and explicit instruction to the patients and caregivers concerning what will and will not be provided in the changed scenario (Table 1). Similarly, changes would be required to reorganize the inpatient setting, consultation-liaison psychiatry services, emergency psychiatry services, electroconvulsive therapy services, brain stimulation techniques, etc. (Table 1). Besides the routine guidelines for the staff, the time of unlocking calls for developing specific norms for the staff of all the categories

(Table 2). The standard procedures that may be followed have been listed in the given tables, which can be adapted in different types of facilities, keeping in mind the feasibility. The ground rules for providing the services should be following adequate safety and infection-control practices, limiting the number of appointments/patient inflow, ensuring proper training and supervision of staff, and caring for the staff and the students.

While the imminent risk of getting an infection is high for the HCWs, the proposed reorganization of services can be taken as a template to minimize the risks. However, this model can be regarded as dynamic, and it can be changed as per the changing scenario of COVID-19 spread (containment zones/buffer zones/red hot spot zones, etc.) and based on the infrastructure of the healthcare set-up.

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## Editorials

1. Basu D. Ah, Look at All the Lonely People..... Will Social Psychiatry Please Stand up for Ministering to Loneliness? World Soc Psychiatry. 2021;3: 1-6.
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## Ah, Look at All the Lonely People..... Will Social Psychiatry Please Stand up for Ministering to Loneliness?

Eleanor Rigby

Died in the church and was buried along with her name

Nobody came

Father McKenzie

Wiping the dirt from his hands as he walks from the grave

No one was saved

All the lonely people

Where do they all come from?

All the lonely people

Where do they all belong?

Ah, look at all the lonely people....

*Eleanor Rigby (The Beatles, Revolver, 1966)*

The United Kingdom appointed its Minister for Loneliness in January 2018. And now, Japan has appointed its Minister for Loneliness in February 2021. These are terms which were unheard of. We have heard of ministries of sports, culture, arts, health, social welfare.... but of loneliness?

So what is loneliness? And why an editorial in the World Social Psychiatry on loneliness?

### WHAT IS LONELINESS?

Loneliness is most simply defined by the Cambridge Dictionary as “the state of being lonely.” There are more formal definitions, such as “a *subjective* experience where one perceives a discrepancy between their actual and desired levels of social relationships.”<sup>[1]</sup> Two related but distinct terms are often used interchangeably: loneliness and social isolation. Both refer to the lack of social connection. However, while social isolation refers to the quantitative, objective, structural aspect of this social disconnection (as often assessed by numerical measures such as marital or living status, social network size and other details, frequency of social contacts, etc.), loneliness represents the “qualitative, subjective, appraisal of perceived lack of intimacy or of adequate social ties.”<sup>[2]</sup> While generally the two terms are quite closely related (socially isolated persons often feel lonely, and lonely persons are usually socially isolated), there can be socially isolated persons who do not feel lonely and can be in perfect peace with their solitude, while there are many who do feel lonely even while maintaining a quantifiable social network (“alone in the crowd” phenomenon).<sup>[3]</sup>

It is now known that loneliness is common across the world though reported more from the developed world. It

is known that loneliness follows a roughly bimodal age distribution: the first peak is in adolescence and young adulthood, and the second peak in the elderly, though no age is particularly immune.

There is now abundant evidence on the adverse effects of social isolation and loneliness on mortality and both physical (especially cardiovascular disease) and mental (depression, anxiety, suicidality, substance misuse, cognitive decline, and even dementia) morbidities.<sup>[4-7]</sup> There is also abundant evidence of social isolation and loneliness being the consequence of physical and mental disorders. Thus, loneliness can both be a cause and a consequence of morbidities – both a predictor and the outcome variable in research terms. This often bidirectional nature of the association between loneliness and morbidities can, understandably, set up formidable vicious cycles.<sup>[8]</sup>

In view of the above, scientific studies on loneliness have proliferated over the past 2–3 decades, starting from widely isolated publications in the last century. Studies have now shown the enormity of the magnitude of its prevalence in many countries and in various population samples. Loneliness has been termed as an “epidemic,”<sup>[9]</sup> a “pandemic,”<sup>[10]</sup> and a “public health issue.”<sup>[11]</sup> The COVID-19 pandemic has further fuelled awareness and research on the “lockdown loneliness.”<sup>[12]</sup>

While this is a laudable effort, we need to be conscious of the direction of the wave. The terms epidemic and pandemic are scientifically (not metaphorically) used with reference to a disease. So is the term “public health approach.” But is loneliness a disease? States of loneliness have been associated with neurocircuitry-related, neuroinflammatory, and immune changes, and studies have provided mechanistic hypotheses linking loneliness with physical or mental morbidities and mortality.<sup>[5,13,14]</sup> There have been studies on genetics of loneliness, including genome-wide association studies.<sup>[15]</sup> All these may make the casual reader unsuspectingly drift toward a “biomedical model” of loneliness, and perhaps look for pharmacological drug targets for “treating” the disease of loneliness in future, at the cost of overlooking the essential role of social connection and mental health in understanding, preventing, and mitigating loneliness and its consequences.

This is where social psychiatry needs to stand up.

But before that, a bit of history might help to lay the backdrop.

## A BRIEF HISTORY OF LONELINESS

According to Merriam–Webster dictionary, the first documented use of the word “lonely” (not loneliness) was in 1598 AD.<sup>[16]</sup> Some sources attribute the first recorded use of the word “lonely” in William Shakespeare’s tragedy *Coriolanus*.<sup>[17]</sup> However, according to the British historian Fay Bound Alberti, the word “loneliness,” with its connotation of a painful negative emotionality arising out of the perceived lack of social connectivity, appeared only in the 1800s. Before that, the word was “oneliness,” with the factual denotation of “being alone or without company,” or even a state of peaceful aloneness or solitude, but without the subjective unpleasant painful connotation of the modern use of the word loneliness.<sup>[18]</sup> Alberti writes with conviction that the word loneliness cropped up around the same era as “individualism” associated with modernization of the western society following the wave of industrialization and its accompanying impact on society, culture, economy, and individuality:

“The contemporary notion of loneliness stems from cultural and economic transformations that have taken place in the modern West. Industrialisation, the growth of the consumer economy, the declining influence of religion and the popularity of evolutionary biology all served to emphasise that the individual was what mattered – not traditional, paternalistic visions of a society in which everyone had a place.”<sup>[18]</sup>

The first entry of the word loneliness in PubMed dates back to 1890.<sup>[19]</sup> However, this was a purely spiritual article, under the subject heading “Words of Consolation.” The very next citation, probably for the first time in the medical-psychological context, came a whopping 47 years later, in 1937, with a case series of lonely widows or aging spinsters developing paranoid syndromes.<sup>[20]</sup> Citations using the word loneliness were extremely sparse throughout the following decades, the numbers reaching double figures only in 1974, and it took this current century to first clock triple-figure citations of loneliness (102 in 2002). Since then, over the last two decades, there has been a sudden and steady spurt in citations, reaching the peak of 1456 citations in 2020, and 584 already in 2021 at the time of this writing (April 5, 2021) [Figure 1]. COVID-19 related articles, not surprisingly, contributed a major share of the citations (347 in 2020 and 249 till date in 2021), but even otherwise, the numbers reflect a burgeoning interest in publications in professional journals with loneliness as an emerging theme.

The very occasional early articles were centered on the themes of psychodynamics, psychology, and case series on various desolate groups including the elderly and mentally ill persons. Perhaps, one of the best and detailed treatises in this era was by the noted psychodynamically oriented psychiatrist Frieda Fromm-Reichmann, titled, simply,

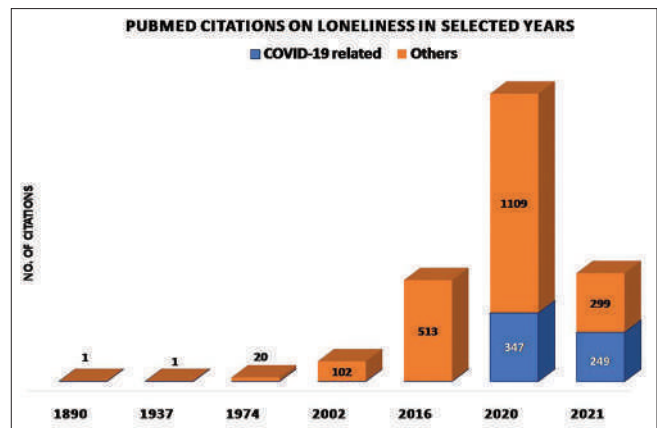


Figure 1: PubMed citations on loneliness. 1890–2021 (April 5)

“Loneliness.”<sup>[21]</sup> Published posthumously, this article deals with the severe, “real, psychotogenic loneliness” from several perspectives including those from poets and patients. The closing sentence is quite prophetic: “Thus I suggest that an understanding of loneliness is important for the understanding of mental disorder.”<sup>[21]</sup>

Articles related to sociology and social sciences started appearing in the 1950s. Probably, the first important publication in a mainstream psychiatric journal – the *American Journal of Psychiatry* – appeared in 1955. Interestingly, the author, Claude Bowman, was from the Department of Sociology and Anthropology, not Psychiatry or Psychology. He argued that “The problem of loneliness provides an excellent demonstration of the principle that psychiatric phenomena have sociological dimensions.”<sup>[22]</sup> Bowman laid down four major types of macro-level influences in modern societies (especially the western ones) that create the conditions conducive to loneliness: decline of primary-group contacts (“Primary groups are those face-to-face groups such as the family, playgroup, neighborhood, or village, which provide relationships of intimate fellowship”); increase in formal, impersonal, functionally defined and hierarchically organized relationships as in bureaucratic or corporate setups; horizontal mobility (due to physical movements away from primary groups due to job and other works including rapid travels during globalization); and vertical mobility (rapid movement from one social class to another).<sup>[22]</sup>

Scientific interest in the study of loneliness was boosted by creation of instruments measuring loneliness in the late 70s and later, though the studies were still a trickle. Pioneering major work came from the Social Neuroscience Lab at the University of Chicago, founded by John Cacioppo, who along with his colleagues worked and published in this area for over three decades till his death in 2018<sup>[23]</sup> and advocated loneliness as a public health issue.<sup>[24]</sup> Their team studied loneliness from an evolutionary and social neuroscience perspective, covering areas widely ranging

from sociology, psychology, health outcomes, physiology, genetics, and molecular biology. Essentially and gradually, the currently dominant perspective emerged – one that views loneliness (perceived social isolation) as serving an evolutionary adaptive need for re-establishing social connections for the purpose of safety and stability, but when prolonged or severe can become maladaptive, with myriads of adverse consequences.<sup>[25]</sup>

### INTERVENTIONS FOR LONELINESS

Along with these, various interventions have been designed, and a few tested, for mitigating or even preventing loneliness. Ten years ago, an influential meta-analysis identified four main modalities of intervention: (a) improving social skills, (b) enhancing social support, (c) increasing opportunities for social contact, and (d) addressing maladaptive social cognition.<sup>[26]</sup> Of these, those aimed at improving maladaptive social cognitions were the most evidence based at that time.

The UK Government has recently published an important document named “A connected society: A strategy for tackling loneliness – Laying the foundations for change.”<sup>[27]</sup> It is a highly commendable document, with a vision, detailed strategies for a multi-level, multi-agency, and multi-pronged approach, and an articulated focus on mental health. Among the many multi-sectoral strategies advocated, one particularly important one is the emphasis on “social prescribing” – community referral to various channels for meeting the social, vocational, emotional, and practical needs by engaging the clients in a variety of activities (usually tailored by link persons to suit the clients’ individual preferences and available resources) such as volunteering, arts, gardening, befriending, cookery, and sports, typically in group format.

There are several community-level research projects completed and underway, and several individual-level interventions have been researched, the more recent ones, understandably, focusing on several types of digital interventions.<sup>[12,28,29]</sup> A very recently published randomized controlled trial found that even a 10-min telephone call with empathic style made by laypersons with a brief training to clients of the Meals-on-Wheel program in Central Texas, USA, over 4 weeks, reduced loneliness, depression, and anxiety symptoms.<sup>[30]</sup>

While these are all very optimistic indicators, many questions remain regarding the nature of, and interventions for, loneliness. A selected few are highlighted below in brief.

### IS LONELINESS A STATE OR A TRAIT?

While the intuitively obvious answer is “of course, a state” per the very definition of loneliness, some researchers believe it is also a “personality trait”<sup>[11]</sup> or even a “biological trait.”<sup>[15]</sup> While sociologists believe

that it is a state experienced by individuals (who may be otherwise healthy) because of social–ecological factors, psychologists see it as a relatively stable personality trait, meaning thereby that (a) loneliness is stable across time in each individual irrespective of fluctuating social conditions and (b) some people will always feel more lonely than others, again irrespective of fluctuating social conditions. Finally, social neuroscientists believe that loneliness is a biological trait (a phenotype), which is partly heritable, has genetic roots, and neurobiological correlates.

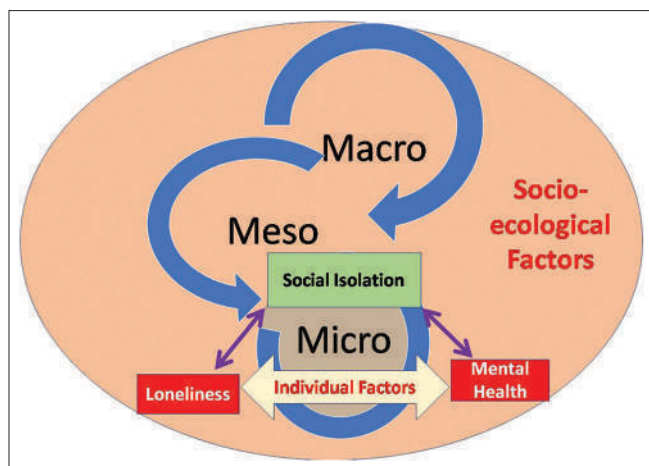
### IS LONELINESS A DISEASE, OR PERHAPS A DISORDER?

One corollary of the “loneliness is biological” theme is to conceptualize loneliness as a disease (with defined etiology and pathophysiology), or at least a disorder (the “syndrome” of loneliness, with a course, outcome, and prognosis and perhaps a “treatment”).<sup>[31]</sup> These trends have become popular with the studies on neurobiological and brain circuitry correlates of acute or perceived social isolation.<sup>[13-15]</sup> It also is assumed that loneliness is a medical condition just because it is associated with, or can lead to or worsen, other medical conditions. Such medicalization might be beneficial to decrease stigma associated with loneliness and might promote further scientific research as well as potentially draw attention of the funding agencies as a “public health issue,” “behavioral epidemic,” or even “pandemic.”

However, the major risks associated with such medicalization are (a) scientifically misleading notions about the terms such as disease, disorder, epidemic, or pandemic (we need to make a distinction here between the metaphorical or colloquial use of a word or phrase and its scientific or technical use), (b) inaccurate and populist representations in the lay media (such as “genes found as “cause” of loneliness”),<sup>[32]</sup> (c) the elusive search for pharmacological treatments for loneliness, (d) paradoxical stigma for those suffering from the “disease of loneliness” because *they* are “diseased,” (e) a tacit de-emphasis on researching and tackling the socio-ecological determinants of loneliness, and (f) discouraging multidisciplinary collaborations, which is vital for studying and remedying a complex concept such as loneliness.<sup>[33]</sup>

### IS LONELINESS A CAUSE OR AN EFFECT OF MENTAL DISORDERS?

Most likely, both loneliness has been strongly associated with mental health issues and well-being.<sup>[7,8,10,34]</sup> The direction of the association, however, may be difficult to ascertain because well-conducted longitudinal studies are not easy to come across. A very recent publication on the effect of a baseline measure of loneliness on depressive symptoms on a large elderly UK cohort found that



**Figure 2: Schematic diagram on loneliness, mental health, individual and society.** “Macro” level refers to large ecological, historical, secular or such trends as industrialization, urbanization, and globalization. “Meso” level refers to social, familial, other interpersonal and contextual/situational factors. “Micro” level refers to factors within the individual, such as biological (genetic, brain circuitries, neurophysiology) and psychological (personality, cognitive styles especially social cognition).

“11%–18% of cases of depression could potentially be prevented if loneliness were eliminated.”<sup>[35]</sup> Similarly, it is known that loneliness is high in patients with psychotic illnesses, but the association strength is moderate and the causality direction is uncertain.<sup>[36]</sup> A recent study has given a new twist to the story by finding the substantial genetic overlap between loneliness, severe mental disorders (SMDs), and cardiovascular disease (CVD) risk factors, “suggesting that genetic risk for loneliness may increase the risk of both SMDs and CVD.”<sup>[37]</sup> Thus, more longitudinal and mechanistic research is warranted in this important area.

### WILL SOCIAL PSYCHIATRY STAND UP, PLEASE?

This brief and admittedly selective review has traced the roots of loneliness from the industrialization era to our modern times. It has shown that loneliness (defined here as perceived, subjective, unpleasant, and distressing, relatively long-lasting *experience* of social isolation, as opposed to objective social isolation) is an important construct, which is associated with many adverse outcomes including increased physical–mental morbidity and even mortality and is itself likely to be a product of complex multi-level factors operating at many macro, meso, and micro levels. A biopsychosocial model is the likely best perspective to study, prevent, and intervene with loneliness. The net is cast wide, from large-scale ecological, structural, and social factors to individual, cognitive, and biological factors. Recent articles in influential major medical journals – *the Lancet*, *Lancet Psychiatry*, and *JAMA Psychiatry*, to name a few<sup>[9,11,38]</sup> – have emphasized the importance of studying loneliness and provided useful suggestions for multi-level, multi-stakeholder interventions. Some of the hurdles and challenges in conceptualizing and

studying loneliness have been highlighted, though certainly there are more.

From all these, the centrality of loneliness as a personal – deeply and essentially personal – experience, must not be forgotten. Nor should it be forgotten that the essence of this personal phenomenon is defined by the concept of social connection or the perceived lack of it. Thus, loneliness as a concept stands at the crossroads between the domains of individuality and social connection and has clear and strong implications for mental health and ill-health in a likely bidirectional relationship [Figure 2]. This, to my mind, is the central argument for social psychiatrists (or mental health professionals with an interest in social psychiatry) to be integrally involved with the conceptualization, assessment, study, intervention, and prevention of loneliness. They should be ministering to loneliness along with the ministers for loneliness.

Loneliness needs all – politicians, bureaucracy, social services, mental health services, sports, culture, psychology, sociology, biology....and social psychiatry – to emphasize and remind us about the inexorable link between the individual mind, the large ecosocial system, and the evolutionarily maintained and psychobiologically mediated need for social connection.

### EPILOGUE

Since we started from the Beatles, who broke the pop culture stereotype and brought the painfully neglected and stigmatized topic of loneliness in its songs in the mid-60s, perhaps, it would be apt to finish off with another song – written slightly later, by John Lennon, still with The Beatles at that time – one that depicts the sheer desperation, pain, suicidality, and the social–interpersonal context of loneliness.

Black cloud crossed my mind

Blue mist round my soul

Feel so suicidal

Even hate my rock and roll

My mother was of the sky

My father was of the earth

But I am of the universe

And you know what it’s worth

The eagle picks my eye

The worm he licks my bone

I feel so suicidal

Just like Dylan’s Mr. Jones

I’m lonely, wanna die

Yes, I’m lonely, wanna die....

*Yer Blues (John Lennon, The Beatles “White Album,” 1968)*

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## Sophie's Choice: The Costs of the COVID-19 Pandemic versus the Costs of its "Treatment"

The thoughtful and comprehensive article by Professor Sudhir Khandelwal in this issue<sup>[1]</sup> is remarkable for its exhaustiveness, erudition, balance, simple plain talk, and ground-touching realism...much too familiar for those who have been following Prof. Khandelwal's writings.

This ultra-small virus, now named as SARS-CoV-2 that causes coronavirus disease 2019 (COVID-19), knows nothing about society, history, geography, economics, culture, races, castes, tribes, rich or poor, male or female (or any gender, for that matter), high or low class, education, occupation, low- and middle-income countries, Global North or Global South... In fact, it knows nothing. It only has this primordial, preconscious urge to spread, invade, replicate...spread, invade, replicate...

And, we, humans, with all our wisdom but also all our human-made divisions, are grappling to fit ourselves in the scheme of things. We are learning every day. But are we?

The COVID-19 pandemic, as a bizarre macabre natural experiment, has exposed the chinks in our armors. It has shown our vulnerabilities, our discriminatory capabilities, and our essential penchant for nurturing stigma (or "othered-ness," or xenophobia) in various forms, as essential human characteristics. However, it has also shown our strengths, our innovativeness, and our dogged pursuit to win, as essential human characteristics.

The pandemic has, no doubt, caused – and has been causing as I pen down this commentary – unthinkable damage in terms of infections, morbidity, mortality,

and material and societal costs. However, in the fight against this pandemic, the unavoidable steps taken to prevent, contain, break the chain of transmission, or, in general, "treat" the situation have also taken their heavy toll. Social distancing, lockdown...boon or bane? Or both? The debate continues. And, in the meanwhile, at the macro level, the world economy has crashed. At the medium level, countries/regions are struggling to regain their lost ground. And, at the micro level, thousands and thousands of the so-called "informal sector" employees, essentially unsecured, uninsured, unprotected migrant employees, having lost their jobs literally overnight, started walking – yes, walking – thousands of miles in possibly the world's largest "reverse migration" and dying.

This is, truly, a case of "Sophie's Choice" where a mother being taken to Auschwitz had to make the heart-rending choice between which of her two children would live and who would go to the gas chamber. Who would she have saved? And who would she let die? This is what, at an international but certainly at a national and regional level, politicians and decision makers had to decide.<sup>[2]</sup> Who lives? Who dies? As always, it is the vulnerable sections of the societies all across the world including India who have to bear the brunt of such harsh decisions. And, everyone knows, the national lockdown imposed by the Indian government, with a 4-h window (yes, 4 h to sort your life), was one of the most sudden, extensive, and stringent lockdowns in the entire world. Interestingly, the lockdown was begun to be lifted just when the numbers of infected cases had started – no, not decreasing or

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even stabilizing – but rising sharply. And, as of today (July 24, 2020), India has reached the dubious distinction of the world's second-highest country in terms of total and daily infection cases – just toppling Brazil and now second only to the USA. And, the economy has crashed as well. So, what should have been done differently? What can be done differently now?

And, all these impact mental health. The pandemic affects mental health by its morbidity, mortality, uncertainty, anxiety, posttraumatic symptoms, paranoia, and stigma. However, the “treatment” of the pandemic, by the way of social distancing, quarantine, isolation, and, most importantly, a stringent, extended and widespread lockdown, all take their tremendous toll on mental health too, by generating boredom, anxiety, depression, irritability, insomnia...but more importantly and at a much larger scale, joblessness, hunger, and even impending death. Death from COVID-19 or death from hunger? That becomes the modern-day *Sophie's Choice*.

As I have mentioned in the editorial of a special issue of *World Social Psychiatry*,<sup>[3]</sup> the play being enacted before us is not new. As depicted poignantly by the French philosopher-author Albert Camus in his 1947 book *La Peste* (the Plague), such reactions and dilemmas have confronted humankind many times in the past too. The question is: have we learned from these lessons of history? Apparently, no. Are we ever likely to learn from them in future, for example, from this pandemic? Apparently, no. Well, rather than sounding that pessimistic, let me say, well, possibly yes, provided we learn, and act upon the eco-social “dormant” determinants of health, including mental health,

which are the predisposing background factors that act as the “chinks” in the ostensibly formidable modern-day healthcare “armor.” Otherwise, it will take just another pandemic in future again to expose these chinks in our armor.

This is where social psychiatry comes into the forefront, and has an absolutely vital role to play to understand, research, document, analyze, advocate, and evaluate the eco-social factors in predicting, treating, and preventing mental health issues arising out of any major disaster, including the current pandemic. And, this is where the article by Professor Khandelwal has done a ground-breaking job, literally. Let's hope we all can build upon this *Bhoomi pujan*.

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There are no conflicts of interest.

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NOTE: The data and views in this Commentary are updated, and accurate, to the best of knowledge of the Author as of July 24, 2020.

## The Plague by Albert Camus, the COVID-19 Pandemic, and the Role of Social Psychiatry – Lessons Shared, Lessons Learned

*“Indeed, we all were up against the wall that plague had built around us, and in its lethal shadow we must work out our salvation.”*

–Albert Camus, *The Plague*<sup>[1]</sup>

Albert Camus, the Nobel prize-winning French philosopher–writer, published his book “*La Peste*” (The Plague) in 1947, describing a plague epidemic in the 1940s in the French Algerian town of Oran. He described, through his “absurdist” philosophical lens, the various reactions of the people afflicted with the plague. Complex psychosocial factors play a very major role in shaping the flow, the destiny, and the philosophy of this classic novel.

More than 70 years later, as we start writing this piece, on June 8, 2020, the numbers have just crossed seven millions. That’s for the infected ones. For those who are dead: just crossed four hundred thousand. By the time this editorial would be completed, the numbers will have increased many more (see postscript).

And yet, these are just numbers. Statistics. The world is full of statistics and numbers.

Of course, we are talking about the coronavirus disease 2019 (COVID-19) pandemic – a term now familiar to most of the human inhabitants of our planet. Although pandemics are not new – and there have been more lethal ones in the past – this is the one the world is witnessing now.

### THE COVID-19 PANDEMIC AND MENTAL HEALTH

That the COVID-19 pandemic is sending global shockwaves regarding health, mortality, morbidity, and disruption in the socio-cultural, economic, and political rhythms of life is almost an understatement now. It is now also getting rapidly established what a tremendous toll it has been taking on the mental health of people. Starting from the early quick surveys, there is already a sizable – and very rapidly expanding – database on the mental health issues of people afflicted with, or working with, COVID-19 (not necessarily rigorously defined mental disorders but usually screening–instrument-based psychological distress markers or symptoms). There are, in fact, now a number of surveys, reviews, and early meta-analyses available on the subject. The major strands of findings, so far, seem to be as follows:<sup>[2-10]</sup>

- a. There is a high level of psychological distress and morbidity in healthcare workers, especially those healthcare and other workers working in the frontline or first responders, related to apprehension and living difficulties
- b. There is not much evidence of neuropsychiatric

morbidity other than delirium in the acute phase of those suffering from COVID-19, although later there may be risk of several mental disorders

- c. A third group of reviews have found substantive psychological issues in those living under quarantine as “suspects”
- d. The fourth group are about those whose near and dear ones have died due to the infection and often incomplete grieving due to barriers and restrictions even after death
- e. A fifth and often neglected group is those already with preexisting mental disorders, especially those with severe mental illnesses
- f. Finally, a last (and the largest) group are persons from the general population who belong to neither of the groups above but nonetheless have been living under the “shadow” of the pandemic, especially those experiencing the isolation of a stringent lockdown or its severe economic repercussions.

Of course, all these are early studies (and many of them just archived preprints at this stage, without peer review), but, together, they indeed emphasize the need of focusing on the mental health aspects of the pandemic as well.

In fact, although relatively ignored earlier, this need has been adequately flagged up now by several agencies, including the United Nations (UN), the World Health Organization (WHO), and the World Psychiatric Association (WPA). The UN, in its recently released “Policy Brief – COVID-19 and the Need for Action on Mental Health,” sums it up quite succinctly: “Although the COVID-19 crisis is, in the first instance, a physical health crisis, it has the seeds of a major mental health crisis as well, if action is not taken.” Good mental health is critical to the functioning of society at the best of times. It must be front and center of every country’s response to and recovery from the COVID-19 pandemic. The mental health and well-being of whole societies have been severely impacted by this crisis and are a priority to be addressed urgently.<sup>[11]</sup> The WHO Director-General similarly emphasized the need for “Addressing mental health needs: An integral part of COVID-19 response” in the latest editorial of World Psychiatry.<sup>[12]</sup> Finally, the WPA has issued a Position Statement that underlines the specific role of a psychiatrist.<sup>[13]</sup> Many have feared that the mental health consequences and concerns of the pandemic will themselves constitute a “pandemic within a pandemic,” or a “tsunami.”<sup>[14,15]</sup> The figures have varied widely depending upon the study populations, mental health issues studied, methods of detection, and several other parameters; however, overall, they are impressive and scary. A number

of articles, advisories, and guidelines have already been published on how to minimize or mitigate these adverse mental health consequences.<sup>[9,15,16]</sup>

### THE OBVIOUS QUESTION: HOW IS SOCIAL PSYCHIATRY RELEVANT?

Therefore, the obvious question for those of us interested in social psychiatry: What is the role of social psychiatry here? And, more importantly, what can social psychiatry offer?

To answer these questions, let us try to understand the genesis of the total rubric of the problems. If mental health issues represent the “outcome variable,” what all are the “independent variables?” Well, the obvious fact is that there would be no COVID-19 without that SARS-CoV-2 virus and its physical sequelae on various body systems (including the central nervous system). That may explain a small part of the mental health issues faced by those infected by the virus, along with the obvious psychological threats, anxieties and difficulties faced by the isolation, and treatment and complications of the treatment. It may also partly explain the significant mental health issues faced by those who have recovered from the clinically symptomatic infection, as an aftermath. However, as mentioned above, the huge shadow of mental health aspects of the pandemic are not faced by those infected but by those who are, as of now, *not infected* though living with the proverbial Damocles’ sword hanging over their head, or those who are more concerned with their survival from financial hardship at the moment than from the viral infection!

The word “social” appears in two very distinct contexts in this perspective: “social” distancing (which is a misnomer – physical distancing should be the correct phrase – but, it does capture the social element inherent in this distancing) and social determinants of health (including mental health, of course). Both these are directly concerned with social psychiatry because both have mental health consequences, but one goes downstream and the other comes from upstream. A third context that we wish to introduce here is the phrase “social concomitant” or “social infection,” which works at a parallel level. Let us explain, with the help of a tentative diagram [Figure 1].

### SOCIAL DISTANCING AND MENTAL HEALTH ISSUES

*“Thus, the first thing that plague brought to our town was exile. And then we realized that the separation was destined to continue, we had no choice but to come to terms with the days ahead.....”*

*“What do they do with themselves all day?” Tarrou asked Rambert.*

*“Nothing.”*



Figure 1: COVID-19 and mental health outcomes: The role of social psychiatry

*Almost all, indeed, had empty hands and idly dangling arms. Another curious thing about this multitude of derelicts was its silence.*

*“When they first came there was such a din you couldn’t hear yourself speak,” Rambert said. “But as the days went by they grew quieter and quieter.”*

*Everyone Tarrou set eyes on had that vacant gaze and was visibly suffering from the complete break with all that life had meant to him. And since they could not be thinking of their death all the time, they thought of nothing. They were on vacation.*

*“But worst of all,” Tarrou writes, “is that they’re forgotten, and they know it.”<sup>[1]</sup>*

Social distancing, in its broadest sense, comprises all those measures taken to minimize transmission of the infection in the society. It encompasses such simple measures as the “6-feet/2 m rule,” to more restrictive solutions, such as isolation (for those already infected) or quarantine (for those not yet infected but at a tangible risk), to more drastic measures adopted during a total lockdown, such as complete closure of almost all shopping, travel, and social, recreational, and religious gatherings. These are understandably, to a varying degree, associated with a sense of social isolation and alienation, which can further exacerbate the mental health issues of those especially with preexisting mental illnesses or those living alone, separated from family due to job and now unable to return, just to give a few examples. Some “remedies” include constant social messaging or use of social and electronic media, which, though beneficial in general, might have adverse consequences if carried out to an extreme. The obvious and common fallouts of such broadly defined social-defined measures include depression/demoralization, anxiety (of various sorts), sleep disorders, substance misuse or exacerbation of disorder, and also, delirium during acute

infection or posttraumatic stress disorder after physical recovery. In rare cases, suicides or suicidal attempts have been reported.<sup>[17]</sup> These are the obvious repercussions of the social distancing and hence constitute the “downstream” effects. Domestic or other interpersonal abuse or violence is another documented serious fallout of these measures.<sup>[18]</sup>

### ECO-SOCIAL AND STRUCTURAL DETERMINANTS

*“The result was that poor families were in great straits, while the rich went short of practically nothing. Thus, whereas plague by its impartial ministrations should have promoted equality among our townsfolk, it now had the opposite effect and, thanks to the habitual conflict of cupidities, exacerbated the sense of injustice rankling in men’s hearts.”<sup>[1]</sup>*

In contrast to the downstream effects of social distancing on mental health, the “upstream” factors are the social determinants of (mental) health, famously defined as “circumstances in which people are born, grow, live, work, and age. These conditions are influenced by the distribution of money, power, and resources operating at global, national, and local levels.”<sup>[19]</sup>

This is where social psychiatry comes to the forefront. Human beings have always been divided, on the basis of umpteen numbers of real or, more commonly, artificial boundaries: world region, country, regions within countries, economy, class, color, race, ethnicity, gender, age, language, history, culture, caste, work, healthcare systems, and access, among others. These divisions determine many aspects of health, including mental health. These divisions may operate at different levels: global, regional, macro, medium, small, and micro. Whereas divisions are not necessarily bad (some of them are unavoidable, pragmatic, or even useful), it is when discrimination and inequity (unjustness, unfairness) are implied or created by these divisions they become undesirable, unethical, or maladaptive. Social psychiatry has since long studied the role of explanatory theories, such as “social causation” and “social drift,” in explaining excess mental illnesses in the lower socio-economic strata, for example.

These divisions, with their consequent discrimination and inequity, have been a part of human history, and it is safe to presume that they will always remain in different and evolving shapes and sizes. What every disaster, natural or artificial, does is to re-ignite the lamp of recognition in the darkness of oblivion. Every disaster unmasks the obvious by bringing in sharper focus these discriminatory divisions and by amplifying them. The larger the scale of the disaster, the larger is its unmasking and amplifying effect. Moreover, the COVID-19 pandemic, by every conceivable means, is one of the largest disasters in at least a hundred years!

There is an apparent paradox that needs to be clarified first. As asked in a recent editorial, the question arises:

is the virus responsible for the COVID-19 pandemic racist?<sup>[20]</sup> The obvious answer is, of course, no! Nor is it anti-poor, anti-black, or anti-ethnic minorities. So far, it has not shown any specific predilection – nor any specific resistance – to infect anyone based on any of these divisions alluded to above. Then, how or why should these social–environmental factors be important or indeed relevant for health-related (including mental health) issues during this pandemic?

The answer to this apparent paradox is simple, yet profound. When a member of any disadvantaged group is excessively posted for direct high-risk exposure-related work, when a poor person lacks the money or the insurance to pay for the treatment access or costs, when a migrant laborer working in the unsecured informal sector starts “reverse migration” walking thousands of miles after losing the day-paid job, when a person belonging to a particular country is jeered at or abused simply because of one’s country-of-origin, when a person is mocked or scoffed at simply because she/he *looks like* one from a particular country, when a person of a particular background or income level is more harshly treated by the police for violating lockdown than another from a different background or income level, when the police is warned by an influential political leader because he/she happened to warn him/her for violating social distancing, when an opioid-dependent person cannot obtain his buprenorphine tablet because of lack of access imposed by lockdown and inability to buy it from the private sector (with resultant relapse)..... and in many, many such circumstances which could easily fill up this entire editorial, the “social determinants” of health including mental health can be clearly seen to operate, as the mediating or modulating variables, between the pandemic and the resultant mental health issues.

The HIV pandemic was dubbed as the “Pandemic of the poor.”<sup>[21]</sup> Perhaps, this is true for the current pandemic as well. At least, it clearly hits the poorer the harder, economically, socially, physically, and mentally. Many of these issues have been highlighted, but many remain to be further searched for, documented, highlighted, and mitigated. If social psychiatry does not do this, who will?

As Mr. Barack Obama, former President of the USA said in his recent Commencement Speech:

**“This pandemic has shaken up the status quo and laid bare a lot of our country’s deep-seated problems – from massive economic inequality to ongoing racial disparities to a lack of basic health care for people who need it. It’s woken a lot of young people up to the fact that the old ways of doing things just don’t work; that it doesn’t matter how much money you make if everyone around you is hungry and sick; and that our society and our democracy only work when we think not just about ourselves, but about each other.”<sup>[22]</sup>**

This is also important for management. As a blog in Nature lamented:

**“...when I look closer, I’m struck with a familiar disappointment. Once again, recommendations forget half of the equation: our need to address the social and economic conditions that contribute to poor mental health. A woman who has lost her job and cannot feed her family will find little relief from a meditation app. Advice such as “stay off social media” will do little to ease the anxiety of a young black man in constant fear of being kicked out of shops by security guards for wearing a face covering, or abused or even killed by law-enforcement officers who have been given new powers to police social behaviour.”**<sup>[23]</sup>

## SOCIAL MEDIA

*“The newspapers, needless to say, complied with the instructions given them: optimism at all costs. If one was to believe what one read in them, our populace was giving “a fine example of courage and composure.” But in a town thrown back upon itself, in which nothing could be kept secret, no one had illusions about the “example” given by the public. To form a correct idea about the courage and composure talked about by our journalists you had only to visit one of the quarantine depots or isolation camps established by our authorities.”*<sup>[1]</sup>

A slightly different, but related, component of the social determinants could be the role of **social media**. Social media is a double-edged sword: while it can be a tremendous boon in quick and wide spread of useful and factual information, it can also be the bane by equally rapidly, efficiently, and widely disseminating half-facts, nonfacts, and plain lies and loads of them (“infodemic,” misinformation, miracle treatments, or doomsday prophecies). As exemplified above in Camus’ description of the role of predigital social media of his times, the messages peddled in social media often serve masters other than pure science and data. More worryingly, these can also increase anxiety<sup>[24]</sup> and even disseminate racial hatred.<sup>[25]</sup> That is what constitutes the “social concomitants” of the pandemic, with palpable effect on mental health.

## SOCIAL CONCOMITANTS (OR “SOCIAL INFECTION”)

*“For it’s common knowledge that you can’t trust your neighbor; he may pass the disease to you without your knowing it, and take advantage of a moment of inadvertence on your part to infect you..... people who are haunted by the idea that when they least expect it plague may lay its cold hand on their shoulders, and is, perhaps, about to do so at the very moment when one is congratulating oneself on being safe and sound.”*<sup>[1]</sup>

This pervasive sense of paranoia is a hallmark of every pandemic, which is generated by the infectiousness and its consequences, which are biological factors. However, it is fed, flourished, and nurtured by social psychological factors.

Thus, the third and, we feel, the most important, context in which social psychiatry becomes relevant for the pandemic, is the related group of factors we choose to call the “social concomitants” or “social infection.” As was aptly said – AIDS was a social pandemic.<sup>[26]</sup>

If social/structural determinants laid the groundwork as predisposing factors, and social distancing provided the platform to act as precipitating factors, then the social concomitants may be thought of as the mediating factors. These social concomitants take many forms: not letting in the nurse in her own apartment after her 12-h duty in the COVID hospital (“social media said she may infect all of us”); ostracizing the doctor or the frontline care workers for similar reasons; not letting the family bury their dead; keeping a distance away from your gardener because he comes from a particular class; hating, or being scared, of others simply because they are not like “us.” Discrimination, xenophobia, stigma (against multiple agencies, persons, or classes) - you name it. The basic formula: “Us vs. them” operates at all levels, places, cultures, indeed, at all power distribution scenarios. COVID-19 anxiety only feeds on this multilevel discrimination (or xenophobia in a broader sense – the fear of the “others”) and produces more hatred, more discrimination, and more stigma.<sup>[27,28]</sup> There is a clear “infectious” quality in the spread of this stigma, facilitated often by the unprecedented powers of the social media.

They are rapidly, efficiently, and dangerously transmissible and contagious – a product of the social determinants distally and of social distancing proximally, often utilizing the power of social media for the tremendous transmissibility and capturing the vulnerable, naive, gullible people. Hence, we coin the term **“social infection”** as a massive fallout of the pandemic that often results in mental health issues by those affected by it. Recent studies have started documenting the increasing discrimination, mental health issues, and, very importantly, the links between the two.<sup>[29]</sup>

This is one of the many examples of social psychiatry in action.

## SO WHAT TO DO?

If social psychiatry is integral to understanding the intersectional links among social-ecological factors, COVID-19 pandemic, and mental health issues, and if it appears to have implications for both understanding and action, then the obvious next question arises: what can an academic scientific journal on social psychiatry do about it? More specifically, what can WORLD SOCIAL PSYCHIATRY do about it?

The answer is simple: we do what we are supposed to do. We build up a movement. A movement backed by knowledge, attitude, and practice. We try to gather the scenarios from all over the world, understand and document the links alluded to above, and advocate for the

cause and application of social psychiatric principles to COVID-related mental health issues and what can be done about it. In short: amalgamation, assessment, advocacy, and action.

And this is exactly what this SPECIAL ISSUE purports to achieve.

This issue is truly a global collection of articles from all the continents (barring Antarctica) of the world, from many countries of the world, focusing on their COVID-related problems, social psychiatric aspects, and potential solutions.

There are several sections in this issue of the Journal. Following this editorial, there is the World Association of Social Psychiatry (WASP) Position Statement on COVID-19 pandemic, highlighting and pledging the role of WASP in the areas highlighted above.<sup>[30]</sup> Also in this “Special Communications” is an important article by Mezzich *et al.* focusing on the intersection between person-centered psychiatry, social psychiatry, and COVID-19. Five invited commentaries from very eminent persons in the world psychiatric scenario, on the WASP Position Statement, comprise the next section.

The following sections of perspectives/viewpoints make up the real value of this issue. The “Global” section consists of important cross-cutting issues globally. The “Country-regional” section focuses more specifically on countries or regions. The “Special Population” section concerns with the children and the elderly.

The ensuing debate, though more generic in nature, does touch upon the conflicts that COVID-19 has brought upon us. This is followed by a case series on child and adolescent aspects, first-person account of organizing mental healthcare services during COVID times, a Brief report on a successful program to contain the epidemic, and two relevant Letters to Editor, one on need for more research and another on digital burnout. These are finally followed by the “In Memoriam” respects paid to two of our past WASP Presidents who sadly passed away during this time.

All in all, we have tried to gather together what is known, and, more importantly, what is learned through this steep *unflattening* curve, about this pandemic and the role of social psychiatry: Lessons shared, Lessons learned. We hope that this special theme issue will provide the much needed impetus in this area.

However, in the end, let’s again return to Albert Camus. Eventually, just like the plague in his novel, every pandemic is ultimately also a *pandemic of the mind and of the society*, where the social–structural–ecological seeds of multilayered inequities, when in the right conditions provided by the contagious and difficult-to-treat infectious agent and watered by the social concomitants of various kinds of discrimination and stigma, grow rapidly into the

forest of chaos, with massive economic, social, physical, and mental adverse effects. This is what the protagonist says at the end of the novel: **“The plague bacillus never dies or disappears for good.”** The rats carrying them are roused when the conditions are right. The virus, in this sense, is a necessary but not the sufficient cause of the pandemic and its mental health fallouts. We need social psychiatry now like we have never needed it before.

*“..... the plague bacillus never dies or disappears for good; that it can lie dormant for years and years in furniture and linen-chests; that it bides its time in bedrooms, cellars, trunks, and bookshelves; and that perhaps the day would come when, for the bane and the enlightening of men, it would rouse up its rats again and send them forth to die in a happy city.”<sup>[1]</sup>*

**Postscript:** today, the day of sending the final proofs of this editorial to press (July 30, 2020), the figures cited at the beginning of this article stand revised to MORE THAN 17 MILLION, and nearly SEVEN HUNDRED THOUSAND, respectively. And, yes, watch this space!

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## Etiquettes of Practicing Telepsychiatry

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Etiquettes are “the set of rules or customs that control accepted behavior in a particular social situation or social groups.”<sup>[1]</sup> *Simply speaking, Etiquettes are manners or good behaviors that distinguish human beings from animals*. Etiquette makes a person cultured individual; make a person leave his mark. Etiquette teaches us how to talk, walk, and most importantly, *behave* in society.

Etiquettes do influence the doctor–patient relationship and possibly improve the satisfaction level of the patients with the consultation.<sup>[2]</sup>

Although people have been practicing telepsychiatry for quite some time now in India, such a practice’s legal status was not exact till recent times. Further, these Telepsychiatry services were organized in an office setting or were mostly limited to voice calls. During the COVID pandemic, on March 25, 2020, Government of India, issues the Telemedicine Guidelines for online consultation, which legitimized the online consultation and telemedicine consultation. Due to the lockdown and absence of transport facilities, patients and families were left to either visit the emergency services or seek teleconsultations. Both these developments provided a major boost to the Telepsychiatry services. In this context, the Telepsychiatry consultations moved from voice calls only to the video-calls and the use of various platforms to connect with their patients. In this connection, the term etiquette has been referred to as netiquettes, which is defined as a set of rules for acceptable online behavior.

Many authors have tried to define telehealth etiquette, and these include unique typical professional behaviors, which are required to conduct a significant telehealth visit or, more importantly, prevent a poor telehealth visit.<sup>[3,4]</sup> These behaviors are beyond the usual professional actions and include nonverbal and verbal communication skills needed for successful telehealth interactions.<sup>[3,4]</sup>

A physician’s expected behaviors providing telehealth consultations can be understood under the four broad headings, i.e., preparing for the visit, beginning of the visit, conducting the visit, and wrapping up the interview.<sup>[3]</sup> During the preparation phase, the clinicians should focus on their grooming, background, place of teleconsultation, lighting and sound, type and quality of equipment, collecting the contact details of their patients, and also ensuring that the people on the other side also prepare themselves for the video-consult [Table 1].<sup>[3-6]</sup> Ideally, the clinicians should also collect previous treatment records and investigations beforehand and review them before

the video-consultation. This will not only help in seeking further clarification but also aid in the time-economy of the video-consultation. Good planning often helps in providing satisfactory services. Another critical aspect of preparation is being on time. Clinicians, who often do not work with an appointment, which is often the case in the outpatient services at most governmental services, clinicians often do not place much importance on punctuality, and patients often have to wait for varying durations extending up to hours in the waiting areas. However, while providing the teleconsultations, the clinicians should note that patients and their family members are at their home or workplace and have not organized their day, like a usual outpatient visit. Hence, the patients and caregivers are often multitasking the video-consultation along with their household and professional responsibilities. Hence, being punctual for the video-consultation can help both patients and the clinicians in discharging other life priorities simultaneously and improving treatment satisfaction. The punctuality should be limited to the beginning of the consultation and should be considered while wrapping up the video-consultation.

As the clinician approaches the video-consultation, they should take care that the microphones are muted till the visit begins. At the beginning of the consultation, the clinicians should ensure that the person receiving the care is comfortably seated and is in the correct position for the camera and microphone. Efforts should be made to ensure the patient’s privacy and accessibility. At the beginning of the consultation, the clinician should check with the patient about whether they can see and hear you clearly. While carrying out the video-consultation, the clinicians should keep it in mind to look at the webcam, rather than look at the screen, speak slowly, clearly, and pause for potential lags in the transmission, in a normal voice and use natural gestures while speaking. It is vital to maintain a smile, and the clinician should avoid yawning or chewing gum, or eating while carrying out the teleconsultation. Throughout the interview, clinicians should maintain proper eye contact, keep on nodding the are and lean forward, and enhance the therapeutic alliance. The clinicians should also encourage the patient and others involved in the teleconsultation to speak clearly and directly into the microphone in a normal tone and ensure that only one person says at a time. During the teleconsultation, clinicians should be aware of their habits

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**Table 1: Etiquettes for carrying out a tele-consultation<sup>[3-6]</sup>**

**Prepare for the tele-visit**

**Dress self-appropriately for camera**

- Well groomed
- Choose clothing which is neither overly dark or light, avoid bright and fluorescent colours or white colour
- Limited patterns, prints
- Wear solid neutral colors
- Avoid revealing clothes
- Limit wearing Jewellery (no bangles or dangling jewelry)
- Keep grooming kit (comb, tissue, powder) nearby
- It is better to check yourself in a mirror before switching the camera on, especially if you starting a session after a meal break
- Lab coat when appropriate
- Visible badge so that people on the other side of camera can identify you

**Background**

- Place the institution logos at a distant from the camera, in the background of the clinicians
- Choose a neutral background free of anything that may shift the patient's attention away from you
- Check the background, as to what it will look like for patients

**Equipment**

- High-quality equipment – Hardware
- Reliable
- High definition camera
- Choose a software, that is easy to use for you and the patients
- Software-simple to use but highly effective
- Internet connection - high speed
- Ensuring your camera and microphone provide clear sound and video will help you avoid any miscommunication
- Webcam at the eye level
- Test the equipment to be used for the session
- Spend time with the equipment to experiment and practice
- Check equipment at regular intervals and 15 min before the visit
- Know where to get technical assistance
- UPS back-up: Be prepared for power break

**Place of tele-consultation**

- Not necessarily an office setup, but does not mean can be done from anywhere
- A quiet, clean space will give much more professional look on the video
- The space should reflects the professionalism which you would like to be associated with your practice
- It is best to use a table and chair, so that clinician can sit straight and conduct the interview
- Before a formal consultation, check how your background is going to look in the patient's field of vision
- If using a mobile phone for the video-consult: stabilize it, rather than holding the same in the hand

**Remove audio and video clutters/distractions**

- Maintain the video-consult session, free from visual and auditory clutter
- Take care of likely noise distractions such as mobile phones, other applications and notifications on your phone and computer, so that you can provide undivided attention to your patient
- Keep the door of the room closed, if the service is near a high traffic area
- Assure that the rooms are quiet (close doors and place "do not disturb" sign up)
- Check for external sounds
- Check for any airflow issues that affect the microphone (fans, air conditioners, open window)
- Avoid placing papers or objects close to the microphone, can have your materials in front of you or on a side monitor

**Lighting**

- Check that the lighting is appropriate in the room
- Close all windows and blinds to prevent glare
- It is better to place a bright light behind and slightly above your camera

**Equipment placement**

- Adjust your camera in such a way that you fill major part of the screen

**Obtain contact details before hand**

- Obtain contact information, such as mobile and other contact numbers of the patient and other people to be involve in the tele-consultation before the tele-consultation

*Contd....*

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**Table 1: Contd....**

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**Review documents beforehand**

- Ask the patient to send the previous treatment records (including investigations), if any beforehand
- Can ask the patient to send the summary of their problem, if you feel that the patient/family is capable of the same
- If your colleagues have already documented the history, it is better to go through the same, before initiating the consultation, rather than while carrying out the consultation

**Asking the people on the other side to also prepare for the video-consult**

- Ensure the setting in which the patient is, it is safe, secure, and confidential as on the lines of a face to face session
- People are seated at one place
- Lighting, sound, background issues - addressed
- Equipment is settled

**Be on time**

- It is always better to be on time for the tele-consult on time
- If a delay cannot be avoided, inform the patient, about the timeframe, as to when you will be ready for the visit

**Beginning of the visit****Checking the setup**

- Mute microphones until the visit begins
- Ensure that the person receiving care is in a comfortable chair and in the correct position for the camera and microphone
- Ensure patient's privacy and accessibility
- Be sure you have the patient's permission to conduct the telehealth encounter
- Introduce yourself and others involved in the visit

**Check the sound and video**

- Start of the visit by checking with the patient, as to can they see and hear you clearly
- Look at the webcam while speaking, rather than the screen

**Check the presence of others**

- Ask the patient for their location
- Who all are around, if required get introduced
- Ask the patient, are they comfortable in talking in presence of others, or prefer to talk alone
- Ask the patient, whether, you can talk about their problems with the other people in the patients surroundings

**Consent for recording**

- Inform
- Purpose and use of recording
- Right to refuse
- Right to ask for interruption in between the interview

**Conducting an online visit****How to speak and interact**

- Speak in your normal voice without shouting
- Do not hesitate to ask the patient about any noise you hear
- While speaking use natural gestures while speaking and avoid too much movement
- Avoid, if possible, rapid movements or erratic hand gestures
- Empower the patient to speak up if something is not clear or needs repeating
- Carry a smile, speak slowly, clearly, and pause for potential lags in transmission
- Give time to yourself- to build therapeutic alliance, before starting to discuss the clinical issues
- Do not doodle, yawn or chew gum
- Ask the patient if they can hear you
- Appropriate use of head nodding and leaning forward
- Encourage all participants to speak clearly and directly into the microphone in a normal tone
- Encourage only one person to speak at a time
- Avoid interrupting others while they are talking
- Language used should be respectful
- Do not monopolize the conversation

**Want to take notes**

- If you need to look away to take notes or review some treatment records, let your patient know that you are still listening, but also documenting notes
  - Remember that the patient can only see what is in view on their screen and may not see that you are taking notes
  - Without communication, they may think that you are ignoring them
- 

*Contd....*

**Table 1: Contd....**

**Supervision**

- Supervising while conducting the teleconsultation
- Maintain congenial environment
- If at all, your colleague has missed out something important, do not yell at them, while the patient is connected (in no way I am promoting that you can yell at them, when patient is not connected)
- As a trainee - although not interacting directly, but appear attentive

**No to multitasking**

- Avoid multitasking while providing video-consultation
- Avoid answering emails or doing other things while still being in the meeting
- All notifications on the phone should be stopped, preferably switch off of the phone or keep it in the silent mode
- Clinicians can use self control apps on either phone or desktop

**Wrap-up the visit**

- Have clear instructions before ending the visit
- How will the prescription and other instructions will be transmitted
- Need for follow-up
- Emergency care and visits
- Suicidality - How to handle
- Diagnosis being considered
- Allow the persons involved to ask any questions they have
- Feedback: Satisfaction with the consultation and understood the content
- Ensure follow-up appointments are made
- Ensure all reports and documentation are completed
- Turn off and store equipment
- Report any technical concerns to those responsible for maintaining the telehealth equipment

**Professionalism**

- Be there few minutes before the schedule time
- It is also important to end the session on time

and avoid interrupting the patients and others while speaking, themselves use respectful language and monopolize the conversation.<sup>[3-6]</sup>

At the beginning of the teleconsultation, the first step should involve clinicians introducing themselves and others involved in the visit and obtain permission/consent to conduct the teleconsultation. Although some of the authors suggest that if the patient starts the consult, the consent is implied, but this should not be presumed, and efforts must be made to obtain explicit consent. The initial few queries should involve understanding the patient's location, knowing about the people around, and if required, getting introduced to them. If there are other people present in the same room as the patient, the clinicians should ask the patient whether they are comfortable in talking in the presence of others, or prefer to talk alone. The patient request for privacy should be respected. However, suppose the patient lacks capacity and/or is suicidal. In that case, the judgment should be based on the risk assessment and possibility of participation in the interview, in the absence of others in the room.<sup>[3-6]</sup>

Suppose the clinician wants to record the session. In that case, it is important to obtain separate consent for the same by informing the patient and others involved about the purpose of the recording uses of the recording in the future. It is essential to educate the patient that they have the right to refuse at the

beginning of the interview and if they desire, they can also ask the clinician to interrupt the recording during any part of the interview. At the beginning of the interview, the clinician should tell the patient that they can ask the clinician to repeat the questions if anything is not clear to them.<sup>[3-6]</sup>

If the clinician is interested in taking notes or review the records during the teleconsultation, they should inform the patient that they are listening and documenting the ongoing discussion. As not informing the patient and others involved may convey a message that they are being ignored, and this can be counterproductive to the therapeutic alliance.<sup>[3-6]</sup>

At times, senior clinicians may be involved in supervising their colleague's clinical work while carrying out the teleconsultation. In such a scenario, the clinicians should maintain a congenial environment. If the fellow colleagues have missed out on anything clinically important information, they should refrain from shouting at their fellow colleagues. At the same time, the patient is connected, as this may be demeaning and could lead to disruption of the therapeutic alliance and respect for the colleague in the eyes of the patients. On the other hand, when the trainees are participating in the tele-interview, maybe as an observer of the interaction between the senior colleague and the patient, the trainee should appear attentive, rather than disinterested.

As pointed out earlier, the clinicians should carry out the tele-consultation at a place where there are no distractions. In

similar lines, the clinicians should avoid multitasking while providing video-consultation, including answering to phone calls and E-mails.<sup>[3-6]</sup>

Once the clinicians have satisfactorily carried out the tele-consultation, they should prepare themselves for closing the interview properly to improve the satisfaction with the teleconsultation. By the end of the interview, the clinicians should have clear instruction for the patient and others involved in the tele-consultation, including informing the patient about the diagnosis, need for the investigations and how the prescription will be transmitted, when the patient is expected to follow-up, what to do in case of emergency in terms where to assess the health-care services, what to do in case the patient experiences suicidal behavior, etc. Before closing the interview allow the people involved in the interview to ask any questions, they may be having about the clinical encounter. Further, it is always a good idea to seek feedback from the participants with the teleconsultation, which can improve the services.<sup>[3-6]</sup>

The most important aspect of teleconsultation to be kept in mind is being professional in the encounter. One of the most important aspects of this is being professional in terms of being available for the teleconsultation few minutes before the scheduled time and should end the teleconsultation on time.<sup>[3-6]</sup>

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EDITORIAL

## COVID-19: A crisis for people with dementia

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COVID-19, a novel virus, emerged as a threat to the community across the world and was declared as a pandemic in March 2020 by the World Health Organization.<sup>[1]</sup> As of May 25, COVID-19 had affected 213 countries and territories around the world, with more than 55 lakhs confirmed cases with 3,47,293 deaths.<sup>[1]</sup> The COVID-19 has led to an unprecedented fear and uncertainty, especially among the elderly. There can be several reasons for elderly being at higher risk of developing COVID-19 infection and having an adverse outcome, such as a higher prevalence of chronic illnesses and weak immune system with slow recovery.<sup>[2]</sup> It is reported that in the United States, 8 out of 10 deaths were in the elderly population. Similarly, it is evident that across the world, the death rate associated with COVID-19 was higher among the elderly population.<sup>[3,4]</sup> Among the elderly population, a subgroup, those with cognitive impairment or dementia, are considered to be at high risk of infection. The higher risk of infection is attributed to various factors [Table 1].<sup>[5,6]</sup> Hence, significant concerns have been raised about the risk of COVID-19 infection among people living with cognitive impairment.

**Table 1: Risk factors for COVID-19 in patients with dementia**

May not be able to follow the advice of covering one's nose and mouth when coughing, hand hygiene, use of mask, etc.
Unable to understand the meaning of need of and maintaining physical distancing from others
Difficulty in remaining isolated from others at home
Diminished self-awareness, may not be able to monitor and report symptoms of COVID-19
Difficulty in reporting symptoms due to communication difficulties
Patients with significant apathy may not comply with the requirements
Short-term memory loss and overall cognitive impairment leading to difficulty in understanding, appreciating and remembering the recommendations
Behavioral and psychological symptoms (motor agitation, intrusiveness, or wandering) hindering the efforts to maintain isolation
Higher rates of chronic physical illnesses

However, to date, no data are available on morbidity and mortality associated with COVID-19 in people with cognitive impairment.

More than 60% of cases of dementia are in low- and middle-income countries (LMIC).<sup>[7]</sup> It is a known fact that the challenges for LMIC are enormous in the form of less developed health-care system and care and protection system. This further increases the risk of infection with COVID-19 among the elderly with dementia. Hence, it is essential to provide support to people with dementia in this crisis of COVID-19. Those with dementia should not be exposed unnecessarily to social gatherings, public transportation, or unnecessary visitors at this risky time. The caregiver or family member should be alert and vigilant to the presence of signs as well as symptoms of COVID-19 ("look beyond the words").<sup>[8]</sup>

The family members and caregivers of patients with cognitive impairment and dementia have a big role to play in maintaining the safety of these patients. Further, the role of the caregivers will be defined by the level of cognitive impairment. If the person is suffering from the mild cognitive impairment, has good conversations skills and is able to participate reasonably in the surroundings, having a general discussion about everything related to COVID-19 infection and explaining them about what they are required to do or not to do, such as washing their hands, maintaining social distancing, using a mask, and avoiding social gathering can be beneficial.<sup>[9]</sup> It is advisable to keep this information accessible and repeatable, which is the key to success in people with dementia.

For patients with more severe deficits, caregivers should devote enough time to the patients with cognitive impairment/dementia to explain to them about hand hygiene measures. The caregivers should attempt to give a simple description as to how to wash hands to stay healthy. The caregivers can demonstrate proper hand-washing techniques, by suggesting "humming part of a favorite

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tune,” so a person with dementia washes his/her hands for an appropriate amount of time. They can also consider placing signs in the bathroom/elsewhere or written reminders to remind people with cognitive impairment or dementia to wash their hands with soap for at least 20 s. Using pictures and the large bold font may be helpful to use in signage.<sup>[10]</sup> Alcohol-based sanitizer can be used as an alternative if the person with dementia is not able to wash their hands easily.<sup>[9-14]</sup> However, in such a scenario, the risk of exposure to any kind of flames must be kept in mind. This is important because exposure to flames after using alcohol-based sanitizer can lead to burns.

Caregivers should also help patients to understand the important of social distancing to keep oneself safe. The caregivers have to balance between maintaining social distancing and social isolation. People with dementia must not feel isolated. It is difficult for the elderly to maintain social distancing, as they may value the time spent with friends and family members. Hence, reassurance again and again without any threat can be helpful. People staying away from people with dementia should be in touch with them by maintaining contact by voice calls or video calls [Table 2].<sup>[10,14-16]</sup> These can also provide social support, and it is necessary that the older generation feel safe and connected with society. However, it is important to remember that a few individuals with cognitive impairment may have trouble using technology. Hence, they should be provided appropriate instruction and support to use of these tools.

Further, the caregivers need to plan for things to maintain continuity of care. Various measures which can be used include virtual care, alternate care, and availability of medications. Virtual care means getting in touch with the treating team for an online appointment.<sup>[14,16,17]</sup> During the pandemic, there is always a probability that caregiver/family members of people with dementia can get infected with COVID-19 or are not in a position to assist a person due to lockdown. All this should be kept in mind, and alternate care measures need to be planned. The family member should determine who can take care of an individual with dementia in their absence. If possible, close and caring friends/relatives/volunteers need to be identified and shortlisted, and their contact details should be prepared, which can be used readily to help an individual with dementia.<sup>[10,14,16,17]</sup> It is essential to keep the environment calm and have backup plans to manage challenging situations. It is also important to identify more resources that are available on a local, provincial, and national level. Many credible organizations offer support. There are volunteer community groups, with appropriate expertise, which can provide support for carers and people with

**Table 2: How to maintain contact in the time of need of social distancing<sup>[10,14-16]</sup>**

Maintain the interaction by speaking with a person on the phone or seeing them in a video chat through WhatsApp, Google Duo, etc.
Schedule a fixed time each day to contact them
Sharing of old pictures can help in rejuvenating their old memories
Use conference call features which allows more than one family member to connect at a given time

dementia, particularly those living alone.<sup>[16,18]</sup> There are a few nongovernmental organizations such as Alzheimer's and Related Disorders Society of India (ARDSI), which, in partnership with government institute, are helping in mobilization of support in case a carer is unable to care.<sup>[19]</sup> ARDSI is providing support and guidance for caregivers via telephone, video conferencing, social media platforms, and off-site distance monitoring.<sup>[20]</sup> The caregiver should also ensure that the medical supplies are stocked up. In case a person with dementia is staying away, it is vital to send the medications in advance. Further, a reminder must be kept to ensure adherence to the medications.<sup>[13,16]</sup>

For elderly living alone, friends, family, government, and nongovernment organization can also lend a helping hand by delivering the groceries from the store and dropping them off directly to their home. In addition, family members, staying away, can order the same for the elderly, to minimize the trips to the grocery shops.<sup>[8-14,16]</sup> If feasible, a family can shift temporarily with the elder one to a place where the required supports can be provided easily.

Clinicians managing patients with dementia should also actively contact the patients and their families to ensure medical care and guide the caregivers and patients in this hour of crisis.

Pandemic is a crisis for all, but more so for vulnerable people, such as those with cognitive impairment and dementia. People with dementia require extra care, support, and precautions to deal with the COVID-19. Community and caregivers should be encouraged to have more frequent contact or spend more time with people suffering from dementia. The recommended preventive guidelines such as wearing a mask and hand hygiene can be taught by repeating the same information again and again. The family members and the clinicians managing these patients have a big role to ensure the safety of this group of people.

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## COVID-19 and cognitive impairment: A new challenge for the elderly

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In the last 1½ years or so, the COVID-19 pandemic emerged as a major challenge for humanity. Since the beginning of the pandemic, it became apparent that the elderly and those who have multiple comorbidities are at higher risk of development of COVID-19 infection, and when they develop so, they have more severe infection and poorer outcome.<sup>[1]</sup> Available data suggest that about 80% of deaths with COVID-19 infection occurred in those aged more than 65 years.<sup>[1]</sup> The medical conditions such as diabetes mellitus, hypertension, cardiac diseases, cancer, chronic obstructive pulmonary disease, those with liver diseases, human immunodeficiency virus infection, immunodeficiency diseases, hematological disease, are known to be associated with higher severity of COVID-19 infection.<sup>[1]</sup> Those with severe infection are more likely to be hospitalized and require intensive care unit (ICU) admission.<sup>[1]</sup> Emerging data also suggest that those admitted to ICUs with COVID-19 infection are also at higher risk of developing delirium,<sup>[2,3]</sup> which is a known risk factor for dementia. Besides being admitted to ICU, other factors associated with delirium in patients with COVID-19 infection include older age (>75 years), history of use of psychotropic medications, having a sensory impairment in the form of auditory and visual impairment, having stroke, and having Parkinson's disease.<sup>[3]</sup>

Emerging data also suggest that after recovery from COVID-19, many patients report the emergence of new-onset cognitive deficits. A large sample size study from the United States showed that >50% of the participants had difficulty in concentration and focusing and these were the fourth most common long-term symptom after recovery from COVID-19 infection.<sup>[4]</sup> Other studies have also shown a high prevalence of executive dysfunction, attention deficits, and memory disturbances in persons who have recovered from COVID-19 infection.<sup>[5-7]</sup> A large-scale study involving about 84,000 participants who were not having any symptoms of COVID-19 infection showed that even after controlling for age, gender, years of education, income,

race-ethnic variations, and preexisting medical disorders, there is a high prevalence of cognitive deficits in the form of problems with attention, memory, and executive functions after recovering from acute infection.<sup>[7]</sup> Besides cognitive deficits, emerging data also suggest a higher prevalence of depression, anxiety, insomnia or sleep disturbance, dementia, and psychosis in patients who have recovered from COVID-19 infection.<sup>[8,9]</sup>

Most chronic medical illnesses, which are risk factors for COVID-19 infection, have also been reported to be a risk factor for the development of dementia. The 2020 Report of the Lancet Commission on Dementia Prevention identified 12 modifiable risk factors for dementia, which include lower education level, hypertension, diabetes mellitus, obesity, traumatic brain injury, hearing impairment, smoking, excessive alcohol consumption, depression, reduced physical activity, low social contact, and air pollution.<sup>[10]</sup> If one looks at these modifiable risk factors, it is evident that hypertension, diabetes mellitus, obesity, traumatic brain injury, smoking, excessive alcohol consumption, and depression are associated with an increased risk of developing COVID-19 infection. Further, due to the ongoing pandemic, there is a reduction in physical activity and social contact, in general. The only good thing that has possibly happened during the ongoing pandemic is reducing air pollution levels. Besides the higher prevalence of depression in patients who have recovered from COVID-19 infection, emerging data also suggest worsening glycemic control, especially in those who have received steroids.<sup>[11]</sup> Depression has also been identified as a consequence of the COVID-19 infection.<sup>[8,9]</sup>

Taken together, from the available evidence, it can be concluded that the COVID-19 pandemic has increased the risk of development of cognitive impairment and dementia. This would be more so in the elderly, who have a higher prevalence of risk factors for dementia, higher incidence of COVID-19 infection, higher rates of severe

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COVID-19 infection, and higher rates of admission to the ICUs due to COVID-19 infection. It can be said that soon, clinicians will encounter more and more persons with cognitive impairment and dementia. This calls for the implementation of recommended preventive strategies more vigorously to reduce the impact of COVID-19 on the cognitive reserve of people, especially those who already have a high prevalence of modifiable risk factors for dementia. This will involve screening all persons who have developed COVID-19 infection for psychiatric morbidity and cognitive deficits. In addition, those reporting cognitive deficits should be informed about the risk of dementia in the future and need to follow measures to address other modifiable risk factors, remaining cognitively active and following cognitive remedial measures as per the needs. As the COVID-19 situation eases, efforts must be made to minimize social isolation and improve physical activity levels. Besides these, during all the clinical encounters, the clinicians must make efforts to psycheducate the persons with noncommunicable diseases about the future risk of dementia and the need for optimal control and management of the illnesses.

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# The Interaction of COVID-19 Pandemic and Schizophrenia

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## INTRODUCTION

Schizophrenia is a severe mental disorder, which usually runs a chronic course. In addition, schizophrenia is also associated with adverse outcomes like higher rates of suicide when compared to the general population,<sup>[1]</sup> and it is associated with higher premature cardiovascular mortality<sup>[2]</sup> when compared to the general population. Many patients continue to have residual symptoms in the long run. The management of schizophrenia involves the long-term use of antipsychotics and various psychosocial interventions.<sup>[3]</sup> Patients with schizophrenia must remain in touch with their treating psychiatrist in the long run. However, it is well known that a significant proportion of patients with schizophrenia are poorly adherent to the medications.<sup>[4]</sup>

The COVID-19 pandemic has emerged as a worldwide crisis for patients with various chronic illnesses, including schizophrenia. The pandemic led to lockdown in most of the countries across the globe, closure or curtailment of outpatient and inpatient services, closure of daycare and rehabilitation services, limited access to electroconvulsive therapy, and other brain stimulation treatments in India too.<sup>[5,6]</sup> A recent study showed that a diagnosis of schizophrenia spectrum disorder was associated with a significantly higher risk of mortality due to COVID-19 infection.<sup>[7]</sup> All these indicate that the pandemic will have a significant negative impact on the outcome of patients with schizophrenia. Another recent study showed that patients with schizophrenia are less likely to test positive for COVID-19, but if they test positive, then they are two times more likely to get admitted to the hospital for the COVID-19 infection and three times more likely to die, compared to controls, even after controlling for sociodemographic and clinical factors.<sup>[8]</sup>

However, everything does not appear to be adverse for patients with mental illnesses like schizophrenia. This editorial discusses the possible negative and positive impact of the pandemic on the various aspects of schizophrenia.

## IMPACT OF CLOSURE OF OUTPATIENT SERVICES AND LIMITED INPATIENT SERVICES

The pandemic has led to the closure or reduction in the capacity of inpatient units across the world. At some places, the psychiatric wards have been converted to COVID wards.<sup>[9]</sup> Similarly, the pandemic has led to the closure of outpatient services.<sup>[5,6]</sup> The lack of services has led to a lack of access to treatment and free medications. Further, the lockdown

has led to a lack of medication availability, even though the patients want to purchase the same.<sup>[10]</sup> The pandemic has also led to lower income, job loss, and more worries about income.<sup>[11]</sup> There is an increase in expenses due to inflation.<sup>[12]</sup> This has further contributed to the lack of ability to purchase the medication on the part of the patients. The pandemic has also led to the shutting down of rehabilitation and daycare services and restricted access to electroconvulsive therapy services and brain stimulation treatment. The reduction in the number of inpatient beds has led to frequent visits to emergency services. The pandemic has also led to a decrease in the investigation facilities or access to investigation facilities. This has led different recommendations for monitoring hemogram in patients on clozapine.<sup>[13]</sup> The closure or lack of access to laboratory facilities also means that the pandemic leads to difficulty in monitoring the metabolic parameters in patients on antipsychotics. Taken together, these may mean either stoppage of antipsychotics in patients already receiving the same, delay in starting of clozapine in patients with treatment-resistant schizophrenia due to lack of monitoring facilities, and delay in the management of treatment-emergent metabolic abnormalities.

However, it is also being noted that many patients with schizophrenia, who were on antipsychotics for long, are now doing well, even after stopping antipsychotics independently. This suggests that the pandemic may allow us to re-evaluate the long-term use of antipsychotics in patients with schizophrenia. Another positive aspect of less (or more) frequent contact of patients with the clinicians could mean the use of antipsychotics in adequate doses for a longer duration before a change in antipsychotics is ordered. The tendency to change in antipsychotics would be reduced due to consideration of difficulty in procuring newer antipsychotics. This may help in understanding the effectiveness of various antipsychotics in better ways. Further, due to a lack of monitoring of metabolic parameters, the pandemic may also force clinicians to try first-generation antipsychotics more frequently, rather than relying mainly on the second-generation antipsychotic medication. The pandemic has also restricted the availability and possible use of tobacco products, alcohol, and other substances. It can be said that this can have a positive impact on patients with schizophrenia in the form of better symptom control.

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An essential outcome of the COVID-19 pandemic has been expanding telepsychiatry services across the globe, including India.<sup>[5,6]</sup> Patients and caregivers are now able to contact the clinicians by sitting at their homes. This has led to a significant reduction in the need to travel, treatment cost, time spent in seeking medical help, more closure monitoring of the patients, possible evaluation of the patient in their natural environment, access to all possible caregivers rather than the limited number of caregivers who could travel to the hospital, and closure monitoring of the patients. A study showed that simple telephonic monitoring of patients on clozapine is feasible.<sup>[10]</sup> The mental health gap (mhGAP) in India for patients with psychotic illnesses is 75%.<sup>[14]</sup> However, it must be remembered that there is a high disparity in developing countries, and many people do not have access to a smartphone, which may preclude access to telepsychiatry services. Further, there are restrictions to what can be prescribed while issuing prescriptions through telepsychiatry services. The telepsychiatry may preclude the use of certain medications and hence discourage some of the clinicians from practicing the same. Another major limitation of the telepsychiatry services in the context of the pandemic is that though the telepsychiatry services have been able to fulfill the consultation needs, the need of free medications for the patients remains largely unfulfilled. Telepsychiatry services are not able to cater to the need of patients who have comorbid physical illnesses requiring clinical attention as physical examination is not possible, and the clinical needs of the patients who are actively suicidal are not fulfilled.

Further, some clinicians feel that telepsychiatry cannot substitute the in-person contact between the patient and the clinicians. Overall, it can be said that in future, there would be more expansion of the telepsychiatry services, and this could lead to a reduction in the mhGAP for schizophrenia and the emergence of newer hybrid treatment models. These treatment models may also give rise to the concepts of admission and rehabilitation at home, where the patients with schizophrenia can be monitored at home on a daily basis by a remotely located psychiatrist.

## RISK AND SEVERITY OF COVID-19 INFECTION

Some of the available evidence suggests that patients with mental illnesses are at high risk of COVID-19 infection. This is attributed to poor self-care and the inability to comply with the COVID-19-related behavior like the use of masks, frequent hand hygiene measures, and maintaining the desired social distancing. Additional factors which put the patients with schizophrenia at higher risk of COVID-19 infection include cognitive deficits, lower awareness about the risk, and poor insight.<sup>[15]</sup> Further, it is suggested that patients with schizophrenia are at increased risk of adverse outcomes of COVID-19 infection, including increased mortality, due to higher smoking rates and higher risk of pneumonia in patients receiving second-generation antipsychotics.<sup>[15]</sup> Other factors known to increase the risk of adverse outcomes among patients with schizophrenia include significant disparity in access to

health care and stigma and discrimination when faced with COVID-19 infection.<sup>[15]</sup> Available data also suggest that patients on certain antipsychotics, such as those on clozapine, are at higher risk of COVID-19 infection than those receiving other antipsychotic medications.<sup>[16]</sup> The higher risk in patients receiving clozapine is additionally attributed to side effects like hypersalivation.<sup>[16]</sup>

However, some authors have proposed that the use of antipsychotics like chlorpromazine may be associated with a lower chance of developing COVID-19 infection, as chlorpromazine blocks the entry of the severe acute respiratory syndrome virus in the brain. It has been shown that the COVID-19 virus enters the human brain by its interaction with the angiotensin-converting enzyme (ACE) 2 receptors in the brain. Chlorpromazine has been reported to have immune-modulatory and antiviral properties and blocks ACE receptors in the brain.<sup>[17]</sup> Other reports suggest that the use of haloperidol may be associated with a lower chance of developing cytokine storms.<sup>[18]</sup> This proposal is based on the available data from previous studies, which reported decreased mortality in patients on mechanical ventilation and it is hypothesized that this could be due to the lowering effect of haloperidol on cytokine levels.<sup>[18]</sup> Many second-generation antipsychotics (aripiprazole, risperidone, olanzapine, quetiapine, and clozapine) have been shown to have anti-inflammatory properties in various animal models. Clinical studies have also supported the anti-inflammatory properties of olanzapine, risperidone, and quetiapine.<sup>[19]</sup> These findings suggest that patients on various antipsychotics may be at lower risk of COVID-19 complications.

Taking all the above factors into account, except for one study that showed a higher incidence of COVID-19 infection in patients on clozapine, compared to other antipsychotics, there are no published data to prove that a higher proportion of patients with schizophrenia have suffered from COVID-19 infection. Similarly, there are no data to suggest that the use of antipsychotics has been protective in terms of the severity of COVID-19 disease. Hence, there is a need to evaluate these facts in the future. An improvement in understanding these facts may help to decide about the selection of antipsychotics in patients with psychotic illnesses. However, one recent large sample size study from the United States suggests that people who have developed COVID-19 infection have a higher risk of developing psychotic illnesses later on.<sup>[20]</sup> Understanding the anti-inflammatory response of antipsychotics may also help select antipsychotics in persons' developing psychotic illnesses in the post-COVID phase. Although farfetched, the possible beneficial role of antipsychotics like chlorpromazine and haloperidol may lead to a comeback for the first-generation antipsychotics in the management of schizophrenia.

## TREATMENT OF COVID-19 AND ITS IMPACT ON THE OUTCOME OF SCHIZOPHRENIA

The treatments which have been evaluated for the management of COVID-19 have changed over time. Multiple medications

have been repurposed for the same, with none of these being found to unequivocally effective, except for steroids. Available data suggest that the use of steroids can be beneficial in patients with severe COVID-19 infection.<sup>[21]</sup> However, the use of steroids in patients with schizophrenia can lead to a relapse of symptoms. Further, the use of steroids in persons vulnerable to developing psychosis (first-degree relatives) may lead to unmasking psychosis. The use of steroids in patients with COVID-19 has also led to the unmasking of diabetes mellitus, especially in persons who are obese.<sup>[22]</sup> Considering this, it can be said that patients with schizophrenia, who are already on second-generation antipsychotics, will form a vulnerable group for the development of diabetes mellitus. Hence, it is quite possible that as the pandemic recedes, we may end up seeing more and more patients with schizophrenia having comorbid diabetes mellitus.

### COVID-19 INFECTION AND SCHIZOPHRENIA

The COVID-19 infection leads to hypoxic brain injury, neurodegenerative changes, and cognitive deficits.<sup>[23]</sup> Patients with schizophrenia and mental illnesses have more cognitive deficits compared to healthy controls.<sup>[24]</sup> If the patients with schizophrenia develop severe COVID-19 infection and develop adverse brain outcomes, it may negatively impact the already impaired cognitive functions. The effects of COVID-19 on neurocognitive functions in patients with schizophrenia will receive significant attention shortly.

### COVID-19 NORMS AND SCHIZOPHRENIA

Data from South Korea suggest that there was an outbreak of COVID-19 infection in one of the psychiatric wards involving 100 of 102 patients, which resulted in the death of seven patients.<sup>[25]</sup> It was seen that the outbreak occurred due to lack of ventilation due to sealing of the windows to prevent suicide and restrictions on the use of sanitizers due to apprehension of some of the patients consuming the same.<sup>[26]</sup> The COVID-19 norms of social distancing and the use of a mask for patients with schizophrenia can lead to a feeling of abandonment. Further, the COVID norms may give rise to the emergence or re-emergence of obsessive–compulsive symptoms in patients who are already vulnerable to develop the same because of the ongoing antipsychotics.

Further, as seen in the general population,<sup>[27]</sup> patients with schizophrenia may also experience a higher stress level due to the ongoing pandemic and experience relapse. The restriction in the movement due to lockdown can reduce physical activity and weight gain. In addition, it can be said that, due to lockdown and closure of routine outpatient services, there could be a delay in help-seeking. This may lead to an increase in the duration of untreated psychosis and may have an impact on the long-term outcome of psychosis in patients with the new-onset illness. However, it can also be said that following COVID-19 norms may possibly lead to improvement in self-care among patients with schizophrenia. Further, the

use of masks, awareness about the higher risk, and awareness about the higher risk among those with comorbid illnesses can reduce smoking. It can also be hypothesized that prolonged use of masks may reduce food intake and prevent weight gain.

### COVID-19 AND PSYCHOPATHOLOGY

As has already been mentioned, emerging data suggest a higher risk of developing psychosis among the COVID-19 survivors.<sup>[20]</sup> There are also reports of psychotic disorders in which psychopathology has been colored by the pandemic.<sup>[28]</sup> These findings suggest that in due course of time, the clinicians should always inquire about the history of COVID-19 infection among patients presenting with first-episode psychosis. Similarly, the clinicians should focus on psychopathology, that may be colored by the different aspects of the pandemic.

### COVID-19, HOME CONFINEMENT, AND CAREGIVERS

The COVID-19 has led to the confinement of patients with schizophrenia at home. In addition, the closure of offices and work from home has given the patients and caregivers more opportunities to interact. This can have both positive and negative impacts on the course and outcome of schizophrenia. For the caregivers, this may mean a higher caregiver burden and facing a higher level of aggression from the patient. In addition, spending more time with each other may also mean higher mutual exchange of expressed emotions between the patient and the caregivers. This can lead to a relapse of symptoms. However, all the family members at home may also mean higher caregiver involvement, higher sharing of the caregiving responsibilities rather than one person shouldering all the duties, higher social support, and emotional involvement with the patient. The availability of higher free time for the caregivers can also mean that they may more often get involved in cognitive remediation, cognitive rehabilitation, and engage with the patients in social skill training. All these may have a positive impact on the course and outcome of schizophrenia.

### CONCLUSION

The pandemic is having a significant impact on the life of every human being. However, the effect of the pandemic on patients with schizophrenia is yet to be fully understood. Little research has emerged on this area. There is a need to research the impact of the COVID-19 pandemic on patients with schizophrenia in terms of various aspects of treatment, course, and outcome. The current level of understanding suggests that the COVID-19 pandemic is going to have a significant negative impact on patients with schizophrenia.

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## Review articles

1. Ghosh A, Mahintamani T, Choudhury S, Sharma N, Das S. The Effectiveness of Non-Benzodiazepine, Non-Barbiturate Medications for Alcohol Withdrawal Syndrome: A Rapid Systematic Review. *Alcohol Alcohol.* 2021; 56:513-34.
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Review

# The Effectiveness of Non-Benzodiazepine, Non-Barbiturate Medications for Alcohol Withdrawal Syndrome: A Rapid Systematic Review

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## Abstract

**Aim:** There are potential clinical, ethical and legal concerns with overdosing benzodiazepines (or barbiturates) for the treatment of moderate to severe alcohol withdrawal symptoms (AWS) through telemedicine or ambulatory outpatients. A rapid systematic review to (a) qualitatively summarize the non-benzodiazepine treatment alternatives, (b) evaluate the quality of evidence for the same to effectively manage moderate to severe AWS.

**Methods:** We conducted searches on PubMed (January 1990 to 31 March 2020), Cochrane Central Register of Controlled Trials, and Google Scholar. We selected the English language randomized controlled trials (RCTs) assessing the efficacy and adverse effects of non-benzodiazepine and non-barbiturate medications among adults with a diagnosis of AWS. Data extraction was done in a predefined format. Risk of bias (RoB) assessment and qualitative synthesis of evidence was done with the RoB2 tool and Grading of Recommendations Assessment, Development, and Evaluation (GRADE) proGDT.

**Results:** Thirty-four RCTs were included. Gabapentin ( $n = 6$ ), carbamazepine ( $n = 5$ ), baclofen ( $n = 5$ ), valproate ( $n = 3$ ), clonidine/lofexidine ( $n = 3$ ) and acamprosate ( $n = 2$ ) had more than one trial with a particular comparison group. Four studies were found to have a low ROB. The GRADE evidence summary showed gabapentin had a 'moderate' level of evidence against standard benzodiazepine treatments for reducing the severity of AWS. The level of certainty was 'low' for carbamazepine, baclofen and valproate and 'very low' for acamprosate and clonidine/lofexidine. Reported adverse events between these alternative medications and benzodiazepines or placebo were generally unremarkable.

**Conclusions:** Although benzodiazepines remain the treatment of choice for AWS, during particular circumstances, gabapentin could be an alternative although like benzodiazepines is not without risk when used in the community. Future RCTs must aim to improve upon the quality of evidence.

## BACKGROUND

The global burden of disease study revealed that there were >100 million estimated cases of alcohol use disorders (AUDs) in 2016, which was highest among all substance use disorders (GBD 2016 Alcohol and Drug Use Collaborators 2018). AUD was also the most common mental disorder globally, with a prevalence of 5.1% among the general population. Although the prevalence was higher in high-income and high-middle income countries, low-middle income countries (e.g. south-east Asian region, African region) were exhibiting an increasing trend in the prevalence of heavy episodic and amount of drinking (World Health Organization Global Status Report on Alcohol and Health, 2018; Rehm and Shield, 2019). Nearly half of those individuals with AUD, experience withdrawal symptoms on attempts at reduction or discontinuation of alcohol use. About 3–5% of them develop a complicated withdrawal syndrome, such as convulsions and delirium (American Psychiatric Association, 2013).

In response to the COVID-19 pandemic, several countries across the world (e.g. India, Sri Lanka, Thailand and South Africa) imposed an extended lockdown. They brought about a sudden prohibition on the manufacture, distribution and sale of alcohol. The WHO and CDC have issued warnings against the use of alcohol during the pandemic (World Health Organization, 2020). These measures could have enforced and motivated individuals with AUD to either reduce or discontinue alcohol use. Therefore, we might expect an increase in the estimated number of people with alcohol withdrawal and requiring medical help.

The pathophysiology of alcohol withdrawal has been attributed to a hypoactive  $\gamma$ -aminobutyric acid (GABA) and a hyperactive glutamate (N-methyl-D-aspartate) neurotransmission (Davis and Wu, 2001). Benzodiazepines, being GABA-facilitators, are, therefore, the standard treatment of choice for alcohol withdrawal. Benzodiazepines are either prescribed in a fixed-dose schedule or symptom-triggered regime. Both regimes require close clinical monitoring, which is difficult for ambulatory outpatients (Kosten and O'Connor, 2003). Besides, the pandemic has resulted in significant changes in medical practice, and telemedicine has come up as a useful alternative to in-person treatment. Online prescription of high-dose benzodiazepines, too, would be potentially risky given the limited opportunity of close clinical monitoring. The clinical concerns of prescribing benzodiazepines or barbiturates for ambulatory outpatients and through telemedicine are, firstly, acute bingeing on alcohol in patients on high-dose benzodiazepines could result in severe toxicological interactions with the significant clinical implication (Tanaka, 2002). Secondly, benzodiazepines were observed to contribute to at least 23% of opioid overdose mortality. Co-administration of benzodiazepines with opioids increased the risk of overdose by ten times (Centers for Disease Control and Prevention, 2017; Sun *et al.*, 2017). These observations assume significance because a substantial minority (13–17%) of individuals with AUD had concurrent drug use disorders (notably opioid use disorders) (Falk *et al.*, 2008). Therefore, the prescription of high-dose benzodiazepines would be fraught with the risk of overdose. Moreover, co-prescription (or concurrent use) of high-dose benzodiazepines, alcohol (and or opioids) increased the odds of emergency visits to 24–55% (Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, 2014). Thirdly, benzodiazepine abuse was most commonly encountered with comorbid substance use disorders (O'Brien, 2005). High-dose prescription of benzodiazepines through telehealth might, therefore, increase the risk of misuse as well.

The higher risk of prescribing benzodiazepines and barbiturates among ambulatory outpatients creates an ethical dilemma. The clinicians and researchers should explore additional safer alternatives for patients with moderate to severe alcohol withdrawal requiring high-dose benzodiazepine, in the context of concurrent medical, psychiatric and substance use disorders.

Besides these possible clinical risks, there are legal barriers to prescribing online benzodiazepines. Benzodiazepines, as a group, come under 'controlled substances.' The prescription of benzodiazepines, even during an in-person consultation, is therefore highly regulated in most countries, and online prescription of benzodiazepines is prohibited. Although a public health emergency-related exemption has been declared in several countries (e.g. USA, UK, Australia), the duration for which it is going to be implemented is open to debate. In India, as per the recent telemedicine guideline, only clonazepam could be prescribed online (Ministry of Health & Family Welfare, 2020).

The increased clinical risks and regulatory controls related to telemedicine might result in medical practitioners, across the globe, to look for a non-benzodiazepine (and non-barbiturate) alternative for treating moderate to severe alcohol withdrawal. The efficacy of anticonvulsants (with NMDA antagonist or GABA agonist properties), baclofen, clonidine and some antidepressant medications has been tested in randomized clinical trials. Although there were a few published meta-analyses on the efficacy of individual medications (baclofen) or a single group of drugs (anticonvulsants), no single review has compared all the treatment alternatives (Minozzi *et al.*, 2010; Liu and Wang, 2017). To promptly synthesize the available information, we conducted a rapid systematic review with the objectives of (a) qualitatively summarizing the non-benzodiazepine (and non-barbiturate) treatment alternatives available for alcohol withdrawal; (b) summarizing and evaluating the quality of existing evidence for these treatment alternatives in terms of reduction of symptoms of moderate to severe alcohol withdrawal and dose requirement for additional benzodiazepines.

## METHODS

### Eligibility criteria

**Study design** We included randomized controlled trials (RCTs), including parallel-groups with two or more treatment arms. We have excluded observational studies (with pre-post design) and quasi-randomized trials. Although excluding these studies, we might have lost clinical data; this was necessary to reduce (a) clinical heterogeneity: differences in the patient population and treatment schedules, (b) methodological heterogeneity: due to varying study designs and RoB. These heterogeneities could have made it challenging to synthesize the results and provide an evidence summary (West *et al.*, 2010). Due to the nature of the review (rapid review), we could not apply for PROSPERO registration.

**Population** Studies on adults aged 18–65 years of both sexes with the diagnosis of AUD (or alcohol dependence) with moderate to severe alcohol withdrawal syndrome were included in the review. The review did not impose any restrictions on co-morbidities (either mental or physical). We excluded studies conducted with parenterally delivered interventions in in-patient care.

**Intervention** We included studies that aimed to determine the efficacy of non-benzodiazepine and non-barbiturate alternatives to treating alcohol withdrawal. Both inpatient and outpatient-based trials

were included in the review. Studies testing injectable formulations (e.g. adjunct injection benzodiazepines, injection flumazenil) were excluded.

**Comparison group** We included trials with placebo and active controls as comparison groups. Trials in which alternative medications were used as adjuncts to benzodiazepines were also included.

**Outcome** We included a broad range of outcomes—subjective and objective alcohol withdrawal severity measured by structured instruments. The most typical instrument used was Clinical Institute Withdrawal Assessment for Alcohol revised (CIWA-Ar) (Gallant, 1992; Stuppaek *et al.*, 1992; Adinoff, 1994; Myrick *et al.*, 2000; Gual and Leher, 2001; Keaney *et al.*, 2001; Reoux *et al.*, 2001; Longo *et al.*, 2002; Malcolm *et al.*, 2002; Lucht *et al.*, 2003; Favre *et al.*, 2005; Schik *et al.*, 2005; Mariani *et al.*, 2006; Krupitsky *et al.*, 2007; Malcolm *et al.*, 2007; Croissant *et al.*, 2009; Kampman *et al.*, 2009; Myrick *et al.*, 2009; Martinotti *et al.*, 2010; Richter *et al.*, 2010; Rubio *et al.*, 2010; Stock *et al.*, 2013; Huang *et al.*, 2014; Gulati *et al.*, 2019). Some other instruments used for assessing the severity of withdrawal were Alcohol Withdrawal Assessment Scale (Baumgartner and Rowen, 1991; Richter *et al.*, 2010), Visual Analog Scale Withdrawal (Myrick *et al.*, 2009; Richter *et al.*, 2010; Förg *et al.*, 2012), Alcohol Withdrawal Syndrome Scale (AWSS) (Keaney *et al.*, 2001; Richter *et al.*, 2010), Mainz Alcohol Withdrawal Scale (MAWS) (Banger *et al.*, 1992; Bonnet *et al.*, 2003; Bonnet *et al.*, 2007), Essen Self-Assessment of Alcohol Withdrawal Scale (ESA), etc. (Bonnet *et al.*, 2003, 2007).

The commonest withdrawal-related outcome measure was in terms of reduction in the score of the withdrawal severity assessment scales. Additional dose requirement of benzodiazepines was included as an outcome in some studies (Baumgartner and Rowen, 1991; Bonnet *et al.*, 2003; Kampman *et al.*, 2009; Girish *et al.*, 2016). Some other withdrawal-related outcomes were physical symptoms of withdrawal (like heart rate, blood pressure) (Baumgartner and Rowen, 1991; Worner, 1994); duration of detoxification in the number of days (Kampman *et al.*, 2009) and percentage of patients deteriorating from moderate to severe alcohol withdrawal symptoms (AWS) after initiation of treatment protocol (Heppe *et al.*, 2019). Anxiety was separately measured as an outcome in some studies (Baumgartner and Rowen, 1991; Keaney *et al.*, 2001; Richter *et al.*, 2010). The primary and secondary outcomes (if mentioned) were identified.

### Search strategy

We searched PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), and Google Scholar. The search period was January 1990 to May 2020. The search was performed between 1 June 2020 and 10 June 2020. We searched only for English language literature. After an open-ended search, we used the following filters in PubMed: clinical trials, RCTs, meta-analysis, reviews and systematic reviews. We checked abstracts and reference lists of included articles and existing systematic reviews. The search was performed by two authors, independently (AG and TM). Table 1 enumerates the search strategies.

### Data collection

**Selection of studies** A screening form was generated (Panel 1) to aid in study selection. Articles were excluded first, based on the title and abstract search by TM. AG examined and approved the exclusion.

The full texts were reviewed independently by AG and TM and selections were done by mutual discussion and consensus.

**Data extraction and management** The data extraction form was generated by the senior author (AG). It included identification of the study (Author name, Year), design, population, intervention, comparison, outcome assessment, time to outcome measurement, results, significant risk bias and side effects of the treatments. Data extraction was done by two authors (NS and SC). AG checked the fidelity of the extraction.

**RoB of included studies** We used the RoB Assessment tool by Cochrane (Higgins and Green 2011). There are five domains in the RoB tool to be assessed for individual studies: randomization process, deviation from the intended interventions, missing outcome data, measurement of the outcome and selection of the reported results. Finally, the overall RoB was provided for any particular study. One reviewer (SD) did the bias assessment and categorized each domain of the study as 'high' or 'low' RoB. Categorization to 'unclear/some concern' risk was minimized by a mutual discussion with the senior author (AG).

### Data synthesis and Interpretation

We collected both continuous (e.g. severity of withdrawal) and dichotomous (e.g. need for high-dose benzodiazepines in the proportion of participants) outcomes. The effect sizes mentioned either as standardized mean difference or risk-ratios were retrieved, wherever available. The interpretation was based on the strength and quality of evidence and the RoB. Finally, we did a qualitative summary of the results.

### Quality assessment and presentation

The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach was used to assess the quality of the evidence for each outcome to help infer confidence in the review findings and guide future research. We used the GRADEpro GDT software for grading the evidence (GRADEpro GDT: GRADEpro Guideline Development Tool [Software], 2015).

## RESULTS

### Study selection

Our initial search identified 245 potential articles through the database search of PubMed and Cochrane. Title and abstract screening were done for 229 articles after removing duplication. One hundred sixty-four irrelevant articles were excluded, and 65 full texts were assessed for eligibility. Thirty-four articles were finally included in the analysis. The reasons for exclusion and the entire study selection flow are depicted in Fig. 1.

### A description of trials

**Clinical settings and design** Out of 34 trials, 7 were open-label studies (Myrick *et al.*, 2000; Longo *et al.*, 2002; Lucht *et al.*, 2003; Mariani *et al.*, 2006; Croissant *et al.*, 2009; Girish *et al.*, 2016; Gulati *et al.*, 2019). Rest were all double-blind, randomized trials. A significant majority (Longo *et al.*, 2002) of the trials were conducted in inpatient settings.

**Participants** A total of 2338 participants were included in the 34 randomized trials. In total, 50 to 90% of the trial participants were men.

**Table 1.** Search strategy

Database	Intervention
Pubmed	('Alcohol withdrawal' OR 'ethanol withdrawal') AND ('treatment' OR 'pharmacotherapy' OR 'medical management') NOT 'benzodiazepine'
Cochrane	To identify the studies comparing the efficacy of other agents with benzodiazepines Search items—'alcohol withdrawal' OR 'ethanol withdrawal' AND 'treatment' OR 'pharmacotherapy' OR 'medical management'
Google Scholar	'Alcohol withdrawal' AND 'treatment'

**Panel 1.** Screening Form**1. POPULATION:**

Exclude if population restricted to

- Pediatric population (less than 18 years)?
- Older adults (65 years or more)?
- i.e. exclude if individuals between the age of 18 and 25 are not included in the study.

**2. DESIGN:**

Is the design a randomized controlled OR open-labeled trial?

If yes, go to the next question.

- If no, and indicates another study design (e.g. systematic review, meta-analysis, case series, etc.) exclude.

**3. INTERVENTION:**

i) Is the intervention focussed on measuring the efficacy of non-benzodiazepine, non-barbiturate pharmacotherapeutic agents in alcohol withdrawal?

- If yes or unsure, continue the assessment.
- if it includes benzodiazepines or barbiturates, does it include other non-benzodiazepine, non-barbiturate agents for comparison?
- If no, exclude

ii) Is the intervention focussed on the management of alcohol withdrawal?

- If yes or unsure, continue the assessment.
- If it includes an additional extension (e.g. relapse prevention), but they report outcomes following the withdrawal management, continue intervention assessment.
- If no, exclude

iii) Is the intervention focussed on more than mild severity of alcohol withdrawal?

If yes or unsure, continue the assessment.

- If focussed on severe alcohol withdrawal or alcohol withdrawal seizure or delirium tremens, is it a part of clinical outcome (e.g. deterioration from moderate to severe withdrawal)?
- If yes, continue to outcome assessment
- If no, exclude.

**4. CONTROL**

Does it contain placebo control or active pharmacological control?

- If yes or unsure, continue the assessment.
- If no, exclude.

**5. OUTCOME**

Is there an outcome on

→ Alcohol withdrawal-related outcome (measured by some standardized instrument)?

- If yes, include.
- If no, exclude.

The age range of included participants was between 18 and 65 years, and the mean age was around 40 years. All participants fulfilled the diagnosis of alcohol dependence syndrome and alcohol withdrawal syndrome and had moderate to severe withdrawal symptoms. Individuals with concurrent psychiatric disorders, illicit substance use disorders, severe physical illness (liver cirrhosis, pancreatitis), with complicated alcohol withdrawal (e.g. with delirium tremens, seizures) and pregnant women were mostly excluded from the studies.

**Experimental interventions** The highest number of trials was for gabapentin ( $n = 6$ ) (Bonnet *et al.*, 2003; Mariani *et al.*, 2006;

Bonnet *et al.*, 2007; Malcolm *et al.*, 2007; Myrick *et al.*, 2009; Stock *et al.*, 2013). Three dosing schedules of gabapentin have been tested low-dose (200 mg TID), intermediate-dose (300 mg TID) and high-dose (400 mg TID). However, only the high dose-regime was tried in two clinical trials (Bonnet *et al.*, 2003; Bonnet *et al.*, 2007). Clomethiazole and phenobarbitone rescues were used in two trials (Bonnet *et al.*, 2003; Mariani *et al.*, 2006). The dosing schedules were from 4–7 days, with a gradual taper. Carbamazepine ( $n = 4$ ) (Gallant, 1992; Stuppaeck *et al.*, 1992; Malcolm *et al.*, 2002; Schik *et al.*, 2005), baclofen ( $n = 5$ ) (Gulati *et al.*, 2019; Girish *et al.*, 2016; Heppe *et al.*, 2019; Lyon *et al.*, 2011; Addolorato *et al.*, 2006, valproate

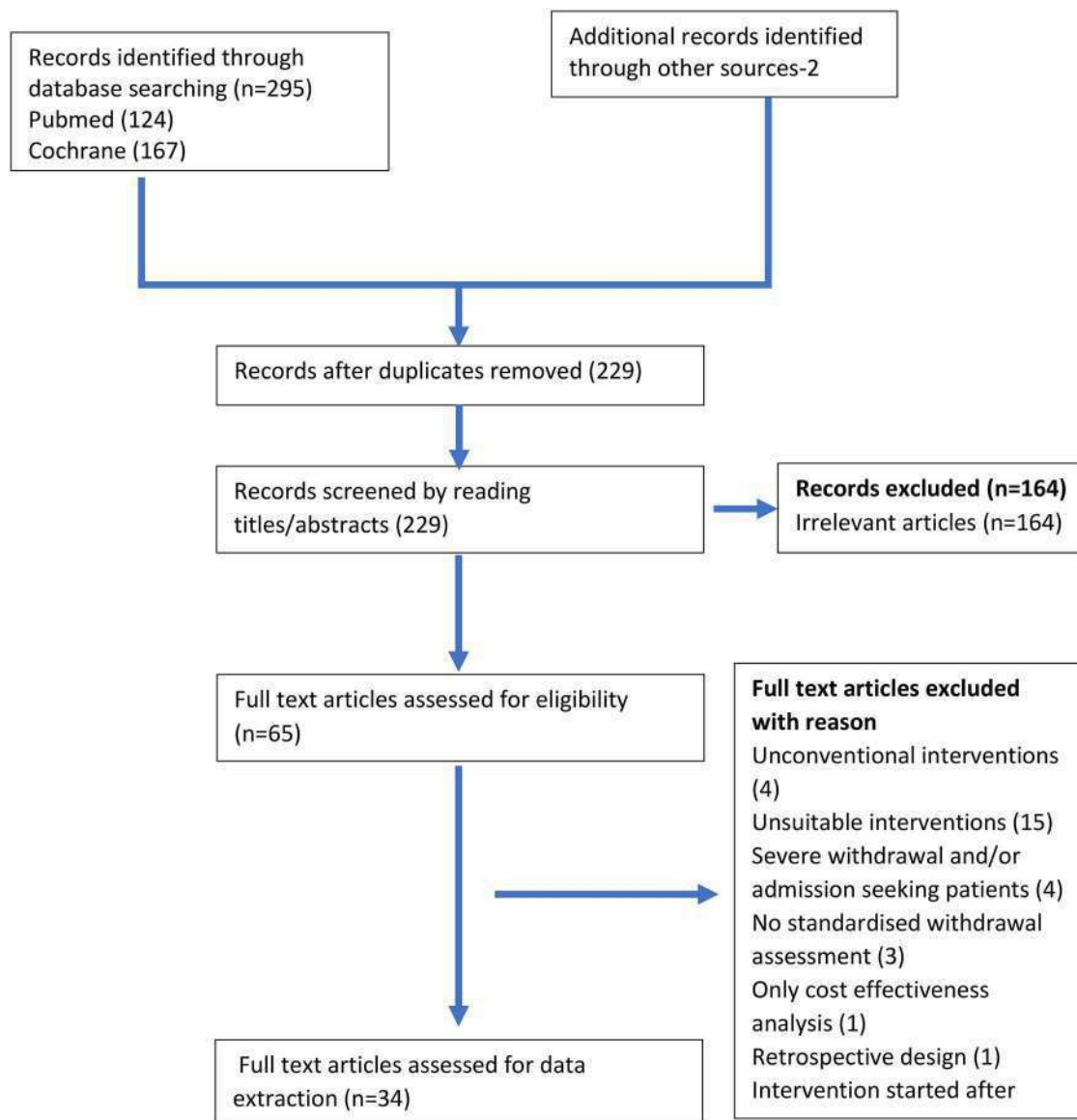


Fig. 1 Study flow diagram.

( $n = 3$ ) (Myrick *et al.*, 2000; Reoux *et al.*, 2001; Longo *et al.*, 2002), clonidine/lofexidine ( $n = 3$ ) (Baumgartner and Rowen, 1991; Adinoff, 1994; Keaney *et al.*, 2001), and acamprosate ( $n = 2$ ) (Gual and Lebert, 2001; Kampman *et al.*, 2009) had more than one trial with a particular comparison group. The initial dose of carbamazepine was 600–800 mg in three divided doses and then tapered over a period of 7–10 days. Except for one trial (Malcolm *et al.*, 2002), carbamazepine was not used with additional benzodiazepines or barbiturates in any of the trials. Baclofen dose was administered as 10 mg TID, without any further taper for 8–10 days. Baclofen was always used with rescue medications (benzodiazepines). The usual dose of Divalproex was 500 mg TID from 5 to 7 days. Divalproex, too, did not require a gradual taper. SOS benzodiazepines were used in trials on Divalproex. There were two randomized trials for pregabalin, one of which was placebo-controlled. The dose range was from 300 to 450 mg per day and duration varied between 6 and 14 days (Martinotti *et al.*, 2010; Förg *et al.*, 2012). Different doses and preparations were used for

clonidine. The transdermal patch of clonidine was used in one trial (Baumgartner and Rowen, 1991), whereas symptom-triggered regime (0.1 mg every hour) was used in another (Adinoff, 1994). Lofexidine, on the other hand, was used as a fixed dose-regime of 1.2 mg BD for five consecutive days (Keaney *et al.*, 2001). Other anticonvulsant medications tested were: oxcarbazepine, levetiracetam, and zonisamide. The dose and regimes of these medications are described in Table 2.

**Control interventions** Broadly four types of controls were tested in the 34 trials: (a) benzodiazepines (e.g. diazepam, oxazepam, lorazepam and chlordiazepoxide); (b) barbiturates (e.g. clomethiazole, phenobarbital); (c) placebo; (d) other non-benzodiazepine and non-barbiturate drugs (e.g. tiapride, lamotrigine, topiramate). Benzodiazepines were used either in a fixed-dose or symptom-triggered regime.

Table 2. Summary of the study characteristics &amp; results of the systematic review

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Carbamazepine Stuppaeck <i>et al.</i> (1992)	Inpatient Austria DB-RCT	N = 60 (OXZ = 30, CBZ = 30) 18–65 years 81% male	800 mg CBZ (200–200–400) (D1–D3) 600 mg (D4–D7) CBZ, 200 mg BD (D8) CBZ, 200 mg OD (D9)	OXZ 120 mg (30–30–60) (D1–D3) 90 mg (30–30–30) (D4–D7) CBZ, 200 mg BD (D8) CBZ, 200 mg OD (D9)	CIWA-A Clinical Global Impression Scale (CGI)	7 days	No difference between the groups in the first 5 days sixth and seventh day, CBZ was significantly more effective	Missing outcome data	No adverse events reported
Gallant (1992)	Indoor, DBPCT	N = 60 (CBZ = 30, OXZ = 30) 18–65 years	Carbamazepine (CBZ) 800 mg (D1–3), 600 mg (D4–7) CBZ 200 mg BD (D8) CBZ 200 mg OD (D9) Discontinuation on D10	Oxazepam (OXZ) 120 mg (D1–3), 90 mg (D4–7) CBZ 200 mg OD (D9) Discontinuation on D10	Improvement in CIWA-Ar scores on all days	7 days	CBZ more effective than OXZ; significance on CIWA-Ar on day 6	Not mentioned	CBZ: 3 patients: vomiting/severe pruritus/marked ataxia OXZ: Delirium (2 patients), D1 Seizure: 1 patient (D2)
Malcolm <i>et al.</i> (2002)	Outpatients, USA	N = 136 (Previous detoxifica- tions: CBZ = 45, LZM = 58 and multiple detoxifica- tions: CBZ = 16, LZM = 17) Mean age = 38.4 years 74% male	Carbamazepine (CBZ) Day 1— 600 mg—800 mg tapered to Day 5—200 mg in single dose on D10	Lorazepam (LZM) Day 1: 6–8 mg in divided doses tapered to Day 5—2 mg on D10	CIWA—Ar ADS Daily drinking log Breath alcohol level	5 days	CBZ and LZM equally effective in decreasing symptoms of alcohol withdrawal LZM group significant rebound of AWS post-treatment and 3 times greater risk of having a first drink	Reliance on self-report for past treated alcohol withdrawal episodes	No difference in overall frequency of side effects (~20% CBZ group reported pruritus without rashes, ~20% LZM group had dizziness, ataxia, motor incoordination)

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Schick <i>et al.</i> (2005)	Inpatient, R-SB, Hannover, Germany	N = 28 (CBZ = 14, OXC = 14) (82.76% men)	CBZ: 600 mg(D1–D3) 300 mg D4 100 mg D5 Insufficient treatment: CLO SOS (both groups)	OXC 900 mg (D1–3) 450 mg D4 150 mg D5	CIWA-Ar VAS Number Connecting test (NC-G)	7 days	Similar dose of additional CLO needed No group difference in change in CIWA-Ar score	Small sample size CIWA-Ar and VAS not immediately applied on inclusion of patients	One patient on CBZ: Delirium Tremens
Divalproex									
Myrick <i>et al.</i> (2000)	Inpatients USA open label trial	N = 11 (DVP = 6, LZM = 5) 18–65 years	Divalproex ( $n = 6$ ) 500 mg TID $\times$ 4 days additional lorazepam symptom triggered (2 mg when CIWA-Ar scores > 6)	Only lorazepam ( $n = 5$ ) symptom triggered (2 mg when CIWA-Ar scores > 6)	CIWA-Ar	5 days	Divalproex effective in ameliorating withdrawal symptoms more immediate decrease in CIWA-Ar in divalproex group	small sample size open label study study design (lorazepam as needed basis, Divalproex standing dose) Relatively mild withdrawal symptoms	No adverse events
Reoux <i>et al.</i> (2001)	Inpatient, USA Randomized Double-Blind Placebo-controlled Trial	N = 36 (Placebo = 18, Valproate = 18) 18–65 years (97% male)	Divalproex sodium 500 mg three times per day for 7 days Baseline and additional dose of oxazepam as a rescue medication	Matched placebo Baseline and additional dose of oxazepam as a rescue medication	Mean total milligrams of oxazepam received, CIWA-Ar, Symptom Checklist-90,	7 days	Divalproex sodium group had lesser use of oxazepam Increase in CIWA-Ar above baseline was significantly greater in the placebo group	Small sample size Higher percentage of divalproex subjects reported somnolence	
Longo <i>et al.</i> (2002)	Inpatients, USA	N = 16 (BZD detox = 7, DVP maintenance = 5) 18–65 years 50% male	(N = 5) Divalproex sodium (DVP) (Depakote) around 20 mg/kg/day loading dose in 2 divided doses 6–8 h apart on day 1 and BD next 4 days (N = 5) Divalproex sodium (Depakote) around 20 mg/kg/day loading dose in 2 divided doses next 6 weeks	(N = 7) Chlordiazepoxide or lorazepam (symptom triggered or fixed dose regimen) for 5 days	CIWA-Ar ADS TLFB CGI ASI VCS OCDS VSS SIP	5 days 6 weeks (maintenance)	DVP group lower CIWA-Ar scores (not statistically significant) at 12 and 24 h DVP maintenance group higher abstinence rates and better outcomes	Open label study Small sample size	No adverse events or seizures

Comparison of multiple anticonvulsants

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Lucht <i>et al.</i> (2003)	Inpatients Germany Randomised controlled open label study 4 groups BrAC < 1 g/l -(A) TIA/CBZ (n = 28); (B) CLO (n = 31); (C) DZM (n = 34) BrAC > 1 g/l -(D) TIA/CBZ (n = 34)	N = 127 (TIA/CBZ = 28, CLO = 31, DZM = 34, CBZ = 34) Mean age 43.1 ± 9.3 years 94% male	Symptom-triggered regimen up to maximum doses (TIA, 1800 mg/day; CBZ, 1200 mg/day) groups A and D	Symptom-triggered regimen up to maximum doses (CLO 3840 mg/-day; DZM, 80 mg/day) groups B and C	CIWA-Ar AWS VAS SCL-90-R	9 days	Tiapride/carbamazepine is effective and safe in treating AWS in intoxicated patients	Open label study Subjective Outcome criterion 'medication not effective' prone to bias	Transient ataxia or diplopia due to carbamazepine which did not require change in medication
Krupitsky <i>et al.</i> (2007)	Inpatient, Placebo-controlled randomised single-blinded trial, St. Petersburg, Russia	N = 127 (Placebo = 25, Diazepam = 25, Lamotrigine = 25, Topiramate = 26) Mean age 43.0 years (9.7) (100% male)	Diazepam 10 mg TID, Lamotrigine 2.5 mg QID, Memantine 10 mg TID, or Topiramate 25 mg QID. Additional diazepam when assigned medication failed to suppress withdrawal symptoms adequately	Placebo	CIWA-Ar AWS Checklist (AWSC) Montgomery Asberg Depression Rating Scale (MADRS)	7 days	All active medications significantly reduced observer-rated and self-rated withdrawal severity, dysphoric mood, rescue diazepam administration compared with placebo	Lamotrigine, memantine, and topiramate were prescribed at doses below their maximum tolerated dose It is not clear that the doses in this study were optimal doses for detoxification	No serious adverse events occurred during the course of the study
Croissant <i>et al.</i> (2009)	Randomised open label trial Germany	N = 56 (TIA/OXC = 27, CLO = 29) 18–65 years 82% male	TIA/OXC TIA 300 mg QID × 3 days 200 mg QID × 2 days D 6 600 mg in 4 div doses OXC—Days 1–3 (600 mg in 3 div doses) Days 4–6 (300 mg in three div doses)	CLO 2 mg 4 hourly (× days) 2 mg 6 hourly (× days)	CIWA-Ar AUDIT LARS	1 week F/u after 2 months	No significant differences in efficacy and tolerability for AWS	Low power (0.28) Small sample size	No severe adverse effects recorded

Continued



Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
<b>Gabapentin</b> Bonnet <i>et al.</i> (2003)	Inpatients Germany Randomised placebo-controlled, double-blinded study	N = 61 (Placebo = 29, GBP = 32) Mean age 44.3 ± 7.5 years 70% male	Gabapentin 400 mg QID × 3d 400 mg TID = D4 400mg BID = D5 400 mg OD = D6 Rescue capsules of CLO	Placebo Rescue CLO	MAWS ESA	7 days	GBP not superior to placebo in reducing rescue medication (CLO)	Probability of study to uncover an effect of 30% difference between the treatment groups was only about 0.35. Too low entry dose of GBP Small sample size Less severe AWS	Five patients from GBP and six patients from P group developed new onset Adverse clinical events. Three pts discontinued (one in GBP, two in P)
Mariani <i>et al.</i> (2006)	Inpatients detoxification service for substance-dependent patients, USA Randomised, open label, controlled trial	N = 27 (GBP = 14, PHB = 13) 18–60 years 70% male	Gabapentin Day 1. 1200 mg PO loading dose, 600 mg PO after 6 h, 600 mg PO after another 6 h D 2. 600 mg PO TID D 3. 600 mg PO BID D 4. 600 mg PO QD Phenobarbital 60 mg on as needed basis for breakthrough withdrawal	Phenobarbital D1. 60 mg PO QID D2. 60 mg PO TID D3. 60 mg PO BID D4. 30 mg PO BID Phenobarbital 60 mg on as needed basis for breakthrough withdrawal	CIWA-Ar POMS BDHI ACC HAM-A SPS RDS	5 days	No significant difference in proportion of treatment failures, need for rescue medication, symptoms of alcohol withdrawal, craving, mood disturbance, insomnia, anxiety, irritability, and a pilot measure of dysphoria between the two groups	Open label study Small sample size Use of as needed dose of Phenobarbital in both groups Fixed dosing schedule of gabapentin	No serious adverse events One patient receiving gabapentin developed an intolerable side effect (mouth twitching)
Bonnet <i>et al.</i> (2007)	Inpatients Germany Randomised placebo-controlled, double-blinded study	N = 59 analysis done for 46 (Placebo = 22, GBP = 23) 31–59 years 78% male	Gabapentin (GBP) 400 mg QID × 3d 400 mg TID = D4 400 mg BID = D5 400 mg OD = D6 Rescue capsules of clomethiazole (CLO)	Placebo Rescue CLO	MAWS POMS ESA	7 days	Acceleration of improvement in vigour sub score of POMS in GBP group, more in patients with depression No sig diff in dose of rescue CLO or objective withdrawal measures	No mood correlates of other rating scales (HDRS, BDI, etc.)	No adverse effects reported

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Malcolm <i>et al.</i> (2007)	Outpatients, USA DB-RCT	N = 101 21–70 years Mean age = 41 years (75% males)	Gabapentin (GBP) High dose group—400 mg TID × 3 d 400 mg BID × 1 d Intermediate dose group— 300 mg TID × 3 d 300 mg BID × 1 d Low dose group— 200 mg TID × 3 d 200 mg BID × 1 d	Lorazepam (LZM) 2 mg TID × 3 d 2 mg BID × 1 d	CIWA-Ar BDI ESS	4 days then follow-up for 8 days	GBP superior to standard therapy with LZM on multiple sleep measures in patients with multiple past withdrawal episodes Rebound symptoms in LZM group	Only subjective sleep measures studied	Serious adverse events in three patients in low dose group, discontinuation of group (dose deemed inadequate)
Myrick <i>et al.</i> (2009)	Outpatients, USA DB-RCT	N = 100 (GBP) 600 mg = 16 discontinued, GBP 900 mg = 28, GBP 1200 mg = 28, LZM = 28 In last three groups Mean age 39.33 years (77% male)	Gabapentin High dose group 400 mg TID × 3 d 400 mg BID × 1 d Intermediate dose group—300 mg TID × 3 d 300 mg BID × 1 d Low dose group—200 mg TID × 3 d TID × 3 d (discontinued after first nine patients) 200 mg BID × 1 d Additional blinded supplemental rescue packs	Lorazepam 2 mg TID × 3 d 2 mg BID × 1 d Additional blinded supplemental rescue packs	CIWA-Ar ADS TLFB ZAS BDI ESS VAS	First 5 days, Day 7, Day 12	High-dose GBP statistically superior to LZM for reducing withdrawal LZM group had higher probabilities of drinking on the first day of dose decrease (day 2) and the second day off medication (day 6). GBP group had less probability of drinking during the follow-up post-treatment period	Mild to moderate withdrawal severity	Two participants in the discontinued 600 mg GBP group had probable single withdrawal seizures and one had a syncopal event. This dosage group was stopped
Stock <i>et al.</i> (2013)	Outpatient, US DB-RCT	N = 26 (Gabapentin = 17, Chlordiazepoxide = 9) Mean age 52.7 years 96% male	Gabapentin 300 mg and matching placebo capsules 1200 mg orally days 1–3, 900 mg day 4, 600 mg day 5, 300 mg day 6	Chlordiazepoxide 2.5 mg and matching placebo capsules 100 mg orally days 1–3, 7.5 mg day 4, 50 mg day 5, 2.5 mg day 6	CIWA-Ar	7 days	No significant difference between gabapentin and chlordiazepoxide	Small sample size	No significant difference of side effect profile between the groups Chlordiazepoxide group observed one fall

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
<b>Levetiracetam</b>									
Richter <i>et al.</i> (2010)	Inpatients five centres, Germany (Multicentre, Prospective, Randomized, Placebo-Controlled Trial)	N = 106 (Placebo = 53, Levetiracetam = 53) 18–65 years (81% male)	Levetiracetam (LVC) (fixed dose) days 1–3 = 1000–0–1000 mg, day 4 = 500–0–1000 mg, day 5 = 500–0–500 mg, day 6 = 0–0–500 mg. Diazepam as rescue medication (symptom-triggered) Clonidine Melperone	Placebo Diazepam (DZM) as rescue medication (symptom triggered) Clonidine Melperone	AWSS CIWA-Ar CGI GAF CCI VASE ADS HAM-A HAM-D	8 days	No significant difference between the two groups in AWSS or CIWA-Ar scores during treatment period Significant improvement in secondary psychopathological symptoms scales independent from treatment with either	Late initiation of LVC (only when AWSS > 4) Low-dose requirement of DZM Relatively small sample size	Two delirium (possibly unrelated) and one exanthema (possibly related) in LVC group
<b>Zonisamide</b>									
Rubio <i>et al.</i> (2010)	Inpatient: Detoxification maintenance phase Outpatient: Tapering phase Spain	N = 40 (Zonisamide = 20, Diazepam = 20) 18–65 years (77% male)	Zonisamide: initial dose of 400–600 mg/day (first week; titration phase), 200–400 mg/day (second week; maintenance phase) 100–300 mg/day (third week; tapering phase)	Diazepam: 130–150 mg/day (week 1; titration phase), 20–30 mg/day (week 2; maintenance phase), 5–15 mg/day (week 3; tapering phase) Rescue medication both groups: (2 mg lorazepam)	CIWA-Ar, Mini-Mental State Exam (MMSE); Severity of Alcohol Dependence Scale(SADS), Hamilton Anxiety Rating Scale (HAM-A); Hamilton Depression Rating Scale (HDRS)	3 weeks	Inpatient period: CIWA-Ar score fell more significantly in zonisamide group Outpatient period: zonisamide group had lower scores on craving, withdrawal, anxiety and depression	Small sample size	Zonisamide produced significantly fewer adverse effects (most commonly anorexia and weight loss) Drowsiness most commonly reported with Diazepam
<b>Baclofen</b>									
Addolorato <i>et al.</i> (2006)	Outpatient, SB-RCT (administrator of CIWA-Ar was unaware of the medication), Italy	N = 37 (Baclofen = 18, Diazepam = 19) Age 18–75 years (86.5% Men) CIWA-Ar $\geq 10$	Baclofen (30 mg/day $\times$ 10 days) (N = 18); Rescue dose, in both groups: 0.75 mg/kg diazepam or an intramuscular 10 mg haloperidol	Diazepam (0.5–0.75 mg/kg/day $\times$ 6 days, tapering 2.5% daily from day 7 to day 10) (N = 19)	CIWA-Ar on D1–5 & D10	10 days	No difference between the groups in the mean CIWA score	Single blind design Participants were aware of the type of medication received	No side effects by either group

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Lyon <i>et al.</i> (2011)	Inpatient, R-DB-PCT, Minnesota, USA	N = 44 (Placebo = 19, Baclofen = 25) (83% men) Mean age 46.9 years (10.9) CIWA-Ar $\geq 11$	Baclofen 10 mg, 8 hourly & Symptom-triggered regime with BDZ	Placebo & Symptom-triggered regime with BDZ	CIWA-Ar BDZ requirement	3 days	No difference in the mean CIWA-Ar score High-dose BDZ requirement significantly less in the baclofen group	High attrition Completers only analysis	No serious side effects noted
Girish <i>et al.</i> (2016)	Inpatients, India Randomised open label study	N = 60 (CDZ = 30, BAC = 30) 18-65 years 100% male	Baclofen (BAC) Decreasing fixed doses regimen over 9 days Lorazepam rescue 2 mg IM up to a maximum of 10 mg/day	Chlordiazepoxide (CDZ) Decreasing fixed doses regimen over 9 days Lorazepam rescue 2 mg IM up to a maximum of 10 mg/day	Primary outcome: Withdrawal severity and need for rescue medication CIWA-Ar	9 days	No significant difference in the mean CIWA score No significant difference in the dose of rescue lorazepam required	Open label study Small sample size Questionable adequacy of BAC dose in Indian population calculated based on studies in European population None	No serious adverse events in either group
Hepple <i>et al.</i> (2019)	Indoor, Denver, USA DB-RCT	N = 101 (Baclofen = 50, Placebo = 52) 21-99 years Mean age 50 years (79% male)	BAC 10 mg TID for 5 days and symptom-driven benzodiazepine	Placebo TID for 5 days and symptom-driven benzodiazepine	Primary outcome: percentage of patients progressing to moderate or severe AWS Secondary outcomes: difference in mean SEWS scores at 24, 48, 72 h after enrollment and peak and total inpatient dosages of symptom-trigger BZD therapy during 72 h	5 days	No significant difference in any of the outcomes		No significant difference between the groups
Gulati <i>et al.</i> (2019)	Inpatients, India Randomised open label study	N = 66 (baclofen = 34, LZM = 32) 18-65 years 100% male	Baclofen ( $n = 34$ ) 10 mg TID Additional zolpidem 10 mg/day as a hypnotic	LZM ( $n = 32$ ) 8-12 mg/day in divided doses	SADQ CIWA-Ar	8 days (detoxification complete in both groups)	Comparable decrease in CIWA-Ar scores in both groups	open label study	No serious adverse events in either group

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Acamprosate Gual and Leher (2001)	Both inpatients and out-patients in 11 centres in Spain Prospective randomised double blind parallel comparison study	N = 296 (Acamprosate = 148, Placebo = 148) 288 analysed 18–65 years 79% male	Acamprosate (ACM) 333 mg × 2 TID for 180 days Add on tetrabamate or CLO & Chlor-diazepoxide or clorazepate	Placebo Add on tetrabamate or CLO & Chlor-diazepoxide or clorazepate	CIWA-Ar	7 days	No difference in severity of withdrawal symptoms	Unexplained differential attrition rate Less frequent CIWA-Ar scoring during the first week	Similar overall incidence of adverse effects More frequent GI adverse event trend in ACM group
Kampman <i>et al.</i> (2009)	Outpatient, R-DB-PCT University of Pennsylvania Philadelphia, USA	Detoxification phase (DP): N = 40 (Acamprosate = 21, Placebo = 19) 18–70 years Mean age 48 years (82% men)	Acamprosate 1998 mg/dX5D (max.14 days) Insufficient treatment: OXZ SOS (both groups)	Matching placebo tablets	primary outcome: Completion rate secondary outcomes: prescribed OXZ and CIWA-Ar	5–14 days	No difference between the groups in any outcome measures	Small sample size Recruitment of patients with mild withdrawal	No serious side effects noted No significant differences in adverse events between two groups
Clonidine/lofexidine Baumgartner and Rowen (1991)	Inpatient, Canada	N = 50 (Transdermal clonidine = 25, Clordiazepoxide = 25) Age 18–65 years 100% male	Transdermal clonidine	Chlordiazepoxide	Alcohol withdrawal assessment scale (AWAS) Hamilton Anxiety Rating Scale (HARS) Self-rating scale of symptom scale Cognitive capacity screening exam (CCSE)	4 days	Clonidine was better than benzodiazepine in the first 40 h, followed by no difference between the groups	Fixed dose regime Results applicable to only those experiencing mild to moderate level of withdrawal symptoms	Not significant

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Adinoff (1994)	Inpatients, USA	N = 25 Excl cr—history of seizures (Diazepam = 6, Clonidine = 7, Alprazolam = 6, Placebo = 6) Mean age 43.4 years 100% male	clonidine (CLN) 0.1 mg diazepam (DZM) 10 mg alprazolam (AZM) 1 mg Hourly dosing up to a max. of 8 h until withdrawal symptoms abated	Placebo (P) Hourly dosing up to a max of 8 h until withdrawal symptoms abated	CIWA-Ar HAM-A ZSRDS SSAI	Max of 8 h or until withdrawal symptoms abated	AZM significantly more effective than CLN and P CLN is not more effective than P DZM more effective than CLN or P in some measures	Small sample size Lower CIWA-Ar scores in DZM group	No adverse events reported
Keaney <i>et al.</i> (2001)	Indoor, London, UK	N = 80 (Adjunctive placebo = 40, Adjunctive Lofexidine = 40)	Chlordiazepoxide+ lofexidine 1.2 mg Lofexidine on the evening of admission 1.2 mg twice a day for 5 days	Chlordiazepoxide+ placebo tablets Dummy placebo tablets in the same schedule as lofexidine	SADQ, APQ, AWS, CIWA-Ar STAI	6 days	Similar dose of chlordiazepoxide, between the groups AWS scores similar CIWA-Ar scores significantly more severe for lofexidine group		lofexidine group: syncope, attack (D2) Placebo: Seizure (D6), Type 2DM; uncontrolled hyperglycemia transferred to medical ward
Pregabalin Martimotti <i>et al.</i> 2010	Outpatient, Multicenter, randomized, single-blind comparison trial Rome, Italy	N = 111 (Pregabalin = 37, Lorazepam = 37, Placebo = 37) 18–75 years (67% male)	3 intervention arms: Up to the maximum doses, Pregabalin 450 mg/day; Tiapride 800 mg/day; Lorazepam 10 mg/day	No placebo control group	CIWA-Ar; OCDS; Visual Analogue Scale for Craving (VASc); Symptom Check-List 90 Revised (SCL-90-R)	14 days	Significant higher reduction for pregabalin group in CIWA-Ar headache and orientation Significant reduction on OCDS, VAS, SCL-90-R, QL-index in all groups	No placebo Single-blind design High number of statistical comparisons	No clinically relevant differences between groups in the mean change from baseline for any vital signs, haematology or clinical chemistry parameters.

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Förg <i>et al.</i> 2012	Indoor, DBPCT, Germany	N = 42 (Placebo = 20, Pregabalin = 20) 18–65 years 71% male	Fixed dose schedule Pregabalin 300 mg/d X 6 days Diazepam rescue	Placebo Diazepam rescue	Total amount of diazepam required from Day 2 to 6 CIWA-Ar AWS	6 days	No significant difference in total amount of additional diazepam required	Not mentioned	No significant difference in adverse events
<b>Other medications</b>									
Worner 1994	Inpatients, USA DB-RCT	N = 37 (Propranolol = 19, Diazepam = 18) Age 24–68 years 100% males	Propranolol 20 mg 4 hourly assessment and dosage until no objective withdrawal sign present, then assessments in increasing time gaps—8 hourly and 12 hourly Day 1 cyamemazine 50 mg capsule at hourly intervals to reduce CIWA-Ar $\frac{1}{4}$ –5, up to a maximum of eight administrations. D2 onwards-twice a day in progressively decreasing doses during a maximum period of 13 days	Diazepam 10 mg 4 hourly assessment and dosage until no objective withdrawal sign present, then assessments in increasing time gaps—8 hourly and 12 hourly Day 1 diazepam 10 mg capsule, at hourly intervals to reduce CIWA-Ar $\frac{1}{4}$ –5, up to a maximum of eight administrations. D2 onwards-twice a day in progressively decreasing doses during a maximum period of 13 days	Inpatient clinical evaluation selected severity assessment score	5–7 days	Both groups showed improvements in pulse, BP, withdrawal tremor	Small sample size	Propranolol group—DBP of 140 mmHg in 1 patient, delirium in 1 patient, Withdrawal seizure in 1 patient
Favre <i>et al.</i> 2005	France DB-RCT	N = 89 (Cyamemazine = 45, Diazepam = 44) Mean age 42.8 years (84% male)	Day 1 mg capsule at hourly intervals to reduce CIWA-Ar $\frac{1}{4}$ –5, up to a maximum of eight administrations. D2 onwards-twice a day in progressively decreasing doses during a maximum period of 13 days	Day 1 diazepam 10 mg capsule, at hourly intervals to reduce CIWA-Ar $\frac{1}{4}$ –5, up to a maximum of eight administrations. D2 onwards-twice a day in progressively decreasing doses during a maximum period of 13 days	primary outcome: CIWA-Ar < 5 Secondary outcomes: other anxiety parameters	daily for 13 days	No difference between groups	No mention about randomization process and allocation concealment	

Continued

Table 2. Continue

Author (year)	Setting & design	Participants	Intervention	Control	Outcome assessment	Time to outcome	Results	Major RoB (as mentioned by authors)	Side effects
Huang <i>et al.</i> (2014)	Inpatients, Taiwan Randomised double blind, placebo-controlled study Included CIWA-Ar score 10 or greater	N = 42 40 completed (DXM = 18, Placebo = 22) Mean age 40 years 87% male	Dextromethorphan 360 mg/d in four divided doses Concurrent Lorazepam 2 mg with first dose and thereafter additional 1 mg (rescue medication) as per symptom-triggered regimen	Placebo Concurrent Lorazepam 2 mg with first dose and thereafter 1 mg (rescue medication) as per symptom-triggered regimen	CIWA-Ar OCDS	7 days	High-dose DXM was not more efficacious than placebo in reducing the need for lorazepam for managing AWS Comparable progression of craving or withdrawal severity	Small sample size	No serious adverse events in DXM group
Banger <i>et al.</i> (1992)	Inpatients, Germany Randomised placebo-controlled trial	N = 32 28 analysed Nimodipine = 13, Clomethiazole = 15 18–60 years 100% male	Nimodipine 60 mg every 6 h Clomethiazole (CLO) rescue medication	Placebo CLO rescue medication	MAWS NAWS	3 days (phase of intense supervision next 7 days (reduction phase))	Similar amounts of CLO needed in both groups Nimodipine not superior to placebo	Included only patients in mild alcohol withdrawal	No severe side effects noted

GBP = Gabapentin; DZM = Diazepam; CLO = Clomethiazole; AZM = Alprazolam; LZM = Lorazepam; DXM = Dexamethasone; PHB = Phenobarbital; TIA = Tiapride; OXC = Oxcarbazepine; CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised; SADQ = Severity of Alcohol Dependence Questionnaire; APQ = Alcohol Problem Questionnaire; ADS = Alcohol Dependence Scale; TLFB = Timeline Follow Back; CGI = Clinical Global Impression; ASI = Alcohol Severity Index; VCS = Visual Craving Scale; OCDS = Obsessive Compulsive Drinking Scale; VSS = Visual Success Scale; SIP = Short Index of Problems; HAM-A = Hamilton Anxiety Rating Scale; BDI = Beck Depression Inventory; AUDIT = Alcohol Use Disorders Identification Test; LARS = Luebeck Alcohol Withdrawal Risk Scale; SCAN = Schedules for Clinical Assessment in Neuropsychiatry; CIDI = Composite International Diagnostic Interview; GAS = Global Assessment Scale; RDS = Rosenthal Dysphoria Scale; POMS = Profile of Mood States; ACC = Alcohol Craving Scale; BDHI = Buss-Durkee Hostility Index; VASC = Visual Analogue Scale for Craving; VASE = Visual Analogue Scale for Withdrawal; SCL-90-R = Symptom Check-List 90 Revised; ZSRDS = Zung Self-Rating Depression Scale; SSAI = Spielberger State Anxiety Inventory; CCI = Charlson Comorbidity Index; VAS = Visual Analogue Scale; SPS = Sleep Problems Scale; NAWs = Nurse Alcohol Withdrawal Scale; GAF = Global Assessment of Functioning Scale.



**Outcome assessment and time to outcome** By design, we included studies, which had mentioned either of these outcomes: (a) reduction in the severity of withdrawal symptoms; (b) comparison of the additional doses of benzodiazepines/barbiturates required (in studies, which had used rescue medications). Clinical Institute Withdrawal Assessment for alcohol revised (CIWA-Ar) was the most commonly used instrument for assessing the severity of the withdrawal symptoms. All other scales used are listed in Table 2. The time to outcome ranged from 5 to 14 days; the modal time was 7 days.

**Results** Gabapentin showed superiority over lorazepam in two out of four randomized trials (Malcolm *et al.*, 2007; Myrick *et al.*, 2009), and equivalent to barbiturates and chlordiazepoxide in two other trials (Mariani *et al.*, 2006; Stock *et al.*, 2013). The trials with placebo showed equivocal results with one trial showing significantly more improvement in the gabapentin group (Bonnet *et al.*, 2007), whereas the other showed no difference between the groups (Bonnet *et al.*, 2003). Among the four trials on carbamazepine, three showed no significant difference of efficacy with either lorazepam or oxazepam (Stuppaeck *et al.*, 1992; Malcolm *et al.*, 2002; Schik *et al.*, 2005); one showed carbamazepine was more effective than oxazepam only on day 6 of the treatment (Gallant, 1992). In another open-label trial carbamazepine was used in combination with tiapride and the study did not reveal any significant difference in the efficacy of this combination and diazepam/clomethiazole (Longo *et al.*, 2002). The efficacy of baclofen was compared with the placebo in two randomized trials and results between the groups did not differ significantly (Lyon *et al.*, 2011; Heppel *et al.*, 2019). However, in both these trials, the symptom-triggered regime of benzodiazepines was added. In three other trials, baclofen and benzodiazepines did not show any significant difference in efficacy (Addolorato *et al.*, 2006; Girish *et al.*, 2016; Gulati *et al.*, 2019). The two trials comparing Divalproex and benzodiazepines did not show a significant difference in efficacy (Myrick *et al.*, 2000; Longo *et al.*, 2002). But compared to placebo, the Divalproex group required a significantly lesser dose of rescue oxazepam (Reoux *et al.*, 2001). Acamprosate did not show any significant difference with the placebo in two randomized trials (Gual and Lehert, 2001; Kampman *et al.*, 2009). One trial with clonidine (transdermal) showed significantly better efficacy than chlordiazepoxide but the other showed clonidine was less efficacious than alprazolam (Baumgartner and Rowen, 1991; Adinoff, 1994). The combination of lofexidine and chlordiazepoxide was not better than chlordiazepoxide and placebo (Keaney *et al.*, 2001). The two trials with pregabalin showed different results: the study by Förg *et al.* (2012) did not show any difference in efficacy between pregabalin and placebo, whereas, Martinotti *et al.* (2010) revealed significantly better efficacy in the pregabalin group, compared to tiapride and lorazepam. The levetiracetam group did not differ from placebo, but zonisamide showed a significantly higher rate of reduction of withdrawal symptoms compared to diazepam (Richter *et al.*, 2010; Rubio *et al.*, 2010). Other medications tested were: propranolol (Worner, 1994), cyamemazine (Favre *et al.*, 2005), dextromethorphan (Huang *et al.*, 2014), and nimodipine (Banger *et al.*, 1992). Propranolol and cyamemazine did not reveal any significant difference in efficacy compared to diazepam (Worner, 1994; Favre *et al.*, 2005). The efficacy of dextromethorphan and nimodipine did not differ from the placebo (Banger *et al.*, 1992; Huang *et al.*, 2014).

**Side effects** Low-dose gabapentin group showed possibly higher rates of discontinuation, withdrawal seizures and syncopal events (Malcolm *et al.*, 2007; Myrick *et al.*, 2009). However, high-dose gabapentin did not differ significantly from chlordiazepoxide or placebo (Bonnet *et al.*, 2007; Stock *et al.*, 2013). Carbamazepine group reported the following side effects: vomiting, pruritus, ataxia and worsening of withdrawal symptoms (e.g. emergence of delirium). Nevertheless, the frequency of adverse events reported was comparable to benzodiazepines in two other studies (Stuppaeck *et al.*, 1992; Malcolm *et al.*, 2002). Except somnolence, Divalproex showed no significant difference with placebo (Myrick *et al.*, 2000; Reoux *et al.*, 2001). Baclofen (Addolorato *et al.*, 2006; Lyon *et al.*, 2011; Girish *et al.*, 2016; Gulati *et al.*, 2019; Heppel *et al.*, 2019), acamprosate (Gual and Lehert, 2001; Kampman *et al.*, 2009), clonidine (Baumgartner and Rowen, 1991; Adinoff, 1994; Keaney *et al.*, 2001) and pregabalin (Mariani *et al.*, 2006; Bonnet *et al.*, 2007; Malcolm *et al.*, 2007; Myrick *et al.*, 2009; Stock *et al.*, 2013) did not show significant difference with placebo or benzodiazepines in the frequency of adverse events. Treatment with levetiracetam and zonisamide reported worsening of withdrawal symptoms (e.g. delirium), exanthema, anorexia and weight loss (Richter *et al.*, 2010; Rubio *et al.*, 2010). Propranolol groups experienced serious adverse events: a sudden increase in blood pressure, seizure, and delirium tremens (Worner, 1994).

#### RoB assessment

The number of studies with high, uncertain and low risks was 13, 18 and 5, respectively. The following were the domain-specific observations.

The randomization process-most of the studies did not mention the process of randomization. Some of the studies used predictable, haphazard, systematic methods like sequential allocation as per record numbers, etc. Only some studies used computer-generated random sequences, random number tables and permuted block randomization (Keaney *et al.*, 2001; Malcolm *et al.*, 2002; Krupitsky *et al.*, 2007; Croissant *et al.*, 2009; Heppel *et al.*, 2019).

Deviations from intended intervention-all studies have low risk in this domain.

Missing outcome data-some studies had high attrition rates contributing to bias (Baumgartner and Rowen, 1991; Banger *et al.*, 1992; Keaney *et al.*, 2001; Malcolm *et al.*, 2007; Myrick *et al.*, 2009).

Measurement of outcome-all studies has low risk in this domain.

Selection of the reported result-All studies except Gallant *et al.* has a low risk (Gallant 1992). The domain-wise and overall RoB for individual studies is reflected in Fig. 2.

**Evidence summary** The evidence summary was based on the qualitative assessment of the studies and the RoB assessment. The summary table (Table 3) was produced by the GRADE proGDT software. Two of the authors (AG and TM) together produced the summary of evidence. The outcome for all studies was a reduction in the severity of AWS, assessed by various structured instruments and dose requirements for additional benzodiazepines. We included medications, for which at least two randomized trials were available. Six non-benzodiazepine, non-barbiturate medications made it to the list-gabapentin, carbamazepine, baclofen, valproate, acamprosate and

INDIVIDUAL STUDY	Randomization process	Deviations from intended intervention	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
<i>Banger et al., 1992</i>	Yellow	Green	Red	Green	Green	Red
<i>Bonnet et al., 2003</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Gual et al. 2001</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Addolorato et al., 2006</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Baumgartner et al., 1991</i>	Yellow	Green	Red	Green	Green	Red
<i>Favre et al., 2005</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Forg et al., 2012</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Gallant, 1992</i>	Green	Green	Red	Green	Yellow	Red
<i>Heppe et al., 2018</i>	Green	Green	Green	Green	Green	Green
<i>Keaney et al., 2001</i>	Green	Green	Red	Green	Green	Red
<i>Longo et al., 2002</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Malcom et al., 2002</i>	Green	Green	Green	Green	Green	Green
<i>Malcom et al., 2007</i>	Yellow	Green	Red	Green	Green	Red
<i>Myric et al., 2009</i>	Yellow	Green	Red	Green	Green	Red
<i>Richter et al., 2010</i>	Yellow	Green	Red	Green	Green	Red
<i>Croissant et al., 2009</i>	Green	Green	Green	Green	Green	Green
<i>Adinoff et al., 1994</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Huang et al., 2014</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Mariani et al., 2006</i>	Yellow	Green	Red	Green	Green	Red
<i>Lucht et al., 2003</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Bonnet et al., 2007</i>	Yellow	Green	Red	Green	Green	Red
<i>Girish et al., 2016</i>	Green	Green	Green	Green	Green	Green
<i>Gulati et al., 2019</i>	Green	Green	Green	Green	Green	Green
<i>Kampman et al., 2009</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Krupitsky et al., 2007</i>	Green	Green	Green	Green	Green	Green
<i>Lyon et al., 2011</i>	Yellow	Green	Red	Green	Green	Red
<i>Martinotti et al., 2010</i>	Yellow	Green	Green	Green	Red	Red
<i>Myrick et al., 2000</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Reoux et al., 2001</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Rubio et al., 2010</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Schik et al., 2005</i>	Yellow	Green	Green	Green	Green	Yellow
<i>Stock et al., 2013</i>	Yellow	Green	Red	Green	Green	Red
<i>Stuppaeck et al., 1992</i>	Yellow	Green	Red	Green	Green	Red
<i>Worner et al., 1994</i>	Yellow	Green	Green	Green	Green	Yellow

Keys:




	Low risk of bias
	Some concern regarding bias
	High risk of bias

Fig. 2 Risk of bias.

**Table 3.** Grade evidence summary

GRADE evidence summary						
Certainty assessment						
Participants (studies) follow-up	RoB	Inconsistency	Indirectness	Imprecision	Publication bias/dose–response gradient/others	Overall certainty of evidence
Gabapentin compared to Benzodiazepine/barbiturate for alcohol withdrawal (4 RCTs)	Serious <sup>a</sup>	Not serious	Not serious	Serious <sup>b</sup>	Dose response gradient	⊕⊕⊕○ MODERATE
Gabapentin compared to Placebo for alcohol withdrawal (2 RCTs)	very serious <sup>c</sup>	serious <sup>d</sup>	serious <sup>e</sup>	very serious <sup>f</sup>	None	⊕○○○ VERY LOW
Carbamazepine compared to Benzodiazepine/barbiturate (5 RCTs)	Very serious <sup>g</sup>	Not serious	Not serious	Not serious	None	⊕⊕○○ LOW
Baclofen compared to Benzodiazepine/barbiturate for alcohol withdrawal (3 RCTs)	Serious <sup>h</sup>	Not serious	Not serious	Serious <sup>i</sup>	None	⊕⊕○○ LOW
Baclofen compared to Placebo for Alcohol withdrawal (2 RCTs)	Very serious <sup>j</sup>	Not serious	Serious <sup>k</sup>	Very serious <sup>l</sup>	None	⊕○○○ VERY LOW
Valproate compared to Benzodiazepine for alcohol withdrawal (2 RCTs)	Serious <sup>m</sup>	Not serious	Not serious	Serious <sup>n</sup>	None	⊕⊕○○ LOW
Acamprosate (with benzodiazepine/barbiturate) compared to Placebo (with benzodiazepine/barbiturate) for alcohol withdrawal (2 RCTs)	Serious <sup>o</sup>	Very serious <sup>p</sup>	Serious	Serious	None	⊕○○○ VERY LOW
Clonidine/lofexidine compared to benzodiazepine for alcohol withdrawal (3 RCTs)	Very serious <sup>q</sup>	Serious <sup>r</sup>	Not serious	Serious	None	⊕○○○ VERY LOW

<sup>a</sup>One study had a low RoB, two high-risk and one uncertain (moderate) risk.

<sup>b</sup>Small sample size; effect sizes were small and not mentioned.

<sup>c</sup>One high-risk and the other uncertain (moderate) risk.

<sup>d</sup>Bonnet (2007) and (2003) reported different outcome measures; high heterogeneity between studies as reflected from the PICO.

<sup>e</sup>Bonnet (2007) measures mood as the primary outcome; Bonnet *et al.* (2003) measured the additional dose requirement of Clo as the primary outcome.

<sup>f</sup>Small sample sizes; power calculation not done.

<sup>g</sup>Three studies with a high RoB and one with moderate risk. There was one study with a low RoB.

<sup>h</sup>3/4 studies had an uncertain (moderate) RoB.

<sup>i</sup>Small sample size.

<sup>j</sup>Randomization process with moderate risk and high RoB due to missing outcome data.

<sup>k</sup>One of the studies compared 'high dose requirement' of benzodiazepines.

<sup>l</sup>Inadequately powered.

<sup>m</sup>Longo (2002) and Myrick *et al.* (2000) had moderate and high RoB, respectively.

<sup>n</sup>Inadequately powered.

<sup>o</sup>Both studies had moderate risk.

<sup>p</sup>The study by Kampman *et al.* (2009) measured detoxification completion as primary outcome and Gual did not report any withdrawal-related outcomes in the objectives; high heterogeneity between the studies.

<sup>q</sup>2/3 studies had high RoB.

<sup>r</sup>2/3 studies showed benzodiazepine was more effective than clonidine or lofexidine but one study showed clonidine was better than benzodiazepine in the first 40 h, followed by no difference between the groups; high heterogeneity between the three studies.

clonidine/lofexidine. Among these treatment options, gabapentin was shown to have a 'moderate' level of evidence against standard benzodiazepine treatments to reduce the severity of AWS. A higher dose of gabapentin, i.e. 1200 mg/day for the first 3 days, might be more effective than the lower dose (600 mg/day). The level of certainty was 'low' for carbamazepine, baclofen and valproate. The certainty was 'very low' for acamprosate and clonidine/lofexidine. The GRADE summary of the evidence table (Table 3) gives a detailed description of each domain and explanation, wherever applicable. Apart from these six medications, anticonvulsants, oxcarbazepine, zonisamide and levetiracetam, propranolol and pregabalin were also tried and compared with either placebo or benzodiazepines. However, a single randomized trial with high heterogeneity and moderate to high-risk

bias precluded drawing any inference on the level of evidence for these medications.

Overall, our review indicated the role of gabapentin as the first alternative treatment of choice for patients with moderate to severe alcohol withdrawal, where the prescription of benzodiazepines are either fraught with clinical concerns or legal barriers. Compared to benzodiazepines, gabapentin had a 'moderate level' of evidence for a similar or better reduction in the severity of AWS and the need for rescue medications.

A point that we reiterate is that benzodiazepines remain the first line of treatment for alcohol withdrawal, and the role of alternative medications could be considered during the specific circumstances of telemedicine practice.

## DISCUSSION

To the best of our knowledge, this is the first systematic review and qualitative synthesis of the effectiveness of non-benzodiazepine, non-barbiturate medications for the treatment of uncomplicated moderate to severe AWS. The review assumed significance in the present context and possible future expansion of telemedicine practices, which has raised important clinical and legal concerns for the use of high-dose benzodiazepines (or barbiturates) in individuals with comorbid substance use disorders. However, the scope of this review could be extended to all ambulatory outpatients with AUDs. The review was conducted within four weeks to provide a rapid but methodologically robust synopsis of the available information to the potential users from internists to psychiatrists. To improve the rigor, reproducibility and credibility of the review, we used standard software for the RoB assessment and evidence summary. The possibility of subjective bias in the interpretation of the level of evidence was also minimized by the involvement of more than one author in the quality and grading of evidence.

### Limitations

Firstly, although we carried out a systematic search of PubMed and Cochrane database searching through other databases (such as EMBASE, PsychInfo) and trial registries were not done due to time and resource constraints. We also limited our search to English language literature. Secondly, by design, we did not conduct a quantitative analysis. Hence, the magnitude of the effect could not be commented upon. Nevertheless, the direction and level of evidence were apparent from the review. Thirdly, the confidence in the inference drawn from this review was tampered by the fact that more than one-third of the included studies had a high RoB, and almost half had uncertain (or moderate risk). Finally, although this review did not impose any restrictions on co-morbidities (either mental or physical), the clinical trials excluded patients with comorbidities. Therefore, the results of this review should not be generalized to the population with concurrent medical and psychiatric disorders.

### Implications for clinicians, patients and policymakers

This review informs clinicians about the evidence profile of non-benzodiazepine (non-barbiturate) medications for the treatment of moderate to severe uncomplicated alcohol withdrawal. They might like to use this evidence to address the clinical concerns and legal challenges of using high-dose benzodiazepines either for ambulatory outpatients or through the telemedicine platform. The grading of evidence should aid in decision making. We recognize the variability of clinical practice across countries and settings. Co-prescriptions of non-benzodiazepines or (and) anti-epileptics are already practiced by some clinicians. Our review and grading of evidence could at least inform: (a) the alternative(s) which is (are) most or least likely to produce a positive response, (b) the safety and risk profile of these medications, (c) the possible dose and duration of treatment and (d) the protocol of monitoring. In sum, using evidence-based medicine should minimize the variability of practice and produce a better clinical effect. Besides the routine outpatient care, clinicians treating moderate to severe alcohol withdrawal in patients with moderate to severe COVID-19 might also be benefited from this review of alternatives to benzodiazepines or barbiturates, which are potential respiratory depressants.

There were a few reports of worsening of withdrawal symptoms with low-dose gabapentin and carbamazepine (Gallant, 1992;

Schik *et al.*, 2005; Malcolm *et al.*, 2007). Therefore, clinicians using treatment alternatives to benzodiazepines should also be careful. Patients and families must be informed about the potential risk and the warning signs (e.g. confusional states, increased tremors, anxiety and agitation). Gabapentin has joined the list of drugs of misuse and like benzodiazepines has 'street value' in some communities (Chiappini and Schifano, 2016) as well as being linked to overdose deaths, making it legally a controlled drug in some countries (Mayor, 2018; Chick, 2019). Our review provides alternative options from which one can make a choice. The treatment planners and policymakers might like to work on this evidence further and help generate an algorithm for the treatment of alcohol withdrawal.

### Further research

A quantitative meta-analysis should be carried out in the future to determine the magnitude of the effect of these treatment alternatives for alcohol withdrawal. An evidence map could also be attempted to aid in the decision making of the clinicians and treatment planners. The researchers may conduct more rigorous randomized trials with low RoB to improve upon the quality of existing evidence. Finally, the context of this rapid systematic review was the fast expansion of telemedicine practice. Future studies should look into the evidence base for non-benzodiazepine medications through telemedicine.

## SUPPLEMENTARY MATERIAL

Supplementary material is available at *Alcohol and Alcoholism* online.

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**Review article**

**Impact of COVID-19 on Mental Health of Children & Adolescents:**

**A Bibliometric Assessment of Global Publications**

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**Abstract**

This study aims to evaluate the global research focusing on the mental health of Children & adolescents during the COVID-19 pandemic by using bibliometry. The bibliometric parameters considered for this study include the country of origin of the publications, organizations of the authors, keywords of the research focusing on the issue, and the citations received by these publications. Scopus database was used to search for the publications on “Impact of COVID-19 on Mental Health of Children and Adolescents” by using different key words, published upto 1<sup>st</sup> of May 2021. The Scopus search engine yielded 1797 publications related to the impact of COVID-19 on the Mental Health of Children & Adolescents. It was seen that researchers from top 10 most countries contributed to the 95.55% share of international publications output, with researchers from the United States, China, and United Kingdom accounting for 28.05%, 13.97%, and 13.69% of the global publication share. The most common keywords, in terms of focus of research included mental health, followed by anxiety and depression. The top 10 Universities and authors were from the high-income countries with highest representation from the United States. To conclude, this bibliographic analysis suggests that over a short span of time 1797 publications have emerged on the

impact of COVID-19 pandemic on the mental health aspects of the children and adolescents, with majority of the publications emerging from high income countries.

**Keywords:** COVID-19, Pandemic, Children, Adolescents

## **Introduction**

The COVID-19 pandemic has emerged as one of an immense human tragedy in recent times. It has affected persons of all age groups, including children and adolescents [1, 2]. The pandemic has also led to the closure of the schools and colleges, restriction in the movement of people from one place to the other due to lockdown, and following the COVID appropriate behaviour to prevent the spread of infection.

Children and Adolescents have been affected by the pandemic in a big way. The closure of schools and colleges has led to poor peer interaction, and the shifting of education to online mode has affected their learning skills. Further, these children and adolescents have become home-bound and have been exposed to excessive screen media. Children with special needs and mental illnesses have also been suffering a great deal because of the shutting down of the treatment facilities and rehabilitation services. Children who did not have any mental health problems before the pandemic have also been affected by the pandemic and have been reported to suffer from significant psychological distress [1, 3-5].

Various authors worldwide have tried to evaluate children and adolescents' mental health issues during the ongoing pandemic. However, little is understood about the research output and the directions. Bibliometric analysis is a novel and scientific way of visualizing the information emerging worldwide on a topic. It evaluates the knowledge structure, development, and trends within a topic both quantitatively and qualitatively.



A few bibliometric/scientometric studies have looked at the publications on the mental health impact of the COVID-19 pandemic in general, with none focusing on children and adolescents. In a study, the authors evaluated 277 publications on “COVID-19 pandemic and mental health”. They compared the publication output with the publications emerging from West Africa Ebola and H1N1 Outbreaks published up to 26th Aug 2020. Compared to the Ebola and H1N1 pandemics (127 and 327 records), a much greater number of publications related to the COVID-19 (n = 3070) pandemic were published [6]. In a study, authors evaluated the publications related to mental health aspects of COVID-19, published up to July 2020. They assessed the top-cited publications, productive countries, institutions, journals, authorship, and collaboration, the most frequent keywords, and the funding bodies [7]. Another study evaluated the global research output (n=1690 publications) on mental health research during the COVID-19 pandemic published from 1<sup>st</sup> January to 5<sup>th</sup> Nov 2020. In this paper, the authors looked at the most productive countries, organizations, authors, and journals [8]. A recent study evaluated the global research publications on COVID-19 and mental health, published since the onset of the pandemic to up to 21st Mar 2021. The authors reported 15223 publications, emerging from 158 countries, with an average of 8.9 citations per paper and 13.77% publications arising from the funded projects. The majority of the publications emerged from United States, United Kingdom, and China. In terms of Universities/Institutions, the highest number of publications emerged from Harvard Medical School, United States, followed by the University of Toronto, Canada, and King's College, London, United Kingdom. In terms of citations and relative citation index, the maximum number of citations were for the authors from the National University of Singapore (51.84 and 5.83), King's College, London, United Kingdom (27.23 and 3.06), and Huazhong University of Science & Technology, China (23.65 and 2.66) [9]. However, no bibliometric study has specifically focused on the publications on the mental health of Children &

adolescents during the COVID-19 pandemic. Accordingly, this study aims to evaluate the global research focusing on the mental health of Children & adolescents during the COVID-19 pandemic by using bibliometry. The Bibliometric parameters considered for this study include the country of origin of the publications, organizations of the authors, keywords of the research focusing on the issue, and the citations received by these publications.

## **Methods**

For studying the global literature on “Impact of COVID-19 on Mental Health of Children & Adolescents”, we retrieved and downloaded global publications data from the Scopus database (<http://www.scopus.com>) on 1.5.2021 using a well-defined strategy, where a set of three types of keywords related to “COVID-19”, “Mental Health” and “Children or Adolescents” were used in “Keyword tag” and in “Article Title tag” (joined by Boolean operator “OR”) to get global publication output (consisting of 1797 records). The search strategy developed was further refined by the country of publication (including India) to evaluate the output data on publications from the top 10 countries. The search strategy for obtaining global output in this area was further refined to get statistics on global output by subject, collaborating country, organization, author, and journal. Citations to publications were counted from the date of their publication till 1.5.2021. The keywords (the keywords were put in the searches for the title and keywords) used for carrying out the searches included COVID 19, 2019 novel coronavirus, coronavirus 2019, coronavirus disease 2019, 2019-novel CoV, 2019 ncov, Severe acute respiratory syndrome coronavirus 2, SARS-CoV-2, adolescents, children, and child.

## **Results**

### **Total Number of Publications**

The Scopus search engine yielded 1797 publications related to the impact of COVID-19 on the Mental Health of Children & Adolescents published during the years 2020 -2021. Of the

total publications, majority (n=1369; 76.18%) appeared as articles; 8.07% (n=145) appeared as letters, 6.84% (n=123) were published as reviews, 4.62% (n=83) were published as notes, 3.67% (n=66) were published as editorials and other type of publications formed <1% of the total publications. These publications received an average of 11.07 citations per paper (CPP). About one-fourth of the publications (n=425; 23.65%) were based on funded research by national and international funding agencies, and these publications, on average, had 13.3 CPP. The major funding agencies providing support to global research in this area were the United States Department of Health & Human Service (97 publications), National Institute of Health, United States (93 articles), United Kingdom Research & Innovation (27 articles), National Institute of Mental Health (26 publications), European Commission (22 papers), Wellcome Trust (20 articles), and Canadian Institute of Health Research (18 articles).

### **3.2. Top Ten Most Productive Countries**

Overall, the research emerged from 118 countries, with 1-10 papers published by researchers from 74 countries, 11-50 articles published by researchers from 33 countries, and researchers from 5 countries publishing 51-100 papers. The researchers from only six countries published more than 100 papers, with a maximum of 504 articles emerging from the United States. Of the global research output in the field, the researchers from the top 10 most productive countries contributed to the 95.55% share of publications, with researchers from the United States, China, and United Kingdom accounting for 28.05%, 13.97%, and 13.69% of the total publication share. Research from four countries registered relative citation index above their global average. The percentage of international collaborative papers for the top 10 countries varied from 21.3 to 58.68%, with an average value of 45.47% (Table 1).

**Table 1: Profile of Top 10 Countries on “Impact of COVID-19 on Mental Health on Children & Adolescents”**

S.No	Name of Country	TP	TC	CPP	%TP	HI	ICP	%ICP	RCI
1	USA	504	5923	11.75	28.05	34	190	37.70	1.06
2	China	251	7775	30.98	13.97	34	99	39.44	2.80
3	The U.K.	246	2374	9.65	13.69	23	142	57.72	0.87
4	Italy	150	2504	16.69	8.35	20	61	40.67	1.51
5	Canada	121	2104	17.39	6.73	18	71	58.68	1.57
6	India	108	457	4.23	6.01	13	23	21.30	0.38
7	Australia	96	727	7.57	5.34	12	59	61.46	0.68
8	Germany	92	1159	12.60	5.12	14	49	53.26	1.14
9	Spain	91	842	9.25	5.06	13	46	50.55	0.84
10	France	58	896	15.45	3.23	15	39	67.24	1.40
Total publications from top 10 countries		1717	24761	14.42	95.55	19.6	779	45.37	1.30
World		1797	19893	11.07					

TP=Total Papers; TC=Total Citations; CPP=Citations Per Paper; ICP=International Collaborative Papers; HI: H Index; RCI: Relative Citation Index

### **Collaboration among Top 10 countries**

All the top 10 countries had one or more collaborative linkages. The countries with most collaborative linkages (262, 223 and 135) were United States, United Kingdom and China. The research collaboration at country-country level was the highest between United States and United Kingdom (50 linkages), followed by United States and China (47 linkages), United States and Canada (41 linkages), United States and Australia (29 linkages), United Kingdom and Italy (29 linkages), United Kingdom and Germany (28 linkages), and United Kingdom and Spain (28 linkages)(Table 2).

**Table2. Collaborative linkages among top 10 countries**

S. No	Name of the Country	Number of Collaborative linkages with other 9 countries	TCL (NOC)
1	USA	2(47), 3(50), 4(21), 5(41), 6(14), 7(29), 8(19), 9(21), 10(20)	262(9)
2	China	1(47), 3(22), 4(7), 5(19), 6(6), 7(14), 8(10), 9(5), 10(5)	135 (9)
3	U.K.	1(50), 2(22), 4(29), 5(25), 6(9), 7(22), 8(19), 9(28), 10(19)	223 (9)
4	Italy	1(23), 2(7), 3(29), 5(6), 6(4), 7(7), 8(17), 9(23), 10(14)	130 (9)
5	Canada	1(41), 2(19), 3(25), 4(6), 6(4), 7(10), 8(8), 9(7), 10(8)	128 (9)
6	India	1(14), 2(6), 3(9), 4(4), 5(4), 7(5), 8(7), 9(5), 10(4)	58 (98)
7	Australia	1(29), 2(14), 3(22), 4(7), 5(10), 6(5), 8(10), 9(6), 10(7)	110 (9)
8	Germany	1(19), 2(5), 3(28), 4(23), 5(7), 6(5), 7(6), 9(7), 10(11)	111 (9)
9	Spain	1(21), 2(5), 3(28), 4(23), 5(7), 6(5), 7(6), 8(7), 10(14)	116 (9)
10	France	1(20), 2(5), 3(19), 4(14), 5(8), 6(4), 7(7), 8(11), 9(14)	104 (9)

TCL=Total Collaborative linkages; NOC=Number of countries

### Significant Keywords

Among the most common keywords, the word ‘Mental Health’, had the highest frequency (n=720) of occurrence, followed by anxiety (n=567), and depression (n=443), etc. (Table 3).

**Table 3. Most Frequent Keywords in Global Literature on “Impact of COVID-19 Mental Health of Children & Adolescents”**

S.No	Name of the Keyword	Frequency	S.No	Name of the Keyword	Frequency
1	Mental Health	720	14	Social Support	127
2	Anxiety	567	15	Mental Health Service	111
3	Depression	443	16	Fear	109
4	Quarantine	350	17	Psychological Adaptation	103
5	Mental Stress	311	18	Emotion	92
6	Psychological Stress	247	19	Posttraumatic Stress	80
7	Mental Disease	239	20	Psychological Stress	74
8	Social Isolation	186	21	Loneliness	70
9	Lockdown	156	22	Insomnia	63
10	Copying Behavior	141	23	Psychological Resilience	62
11	Social Distancing	141	24	Sleep Disorder	61
12	Distress Syndrome	138	25	Social Interaction	58
13	Psychological Wellbeing	134			

### Top 15 Most Productive Organizations

In all, 523 organizations participated in global research on “Impact of COVID-19 on Mental Health on Children & Adolescents”, of which researchers from 313 organizations published 1-5 papers each, researchers from 146 organizations published 6-10 articles each, researchers from 54 organizations published 11-20 papers each and researchers from 10 organizations published 21-40 papers each. The productivity of the top 15 most productive organizations varied from 18 to 40 publications per organization, and together they contributed to 21.09% (n=379) publications share and 32.83% (n=6530) international citations share (Table 4).

**Table 4. Top 15 Most Productive Organizations in Global Research on “Impact of COVID-19 on Mental Health of Children & Adolescents”**

S.No	Name of the Organization	TP	TC	CPP	HI	ICP	%ICP	RCI
1	Harvard Medical School, USA	40	630	15.75	8	20	50.00	1.42
2	University of Toronto, Canada	33	1075	32.58	10	14	42.42	2.94
3	University College London, U.K.	31	381	12.29	9	18	58.06	1.11
4	Huazhong University of Science & Technology, China	28	839	29.96	7	14	50.00	2.71
5	University of Melbourne, Australia	28	362	12.93	6	22	78.57	1.17
6	Tongji Medical College, China	26	1098	42.23	8	12	46.15	3.81
7	University of British Columbia, Canada	25	378	15.12	9	14	56.00	1.37
8	King’s College London, U.K.	25	382	15.28	6	12	48.00	1.38
9	Monash University, Australia	24	344	14.33	7	17	70.83	1.29
10	University of Oxford, U.K.	22	301	13.68	6	17	77.27	1.24
11	University of Sao Paulo, Brazil	21	74	3.52	5	9	42.86	0.32
12	INSERM, France	20	170	8.50	5	8	40.00	0.77
13	University of Hong Kong	19	157	8.26	4	10	52.63	0.75
14	Children’s Hospital, Boston, USA	19	68	3.58	6	8	42.11	0.32
15	Ministry of Education, China	18	271	15.06	7	7	38.89	1.36
	Total of 15 organizations	379	6530	17.23	6.87	202	53.30	1.56
	Global total	1797	19893	11.07				
	Share of top 15 organizations in global total	21.09	32.83					

TP=Total Papers; TC=Total Citations; CPP=Citations Per Paper; ICP=International Collaborative Papers; HI=H-Index; RCI=Relative Citation Index

### **Top 15 Most Productive Authors**

Eight hundred forty-two authors participated in global research on “Impact of COVID-19 on Mental Health of Children & Adolescents”, of which 837 authors published 1-5 papers each and five authors contributed to more than five papers each. The research productivity of the top 15 most productive authors varied from 4 to 7 publications per author. Together they contributed 4.45% (80) of publications share and 8.54% (1698) international citations share (Table 5).

### **Medium of Research Communication**

The 1795 papers on the topic appeared in 605 journals with 551 journals publishing 1-5 articles each, 29 journals publishing 6-10 publications each, 17 journals publishing 11-20 papers each, six journals publishing 21-50 articles, and two journals publishing more than 50 articles each. The top 15 most productive journals accounted for 31.66% and 39.11% share of global publications and citations. The maximum number of papers were published in *the International Journal of Environmental Research and Public Health*. In terms of CPP, Nutrients journal topped the list with 25.75 citations per paper, followed by the International Journal Of Environmental Research and Public Health (24.22), Psychiatry Research (20.21), and Asian Journal of Psychiatry (14.03)(Table 6).

### **High Cited Papers**

Of the total global output in “Impact of COVID-19 on Mental Health of Children & Adolescents” (1797 publications), only 38 papers (2.11% share) were cited for more than 105 times (cumulative total 9531 citations) since their publication, averaging to 250.82 citations per paper. The distribution of these 38 highly cited papers is skewed: Twenty-four papers registered citations in the range 106-197 per paper, six papers were cited for 204-284, 7 papers had citation range 337-527, and 1 paper was cited 1927 times.

**Table 5. Top 15 Most Productive Authors in “Impact of COVID 19 ON Mental Health of Children & Adolescents”**

S. No	Name of the Author	Affiliation of the Author	TP	TC	CPP	HI	ICP	%ICP	RCI
1	G.J.G.Asmundson	University of Regina, Canada	7	298	42.57	6	6	85.71	3.85
2	G.F.Lopez-Sanchez	Anglia Ruskin University, Spain	7	111	15.86	5	7	100.00	1.43
3	M.A.Tully	Anglia Ruskin University, Spain	7	111	15.86	5	7	100.00	1.43
4	D. Fancourt	University College London, U.K.	6	50	8.33	3	0	0.00	0.75
5	A.Stepto	University College London, U.K.	6	50	8.33	3	0	0.00	0.75
6	M.Czisler	Harvard Medical School, USA	5	246	49.20	3	5	100.00	4.44
7	R.Goodwin	University of Warwick, U.K.	5	7	1.40	2	5	100.00	0.13
8	M.E.Howard	Harvard Medical School, USA	5	246	49.20	3	5	100.00	4.44
9	D.C.Malta	University of Sao Paulo, Brazil	5	20	4.00	3	1	20.00	0.36
10	D.McKay	Fordham University, Canada	5	282	56.40	4	5	100.00	5.09
11	S.Patra	All India Institute of Medical Sciences, New Delhi, India	5	3	0.60	1	0	0.00	0.05
12	S.M.W.Rajaratnam	Harvard Medical School, USA	5	246	49.20	3	5	100.00	4.44
13	I.O.Azevedo	Universidade Federal de Sergipe, Brazil	4	19	4.75	3	0	0.00	0.43
14	M.Ben-Ezra	University of Warwick, U.K.	4	3	0.75	1	4	100.00	0.07
15	Z.A.Bhutto	Hospital for Sick Children of University of Toronto, Canada	4	6	1.50	1	0	0.00	0.14
	Total of top 15 authors		80	1698	21.23	3.07	50	62.50	1.92
	Global total		1797	19893	11.07				
	Share of top 15 authors in global total		4.45	8.54					

TP=Total Papers; TC=Total Citations; CPP=Citations per Paper; ICP=International Collaborative Papers; HI=H-Index; RCI=Relative Citation Index



**Table-6. Top 15 Most Productive Journals in “Impact of COVID-19 on Mental Health of Children & Adolescents”**

S.No	Name of the Journal	TP	TC	CPP
1	International Journal Of Environmental Research and Public Health	131	3173	24.22
2	PLOS One	85	1008	11.86
3	Journal of Adolescence Health	43	328	7.63
4	Journal of Affective Disorders	43	560	13.02
5	Psychiatry Research	39	788	20.21
6	Journal of Medical Internet Research	37	307	8.30
7	Asian Journal of Psychiatry	32	449	14.03
8	BMJ Open	32	96	3.00
9	Frontiers in Psychiatry	23	91	3.96
10	Nutrients	20	515	25.75
11	Psychological Trauma Theory Research & Practice	18	246	13.67
12	BMC Public Health	17	45	2.65
13	Child & Adolescent Mental Health	17	22	1.29
14	Frontiers in Public Health	16	2	0.13
15	Journal of American Academy of Child & Adolescent Psychiatry	16	151	9.44
	Total of 15 journals	569	7781	13.67
	Global total	1797	19893	11.07
	Share of top 15 journals in global total	31.66	39.11	

TP=Total Papers; TC=Total Citations; CPP=Citations per Paper

Of the 38 highly cited papers, 26 were published as articles, four as notes, three as reviews and letters, two as editorials. Of the 38 highly cited papers, 6 had authors from single organizations per paper (non-collaborative papers), and 32 articles had authors from two or more organizations per paper (18 national collaborative and 14 international joint papers). Among the 38 highly cited papers, authors from China participated in the largest number of papers (15 papers), followed by those from the United States (8 papers), Italy (6 articles), the United Kingdom (5 articles), Canada, and Germany (4 papers each). The 38 highly cited papers involve the participation of 306 authors and 192 organizations. These 38 highly papers appeared across 24 journals, of which four papers were published in Brain, Behavior & Immunity, three papers each in the International Journal of Environmental Research & Public Health and The Lancet Child & Adolescent Health, two papers each in Asian Journal of

Psychiatry, JAMA Paediatrics, Journal of Anxiety Disorders and Journal of Sleep Research, The Lancet and, Nutrients and one paper each in 16 other journals.

## **Discussion**

This paper presents a bibliometric assessment of global literature (n=1797 records) on the impact of the COVID-19 on the Mental Health of Children & Adolescents, indexed in the Scopus database. Available data suggest that publications have emerged from 118 countries, with publications from the top 10 most productive countries accounting for 95.55% of the total publication share and citations. Among the top 10 countries in terms of the number of publications, 9 are the high-income countries. In terms of specific countries, the maximum number of publications have emerged from the United States, followed by China and United Kingdom. These findings suggest that a significant proportion of the countries have been unrepresented in the global literature on the mental health impact of the pandemic on children and adolescents. These findings also suggest that low and middle-income countries, which contribute to a significant proportion of the world's population, have been under-represented in the mental health research evaluating the impact of the pandemic on children and adolescents. This in line with the existing literature, which suggests high-income countries account for 90% of the mental health research [10]. These findings indicate that there is a need to enhance research from low and middle-income countries.

In terms of collaborative research, researchers from all the top 10 countries had at least one linkage, with maximum associations seen for researchers from United States, United Kingdom, and China. Further, the highest number of collaborations were seen between the researchers of the United States and the United Kingdom, followed by collaborations of researchers from the United States or the United Kingdom with researchers from China, Canada, Australia, Italy, Germany, and Spain. These findings again suggest that there are limited numbers of collaborations between researchers from high-income countries and

middle and low-income countries. The representation of the high-income countries was also reflected in terms of the most productive organizations and authors. When we compare these findings with a bibliometric study which focused on publications on all age groups [9], a significant difference which is apparent is that, compared to other age groups, researchers from middle and low-income countries are under-represented in the child and adolescent research.

The most common themes or keywords of the focus of research included mental health, anxiety, depression, and quarantine. These findings suggest that the research on children and adolescents has followed similar lines as has been seen for other age groups in terms of the most common keywords [9].

This bibliometric study has certain limitations, which need to be considered while interpreting the results of the present study. This study was limited to the Scopus search engine, which has a broad coverage of journals, still does not cover many non-indexed journals published either in English or other local languages. Accordingly, this search strategy could have led to the exclusion of a small proportion of the papers published on the topic. Next, our study did not assess the content and type of the research in terms of these papers were either research papers, case reports/case series, review articles, commentaries, letter to editorial, etc. The citations count for various publications was also based on the Scopus search engine, which is usually more conservative than the search engine like google scholar. This could have led to the underestimation of the total number of citations.

To conclude, this bibliographic analysis suggests that, since the beginning of the pandemic, 1797 publications emerged on the topic of 'COVID-19' and Mental Health of Children & Adolescents, from 118 countries. These publications have also been widely cited, with an average of 11.07 CPP. Only one-fourth of these publications were based on funded research. The present study also suggests that a large proportion of the publications emerged from

high-income countries. In terms of inter-country collaborations, the maximum number of publications collaborated between authors from the United States and the United Kingdom. Almost all, most productive authors were from high-income countries. These findings suggest that there is minimal research on COVID-19 and the mental health of children and adolescents from low and middle income countries. This indicates that little is understood about the impact of COVID-19 pandemic on mental health aspect of children and adolescent from poor resource countries, and there is an urgent need to improve research from these countries.

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## Letter to the Editor

## Disinfection tunnels: potentially counterproductive in the context of a prolonged pandemic of COVID-19



There have been a lot of confidence-building measures rapidly instituted in the current coronavirus disease 2019 (COVID-19) pandemic without any scientific evidence to back them up. Foremost among these measures is the so-called 'disinfection tunnel' (DT) or 'sanitization tunnel.'<sup>1</sup> These are stationed outside crowded places such as vegetable markets, offices, shopping malls, and hospitals. People can walk through them or even ride through them on two wheelers. Essentially, these tunnels spray a mist of sodium hypochlorite solution. The first DT was installed in China and was imitated by other countries and cities.<sup>2,3</sup> These portable structures are made of steel and poly vinyl chloride (PVC) with the distance varying from 16 ft to 25 ft and can be of static and dynamic types.<sup>4,5</sup> In the static type, the person rotates inside the station for 10–15 min, and the disinfectant is sprayed from nozzles arranged in whole of the circumference. The dynamic type is a walk-through passage in which the person moves for 16–25 ft and the device sprays the disinfectant throughout the path. These tunnels are equipped with infrared detectors (sensor-based) that activate the disinfectant spray whenever a person enters. The cost of setting up these contraptions depends on basic models (130 USD) to high-end steel and chrome tunnels with various sensors, conveyor belts, and traffic lights (approximately 33,000 USD).

As coronavirus is an enveloped virus, any low-level disinfectant (e.g., 1% w/v sodium hypochlorite, isopropyl alcohol) will be able to destroy it. An ideal disinfectant for spraying and to be used in these tunnels should be nonvolatile, require less contact time, be harmless to mucous membranes and skin, and have virucidal and bactericidal activity. There are no guidelines and evidence supporting the efficacy of these disinfectants for human disinfection. These disinfectants can destroy the outer envelope of the virus, only if allowed for a recommended concentration with a contact period of more than 60 s.<sup>8,9</sup> Reduced contact period and diluted concentration limit the efficacy of these disinfectants. Direct inhalation or spraying of these disinfectants on human skin can be toxic and corrosive to skin and lead to various allergic disorders. Even for once, if we may think that these DTs may deactivate the virus on contaminated surfaces (skin and clothes of the person), any asymptomatic patient would remain infective as the virus in the nasopharynx and respiratory tracts remains viable, hence contributing to a

false sense of security among individuals. There is no way to test the benefits, other than mental satisfaction, which is just like the confidence wearing a cloth mask provides and thereby enables people to venture out into public places.<sup>10</sup> We often lose sight of the fact that the COVID-19 pandemic is likely to be prolonged over a few months at least, and therefore, population-level behavioral measures will also be needed to be practiced for a long period. Social distancing and hand hygiene are cumbersome and obstructive to usual life; therefore, a person with access to a DT may end up neglecting these standard measures.

DTs are likely to be a wasteful expenditure of scarce resources. The World Health Organization has condemned the use of these sprays and tunnels and has released an advisory.<sup>11</sup> The stress on these systems is not evidence based, unreliable, and flawed. While fighting this global pandemic, there is definitely a light at the end of the tunnel by practicing hand hygiene and social distancing, but not by passing through these DTs.

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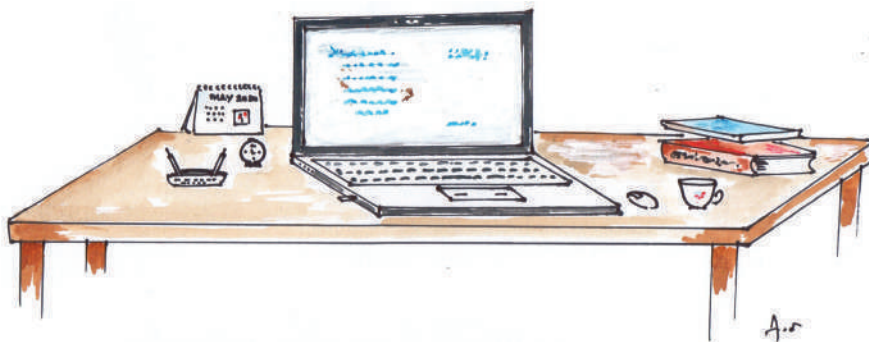


# Ethical Considerations of Mental Health Research Amidst COVID-19 Pandemic: Mitigating the Challenges

During these difficult times of the coronavirus disease 2019 (COVID-19) pandemic, when routine clinical care has taken a back seat, it is not surprising to note that there is an almost complete suspension of research work (except those related to COVID-19). The same holds true for mental health research as well. However, times such as these call for greater prioritization of research. As the far-reaching mental health ramifications of the pandemic come to the fore, there is an urgent need to address

these issues. A position paper published in *The Lancet Psychiatry* on 15th April 2020 suggests multidisciplinary collaboration and strategies to mitigate the mental health impacts both in the immediate context and the long term.<sup>1</sup> Various guidelines on research during an emergency such as the current pandemic suggest prioritizing research based on how essential it is, relevance to the current scenario, whether it is labor intensive, and the risk of harm vis-à-vis benefits.<sup>2</sup> Indian Council of Medical Research (ICMR) has a guideline for

of research is not particularly relevant in the Indian context (because of the lack of a public database), and the latter is not widely practiced in mental health. We would like to focus on the third type of research, that is, surveys and interviews, wherein the researchers share mailed surveys or links on social media and chat platforms, or conduct interviews on an online video platform (e.g., Zoom and Skype). However, this category of online research raises certain grave concerns related to privacy, participant recruitment, and informed consent.



conducting research during humanitarian crises and disaster, which has addressed the ethical concerns pertaining to an epidemic like the present one.<sup>3</sup> An editorial in the *Nature Medicine* summarized other concerns such as drying up of funds to support further research, to support trainees, and for continuing career development, and premature termination of existing studies. It has also called for supporting scientists and future health research.<sup>4</sup> For this piece, we would like to discuss the ethical challenges for a specific type of health and mental health research.

## Use of Information Technology in Mental Health Research

Mental health research is predominantly based on face-to-face interviews. Howev-

er, such in-person communications in the context of the current pandemic would be potentially hazardous for both the participants and the researchers. An alternative solution is to conduct tele-assessments, that is, assessment of participants by a member of the research team using information technology for communication. The modes of communication could be video or chat (on video or chat platforms like Skype), audio (on the phone), or text (e.g., surveys using Google forms). Internet-based research has been classified into observational, interactive, and survey/interview-based. While observational research is the collection of information that is publicly available, interactive research is in which an investigator contacts the participants for permission to view their web content.<sup>5</sup> The former type

## Concerns of Privacy

Adequate provision to protect the privacy of the participants and the confidentiality of the data obtained is an integral part of any research involving human participants. A breach in privacy of either would pose a serious threat of exposure of sensitive and personal information or some illegal or embarrassing act.<sup>6,7</sup> The privacy and security threats of online video-meeting platforms (e.g., Zoom) are critical. Similar concerns also exist for social media networks (e.g., Facebook).<sup>7</sup> Although email communications have double-encryption, a large majority of the potential participants might not have a personal email address. Privacy threats exist in data storage and access too. Cloud could be a potential data storage space and uses double encryption. However, breach of privacy depends on the number of individuals with access to the space. Multiple researchers with access to the data repository would increase the odds of a breach in privacy and confidentiality. ICMR's ethical practice guideline discussed the measures to ensure the privacy of databases maintained in the electronic or digital format.<sup>3</sup> Telephonic interviews suffer from the problem of po-

tential impersonification of participants. All these concerns would magnify in the case of a vulnerable population such as those with mental health problems, as a breach of privacy would further increase their vulnerability.<sup>3</sup>

## Concerns About the Recruitment of Participants

Recruitment through the internet could be done using either push or pull technology. The former involves recruitment through social media. In contrast, the latter involves sending direct e-mails or text messages or having a dedicated webpage or mobile application (to be installed by the participants) for recruiting the participants. Both the categories have several limitations. In an ideal scenario, recruitment should follow the principle of justice, that is, it should be fair, and every eligible participant should have an equal chance of getting selected for the study. However, internet-based recruitment suffers from self-selection bias, and there are definite disparities in the access to internet and the expertise in handling online matters, depending on the socioeconomic and the educational backgrounds.<sup>8</sup> Additionally, the existence of multiple online identities, the use of pseudonyms, and the difficulty in verifying the age and demographic data could pose further challenges in internet-based recruitment.

## Issues in the Informed Consent

Informed consent requires the participants' voluntary involvement in the study after weighing the potential risks and benefits. Ideally, it is a process in which the participants are provided with information clearly and concisely and they would have the time to read the text and contemplate and have their queries answered prior to consenting.<sup>9</sup> Implementing this is difficult on an online or digital platform, which would at best have a didactic component.<sup>10</sup> Wrong assessment of a participant's mental health capacity is another potential difficulty in the context of mental health research.<sup>11</sup> The latest guideline for biomedical and health research (2017) by the ICMR allowed online

consent for "research involving sensitive data." The examples of such data cited were high-risk sexual behavior, use of contraceptives, behavior related to unsafe sexual practices, etc.<sup>3</sup> Therefore, informed consent obtained using online surveys, or even during a synchronous communication, for mental health research dealing with "non-sensitive" data (e.g., use of the internet during the lockdown and mental health impact of the lockdown) would be considered invalid. Moreover, the ICMR guideline identifies individuals who have mental illness as a vulnerable group and talks about empowering them to the maximum extent possible to enable them to make any decisions. Should the attempt of empowerment fail, legally authorized representatives (LAR) are to be contacted for consent.<sup>3</sup> Online process of obtaining informed consent complicates the application of both these aspects.

We would like to reiterate that these challenges are applicable to research among professionals as well. Online surveys using specific survey platforms or Google forms have become all the more relevant in the current context. Usually, these surveys are conducted in a specified group of professionals sharing a common characteristic (e.g., employees of a specific institute and members of a particular professional society), and in many instances, the researchers too belong to the same professional group. Despite the best intentions, it is almost impossible to protect the privacy and confidentiality of the respondents during such research. From age, demographic data, and professional affiliations, the participants' identities can be inferred even in the absence of definite personal identifiers (e.g., email ID and phone numbers). Informed consent is usually text-based and single-staged. Often, the researchers send these surveys multiple times, creating a subtle pressure on the prospective participant to respond. Sometimes, there is a direct incentive for participation (e.g., having authorship). All these are in direct contravention of the principles of informed consent.

The discussion would be incomplete without highlighting the role of the Ethics Review Boards, which, on the one hand, would have the task of ensuring

a full adherence to research ethics and, on the other hand, have to minimize inadvertent delay in project approval. A recent paper from China showed that the approval rate during the COVID pandemic was significantly lower than the usual times, suggesting hasty preparation of documents.<sup>12</sup> We believe the journals' peer reviewers too must give additional emphasis on the ethical aspects. Internet-based research, because of its aforementioned challenges, would require special attention.

The bottom line is that information-technology-based research presents serious challenges to participants' privacy, fair opportunities for recruitment, and the process of informed consent. Mental health research has additional distinctive concerns with regard to the vulnerable population of interest and the nature of the data.

## Mitigating These Challenges and a Window of Opportunity

Amidst all the hardship, pain, and suffering, the COVID-19 pandemic has presented a unique opportunity to revisit digital-platform-based research and to reorient the research ethics. Many of the issues discussed above with respect to the mode of communication are akin to those described in the telemedicine practice guideline drafted recently by the Board of Governors of the National Medical Council, India.<sup>13</sup> A similar guideline focusing on ethical practice in digital-technology-based research on human participants would be an important and much-needed step in this direction. At the international level, the Association of Internet Researchers published their latest guidelines this year.<sup>14</sup> As the nodal agency of health research in the country, ICMR might like to take the lead in drafting such a guideline. However, we acknowledge the diversity across internet cultures, values, and modes of operation, and understand the limits of a single set of guiding principles. Nevertheless, it would provide a foundation for further work. As already mentioned, mental health research would have a substantial stake in this kind of research practice. Hence, the Indian Psychiatric Society (in collaboration with other profession-

al bodies involved in mental health research) might also consider publishing a guideline on the ethics of research based on online platforms.

As the world tries to adapt to life during and after COVID-19, an overhaul of the existing systems is inevitable. The field of research, which forms an integral part of any healthcare system, needs to adjust to these changes. A collective search for answers to the novel challenges one may encounter during the process of change is necessary to keep the system working effectively.

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## Experience of conducting MD examinations in the mid of COVID-19 crisis

Sir,

Amid the COVID-19 crisis, many essential aspects of our daily lives have transformed and challenged us to adapt to new ways of working around. In this context, clinical work, methods of teaching, student assessment, and research are adapting to the prevailing limitations. Thus, our “New Normal” is a shift from in-person to internet-assisted techniques. In early May this year, teachers of psychiatry came together under the auspices of the Indian Psychiatric Society to discuss the options for postgraduate examinations to chart future action.<sup>[1]</sup> To our belief, we were the first to conduct MD examination during COVID-19 (in mid-May). We elucidate some issues raised during the webinar using this experience.

Potential concerns that require addressing included were as follows: inviting external examiners, limited availability of examination cases in hospitals, logistical issues (stable internet connection, choosing correct hardware, and a video-conferencing platform), and finally, the format of assessment. We exempted examination-going residents from COVID-19 duties for a month and conducted theory examinations with social distancing norms, following the structure according to the institute policy. However, conducting clinical assessments was challenging due to the unique circumstances even though we had a single candidate. The plan for the practical examination was kept flexible but followed the typical format – one long case, three short cases, spotters, and viva.

It was unfeasible to invite external examiners to the institute; hence, we connected via video-conferencing using appropriate software according to the convenience and familiarity of all examiners. We sorted out connectivity issues from beforehand. For the long case examination, we had a single inpatient at that time. The patient was poorly responding to treatment and was stuck in the ward due to lockdown. She/he was also quarantined due to exposure to another COVID-19-positive patient (an incidental occurrence) in the adjoining inpatient ward. On the day of the examination, following his/her second COVID-negative result, consent for the examination was obtained. For short cases, we shortlisted a few consenting patients who were ready to join us telephonically. Such a telephone-based psychiatric evaluation method has its disadvantages, such as problems with rapport building, evaluation of nonverbal communication, and technological glitches. However, our plan failed as none later agreed to be interviewed. Hence, we executed our contingency plan to replace the short cases with an objectively structured clinical examination (OSCE). Senior residents enacted as patients for the OSCE. They followed a detailed script (developed by the examiners). The script was revealed to the senior residents on the day of the examination. However, using departmental colleagues and seniors as actors can introduce bias and (due to familiarity) may not simulate clinical practice. Actors may be biased to either help the candidate and may provide hints to reach a correct diagnosis or elicit signs or make the situation difficult for an anxious student. However, our prior experience of conducting such examinations for undergraduate students (reported elsewhere<sup>[2]</sup>) helped the team execute OSCE successfully.

Regarding logistics, institutional support for a stable high-speed internet facilitated the process. Our experience also suggests the importance of a sensitive microphone

and a webcam with a wide-angle view along with (remote-controlled) zoom-in/out facility and maneuverable capturing field. Webcam on laptops or other devices is not preferred. It helps keep internal examiners, candidates, and actors in one frame during the viva, while allowing to zoom-in helps appreciate nuances of mental status examination and neurological examination through a closer view.

Notwithstanding the examination's format, seriousness was maintained. It is common now to conduct job interviews online, but some experimentation with similar virtual and tele-OSCE methods are also present.<sup>[3,4]</sup> In the end, the examiners parted with a sense of happiness as it concluded without any glitches.

To summarize a considerable level of prior planning, a repository of patients who are willing and consenting for online evaluation for examination purposes with existing case records is crucial. The orientation of the examinee to the new format of the examination is a prerequisite. Consent from the examinee is also needed. Table 1 shows a comprehensive list of issues. Finally, flexibility in approach, the safety of all parties, and informing universities for the same without compromise of quality are vital. Though, questions remain for other disciplines where a clinical examination is primarily through physical examination (palpation, percussion, and auscultation) of patients. Moreover, the modification of guidelines related to telemedicine consultation is also in need of the hour.

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There are no conflicts of interest.

**Table 1: Requirements for conducting a successful online examination**

Choosing the examiners who are willing to conduct the examination with the same seriousness
Choosing a communication platform, which examiners are familiar with
Setting the online examination, keeping the exigencies, such as power failure, internet failure in mind
Preparing candidates for the online examination (mock examinations)
Preferably having cases available in the ward or preparing a list of patients who are prepared to be interviewed by voice/video call (keeping in mind last-minute refusals)
Preparing OSCEs and/or clinical case vignettes (for evaluation on plan of management)
Having simulated patients, preferably, trained actors, who can be provided the script beforehand, and assessing examinees on a specific aspect of mental status examination (e.g., cognitive functioning, breaking bad news)
Having other things in the examinations, such as MRI/CT scan films, EEG tracings, and psychometric instruments
OSCEs – Objectively structured clinical examinations; MRI – Magnetic resonance imaging; CT – Computed tomography; EEG – Electroencephalography

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## CORRESPONDENCE

### SARS-CoV-2 and Extended Lockdown: A New Lesson for India's Alcohol Policy?

Dear Editor:

The global pandemic of COVID-19 has left most nations reeling in its wake. Drastic measures have been executed in efforts to contain the SARS-CoV-2. India commenced with a nationwide complete lockdown from March 25, 2020, following a short 4-hour overnight notice. Regardless, the well-intended move to flatten the epidemic growth curve led to several unintended adverse consequences. A brief discussion of its effects on public health and alcohol policy follows.

Over the years, India has developed a conflicting perspective on alcohol consumption. Although the Indian Constitution aims for prohibition, in practice, alcohol-related policies vary widely across the different states. Except for a few alcohol-prohibiting states, alcohol-generated revenue contributes up to 15%–20% of the total states' exchequer. A prevalent air of social disapproval of drinking further complicates the picture (Benegal, 2005).

Alcohol is classified as a non-essential commodity in India. This meant an abrupt halt of sales and purchase of all alcoholic beverages during lockdown. A picture simulating a state of "prohibition" emerged, presumably affecting an estimated 57 million people across the country with problematic alcohol use (Ministry of Social Justice and Empowerment, 2019). The short notice precluded any provisions for a phased transition.

The next few weeks witnessed a chaotic response to this unprecedented situation. Newspaper reports and few studies formed the chief source of available information. The key players in this scenario—the central and state governments, and the alcoholic beverage industry—held differing views. Whereas central and state governments debated over prioritizing control of infection and recovering economic losses, respectively, the alcohol industry focused on profiteering and fanned the fire, citing rising black-market alcohol sales and illicit liquor production (Dharni, 2020).

The immediate dearth of alcohol led to frantic searches from other sources. Several newspapers reported deaths from consumption of isopropyl alcohol and illicit liquor. At the individual level, the negative impact ranged from a panic-

stricken search for alcohol (regardless of cost, quality, or legality) to death by suicide (Shekhar, 2020).

Health care delivery focused on COVID-19, leaving a large proportion of non-COVID-19-related health care services affected and most of the private de-addiction centers nonfunctional (Lakshmanan, 2020). The medical fraternity expressed their views regarding treatment needs and its provisions. The lockdown severely restricted movement. Moreover, urgently published and gazetted telemedicine guidelines prohibited online prescription of most of the benzodiazepines used in treating moderate to severe alcohol withdrawal. Not surprisingly, patients presenting with complicated alcohol withdrawal markedly increased (Narasimha et al., 2020).

One of the states attempted exceptional measures, such as government-sanctioned limited alcohol supply to those "certified" by doctors. It was promptly withdrawn following widespread forgery, criticism from doctors, and the court's interference (Agarwal & Srivas, 2020). Two other states experimented with a limited hour of alcohol sales, which ended with the central government's interference (Dharni, 2020). Both measures recorded a sudden spurt of alcohol sales, suggesting unabated demand despite stringent prohibition. The third phase of lockdown, almost 40 days after the initial prohibition, witnessed similar scenes of chaos and flouting of "social distancing" rules across several states, when alcohol outlets were opened for limited hours of the day. To address this problem, several states allowed online and offline "home delivery." A few states launched dedicated web portals for home delivery while Delhi started a compulsory e-token system fixing the time and shop from where one could purchase alcohol. Most of the states' excise departments recorded very high sales, which continued after the price hike, ranging from 25% to 75% (Rohatgi, 2020). However, by the first week of June, the alcohol industry began reporting a dip in sales in Delhi and Andhra Pradesh, which had hiked the prices by 70% and 75%, respectively, and requested lowering of taxes. The chain of events suggested these measures were primarily aimed at restoring business and increasing sales and revenue.

Publication of scientific peer-reviewed literature requires time. Meanwhile, despite the caveat of a possible industry interference, gray literature sourced from the media helps in drawing a broad outline of chief shortcomings in India's current alcohol policy. Lack of national alcohol policy has culminated in disconcerted attempts by multiple states and conflict among the states, center, and judiciary. Prevailing moralistic attitude has prevented public health-oriented alcohol policy, with resultant suffering at the individual level. The current policy failure in the context of SARS-CoV-2 and consequent lockdown could be an eye opener for countries like India and might give the much-needed impetus for reformulating alcohol policies in the right direction.

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## Conflict-of-Interest Statement

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## Letter to the editor

## Drug treatment of SARS-Cov2: Potential effects in patients with substance use disorders (SUD)



## ARTICLE INFO

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Severe acute respiratory syndrome- Coronavirus 2 (SARS-CoV2) has presented an unprecedented challenge of finding therapeutic agents. Presently hydroxychloroquine (HCQ), lopinavir-ritonavir combination (LR), remdesivir, and favipiravir are candidate medications. Patients with substance use disorder (SUD) are especially susceptible to develop COVID-19 owing to underlying comorbidities, immune-suppression, and socio-economic circumstances of drug use [1]. Moreover, the SARS-CoV2 pandemic has met with a pre-existing epidemic of Opioid use disorders. Given the susceptibility and magnitude of both the conditions, co-occurrence seems to be commonplace. Therefore, exploring the effects of candidate medications (for SARS-CoV2) among patients with SUD warrant clinical attention.

HCQ may lower seizure threshold with reports of tonic-clonic seizures among patients with systemic lupus [2]. Abruptly stopping alcohol use may lower seizure threshold warranting caution before starting HCQ. Both alcohol and HCQ may affect proximal muscles and peripheral nerves, hence patients with alcohol-induced neuro-myopathy need close monitoring, especially those with comorbid hepatic dysfunctions [3]. HCQ, azithromycin combination, are arrhythmogenic, and co-administration of methadone may increase the risk of QT<sub>c</sub> prolongation [4]. Hence close ECG monitoring is advisable. Moreover, methadone and HCQ are substrates for CYP2D6 and CYP3A4a; methadone's serum level may increase with resultant risk of overdose. Tobacco smokers had lower HCQ response rates (in malaria) compared to non-smokers (possibly due to induction of CYP450 enzyme system in smokers and nicotine-blockade of HCQ uptake inside lysosomes) [5]. Therefore, smokers might necessitate dose adjustment of HCQ.

LR may have clinically significant interactions with medications used for SUDs and with drugs with misuse potential. Lopinavir is an inducer of methadone metabolism, leading to sub-therapeutic level of methadone and the emergence of opioid withdrawal symptoms (which overlap with symptoms of COVID-19) within a week of LR initiation [6]. However, no clinically significant interaction was reported with buprenorphine, another medication treatment for opioid use disorders. Administration of LR inhibits CYP3A-mediated *N*-demethylation of oxycodone, leading to significant increase in plasma concentrations of oxycodone, consequently increasing risk of overdose [7]. Concurrent use of LR and bupropion for smoking cessation, may lead to reduction in bupropion concentration, possibly due to induction of CYP2B6 and glucuronidation [8]. Liquid (not the capsule) formulation of LR

contains 42.4% ethanol. Its co-administration with disulfiram (for treatment of alcohol dependence) could result in ethanol-disulfiram reaction; it should be avoided.

Remdesivir (RDV) is an investigational pro-drug with potential hepatotoxicity, and caution should be exercised among subjects with alcohol or opioid dependence and comorbid liver dysfunction [9]. Ribavirin is unlikely to have any specific clinical concern in patients with SUD. Finally, favipiravir, a viral RNA polymerase inhibitor, is hypothesized to have a moderate antiviral effect against COVID-19. Favipiravir is not a CYP450 substrate but is a possible CYP2C8 inhibitor. Therefore, co-administration with CYP2C8 substrates such as buprenorphine may pose a risk for increased serum levels and the effects of buprenorphine. Favipiravir inhibits acetaminophen metabolism, too, increasing the risk of toxicity in doses more than 3 g. Drugs of misuse, such as tramadol and tapentadol, are sold as fixed-dose combinations with acetaminophen. High dose misuse of these drugs with favipiravir might increase the risk of acetaminophen toxicity [10].

Therefore candidate medications for COVID, when administered in patients with SUD, have potential poor tolerability, reduced efficacy, and increased side effects. It is essential to raise clinician's awareness of these interactions and continue to enhance screening for SUDs.

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## Letters to the Editor

# COVID-19 and physician–patient relationship: potential effects of ‘masking’, ‘distancing’ and ‘others’

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Dear Editor,

As the world continues to battle coronavirus disease (COVID-19), restrictions and risk-minimization strategies have been put in place to prevent the spread of infection across health care settings, including general practice and primary care settings. As reported by the World Health Organisation (WHO), COVID-19 transmission can occur through two routes—respiratory droplets and physical contact (1). Therefore, WHO advises the use of face masks and physical distancing. The general practice settings at the very least will need to adhere to these precautions and adapt to the new normal. Here we are attempting to posit possible impacts of ‘masking’ and ‘distancing’ on the doctor–patient relationship.

## The effect of ‘masking’

The emotional aspect of a doctor–patient relationship is largely guided by non-verbal communication. Both doctors and patients need to recognize and explore each other’s non-verbal cues (2). Non-verbal behaviour plays a significant role in the quality and satisfaction of this relationship, which in turn influences adherence and clinical outcomes (3). Wearing face masks would have a ‘masking effect’ on non-verbal communications expressed through facial expressions, subtle tonal inflections and voice modulation. In a randomized controlled trial from Hong Kong, doctors wearing face masks had a significant negative influence on patients’ perception of doctors’ empathy (4). Surprisingly, the effect was worse in an established doctor–patient relationship. The latter bears special significance in chronic disease care settings. What happens when both doctors and patients wear face masks (‘dual masking’)? Although there is no literature, possibly doctors’ perception of patients’ empathy too is likely to be affected. Perceived empathy is one of the key components of therapeutic relationships. During the COVID-19 pandemic, when ‘dual masking’ is a commonly encountered scenario, negative effects on

mutual feelings of empathy, trust and overall doctor–patient relationship seem plausible.

## The effects of ‘distancing’

The effects of physical distancing are another area of concern. First of all, COVID-19 is likely to affect the universal practice of greeting patients through a handshake. Handshake at the end of the consultation too could be a measure of patients’ satisfaction (5). Whether another form of greeting or regional greetings such as ‘Namaste’ or ‘Aadaab’ would replace the ubiquitous handshake—remains to be seen. The acceptability of such regional greetings across different cultures is also a matter of debate. Second, the ideal distance between a physician and a patient during consultation is said to be between intimate and personal space, i.e. nearly 1 m (6). Although the desired consultation distance falls just within the recommendation by the WHO, keeping a greater distance is likely during clinical practice. The ‘distancing’ could differentially influence the feeling of comfort, privacy and intimacy. For example, during the pandemic, a distance of 2–3 m would be comfortable (or less anxiety provoking) for both doctors and patients but require the communication to be much louder which may in turn undermine privacy. Some non-verbal cues, such as ‘forward lean’, which have a positive effect in the doctor–patient relationship might also see a measurable decline (7).

Although widespread use of masks and practice of social distancing might lead to some concerns in day-to-day clinical practice, the authors do not intend to advocate, by any means, against use of these essential precautions.

Notwithstanding these limitations, masking and distancing could also have some beneficial effect on physician–patient relationships. Continuation of health care during the pandemic might lead to appreciation of health services and health care workers and inspire confidence in the health system. The use of precautionary measures by health care staff could also have a contagion effect and encourage patients to adhere to the appropriate preventive measures.

## Is there an alternative to ‘masking?’

A face shield could be a potential alternative to masking (8). Face shields have many advantages over face masks in terms of better visibility of face and appreciation of non-verbal facial cues, greater coverage of area of face (including eyes and), preventing autoinoculation by inhibiting touching of face, easier to produce (easily available raw materials compared with masks and easier repurposing of existing manufacturing units) and possibility of reuse after sterilization. Thus, face shields may emerge as possible alternatives in the future, but the beneficial effect of using face shields on prevention of spread of COVID-19 requires further study.

## Potential effects of other factors

Other factors, such as consultation length, which influences relationship and even patients’ outcome, might also be affected by the current pandemic (9). Fear and anxiety of contracting infection could affect the physician–patient relationship as well. How societal factors, such as violence against doctors during the pandemic (reported from India, Mexico), could influence the doctor–patient relationship is something to be watched for.

There is a need for qualitative research to understand and theorize the effects of COVID-19 precautionary measures on doctor–patient relationships. The research should be cross-cultural and across settings because a universal theory is unlikely to explain this complex phenomenon.

## Conclusion

Are there any silver linings? The COVID-19 crisis could serve as a tipping point for remote consultation. Practice of telemedicine is purported to have a positive effect on the access and utilization of health care, without escalating the risk of infection. Telemedicine services could be delivered through audio calls (telephonic) or through Internet-enabled video consultations. Although video consultation seems to be the preferable method as it provides visual cues, important for therapeutic communications, it is limited by access to good-quality Internet connection and comfort level of the patient. Consultations through telephone, on the other hand, would be widely available, accessible, affordable and acceptable for patients. Nevertheless, the infrastructural and administrative challenge of the sudden need for massive expansion of telemedicine services and clinical challenge for the physicians and patients to adapt to this new modality appear to be important (10–12). These challenges would be far greater in the context of low- and middle-income settings.

In essence, the effect of COVID-19 outbreak on doctor–patient relationships is a clinical concern, which may have both negative and positive effects. An awareness of these effects might encourage clinicians and policy makers to pre-empt and think about strategies to deal with it.

## Declaration

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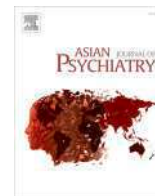
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## Data availability

This commentary does not include any original data.

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## Letter to the Editor



## Opioid agonist treatment during SARS-CoV2 & extended lockdown: Adaptations & challenges in the Indian context

India went into a lockdown on the 24th of March 2020 to contain the spread of SARS-CoV2 and augment healthcare infrastructure. The lockdown imposed restrictions on both human and vehicular movement and curbed the availability of out-patient based medical services in both public and private sectors. The pandemic, inflicting more than 200 countries, has exposed weaknesses in our public health preparedness and structure of our healthcare systems. However, it has also given an opportunity to learn from each other's experience (Tandon, 2020).

The impact of restriction of access to treatment is likely to be disproportionate for patients with substance use disorders (SUD). According to the World Mental Health survey, only 39 % patients with SUD recognized a treatment need and 7% received minimally adequate treatment (Degenhardt et al., 2017). A nation-wide survey, published last year, revealed a treatment-gap of 75–80 % for patients with drug use disorders (MSJE, 2019). An extended lockdown is likely to widen the treatment-gap further.

### 1. Existing opioid agonist treatment (OAT) programs in India

As per a recent survey, in India there are around 7.7 million people with opioid use disorders and only 25 % of those 'motivated to quit' received 'any help,' which included care in the informal sector, by self-help groups, and other alternative care of medicine (MSJE, 2019). Treatment options for opioid dependence have mainly focussed on abstinence-based strategies. Opioid agonist treatment (OAT) is a relatively recent development in India, the impetus for which was initially provided by the HIV epidemic which was fuelled by the intravenous consumption of heroin. However, the access to opioid agonist treatment (OAT) remains limited. The latest systematic review reported out of 100, only 2–5 individuals who inject drugs receive opioid substitution therapy in India (Larney et al., 2017). There are four sources of OAT in the national healthcare system- a) National AIDS Control Organization (NACO), which was first to initiate large-scale nationwide OAT programs. NACO run OAT program uses plain buprenorphine as directly observed treatment. The number of buprenorphine-based OAT centres run by NACO is 224. NACO has started methadone maintenance clinics as well; b) Drug Treatment Clinics (DTC), started as an initiative of the Drug De-addiction Program (DDAP) under the Ministry of Health; DTCs are physically located in the publicly funded district or general hospitals and are manned by a nurse and a doctor, appointed on contract basis. DTCs have provisions of both buprenorphine and methadone-based treatment. Plain buprenorphine is more commonly used because of its low cost. DTCs follow a daily observed dispensing protocol (Drug De-Addiction Programme, 2018). Presently, there are 22 DTCs; c) Stand-alone, publicly funded addiction psychiatry centres under the Ministry of Health; our centre falls in this category. We have more than 500 registered

individuals in our OAT clinic. Take home dosage of buprenorphine-naloxone is dispensed for a period of 1–2 weeks, depending on the stage of maintenance treatment. We encourage take-aways under the supervision (Basu et al., 2020); d) OAT clinics run by the State governments; presently, only the state of Punjab has a buprenorphine-naloxone based Out-patient Opioid Agonist Treatment (OOAT) program, functioning for the last two years. From all the above-mentioned sources, OAT is available free-of-cost. Finally, there are privately funded 'de-addiction centres,' which too deliver OAT but the number of such centres are not known and the treatment is expensive.

### 2. SARS-CoV2 outbreak: adaptations in OAT programs of India

Several countries have proposed and implemented modifications in their existing OAT programs in the wake of the SARS-CoV2 emergency. The Substance Abuse and Mental Health Administrations (SAMHSA) of the US has permitted initiation of buprenorphine-based treatment without the need for physical examination, 2–4 weeks of takeaway doses, tele-prescription of agonist medications, and door-step delivery for patients, who are quarantined (SAMHSA, 2020). The Advisory Council on the Misuse of Drugs (ACMD) of the UK has recommended registered pharmacies be enabled to dispense agonist medications, or providing alternative medications (if the prescribed drug has a short-supply), and to give greater number of doses/ takeaway (ACMD, 2020). Changes on the similar lines have been observed in the national guidelines from Norway and Australia.

The Indian OAT programs, too, have tried to adapt to the circumstances. The DTCs have permitted bi-weekly or alternate day dispensing for patients maintained on a daily dispensing regime of buprenorphine. Bi-weekly dispensing is allowed only to those patients accompanied by a family member for supervising and safe-keeping of medications. DTCs and NACO run OAT centres have also started takeaway methadone (for one day). The OOAT centres in Punjab have rescheduled the opening hours to 8 a.m., instead of the usual 10 a.m., thus increasing the hours of operation. Kapurthala, an administrative district of Punjab has rolled out a mobile registration and dispensing of agonist treatment under the OOAT program.

Our publicly funded centre has brought about several changes in the service delivery- a) increase in the number of doses of takeaway buprenorphine-naloxone (2–4 weeks) thus allowing for less frequent follow-ups; b) we have increased the days and hours of operation as well; c) we have initiated proxy dispensing of buprenorphine-naloxone to a responsible family member. An interim guideline proposed by the Indian Psychiatric Society for opioid substitution therapy during COVID-19 outbreak in India (Indian Psychiatric Society interim guideline, 2020; Basu et al., 2020).

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### 3. Challenges of OAT programs in India during SARS-CoV2 outbreak

Both the clients and treatment providers have met with several challenges.

#### 3.1. Clients

The availability and access of both buprenorphine and methadone are severely limited because these drugs fall under the category of psychotropic substance and narcotic drugs, respectively, as per the Narcotic Drugs and Psychotropic Prevention Act of India. Although methadone has been brought under the ambit of essential narcotic drugs by an amendment buprenorphine has not figured in the list. Methadone can be stocked and dispensed by any publicly funded “recognized medical institution,” whereas buprenorphine has been approved “for supply to Deaddiction Centres only.” Therefore, neither of these agonist medications is available readily. Hence, clients have to come to the clinics. A large majority of our clients do not have their own conveyance and the public transport system is either non-functional or limited. The two possible alternatives are: tele prescription and door-step delivery. The recently drafted telemedicine guideline does not allow prescription of controlled substances through teleconsultation ([Telemedicine Practice Guideline, 2020](#)). The door-step delivery of controlled substances too is not approved by the law. Several clients have reported to us that they were intercepted by the police at the state borders. In all the cases they were required to show their out-patient records to prove the genuineness of their reason to travel during lockdown. This practice impinges upon the privacy and confidentiality of this vulnerable group.

#### 3.2. Treatment providers

The movement restriction has unduly affected the staff mobility to the clinics. For our clinic, all the professional and support staff are provided with ‘special passes’ to ensure free movement within and outside the city. In spite of these measures, some staff have still faced questioning while crossing the state borders. The scarcity of personal protective equipment is another perpetual issue. Maintaining adequate physical distance among clients is an important consideration in crowded out-patient settings. Finally, short-supply of agonist medications, in view of non-functioning postal service is creating further challenges.

### 4. Lessons learnt about the OAT programs in India during SARS-CoV2 outbreak

#### 4.1. Increasing availability

In India, there is a gross mismatch between the people in need for OAT and people receive it. There are a handful of centres and mechanisms to deliver OAT, which are geographically scattered, forcing clients to travel far and wide. The pandemic has unmasked this problem by superimposed travel restrictions. India needs more centers, more trained professionals, and investment from the government.

#### 4.2. Increasing the access to treatment

It is essential to develop alternative and more accessible models of OAT delivery such as, the mobile dispensing, doorstep delivery, and postal delivery of medications. However, one should be cognizant of measures to minimize misuse and harms.

#### 4.3. Improving the acceptability

The pandemic has shown us adaptation and flexibility are the keys to OAT program. Allowing take-away and dispensing medications for longer durations could improve the acceptability of the treatment. These measures should be tested systematically to examine its feasibility and effectiveness.

#### 4.4. Limiting barriers to treatment

We witnessed legal and attitudinal barriers for OAT. Advocacy and frequent and multi-pronged public awareness campaigns could minimize these barriers.

#### 4.5. Involvement of stakeholders

All stakeholders (clinicians, experts, policymakers, patients, and families) with a common goal of increasing the access, availability, affordability, and acceptability of OAT should come together and build up a consensual action plan to mitigate the challenges and frame a user-friendly OAT policy centred around public health.

The pandemic and resultant lockdown is a learning lesson for the policymakers. In spite of the challenges brought about by the unprecedented lockdown, the OAT programs in India are trying to adapt to the emergency by devising locally relevant and practical guidelines.

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#### Declaration of Competing Interest

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# COVID-19 pandemic and an early career mental health researcher from a low and middle income country: Is there any light at the end of the tunnel?

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**KEYWORDS:** collaboration, COVID-19, funding, research

The Science magazine recently reported an epidemic of publications on COVID-19, with nearly 23 000 papers published in the last few months (Brainard, 2020). However, this spate of publications should not be construed as a honeymoon period for medical research. An editorial in the Nature Medicine elucidated the challenges for continuing research and sustaining a research career during these difficult times (Ghebreyesus, 2020). I, being an early career mental health researcher from a developing country, would like to ponder on the ramifications of the pandemic on medical research in general and mental health research in particular.

## 1 | UNDERSTANDING THE CONTEXT

The Secretary-General of the Organisation for Economic Co-operation and Development (OECD), Angel Gurría, writes “pandemic brings with it the third and greatest economic, financial and social shock of the 21st Century, after 9/11 and the Global Financial Crisis of 2008 (Gurría, 2020).” The United Nation's Development Program (UNDP) predicts a disproportionate impact of the economic crisis in the low and middle income countries with little access to social protection. Not surprisingly, the national governments of these affected countries first would try to ensure basic food security and nutrition. With the existing poor infrastructure and limited healthcare capacity, the available health budget is likely to be siphoned for upgrading clinical care and research in COVID-19 (Walker et al., 2020). Non-COVID-19 healthcare and research is starting to be hit hard. Besides, there is evidence to suggest governments take austerity measures (reducing public expenditure) to deal with financial crises and, under such circumstances, healthcare and healthcare research are one of the worst affected areas (Simou & Koutsogeorgou, 2014). Among the healthcare areas, mental healthcare and research get a very low priority. According to the WHO Mental Health Atlas (2018), the national

governments of the African, South-East Asia and Manuscript File Western Pacific regions estimated to spend US\$0.1-1.1 per capita in mental health: this was 0.3% of the total development assistance for health. COVID-19 related economic crisis and health budget cut could tighten the purse string further for mental health.

## 2 | VULNERABILITIES OF AN EARLY CAREER RESEARCHER

Researchers, earlier in their career, encounter challenges ranging from lack of meaningful mentorship to a pressure to publish (Richards et al., 2019). However, limited funding opportunity has been a more specific problem, experienced by a large majority of early career researchers (ECRs) from low and middle-income countries, where senior scholars have preferential access to the available funds (Salihu Shinkafi, 2020). The access to private funding, too, is restricted to non-existent and the cut-throat competition for international funding does not inspire confidence either. During and after the pandemic, the situation is likely to worsen. But funding is not the only concern. Wet labs have been largely closed for indefinite periods and clinical research has been plagued with concerns of undue exposure to participants and researchers. The scenario could be worse for countries with limited access to personal protective equipment. The effects on the ECR and those aspiring to pursue a research career would be detrimental. So, is there something, which could be done to prevent such an undesirable outcome?

## 3 | THE WAY FORWARD

I would like to suggest a multi-pronged approach. Firstly, we need a strong advocacy for mental health. Advocacy could be more effective



if the researchers joined in the efforts by their universities or relevant national and international societies. The global economic crisis of 2008 revealed a significant effect of financial crisis on mental health across countries (Gunnell et al., 1998). Besides, the association between mental health and COVID-19 has also been established with reasonable degree of certainty (Galea, Merchant, & Lurie, 2020). Advocacy measures, anchored on evidence and experience, at the local, regional, and at the global level must be undertaken to encourage the domestic governments to invest in mental health. The national governments could also dedicate seed funds for pilot studies for ECRs, with mental health as one of the priority research areas. Secondly, the ECRs with common research interests and facing similar challenges could collaborate and develop interest groups or consortiums. The pandemic has unfolded an unlimited opportunity of virtual interactions and consequent opportunities for collaboration. The international and national societies dedicated to mental health could provide the platform and play a significant role in helping ECRs to bring together by early career networks. The WPA and World Association for Social Psychiatry already have networks of young psychiatrists. We need more such networks of early career professionals in other sub-specialties of psychiatry and across regions. The Pacific Rim College of Psychiatrists (PRCP) could encourage greater professional collaboration among ECRs. Finally, the senior and more experienced researchers might initiate a mentor-mentee program across medical disciplines beyond their national or continental borders. Again, the international societies and organizations could come forward for the mentorship program. The senior researchers could ensure direct collaboration with the ECRs to foster the next generation of researchers. This will be especially useful for ECR from LMIC, with a limited scope of worthwhile mentorship. The feasibility and success of such endeavors were empirically validated (Merritt, Jack, Mangezi, Chibanda, & Abas, 2019).

A proactive, concerted, and empathic attitude of the national governments and senior researchers might actually be able to address some of the challenges encountered or likely to be encountered by the ECR from LMIC. The COVID-19 situation will subside eventually, but a collaborative partnership forged during these times would benefit the researchers in times to come.

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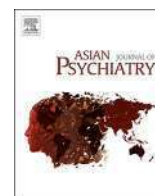
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## Letter to the Editor

## Prisoners with drug use disorders during covid-19 pandemic: Caught between a rock and a hard place



Despite a medical and neuroscience-based understanding, and the public health ramifications, drug use across the globe still comes in the ambit of the criminal justice systems (Csete et al., 2016). Nearly half a million people are incarcerated worldwide for drug possession and an additional 1.7 million for other drug-related offenses (UNODC, 2019). Worldwide, one in four individuals in the prisons is detained because of drug-related charges (Lunze et al., 2018). There are approximately another half a million people in Asia, who are held in involuntary drug detention camps (Lunze et al., 2018). Conditions of a few countries in Asia, such as the Philippines, could be worse than others (Chapman and Babor, 2017).

Prisoners with drug use disorders are faced with grave challenges during the COVID-19 pandemic. The overcrowding and inadequate measures of personal hygiene exposed the prisoners at a higher risk of infection than the general population (Council of Europe, 2020). There were instances of exercising exaggerated cautions. While hand hygiene was said to be the cornerstone of infection prevention, several federal prisons in the U.S. prohibited the use of hand sanitizers, fearing abuse (Tolan, 2020). Added to the environmental risks, individuals with drug use disorders would have greater vulnerability to contract SARS-CoV2 and higher severity of COVID-19 owing to comorbidities, drug-induced immune-suppression, and smoking (Volkow, 2020; Mackolil and Mackolil, 2020). Therefore, prisons would pose an aggravated threat to individuals with drug use. National governments of more than 50 countries have taken extraordinary steps to release prisoners, including those detained for drug-related crimes. Several of these index countries are from Asia because of a higher COVID-19 burden on the continent (Tandon, 2020). The estimated number of released prisoners might be as high as 300,000. However, this measure is fraught with potentially serious consequences.

Firstly, the sudden and unplanned release would place prisoners with opioid use disorders on a significant risk of overdose and death by suicide. Prison time, without access to treatment, causes silent loss of tolerance to opioids. A relapse to the pre-incarceration dose of opioids might result in an overdose. Several reports have consistently shown a spike in the death rates within weeks of post-incarceration (Christensen et al., 2006; Binswanger et al., 2013; Pratt et al., 2010). The heightened socio-economic challenges because of COVID-19 would pose an added vulnerability to the usual risk. Secondly, sudden release and a limited functioning of community-based services during COVID-times would make referral and liaison difficult. This could result in disruption of treatment of drug use disorders or comorbidities (mainly HIV and hepatitis C), consequently severe effects on individual and public health. Thirdly, homelessness is another grave concern for people with drug use (Tsai et al., 2014). Ironically, prisoners being released to minimize the risk of contracting SARS-CoV2 within the prison would be at an equal or higher risk of having it outside- nullifying the purpose of the release.

Hence, prisoners with drug use are neither safe inside or outside the prison. This 'prison paradox' during the pandemic is a learning lesson. Firstly, it questions the very idea of criminalizing drug use. The results of which are overcrowded prisons and vulnerable prisoners. Overall, the prison system remains under-resourced to deal with emergencies. Secondly, evidence-based treatment of individuals with drug use disorders inside and outside the prison might have prevented these undesirable outcomes.

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### Declaration of Competing Interest

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ACCELERATED RESEARCH

## Psychological impact of COVID-19 lockdown: An online survey from India

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### ABSTRACT

**Background:** The COVID-19 pandemic has led to a complete shut-down of the entire world and almost all the countries are presently in a “lockdown” mode. While the lockdown strategy is an essential step to curb the exponential rise of COVID-19 cases, the impact of the same on mental health is not well known.

**Aim:** This study aimed to evaluate the psychological impact of lockdown due to COVID-19 pandemic on the general public with an objective to assess the prevalence of depression, anxiety, perceived stress, well-being, and other psychological issues.

**Materials and Methods:** It was an online survey conducted under the aegis of the Indian Psychiatry Society. Using the Survey Monkey platform, a survey link was circulated using the Whatsapp. The survey questionnaire included perceived stress scale, Patient Health Questionnaire-9, Generalized Anxiety Disorder-7, Warwick-Edinburgh Mental Well-being Scale to assess perceived stress, anxiety, depression, and mental well-being, respectively. The survey link was circulated starting from April 6, 2020 and was closed on April 24, 2020.


**Results:** During the survey, a total of 1871 responses were collected, of which 1685 (90.05%) responses were analyzed. About two-fifth (38.2%) had anxiety and 10.5% of the participants had depression. Overall, 40.5% of the participants

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had either anxiety or depression. Moderate level of stress was reported by about three-fourth (74.1%) of the participants and 71.7% reported poor well-being.

**Conclusions:** The present survey suggests that more than two-fifths of the people are experiencing common mental disorders, due to lockdown and the prevailing COVID-19 pandemic. This finding suggests that there is a need for expanding mental health services to everyone in the society during this pandemic situation.

**Key words:** Anxiety, COVID-19, Depression, Stress

## INTRODUCTION

One of the extreme challenges for survival is facing a pandemic of an infectious disease of the COVID-19 type.<sup>[1]</sup> The World Health Organization (WHO) declared COVID-19 as a pandemic on March 11, 2020 and as on March 24, 2020, more than 3.5 lakhs cases have been confirmed and more than 14,000 deaths have been reported, affecting 190 countries worldwide (WHO website dated March 24, 2020 at 21:00 pm Indian standard time)<sup>[2]</sup> and these figures have exponentially increased to about 27.19 lakhs cases with about 1.9 lakhs deaths in 1 month time (WHO website date April 25, 2020 at 05:30 pm Indian standard time).<sup>[3]</sup>

To tackle the rapid rise of cases in India and to curb the community spread, national level “lockdown” was declared starting from midnight of March 25, 2020 initially for 21 days, which was later extended up to May 3, 2020, with assurance that the basic needs of the general public will be taken care of.<sup>[4]</sup>

“Lockdown” is an emergency protocol that prevents public from moving from one area to the other. Complete lockdown further means that persons should stay where they are currently and no entry/exit movements would be allowed further. It can be both a preventive and an emergency strategy in order to save the lives of the vulnerable or at-risk persons. In this scenario, all educational institutions, shopping arcades, factories, offices, local markets, transport vehicles, airports, railways, metros, and buses are completely shut down except hospitals, police stations, emergency services like fire station, petrol pumps, etc., and groceries. In recent times, lockdown had been very well documented during September 9/11 attacks in New York (3 day lockdown) and during riots in several countries. As social distancing is an important public health solution to tackle the spread of COVID-19, many affected countries such as China, Italy, the United States, France, and Malaysia have also enforced lockdowns of public spaces effectively.<sup>[5,6]</sup>

While lockdown can be a significant and effective strategy of social distancing to tackle the increasing spread of the highly infectious COVID-19 virus, at the same time, it can have some degree of psychological impact on the

public. It is well known that quarantine/isolation for any cause and in the context of a pandemic (Severe Acute Respiratory distress Syndrome, 2003) has been associated with significant mental health problems ranging from anxiety, fear, depressive symptoms, sense of loneliness, sleep disturbances, anger, etc., in the immediate few days of isolation, and later with symptoms of posttraumatic stress disorder and depression after discharge from the hospital.<sup>[7]</sup> However, the psychological impact of lockdown on the general public has not been studied yet. Man being a social animal, such restrictions on free movements can lead to anger, frustration, loneliness and depressive symptoms. There can be fear/apprehension among the public related to supply of basic amenities like groceries and milk supplies, medicines, care of previously sick persons in the family due to other medical causes, elderly persons staying alone, restriction of free movements, having a prevailing sense of being imprisoned in one’s own house or “being in house arrest,” etc., Moreover, lockdown can lead to a “panic” mode of stockpiling of essential commodities without maintaining social distancing as advised by the government.<sup>[8]</sup>

Lockdown can have different effects on different age groups. It may be difficult to engage the children at home throughout the day. This can be a source of stress to the parents. Similarly, due to the vulnerability of elderly for COVID-19 infections, others would avoid to meet the elderly, which can be a major source of distress, both for the elderly and their family members.

Unlike western countries, Indians are thought to be more social and have more social networks, engage in several religious festivals, and get-togethers across the year.<sup>[9]</sup> This can be attributed to India’s diverse culture and traditions.<sup>[10]</sup> In this regard, a complete lockdown can have a downgrading effect on the psyche of the general public. It can also have a long lasting effect on the economy, farming and daily wage earners of the country. While it is an utmost necessary step to be taken at present to combat the COVID-19 infection, steps should be taken to mitigate the possible psychological impact of lockdown in the general public.

Moreover, recent reports suggest that the government’s sudden enforcement of lockdown has created many hurdles to the economically disadvantaged populations

as evident from the mass exodus of migrant workers and concerns about starvation among people in slum areas.<sup>[4]</sup> A recently published sentiment analysis of lockdown through twitter (analysis as evident from tweets extracted from 25<sup>th</sup> to 28<sup>th</sup> March 2020;  $n = 24,000$  tweets) reported that the prominent sentiment was positive and trust on the government; further, many respondents reported sadness and worries about the problems of daily wage laborers during lockdown.<sup>[11]</sup> However, no national-wide data on the psychological impact of lockdown in India are available. Therefore, the current study was planned with an aim to evaluate the psychological impact of lockdown on the general public with an objective to assess the fear, perceived stress, and psychological problems related to lockdown due to COVID-19 infection in India.

## MATERIALS AND METHODS

It was an online survey conducted under the aegis of Research, Education and Training sub-Committee of Indian Psychiatric Society. Using the Survey Monkey platform, a survey link was circulated using the Whatsapp. The survey questionnaire was translated into 11 Indian languages (Hindi, Odia, Bengali, Marathi, Tamil, Telugu, Kannada, Malayalam, Punjabi, Gujrati, and Urdu) besides being used in English. The link was designed in such a way, that only 1 response can be generated using one device. The survey questionnaire consisted of the following instruments:

### Demographics and personal characteristics

A basic information sheet which included information about the subject's age, gender, marital status, educational qualifications, and current work profile.

A questionnaire to evaluate the effect of lockdown on relationship with family members/neighbors/significant others and how lockdown had affected one's emotions, feelings, and behaviors in different aspects of life.

### *The Warwick-Edinburgh Mental Well-being Scale*<sup>[12]</sup>

It is 14-item scale covering both hedonic and eudaimonic aspects of mental health including positive affect (feelings of optimism, cheerfulness, and relaxation), satisfying interpersonal relationships and positive functioning (energy, clear thinking, self-acceptance, personal development, competence, and autonomy). It has good content validity and high test-retest reliability.<sup>[12]</sup> The total score was determined by adding the score of all the 14 items. A higher score indicates greater positive well-being. A score of  $\leq 40$  has been reported to indicate high risk for depression.<sup>[13,14]</sup>

### *Patient Health Questionnaire-9*

The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common

mental disorders.<sup>[15]</sup> The PHQ-9 is the depression module, which scores each of the 9 Diagnostic and Statistical Manual-IV criteria as "0" (not at all) to "3" (nearly every day). This questionnaire is found to have excellent reliability and validity, and sensitivity and specificity of 88% for major depression.

### *Generalized Anxiety Disorder-7 Scale*

It is a 7-item anxiety scale with good reliability as well as criterion, construct, factorial, and procedural validity. Cutoff points of 5, 10, and 15 are interpreted as representing mild, moderate, and severe levels of anxiety on the Generalized Anxiety Disorder (GAD)-7.<sup>[16]</sup> Increasing scores on the scale are strongly associated with multiple domains of functional impairment. Although GAD and depression symptoms frequently co-occurred, factor analysis confirmed them as distinct dimensions. Moreover, GAD and depression symptoms have differing but independent effects on functional impairment and disability. There is good agreement between self-report and interviewer administered versions of the scale. This study employed self-reported version.

### *Perceived stress scale*

It is a 10-item scale widely used to assess the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress.<sup>[17]</sup> The questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the perceived stress scale (PSS) ask about feelings and thoughts during the last month. It has adequate psychometric properties.<sup>[18]</sup> For this survey, we had reduced the time limit to 15 days.

The survey link was circulated in 12 Indian languages starting from of April 6, 2020, i.e. after 10 days of declaration of lockdown, and the survey was closed on April 24, 2020. The link was circulated by the Exponential Non-Discriminative snowballing method, people receiving the message were requested to complete the survey and then forward the link to their close contacts in various Whatsapp group, Facebook, and Twitter platforms.

The study was approved by the Ethics Committee of the Indian Psychiatric Society, for the research purposes. Descriptive statistics were applied and the data collected was analyzed using SPSS 20.0 version. Pearson's co-relation co-efficient and Spearman's co-relation co-efficient were used to find the association between different variables.

## RESULTS

During the survey, a total of 1871 responses were collected of which 1685 (90.05%) responses were analyzed (which were complete in all aspects, except for information on age available

for 1653 participants only). The median duration of completing the survey was 12<sup>th</sup> day of the lockdown period (mean: 12.84, standard deviation [SD]:2.04; Range: 11<sup>th</sup> day to 21<sup>st</sup> day).

The mean age of the participants (1653 responses) was 41.26 (SD: 13.67) years. About three-fifths of the participants (63.7%) were male, about three-fourth were married (72.6%), three-fifth had completed postgraduation (61.8%), majority were employed (self-employed/employed in government sector or private sector) (78.9%). With regard to profession, slightly less than half of the responders (47.1%) were health-care workers (HCWs). In terms of current level of working during lockdown, about one-fifth of responders (21.1%) were not going to work and rest were either working from home for few hours (17.7%) or for usual hours (8.5%) and some were going for work for few hours (16.6%) [Table 1].

### Perceived stress, anxiety, depression, and mental well-being during lockdown

The mean PSS score for the study participants was 16.56 (SD - 5.60) and about 70% of the participants reported moderate level of stress and one-fourth reported mild stress after the onset of the lockdown period. The mean GAD-7 score was 4.14 (SD - 4.84) and about one-fourth participants (23.7%) fell into the category of moderate symptom severity. The mean PHQ-9 score of the participants was 3.63 (SD - 4.81) with majority of the participants reported “no or minimal depressive symptoms” but 18.5% reported mild depressive symptoms and a small proportion of the participants reported moderate (5.8%) and moderate-to-severe depression (3.0%). The mean Warwick-Edinburgh Mental Well-being Scale (WEMWBS) score for the study participants was 43.92 (SD - 8.79). When the cut off for high risk of depression (i.e., score ≤40) was applied, about 70% of the participants (71.7%) had score ≤40, suggesting poor mental well-being [Table 2].

### Comparison of anxiety, depression, stress, and well-being of health-care workers and non health-care workers

As about a half of the responders were HCWs (47.1%), we compared the data of the HCWs and those who were not HCWs. Compared to HCWs, non-HCWs had significantly higher mean PHQ-9 score, higher proportion of them had depression, if mild depression is taken into account, and lower proportion of them had poor mental well-being. Details are mentioned in Table 2.

### Effect of lockdown on relationships

Nearly half of the responders reported marked improvement in their relationships with their spouse/partner (47.4%), children (44.2%), and with parents (47.3%) after the beginning of lockdown period. Further, about three-fifth of the participants reported marked improvement in their relationship with their neighbors (61.8%) and office colleagues (59.6%) during the lockdown period [Table 3].

**Table 1: Sociodemographic profile (n=1685)**

Variables	Frequency (%)/ mean (SD)
Age (n=1653)	41.26 (13.67); range: 14-87
Sex	
Male	1074 (63.7)
Female	611 (36.3)
Marital status	
Married	1223 (72.6)
Unmarried	401 (23.8)
Widowed	16 (0.9)
Divorced/separated	22 (1.3)
Others	11 (0.7)
Details not available	12 (0.7)
Educational qualification	
Less than matriculation	7 (0.4)
Matriculation	21 (1.2)
Intermediate/+2	57 (3.4)
Graduate	539 (32)
Postgraduate	1041 (61.8)
Diploma	20 (1.2)
Occupation	
Self-employed	410 (24.3)
Employed in government sector	413 (24.5)
Employed in private sector	511 (30.3)
Home maker	86 (5.1)
Unemployed	77 (4.6)
Retired	99 (5.9)
Student	83 (4.9)
Others	6 (0.4)
Profession	
Doctor	764 (45.3)
Nurse	30 (1.8)
Engineer	117 (6.9)
Lawyer	40 (2.4)
Bureaucrat	38 (2.3)
Businessman	103 (6.1)
Business management consultant	65 (3.9)
Home maker	87 (5.2)
Politician	4 (0.2)
IT professional	30 (1.8)
Student	10 (0.6)
Retired	5 (0.3)
Teaching	64 (3.8)
Others	328 (19.5)
Level of working	
Not going to work	490 (21.1)
Working from home for few hours	299 (17.7)
Working from home for usual hours	143 (8.5)
Working from home for more than usual hours	92 (5.5)
Going to work for few hours	279 (16.6)
Going to work as usual	160 (9.5)
Going to work and doing work, more than usual hours	67 (4.0)
Others	147 (8.7)
Details not available	8 (0.5)

SD – Standard deviation

### Effect of lockdown on one's emotions, feelings and various aspects of life

The effect of lockdown on one's emotions, feelings, and various aspects of life was evaluated on likert scale with the following, options “no change,” “slightly increased,” “markedly increased,” “slightly decreased,” “markedly decreased,” and “can't

**Table 2: Perceived stress, anxiety, depression, and mental well-being during lockdown and comparison of these variables between health care workers and nonhealth-care workers**

Variables	Whole sample (n=1685) Mean (SD)/frequency (%)	Non-HCWs (n=891), n (%)	HCWs (n=794), n (%)	t-test/Mann-Whitney U-value/Chi-square test (P)
Mean PSS-10 score, range (median)	16.56 (5.60), 0-37 (17.0)	16.61 (5.40)	16.51 (5.81)	0.356 (0.722)
Severity of stress				
Low stress (0-13)	437 (25.9)	225 (25.3)	212 (26.7)	1.351 (0.509)
Moderate stress (14-26)	1181 (70.1)	634 (71.2)	547 (68.9)	
Severe stress (>27)	67 (4.0)	32 (3.6)	35 (4.4)	
Mean GAD-7 score, range (median)	4.41 (4.84), 0-21 (3.0)	4.61 (4.93)	4.19 (4.73)	U=334575.0 (0.052)
Severity of anxiety				
Normal (0-4)	1042 (61.8)	535 (60.0)	507 (63.9)	5.612 (0.132)
Mild (5-9)	400 (23.7)	216 (24.2)	184 (23.2)	
Moderate (10-14)	147 (8.7)	79 (8.9)	68 (8.6)	
Severe (≥15)	96 (5.7)	61 (6.8)	35 (4.4)	
Mean PHQ-9 score, range (median)	3.62 (4.81), 0-27 (2.0)	3.90 (4.93)	3.33 (4.66)	U=328912.5 (0.011)*
Severity of depression				
Minimal (1-4)	1197 (71.0)	613 (68.8)	584 (73.6)	10.275 (0.036)*
Mild (5-9)	311 (18.5)	173 (19.4)	138 (17.4)	
Moderate (10-14)	98 (5.8)	55 (6.2)	43 (5.4)	
Moderate severe (15-19)	50 (3.0)	36 (4.0)	14 (1.8)	
Severe (≥20)	29 (1.7)	14 (1.6)	15 (1.9)	
Mean mental well-being score, range (median)	43.9 (8.8), 14-56 (45.0)	43.42 (8.94)	44.48 (8.60)	-2.465 (0.014)*
Number of participants with WEMWBS score ≤40	1208 (71.7)	617 (69.2)	591 (74.4)	5.562 (0.018)*
Overall prevalence				
Percentage of responders reporting GAD score ≥5	643 (38.16)	356 (40.0)	287 (36.1)	2.581 (0.108)
Percentage of responders reporting PHQ-9 score ≥10	177 (10.5)	105 (11.8)	72 (9.1)	3.296 (0.069)
Percentage of responders reporting only GAD score ≥5 but PHQ-9 <10	506 (30.0)	275 (30.9)	231 (29.1)	0.627 (0.429)
Percentage of responders reporting PHQ-9 score >10 but GAD-7 <5	40 (2.4)	24 (2.7)	16 (2.0)	0.834 (0.361)
Percentage of responders reporting both GAD score ≥5 + PHQ-9 score >10	137 (8.1)	81 (9.1)	56 (7.1)	2.335 (0.127)

\* $p < 0.05$ . SD – Standard deviation; HCWs – Health-care workers; PSS – Perceived stress scale; GAD – Generalized anxiety disorder; WEMWBS – Warwick-Edinburgh Mental Well-being Scale; PHQ – Patient health questionnaire

say” [Table 3]. In most of the areas, majority of the participants reported no change, yet about one-third of the study participants reported slight worsening (increase) of negative emotions such as sadness (30.7%), anxiety (36%), irritability (32.2%), frustration (32.3%), and fear and apprehension (33.8%). About one-fifth of the participants reported increase in feelings of loneliness (21.3%) and fear of death (20.8%). Another 10%–15% of participants reported marked worsening of these negative emotions. Slight increased in social connectedness was reported by 18.7% and marked increase in use of social media was reported by about one-third (35.1%) of the participants.

Regarding somatic symptoms, sleep, appetite and fatigue, there was slight worsening (increase) in these features in about one-fifths of responders [Table 4]. About one-third to about three-fifth of the participants reported slight or marked increase in activities such as exercise, faith in God, watching movies, internet gaming, playing indoor games, sexual activity, reading books, painting, cooking, and cleaning [Table 4]. There was marked reduction in shopping and spending in a significant proportion of the participants.

### Stress due to COVID-19 infection

More than one-third of the participants (38.5%) had fear of getting infected with COVID-19 infection, always wore masks and protective equipment even in open spaces (37.9%),

invested majority of their time reading or watching COVID-related facts (38.5%), and had anxiety when dealing with febrile patients/family members (38.8%). One-fourth of the responders reported feelings of pessimism or hopelessness (23.3%), feeling detached from others (24.0%), feeling exhausted (24.3%) and had trouble falling asleep/frequent awakenings (27.7%). Further, about one-fifth of the responders reported having avoided COVID-19-related information (20.8%), had anxiety/palpitations (19.3%) and had deterioration in the work performance (19.3%). About 30% of the participants reported of feeling irritated and angry on self or others, and with the uncertainty about frequent modifications of infection control procedures (32.0%). About one-fourth of the participants also reported fear of going out of home, because of fear of infecting family members. Only 10% of the responders reported experiencing stigma and rejection in neighborhood because of working in the hospital/being kept in quarantined facility, and a similar proportion was reluctant to work or considered resignation after discharge [Table 5].

### Relationship between anxiety, stress, sadness, mental well-being, and duration of lockdown period

Higher level of stress, depression, and anxiety correlated positively with each other and negatively with the well-being. It was further seen that there was significant



**Table 3: Effect of lockdown on relationships**

Variables	Frequency (%)				
	No change	Slightly improved	Marked improved	Slightly worsened	Markedly worsened
Relationship with family members	661 (39.2)	563 (33.4)	304 (18.0)	122 (7.2)	35 (2.1)
Relationship with your spouse/partner	277 (16.4)	476 (28.2)	799 (47.4)	121 (7.2)	12 (0.7)
Relationship with children	387 (23.0)	477 (28.3)	744 (44.2)	56 (3.3)	21 (1.2)
Relationship with parents	274 (16.3)	544 (32.3)	797 (47.3)	57 (3.4)	13 (0.8)
Relationship with your neighbors	123 (7.3)	424 (25.2)	1042 (61.8)	82 (4.9)	14 (0.8)
Relationship with your office colleagues	123 (7.3)	411 (24.4)	1004 (59.6)	127 (7.5)	20 (1.2)

**Table 4: Effect of lockdown on one's emotions, feelings, and various aspects of life**

	Frequency (%)					
	No change	Slightly increased	Markedly increased	Slightly decreased	Markedly decreased	Cannot say
Sadness	613 (36.4)	518 (30.7)	181 (10.7)	175 (10.4)	96 (5.7)	102 (6.1)
Anxiety	509 (30.2)	606 (36.0)	218 (12.9)	203 (12.0)	98 (5.8)	51 (3.0)
Irritability	595 (35.3)	545 (32.3)	213 (12.6)	184 (10.9)	97 (5.8)	51 (3.0)
Frustration	59 (35.2)	545 (32.3)	231 (13.7)	146 (8.7)	101 (6.0)	69 (4.1)
Loneliness	709 (42.1)	359 (21.3)	248 (14.7)	160 (9.5)	127 (7.5)	82 (4.9)
Social connectedness	579 (34.4)	315 (18.7)	167 (9.9)	295 (17.7)	268 (15.9)	61 (3.6)
Social isolation	527 (31.3)	378 (22.4)	385 (22.8)	176 (10.4)	139 (8.2)	80 (4.7)
Fear and apprehension	575 (34.1)	569 (33.8)	222 (13.2)	165 (9.8)	91 (5.4)	63 (3.7)
Fear of death	893 (53.0)	351 (20.8)	176 (10.4)	73 (4.3)	60 (3.6)	132 (7.8)
Sleep	652 (38.7)	367 (21.8)	225 (13.4)	285 (16.9)	104 (6.2)	52 (3.1)
Appetite	880 (47.5)	378 (22.4)	182 (10.8)	261 (15.5)	39 (2.3)	25 (1.5)
Pain	1103 (65.5)	190 (11.3)	158 (9.4)	97 (5.8)	37 (2.2)	100 (5.9)
Fatigue	836 (49.6)	372 (22.1)	162 (9.6)	157 (9.3)	98 (5.8)	60 (3.6)
Exercise	569 (33.8)	376 (22.3)	193 (11.5)	247 (14.7)	248 (14.7)	52 (3.1)
Substance use, including alcohol	1009 (59.9)	173 (10.3)	125 (7.4)	78 (4.6)	157 (9.3)	143 (8.5)
Use of social media	323 (19.2)	489 (29.0)	591 (35.1)	140 (8.3)	108 (6.4)	34 (2.0)
Faith in god	844 (50.1)	308 (18.3)	358 (21.2)	74 (4.4)	67 (4.0)	34 (2.0)
Watching movies	515 (30.6)	534 (31.7)	436 (25.9)	107 (6.4)	58 (3.4)	35 (2.1)
Internet gaming	913 (54.2)	311 (18.5)	269 (16.0)	57 (3.4)	50 (3.0)	85 (5.0)
Playing indoor games (without using the gadgets)	813 (48.2)	417 (24.7)	227 (13.5)	69 (4.1)	54 (3.2)	105 (6.2)
Sexual activity	945 (56.1)	241 (14.3)	165 (9.8)	109 (6.5)	112 (6.6)	113 (6.7)
Shopping	477 (28.3)	196 (11.6)	61 (3.6)	188 (11.2)	707 (42.0)	56 (3.3)
Spending	377 (22.4)	160 (9.5)	60 (3.6)	370 (22.0)	681 (40.4)	37 (2.2)
Reading books	599 (35.5)	529 (31.4)	264 (15.7)	133 (7.9)	114 (6.8)	46 (2.7)
Drawing/painting	1018 (60.4)	252 (15.0)	211 (12.5)	23 (1.4)	33 (2.0)	148 (8.8)
Cooking	596 (35.4)	461 (27.4)	449 (26.6)	72 (4.3)	42 (2.5)	65 (3.9)
Cleaning	380 (22.6)	603 (35.8)	505 (30.0)	118 (7.0)	52 (3.1)	27 (1.6)

positive correlation between the perceived stress and severity of depression with the duration of lockdown period [Table 6].

## DISCUSSION

With no alternative ways to escape from the COVID pandemic, almost all the countries have adopted the lockdown strategy as a potentially effective strategy to fight against the COVID-19. India was also quite early in its response to impose lockdown, as early as, within 2 weeks of declaration of COVID-19 as a pandemic, i.e., March 25 (WHO declared COVID-19 to be pandemic on March 11, 2020). Even though this strategy is an important measure to tackle the exponential rise of COVID cases, it has widespread impact on the economy, psyche, and daily living of the public. In this regard, the current study was

planned to evaluate the psychological impact of lockdown on the general public with an objective to assess the fear, perceived stress, and psychological problems related to lockdown due to COVID-19 pandemic in India.

Some of the strengths of the survey were that it was translated into 11 Indian languages along with English. Further, the survey questionnaires also included the evaluation of impact of lockdown on relationship with significant others and how the lockdown affected one's emotions and feelings. Besides, the use of some self-designed questionnaire, the survey also included well-validated scales usually used for community surveys such as GAD-7, PHQ-9, PSS, and WEMWBS (for well-being).<sup>[19-22]</sup>

The prevalence rates of depressive symptoms and anxiety symptoms based on cut off scores of PHQ-9 and GAD-7

**Table 5: Stress due to coronavirus disease-19 infection**

Variable	Frequency (%)		
	Yes	No	Not applicable
Feared getting infected more severely with corona virus	648 (38.5)	900 (53.4)	137 (8.1)
Feeling pessimism or hopelessness	393 (23.3)	1172 (69.6)	120 (7.1)
Absence of emotional response - feeling numb/no happiness or sadness	324 (19.2)	1162 (69.0)	199 (11.8)
Feeling exhausted	409 (24.3)	1119 (66.4)	157 (9.3)
Reduced awareness or being in a daze/feeling confused/unable to think clearly	311 (18.5)	1249 (74.1)	125 (7.4)
Feeling detached from others	404 (24.0)	1155 (68.5)	126 (7.5)
Always wore mask and protective equipment even in open spaces	639 (37.9)	940 (55.8)	106 (6.3)
Invest majority of free time reading or watching corona virus-related information	649 (38.5)	968 (57.4)	68 (4.0)
Anxiety when dealing with febrile patients/family members	653 (38.8)	781 (46.4)	251 (14.9)
Avoided corona virus related information	350 (20.8)	1186 (70.4)	149 (8.8)
Had anxiety/palpitations	325 (19.3)	1284 (76.2)	76 (4.5)
Felt irritated/angry on self or others	526 (31.2)	1087 (64.5)	72 (4.3)
Had trouble falling asleep/frequent awakening	467 (27.7)	1156 (68.6)	62 (3.7)
Uncertainty about frequent modification of infection control procedures	540 (32.0)	1001 (59.4)	144 (8.5)
Poor concentration and felt indecisive	409 (24.3)	1156 (68.6)	120 (7.1)
Afraid to go to home because of fear of infecting family	402 (23.9)	1013 (60.1)	270 (16.0)
Deteriorating work performance	325 (19.3)	1103 (65.5)	257 (15.3)
Reluctant to work or consider resignation after discharge	163 (9.7)	1109 (65.8)	413 (24.5)
Depressed mood - feeling low most part of the day	276 (16.4)	1238 (73.5)	171 (10.1)
Stigmatization and rejection in neighborhood because of hospital work/being kept in quarantined facility	173 (10.3)	1069 (63.4)	443 (26.3)

**Table 6: The association between day of response of lockdown with reported perceived stress, sadness, anxiety, and mental well-being during lockdown**

Variables	Total PSS score, <i>r</i> ( <i>P</i> )	Total GAD score, <i>r</i> ( <i>P</i> ) <sup>#</sup>	Total PHQ-9 score, <i>r</i> ( <i>P</i> ) <sup>#</sup>	Total well-being score, <i>r</i> ( <i>P</i> )
Total GAD score	0.528 <sup>#</sup> (<0.001)***			
Total PHQ-9 score	0.321 <sup>#</sup> (<0.001)***	0.448 <sup>#</sup> (<0.001)***		
Total well-being score	-0.469 (<0.001)***	-0.481 <sup>#</sup> (<0.001)***	-0.391 <sup>#</sup> (<0.001)***	
Days of response of lockdown	0.062 (0.011)*	0.031 (0.197)	0.053 (0.029)*	-0.006 (0.810)

<sup>#</sup>Spearman correlation coefficient. GAD – Generalized anxiety disorder; PSS – Perceived stress scale; PHQ – Patient health questionnaire

were 10.5% and 38.2%, respectively. A comparison of our findings with those of the National Mental Health Survey (NMHS)<sup>[23]</sup> shows that psychiatric morbidity of common mental illnesses may be higher in our study (40.5%) than the estimated prevalence of 10% in the NMHS.<sup>[24]</sup> It can be argued that the significantly higher prevalence of psychiatric morbidity in the present study compared to the NMHS may be due to the use of different sampling methods and use screening instruments (whereas NMHS employed Mini International Neuropsychiatric Interview), but the screening instruments have been found to have high sensitivity and specificity against the diagnosis made by mental health professionals.<sup>[25,26]</sup> Thus, the difference in the prevalence rates cannot be completely attributed to the difference in the methodology. Hence, it is possible that lockdown period has led to a significant increase in the mental morbidity of mostly milder intensity in the general public. A web-based survey from China, which evaluated the psychological problems among the Chinese people (*n* = 1074) close to the COVID-19 epidemic peak and subsequent lockdown, reported anxiety (mild/moderate/severe as evident from Beck's Anxiety Inventory) in 29% of participants and depression (mild/moderate/severe as evident from Beck's Depression Inventory) in 37% of participants, and poor mental well-being in one-third of its participants.<sup>[27]</sup> The prevalence

of anxiety found in the present study is comparable to the previous study from China, but the prevalence rate of depression is lower. The lower rate of depression in the present survey, compared to the study from China, could be due to the difference in the timing of the study, in terms of the number of COVID-19 cases in the country. The present survey was done at the beginning of the epidemic in the country, compared to the survey from China, which was done, close to the peak of epidemic. The association of higher prevalence of depression, close to the peak of the epidemic, can be understood by the fact that the COVID-19 was associated with higher mortality rate in China, compared to current statistics from India. In the present study too, the association of depression and longer duration of lockdown was seen, which could be an indicator of increase in prevalence of depression with an increase in the number of cases of COVID-19 infection. The prevalence of mild-to-moderate anxiety and depression, in 40.5% of the participants in the present survey indicate that the pandemic and the lockdown is having a big toll on the mental health of people in the country and suggest an urgent need to address the same. The Indian Psychiatric Society took a lead in this direction, in the early stages of the lockdown, by providing free mental health aid to the people desirous of seeking mental health care.

In the present survey, 47.1% of the participants were HCWs and when the prevalence of psychiatric morbidity was compared between the HCWs, when the mild depression (i.e., PHQ-9 score of 5-9) was also included as an indicator of depression. However, when the cut-off of  $\geq 10$  was used for depression, there was no significant difference between the 2 groups. and non-HCWs, it was seen that the prevalence of depression to be significantly higher among the non-HCWs. Existing literature on the mental health problems faced by the HCWs in China during the COVID-19 crisis suggests a significant proportion of HCWs (36.9%) suffered from subthreshold mental health disturbances (as assessed by PHQ-9, GAD-7, Insomnia Severity Index)<sup>[28]</sup> and about 22.4%–50% of HCWs reported experiencing depression, anxiety, significant distress and insomnia.<sup>[29]</sup> Our findings are comparable to these studies among HCWs, if mild anxiety and mild depression are taken into account.

In the present study, in general, majority of the participants reported positive impact of the lockdown on the relationship dimension in terms of relationship with parents, children, spouse, colleagues, and neighbors. The improved relationship could be attributed to the availability of more free time, less work pressure and possible fulfillment of long desired free time. Findings of the present study are supported by many available websites/blogs, which have reported positive aspects of lockdown such as improvement in air quality/healing of nature,<sup>[30]</sup> making people realize value of re-connecting with families<sup>[31]</sup> and improvement in love/dating and family relationships.<sup>[32]</sup> However, the improved relationship dimensions could also be attributed to the fact that, when everyone is fighting a common enemy, the interpersonal relationship issues are forgotten, which is possibly reflected as improved relationships.<sup>[33,34]</sup> Another explanation for the improved relationship could be a fear of death, which often makes people perceive themselves as weak, and hence, have less initiative to fight with others.<sup>[35]</sup>

However, despite improvement in the interpersonal dimension, there was increase in the prevalence of negative emotions such as sadness, loneliness, anxiety, frustration, and fear and apprehension in about one-third to nearly half of the participants. These findings again support the possible increase in the prevalence of depression and anxiety, in the wake of the pandemic. When asked about the COVID-19 infection *per se*, about one-fourth to one-third of the participants reported presence of symptoms related to possible COVID-19 infection to be stressful. Some of the other reported areas for which a significant proportion of participants reported significant stress were fear of getting infected with COVID-19 infection, always wore masks and protective equipment even in open spaces, invested majority of their time reading or watching COVID related facts, had anxiety when dealing with febrile patients/family members, feelings of pessimism or hopelessness, feeling detached from others, feeling exhausted and had trouble falling

asleep/frequent awakenings, avoiding COVID-19-related information, having anxiety/palpitations, deterioration in the work performance and some experiencing stigma and rejection due to their profession related to HCWs or due to being under quarantine. All these findings reflect the fear of infection of contracting COVID-19. While fear of contracting COVID-19 can be considered as justified, considering the worldwide mortality and infection rates, but these could also be attributed to the issues such as media hype and prevailing myths related to COVID-19 infection.

This survey has certain limitations. Despite attempts to circulate widely in all possible social media platforms, wider participation was expected. Accordingly, it can be said that the response rate for the survey was low. About half of the participants were doctors, which suggest that the survey did not have the desired snowballing effect, as much as it was expected. A majority of the participants were postgraduates, which was possibly again influenced by the higher proportion of participants being doctors. The survey was limited to those, who had access to a smart phone device and it can be said that the study participants may not be representative of people from various strata of the country. However, considering the situation, this was the possible best methodology to reach to the people to understand the psychological impact. These limitations suggest that the findings may not be generalizable to every strata of the society.

## CONCLUSIONS

To conclude, the present survey suggests that more than two-fifth of the people are experiencing anxiety and depression, due to lockdown and the prevailing COVID-19 pandemic. This finding suggests that there is a need of expanding the mental health services to everyone in the society during this pandemic situation.

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## Conflicts of interest

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# Data Handling for E-Mental Health Professionals

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## ABSTRACT

Digital psychiatry and e-mental health have proliferated and permeated vastly in the current landscape of mental health care provision. The COVID-19 crisis has accelerated this digital transformation, and changes that usually take many years to translate into clinical practice have been implemented in a matter of weeks. These have outpaced the checks and balances that would typically accompany such changes, which has brought into focus a need to have a proper approach for digital data handling. Health care data is sensitive, and is prone to hacking due to the lack of stringent protocols regarding its storage and access. Mental health care data need to be more secure due to the stigma associated with having a mental health condition. Thus, there is a need to emphasize proper data handling by mental health professionals, and policies to ensure safeguarding patient's privacy are required. The aim of useful, free, and fair use of mental health care data for clinical, business, and research purposes should be balanced with the need to ensure the data is accessible to only those who are authorized. Systems and policies should be in place to ensure that data storage, access, and disposal are systematic and conform to data safety norms.

**Keywords:** Cyberpsychiatry, epidemiology, qualitative, review

The use of telemedicine and digital platforms by the mental health professionals has accelerated during the current COVID-19 pandemic.<sup>1</sup> Keeping in mind the need for such services during the pandemic situation, the Government of India has provided guidelines for running such facilities.<sup>2</sup>

Telepsychiatry is a field in its own right and has been gradually increasing in scope and application. The ecosystem of telepsychiatry has changed from being telephone-based to digital platforms. Telepsychiatry permeates marketing and listing of mental health services,

booking appointments, conducting interviews and therapy, documentation, prescription generation, medication delivery, scheduling follow-up, and other activities. Various mental health specialties can expand in scope and improve the delivery of services due to the potential of telemedicine.<sup>3</sup> The promise of psychiatric services in remote areas by using telepsychiatry has made it one of the important components of telemedicine services.<sup>4</sup> Digitalized medicine is another framework that includes using digital services and devices, whether connected to the internet or not, in the provision of medical services. This includes push toward moving to computerized records instead of handwritten ones and using digital devices in the processes of providing care to the extent possible.

Many countries are already moving toward a national health record for its citizens, which is assessable by health care providers irrespective of location.<sup>5,6</sup> There are considerable benefits in terms of streamlining health care experience, reducing the need for repeat investigations and assessments for the same conditions. Australia is a prime example of this. Most Western countries have well-defined standards and protocols in place for generating, recording, storing, and disposing of health care data. Similarly, specific legal statute are governing the same.

Expansion of telemedicine and digital services draws attention toward appropriate handling of the data. Digital health care data is particularly insecure as health systems are not designed with security in mind. At the same time, it is one of the most valuable data from the perspective of privacy<sup>7</sup> and health research.<sup>8</sup> There have been reports of health care data being hacked and then made available on the dark web.<sup>9</sup> The breach of mental health care data is more sensitive

than a breach of several other health care conditions, as considerable stigma still applies to psychiatric disorders. Additionally, the same can have more extreme legal implications compared to the data from different specialties.<sup>10</sup> Thus, psychiatrists and other mental health professionals need to be aware of the issues related to data generation, handling, and disposal. This write-up aims to discuss topics related to data handling relevant to mental health professionals. This article does not intend to go into the depth of the technical and computational aspects of data handling and access. Still, it provides a pragmatic overview of the issues involved in the generation and storage of the data in general.

## Definition

Telepsychiatry is “the delivery of health care and the exchange of health information for purposes of providing psychiatric services across distances,”<sup>11</sup> while digital medicine (of which digital psychiatry is a part) is “all the theory, knowledge, technology, and methodology which are involved in solving medical problems using modern digital technology in basic science, clinical medicine, preventive medicine, and so forth, to increase our understanding of life phenomena and the nature of disease as well as to improve clinical diagnosis and treatment.”<sup>12</sup>

## Data and its Facets

Data has been conceptualized differently by different experts<sup>13</sup> but one of the appealing definitions is that data are the primary individual items of numeric or other information garnered through observation. Still, in themselves, without context, they are devoid of information. Data from the perspective of digital psychiatry is any discrete information that is stored in a digital device and pertains to information about the patient, process of

care, research, or secondary analysis of this information.

The potential sources of data of relevance to mental health professionals are depicted in **Figure 1**. The source of data can be the interview and assessment process, which can be audio or video recorded in a digital format. Data processing and extraction can be used to convert audio data into text. The information from the intake interview or subsequent mental health professional encounters may be coded into text either by writing the same information or using the audio into the text form by using various software. This process is similar to the notes prepared after an interview, which are stored in files. Current technologies also allow for recognition of handwriting, conversion into text, and textual digitalization of old records as the conversion of text into speech. This data is important as it provides information to other mental health professionals about what was the psychopathology, clinical concerns in a particular case, management plan formulated, and treatment offered. This information would be quite valuable to understand previous treatment approaches and what can be done in the future. Smartphone, wearable device, or computer-based applications can also be used for assessment of mood charting, administration of psychiatric rating scales, and momentary ecological assessment.<sup>14,15</sup> Nursing records also provide information on the physical and mental health conditions. Additionally, the advent of real-time data through sensors are emerging avenues of data collection. Hand movement ascertained through actigraphy, originally used for sleep research, has been used to look at conditions like attention deficit hyperkinetic disorder and delirium.<sup>16,17</sup> As the integration of sensors occurs more seamlessly with wearable devices, it is hoped that minimally obtrusive observation of many psychiatric conditions would occur in the natural home or work environment, and not just in the mental health professionals' "chambers." Other data sources include billing information linked to the mode of payment and other financial information; insurance information about the patient, including the diagnoses, sums reimbursed through

insurance, and the reasons for declining claims; and management of inventory including medications (especially when stocking regulated medications like buprenorphine). The potential application of the digital data-based aspects of psychiatric health care is not limited to the above, and many other potential applications are being tried, tested, refined, and implemented in the current circumstances. As mobile phones have become ubiquitous, many research and commercial applications are now available to extract the data from the device sensors to study physiological functioning. For example, stress and nonstress conditions can be differentiated by monitoring electrocardiogram using a chest strap sensor and galvanic skin response using finger sensors and a wrist cuff. This data can be transmitted reliably to a server via Bluetooth.<sup>18</sup>

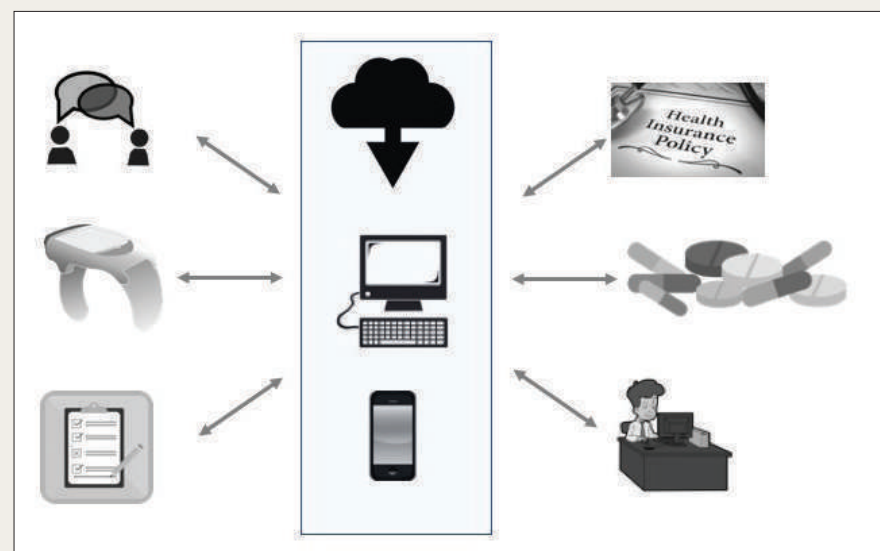
A related consideration in the mentioned scheme of things is the storage of the data. Traditionally, patient information has been stored in hardcopies of files, typically for at least five to ten years, with the ownership of the data resting with the patient. The digital revolution has allowed storage of data in the form of binary codes that is stored in disc drives. Texts, images, audio, and video are the common types of data from the health

care setting that are stored. Localization of the stored data in disc drives in fixed computers and laptops and pendrives has given way to storage of data on mobiles, and access through the internet in remote locations. Uploading data in the "cloud" servers and accessing the data through intranet or internet has become commonplace. As the clinical data moves from paper files that can be physically locked to digital format across devices and often communicated via the internet, it becomes increasingly susceptible to unauthorized access and hacking. For example, electronic medical records got locked due to a ransomware attack on Grays Harbor Community Hospital and Harbor Medical Group.<sup>19</sup>

Data access (i.e., who has access to the digital information and by what means) is a crucial consideration for telepsychiatry and digital psychiatry. Ownership and access to the data within regulatory framework are some of the questions that are being deliberated upon. If the patient is the source of data, the health care provider is also a cocreator of the data. Many regulations over the world do recognize the privacy of the data of the patients, and unauthorized use is punishable. For example, the UK Data Protection Act of 2018 has a provision of penal fine of up to 17 million pounds

FIGURE 1.

### Potential Sources of Data for Mental Health Care Practice



Note. Electronic data related to mental health can be generated from patient interviews; smart devices; nursing records, specialist referrals and consultations, and self-filled checklists (can be through mobile devices); insurance claims and information; medication inventories; and administrative, scheduling, and billing sections. Information can be stored in mobiles, computers, or in the cloud.

on the organization using patient data without consent after permission from Confidentiality Advisory Group for serious breach if there is a failure to comply with the provisions and guidelines of data handling.<sup>20</sup> Yet, the data curating and hosting services do have authorized access on as-needed basis. Similarly, health care providers have required access to the data for promoting the health of the patients and populations. Standards have been spelled out about data safety of electronic health records, both in terms of technical specifications and administrative requirements.<sup>21</sup> The individuals or entities that are likely to have access to the data are the patient, clinician, receptionist or administrative staff, computer professionals who have set up the system and maintain it, and those who have access to cloud servers if the data is stored in the cloud. Similar to the paper medical records format, health care regulating authorities and law enforcement agencies, including judiciary, may request for particular records. However, there needs to be a guidance for professionals and public, who are the main stakeholders. Hackers can gain access to the data when they mount an attack. However, data can become accessible to unauthorized personnel when nonencrypted files are available through lost or discarded pendrives, computers, and laptops; and when individuals have left their stations/devices without “logging out” of the health care data portal. Therefore, there is a need for individuals to understand the importance of such an act. Therefore, this needs to be part of induction training before getting involved in providing telepsychiatry services. Maintaining confidentiality of the data of patient information is everyone’s responsibility and all professionals need to understand that there are different aspects involved.

The electronic data in mental health care, both online and offline, can have multiple potential uses.<sup>22</sup> The data can be of use to the patients to know the records, timelines, and appraisal of their mental health, especially when they need to switch between different health care providers. Such electronic data may be useful for the mental health professionals to know salient features of patient’s his-

tory, management, and course of illness. It may also be helpful for researchers to gain insights into the determinants of health and diseases and outcomes of patients with different interventions. For example, the research data can be used for suicide prevention and research on the long-term course and outcome of psychiatric disorders.<sup>23,24</sup> The digital information is of use to insurers in actuarial sciences, in determining the risk of diseases, and the suitable premiums. Activity data may also be of relevance to engineers who would like to develop wearable devices for specific purposes, for example, having an indirect estimation of drug responses in depression.<sup>25</sup> The electronically generated and stored information might be of consequence to the regulatory authorities to understand the adverse effects of certain drugs or interventions. Hospital administrators and managers may use health data for benchmarking, service utilization, and revenues. The blended data can be used at the state and national levels to inform public health policy and for allocation of funding for specific conditions. The pharmaceutical industry (and the health care industry in general) may be interested in the real-time sales data to estimate the demand for particular medications or pharmaceutical products. The finance industry may find the data relevant (if such data is accessible) to determine the credit-worthiness for certain individuals, especially if they are suffering from specific disorders. Advertisers may look at the volume of electronically stored data from one particular demographic where they would like to promote a product. Thus, the value of the mental health care data would be different for different entities based upon their profile, goals, and directions.

## Handling of Data and its Importance

The above discussion underscores why the handling of data has to be given due consideration in the field of mental health. Following are some of the issues that are relevant to data handling.

1. Determination of the storage medium: The storage of data can be on a laptop, desktop, local server,

or the cloud, or any other medium. Using pendrive for data transfer can be unsafe as pendrives can get lost or accessed without authorization. Hence, such a transfer should be minimized and anonymized if possible. Discarding of the storage medium after use should also be paid attention to, as that can be a source of data leakage. For paper records, medico-legal statutes usually require the health care provider to maintain records for a fixed time period before they can be disposed of. Hence digital data, too, must be appropriately stored and backed up to ensure compliance. Similarly, as for paper records, any post hoc alteration must be suitably recorded by digital means.

2. Encryption of patient data (encoding of information) and other security protocols: Data encryption helps to protect the data even if it is lost in transit or is accessed by unauthorized personnel. Several encryption strategies are available<sup>26</sup> but efficient data encryption methods are required to make the data available and minimal time and computation power is needed for encryption and de-encryption process. Similarly, other security protocols should be in place for the secure transmission of data. Password protection of data is one of the most conventional ways of access controls which ensure security. End-to-end encryption has been provided in messaging and calling applications such as WhatsApp, Telegram, and Line. Telemedicine guidelines do mention WhatsApp as an application that can be used.<sup>2</sup> Ability to make voice calls, video calls to talk to the patient and their caregivers, and sending e-prescriptions as a document, along with the ability to have text conversations, makes it an appealing application for telemedicine. Secret chat in Facebook Messenger also provides end-to-end encryption.
3. Access control policies: This pertains to the legitimate access holders of the data. The more the number of individuals who have access to data, the more are the chances of it

being compromised. Access control policies should spell out who shall have access to the data (complete or partial) and in what circumstances. Such policies, when written and known in a health care organization, help to create an environment of trust and accountability regarding patient data. Also, different access categories can be given entry to various segments of the data. For example, mental health professionals may have information of mental health records, but not billing documents. In contrast, administrative staff may have access to scheduling and billing records, but not psychiatric care records.

4. Access loggings: This pertains to the access to the data by different individuals being logged. The log provides information about who all accessed the data (e.g., the doctor, nurse, secretarial staff), and when. This may be helpful to trace unauthorized access to data,<sup>27</sup> especially in the situations of data hacking.
5. Automatic logout: Patient data may be unknowingly exposed to third parties when the last session had not been logged out. Automatic logout after a defined period of inactivity may reduce the chances of such inadvertent access to the health care data.

The handling of data is ingrained in the process of online consultation and needs to be in accordance with the locally relevant guidelines. The telemedicine guidelines in India<sup>2</sup> have provided some clarity in the manner in which telemedicine services are to be provided and what measures are to be taken in the teleconsultation process. Some elements should be considered while providing services.<sup>2</sup> These apply to both treatment and prevention of diseases, and for research purposes. Additionally, it is recommended that log or record of telemedicine interaction and patient records, prescriptions, reports, documents, images, diagnostics, and data (both digital or nondigital) should be retained by the registered medical practitioner. The invoice of the appropriate fee charged by the practitioner should also be provided. Prescriptions, when issued, should not be in contravention of the provisions of the Drugs and

Cosmetics Act and Rules. A photo, scan, digital copy of a signed prescription or e-prescription to the patient via email or any messaging platform can be sent, with explicit mention to the patient that he/she can get the medicines dispensed from any pharmacy of his/her choice.

## Big Data Analytics

Big data has come up in health care in a significant manner, due to the collation of large patient databases, and advancement in the computational powers and techniques like machine learning.<sup>28</sup> Extensive data in the cloud and distributed systems offer an opportunity to access volumes of data to make consequential inferences. Machine learning algorithms on the more massive data sets have resulted in gaining insights about diagnostics and therapeutics. Deep neural networks can be used and tested with the voluminous merged data from different practices and health care institutions. Data mining from big data is another exciting field that entails getting data of interest from a plethora of data that has been collected. One of the essential steps in big data analytics is the de-identification of the data. This means that identifying details of the patients are coded or removed so that the condition in question is available for analysis without providing details, which may lead to a breach of privacy. The data which are generally de-identified are name, social security number (or Aadhaar number in India, PAN card number or bank details), pin code, and date of birth.

## Different Data and Reconciliation

One of the main challenges in compiling and comparing data has been different architectures of data storage. Each of the data systems may have its own defined data capture fields, delimitations, access codings, compression algorithms, and supported operating systems. Automatic cross talk and data conversion across platforms are still a challenge. Hence, data of patients from different sources are reconciled first while aggregating across sources. This might require the

use of dedicated software “middleware” for data exchange to occur.

## Unique Situations Impacting the Handling of Data

There can be several circumstances when the handling of data may become challenging for mental health professionals. Therein, the usual protocols, means, mechanisms, and statutes may be called up into question. Some of these situations are discussed further.

TABLE 1.

### Recommendations for E-Mental Health Professionals for Handling Data

Do consider what data are to be collected from patients, where would that data be kept, who all would have access to the data, and to what component(s) of the data?

Ensure that all the mental health professionals are provided induction training and are updated regularly on local policies and protocols, including data security, login and logout protocols, and data handling.

Separate traceable logins should be available for each individual who has access to the patient data.

Use software and data storage facilities that have data encryption facility and are adept in implementing data security protocols.

Data, when being used for other purposes like research, should be anonymized. Identifying data should be omitted at the time of copying the data. If the data is likely to be used for research, then it is better to inform the patient about it beforehand.

Transfer of the data to colleagues and authorities should be documented by electronic logs in terms of what data was shared, when it was shared, how it was shared, and with whom it was shared.

Automated logout after inactivity should be the norm at the data entry, and access terminals for that pilferage of data can be avoided.

Disposal of obsolete hardware/data storage devices should ensure that the data is wiped clean and securely disposed of.

Incidents of being hacked should be reported to law enforcement or proper regulatory authority.

Exercise reasonable degree of caution while hiring services/ individuals/ applications for technological solutions for telemedicine services, emphasizing on patient's privacy and confidentiality.



## Emergencies

During the teleconsultation process, patients may demonstrate the need for emergency care due to a threat of harm to self or others. Such a situation may occur if the patient is suicidal or expresses violence due to psychotic symptoms. Therein, it is crucial to record the consultation appropriately for further necessary action. The subsequent step could be the encouragement of known acquaintances to seek treatment in an emergency setting, or involvement of local law enforcement to defuse the situation. The breach of confidentiality would need to adhere to the telemedical rules and regulations and the legal statutes. The teleconsultation may also serve as evidence in case there is legal fallout of the situation.

## Psychotherapy

Online psychotherapy has also gathered steam to prevent the need to travel and physical infrastructure for face-to-face psychotherapy sessions.<sup>29</sup> While psychotherapy has been found to be effective when conducted online, caution has also been expressed about its uptake.<sup>30</sup> The data of the patient emanating out of online psychotherapy can be in the form of digital notes and audio/video records of the session. The documents are potentially instructive, may work well for reflections or teaching material for therapies, and also add-on the patient's mental health profile. However, safe-keeping of such data of the patient also needs to be emphasized to maintain anonymity and confidentiality. Psychotherapy is more appealing to clients when they feel secure and their privacy respected. Ensuring such concerns of the clients are honored would be essential for digital uptake in psychotherapy practices.

## Access to Family Members

The Mental Healthcare Act of 2017 mandates that the nominated representative can seek information about the diagnosis and treatment of the patient. However, when the patient does not want the information to be disclosed to family members, then the support needs of the patient may need to be looked at. When there are high support needs of the patient or when capacity is lacking or when the patient is a minor, then the nominated representative would make decisions

for the patient and would need information about previous diagnosis and treatment. In such situations, it might be prudent to provide information to the nominated representative. However, when the patient has low support needs, it is better to have consent from the patient (preferably audio-recorded, video-recorded, emailed, or texted) before disclosing information to the relative.

## Access to Regulatory Authorities

As the digitalization of services increases, the data is also likely to be under the scrutiny of the regulatory authorities (as with hardcopy case records). Data appraisal and compliance might be required in health care, as has been becoming commonplace with financial data. Data systems would need to be compliant with regulatory standards. The Health Insurance Portability and Accountability Act<sup>31</sup> of 1996 of the United States is one of the initial such regulatory framework implemented to ensure the privacy and security of the digitalized patient data.

## The Interface of Data of Different Disorders or Specialties

The internet of things<sup>32</sup> is expanding its footprint, and it aims to interconnect different devices and data streams to improve experience and output, health care in this case. As patient care improves with real-time monitoring of various physiological parameters, treatment decisions are being expedited for several diseases. Remote observation and intervention are becoming possible, with even robotic surgeries being performed by surgeons in a different location. Such real-time data capture and patient monitoring may become commonplace in mental health care, especially for patients who are violent or suicidal, and multimodal inputs, including vocal intonations, sudden jarring movements, and autonomic parameters may be used to develop predictive models and preemptive action protocols.

## Data Breaches and Data Hacking

Data breach is an encompassing term that implies that data has been available

to nondesignated individuals or entities. The data breach does not mean a malicious intent. It can occur due to data loss or improper data disposal, along with incidents of data hacking that are done with malicious intent.<sup>33</sup> Data hacking includes unauthorized access to the data or blocking the working of data management systems with the intent of obstructing work or getting ransom (ransomware). Over time, health care data breaches have resulted in the loss of data, exposure of identified data to unauthorized personnel, and disruptions in the functioning of the hospitals. Suitable exposure reduction, security enhancement, and organization access control features are likely to reduce the instances of such data breach and hacking. Guidelines and uniform policies would help to bring clarity and standard operating procedures for data handling. The concept of ethical hacking entails hacking with the intent of exposing vulnerabilities, so that corrective measures can be taken to enhance security systems in place, both in the software and in the procedural accesses.

## Recommendations for E-Mental Health Professionals for Handling Data

In this section, we provide some recommendations for mental health professionals as they handle the data, from the perspective of telemedicine and digital psychiatry. These are summarized in **Table 1**.

## Issues of Consent for the Generation and Use of Data (Clinical and Research) Prescription—Requirements as per the Telemedicine Guidelines

Incomplete data has several problems associated with it. These can be legal, clinical, and research related. Incomplete data ascertainment can lead to suboptimal care, which may make a practitioner liable to negligence. For example, regularly conducting and documenting mental status examination for a patient with bipo-

TABLE 2.

## Suggestions for Data Handling During Conduct of Mental Health Research

### Conduct of Research Through Telemedicine

- Consider collecting anonymized data if possible, especially for cross-sectional studies (i.e., avoiding capture of IP address, name, Aadhaar number, date of birth, and pin code)
- Consider using end-to-end encrypted platforms for data collection.
- Consider taking consent using checkboxes developed as an online form. Multiple boxes can be used for different elements of data collection.
- Check the data collection process by dummy entries to check whether data capture is working properly.
- Consider whether the online mechanism of data collection would be used or asynchronous periodic data uploading. If data is not immediately sent, then there is a chance of data loss due to device malfunction, theft, and data corruption.
- Consider beforehand who all will have access to the data (preferably those who have access intimated in a mail).
- Electronic vaults can be used to store the data. Data should be securely deleted after conducting the analysis.
- In case emailing of data is required, or data has to be posted in a repository, then the de-identification of the data should be ensured.
- Consider having ethics committee oversight for the study.

### Conduct of Secondary Data Research

- Consider collecting anonymized data, if possible, from the source. Consider minimal information being drawn from the sources.
- Consent might not have been taken from the participants beforehand. Consider having ethics committee oversight for the study.
- Consider beforehand who all will have access to the data (preferably those who have access intimated in a mail).
- Electronic vaults can be used to store the data. Data should be securely deleted after conducting the analysis.
- In case emailing of data is required, or data has to be posted in a repository, then the de-identification of the data should be ensured.
- Certified email systems should be used for the transmission of health data, making sure attachments are password protected. Corporate and subscription-based emails offer better security than free email service. Some health organizations (e.g., NHS) specifically certify their emails to communicate health data.

lar disorder frequently, especially when making decisions about changing medications or considering admissions, would be helpful, especially if adverse outcomes occur and patient's family would like to take to court. The capture of data is related to documentation of data, with the tenet that if it was not documented, then it was not asked (this being similar to hardcopy records). Thus, attempts should be made to provide reasonable comprehensiveness of data, that is, what an adequately trained professional is likely to record or proceed with. The clinical issue with lack or loss of data is that the management plan would be impeded if crucial information is missing. The inadequacy of data may not serve to assist in research and, therefore, policies.

Legal requirements while dealing with data for mental health professionals pertain to Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations, 2002, and with the relevant provisions of the IT Act and the notifications that are issued from time to time regarding the protection of privacy and confidentiality of the patient. The recent Indian telemedicine guidelines mention that registered medical practitioners will not be held responsible for breach of privacy provided that it was caused by technology or some other person, provided a reasonable degree of caution was taken for the hiring of such services. Willful compromise of patient confidentiality is not permissible, for example, misusing patient images and data, especially private and sensitive in nature, using telemedicine to prescribe medicines from the specific restricted list, and soliciting patients for telemedicine through any advertisements or inducements. It is important to be aware of of legal provision from the Information Technology Act (section 22) which provides that anyone who has secured access to any electronic record, book, register, correspondence, information, document, or other material without the consent of the person concerned discloses such electronic record, book, register, correspondence, information, document, or other material to any other person shall be punished with imprisonment for a term which may extend to two years, or with fine which may extend to one lakh rupees, or with both.<sup>34</sup>

The section 108 of Mental Health Care Act, 2017, mentions that any person who contravenes any of the provisions of this Act, or of any rule or regulation made there under shall for first contravention be punishable with imprisonment for a term which may extend to six months, or with a fine which may extend to 10,000 rupees or with both, and for any subsequent contravention with imprisonment for a term which may extend to two years or with fine which shall not be less than 50,000 rupees but which may extend to five lakh rupees or with both. This is relevant when considering provision of confidentiality under section 23 of the Act.

An expanding ambit would be the use of telemedicine for the conduct of research or the use of secondary data for research purposes. We offer specific suggestions for dealing with various issues about data handling in such circumstances (Table 2). However, there is a need to formulate guidelines for the same. It is important to develop guidelines about safeguards for the patient and families in terms of how their data may be used for research purposes. Several online questionnaire services are now available, such as SurveyMonkey and Google Forms.

## Conclusion

As mental health professionals deal with voluminous amounts of data, attention is drawn toward proper handling of the data. Data and its collective analysis are useful for the current patient as well as other patients. Loss of data and its unauthorized access puts the privacy of the patients at risk. Efforts are required to improve the security protocols of data handling to ensure that confidence is retained in the e-mental health services. Continued efforts at improving data generation, storage, handling, and disposal are likely to improve the care, care processes, and outcomes of the patients.

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## Coronavirus disease 2019 pandemic: Ethical concerns for the treatment of individuals with substance use disorders in India

Sir,

The coronavirus disease 2019 (COVID-19) has been declared as a pandemic in March 2020. The contagious nature of the illness and the nonavailability of any specific treatment or vaccines compel the governments to impose preventive measures ranging from quarantine and social distancing to nationwide lockdown.<sup>[1]</sup> To adapt to this changing scenario, the healthcare system focused on limiting the public gathering, leading to various degrees of suspension of nonemergency services including treatment for substance use disorders (SUDs).<sup>[2]</sup> This created unforeseen ethical dilemmas.

1. Telemedicine is emerging as an alternative platform for virtual interaction between patients and clinicians. The limited ability to perform a physical examination during teleconsultation may affect the diagnosis of comorbid physical illness and management of the same. This may potentially breach the principle of nonmaleficence. If a patient uses someone else's audiovisual device for teleconsultation, *privacy and confidentiality* might also be at stake
2. Psychotropics in the Schedule H1 List (Drugs and Cosmetics Act) and Narcotic Drugs and Psychotropic Substances Act cannot be prescribed through teleconsultation. Therefore, medications for opioid agonist treatment, i.e. buprenorphine and methadone fall under this prohibited category. This inadvertently affects the treatment of opioid use disorder.<sup>[3]</sup> It might be viewed as *discrimination* against people with SUD. The Substance Uses and Mental Health Services Administration of the United States has temporarily allowed the prescription of controlled substances (including buprenorphine and

methadone) through telemedicine, without the need for a face-to-face consultation

3. The lockdown imposed unwarranted restrictions of patients' movement by the suspension of public transport, closure of state borders, and curfew.<sup>[2]</sup> As, in some cases, patients are unable to come for follow-up, medications are to be dispensed by proxy. This practice complies with the principle of beneficence, but it might result in a *breach of confidentiality*. One extreme form of such breach happens when a government official acts as a proxy collector of medication for a couple of villages/taluks (it is actually happening). While medications for some chronic noncommunicable diseases (like diabetes mellitus) could efficiently be dispensed this way, but for stigmatized and sometimes criminalized SUDs, this practice might lead to significant harm to patients. To impose stringent lockdown, everyone is routinely checked at several police posts on the way to and from the hospital. This certainly leads to a *breach of confidentiality*, and among patients with illicit SUD, fear of legal action may limit service utilization
4. The lockdown caused an abrupt cessation of supply of substances, especially of alcohol, resulting in a sudden increase in patients with severe withdrawal symptoms, and possible intoxication with nonconsumable alcohols and suicide attempts.<sup>[4]</sup> During the third phase of the lockdown, the prohibition on alcohol was lifted, which might have resulted in increased rates of relapse. In spite of the increased treatment need, treatment provisions and opportunities are restricted. This is like an ethical "double whammy," breach of both *nonmaleficence and beneficence*

5. Inpatient treatment, too, is largely limited due to restriction of bed availability (e.g., conversion of various healthcare systems into COVID-19 hospitals) and also for the fear of nosocomial transmission of the infection.<sup>[2]</sup> This restriction interferes with the patients' *autonomy* to avail of inpatient treatment. At the same time, long-stay patients with dual diagnoses in the residential settings are at a higher risk of developing COVID-19 (due to overcrowding and poorer general health condition).<sup>[5]</sup> Despite the risk, it is difficult to discharge patients, because of their limited acceptance in the society, whereas there is a risk of the rapid spread of infection in the inpatient setups.

The basic tenets of medical ethics are beneficence, nonmaleficence, autonomy, and justice.<sup>[6]</sup> The Mental Healthcare Act, 2017 revolves around autonomy, which allows the patient's right for confidentiality, the right to choose or refuse a particular treatment modality, and the right to community living. The government must ensure these rights, but the psychiatrist is endowed with the implementation of the rights.<sup>[7]</sup> In this extraordinary situation of the pandemic, the state is not able to ensure these rights, but the psychiatrists stand at the crossroads. Here, beneficence conflicts with the patient's autonomy and confidentiality. It warrants a rational prioritization from the mental healthcare providers.

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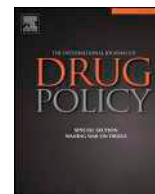
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## Research Paper

# Extended lockdown and India's alcohol policy: a qualitative analysis of newspaper articles



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## ABSTRACT

**Objectives:** Since 25th March 2020 India went into a complete and extended lockdown. Alcohol production, sales, and purchase were barred with this overnight prohibition order. We conducted a qualitative analysis of the media reports published within the first month of the nationwide lockdown with the objectives (a) using the media reports as indications of possible public health impact and population response of a sudden alcohol prohibition in India, (b) suggesting areas for future research.

**Methods:** We performed thematic and content analysis of 350 articles published online in national newspapers between the 26th March, 2020 and 25th April, 2020. Initial inductive, followed by deductive coding was done in this exploratory thematic analysis.

**Results:** The thematic analysis revealed four main themes: the beneficial aspects of the policy, the harmful aspects of the policy, non-compliance and attempts to change and / or subvert the policy, popularity and level of public buy-in of the policy. We generated relevant sub-themes under main themes. Two additional themes, not directly related to the sudden prohibition, were use of stigmatizing language and ethical concerns. The content analysis showed the frequency of the appearance of the main themes and proportions of sub-themes and codes under those main themes.

**Conclusion:** The harms, perceived from the media reports, should be balanced against the potential benefits. Absence of a national-level alcohol policy was made apparent by the reflexive, disconnected, and conflictual measures. Future research could systematically examine the potential ramifications of alcohol prohibition on public health, social, and economic aspects.

## Introduction

According to the nation-wide survey published last year, an estimated 160 million (14.6 percent) people in India consume alcohol and 29 million (2.7 percent) were dependent on it (Ambekar *et al.*, 2019). In addition to the number of people who are dependent on alcohol an additional 29 million (5 percent) experience hazardous consumption. More than 60% of alcohol consumed consisted of "spirits" (i.e. Indian made foreign liquor and country-made liquor) (Ambekar *et al.*, 2019; Benegal, 2005; Gaunekar *et al.*, 2004; Mohan, Chopra, Ray, & Sethi, 2001). Among the SEAR countries, India had the highest yearly per capita alcohol consumption of 5.7 litres (World Health Organization, 2018). All these three factors together pose a serious public health threat. The proportion of young drinkers rose from 2% to 14% in the last two decades, and the age of initiation declined from 19

years to 13 years (Prasad, 2009). The threat is multiplied by an added concern of a powerful alcohol lobby, led by multinational corporations, which targets India's emerging market of young drinkers (Schess, Jambhale, Bhatia, Velleman, & Nadkarni, 2018). The enthusiasm of the corporations is fuelled by a steady change in the level of acceptance and attitude towards alcohol from a culture of abstinence to ambivalence to covertly permissive (Benegal, 2005; Prasad, 2009). India needed a national level alcohol policy to minimize the public health impact of the aforementioned factors. However, India's alcohol policy is governed by the states. The three main pillars of the policy are supply reduction to prohibition; taxation; and tertiary prevention (Schess *et al.*, 2018). Presently, alcohol sales and consumption is illegal in five of the 36 states and union territories of the country, whereas for a large majority of other states alcohol sales-tax constitutes 15–20% of their total revenues (Benegal, 2005). The Government of India does not

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receive any taxation revenue from alcohol. Taxation, although used successfully elsewhere, has not been effective in India to reduce consumption because of easy access to unrecorded alcohol (e.g. illicit or tax evaded). As per the Global Status Report (2018) nearly half of the total alcohol consumed in the country fell in the unrecorded category (World Health Organization, 2018). Preventive services such as community-based, school or college-based prevention programs, brief intervention at primary care, and emergency services are mostly non-existent in India.

To this backdrop of a population vulnerable to serious public health impact, ineffectual policy, and a motivated third-party, since 25th March 2020 with overnight notice, India went into a complete and extended lockdown, with the intention to contain the spread of SARS-CoV-2. Alcohol being a non-essential commodity, all production, sales, and purchase were prohibited akin to an overnight prohibition order, enforced by the Government of India. There was, however, an inherent contradiction to the enforcement of a national level policy because alcohol policy was a state-subject until that point. In normal times, the constitutional scheme ensures the autonomy of the states with regard to the spheres of activities earmarked for the states in the Constitution. However, exceptions can be made during emergencies (Arora, 2009). The main arguments behind the Government of India's prohibition were: alcohol's potential harmful effect on the immune system, possible flouting of physical distancing and hand hygiene under the influence of alcohol, the possibility that alcohol may contribute to the domestic violence which was on the rise during the pandemic, and finally to reduce the healthcare burden resulting from alcohol-related accidents and violence (Nadkarni, 2020). We read several newspaper reports of suicide, consumption of illicit and harmful liquor or non-alcoholic beverages within a week of the lockdown. A research report from a tertiary care hospital in southern India showed a significant increase in the number of patients with complicated alcohol withdrawal (Narasimha et al., 2020; Pulla, 2020). India was not the only country to impose a nation-wide prohibition during the COVID-19 pandemic. South Africa, Sri Lanka, Thailand, and Greenland, have also forced similar restrictions (French, 2020). Results of prohibition from South Africa portrayed a beneficial effect. An article from the Washington Post quoted the director of alcohol research at the South African Medical Research Council, reporting 5000 fewer admissions to the trauma units following the week of prohibition. The modelling of data by the council showed at least 15 people are being saved every single day, who would have otherwise died from alcohol-related traumas (Mogotsi and Bearak, 2020; Council, 2020). Sri Lankan media, on the other hand, reported the proliferation of home-breweries and illicit distilleries across the country, and the availability of high-price alcohol in the grey market (Rakshit, 2020). Hence, prohibition seems to have different effects across countries. There were still other countries such as Canada, the US and the UK which designated alcohol as an essential commodity and continued the supply during the pandemic. Several commentators have discussed the harmful effects of such policies- encouraging the general population to drink and sending a message that alcohol is essential for lives (Hobin & Smith, 2020; Neufeld, Lachenmeier, Ferreira-Borges & Rehm, 2020).

A direct population survey, which would have been ideal to understand the effect of prohibition, was not possible under the present circumstances. Therefore, alternative data sources can be explored. Researchers so far have used alcohol sales data or isolated media reports (Nadkarni, Kapoor & Pathare, 2020; Borges & Rehm, 2020). We wanted to systematically explore the scope of the media reports, using the media as an indicator of potential harms and benefits. At the same time we acknowledge that media as a data source can be biased, and there are issues with accurate factual reporting and reliability. Therefore, the result of this paper should be read with these caveats in mind.

We conducted a qualitative analysis of the media reports published within the first month of the nationwide lockdown with the objectives of (a) using the media reports as indications of possible public health

impact and population response to a sudden alcohol prohibition in India, (b) suggesting areas for future research.

## Methods

### Study design

The study had an exploratory design which systematically looked at the response of individuals, public and society at large, government and non-government organizations which primarily deal with public health and related aspects of alcohol by studying newspaper reports.

### Data sources and search strategy

By a consensus among the authors, the following search words were selected. Type of news-items was only in English, published between 26th March to 25th April with the search words: "Alcohol", "Alcohol policy", "state", "Alcohol treatment", "illicit liquor", "Alcohol ban", "Alcohol revenue", "Alcohol suicide", "Alcohol lobby", "Alcohol e-marketing", "Alcohol withdrawal", "Alcoholics", "Chief minister Alcohol", "Isopropyl alcohol", "Alcohol revenue" "Alcohol poisoning", "alcohol price" "Alcohol home-delivery". The search was made on Google News (India).

The rationale for using Google News India was as follows: a large majority of the best selling newspapers in India have a digital version (e-paper). Hence, an online search on Google news India, in addition to the exclusively online media reports, was likely to uncover the reports of the online editions of the print media. Besides, there were two other reasons for screening the media reports through Google News- (a) the COVID-19 pandemic resulted in nearly 80 percent decline in the print newspaper sales in different cities India (GoNews Desk, 2020), (b) India has a growing number of internet users and it is second largest in the world. More than 98 percent of internet users use Google as their search engine (Mishra & Chanchani, 2020), (c) the lockdown, travel restrictions, and closure of libraries, and outlets selling newspapers had made it impossible to check the print editions.

The choice of only English papers was determined given that (a) the eighth schedule of the Indian Constitution recognized 22 languages and English was (and still is) one of the official languages across Indian states. Therefore, a search of English media reports was likely to be more generalizable than searching in different regional languages; and (b) most widely circulated English newspapers (e.g. Times of India, Hindustan Times, The Indian Express) have versions in Hindi and other regional languages.

The period includes the most intensive phase of lockdown between 25th March and 14th April when there was a virtual clampdown on all activities and people were not allowed to step out of their homes. Only emergency and essential activities like purchasing essential food, attending hospital, and attending pharmacies were allowed during this period. After 15th April there was some relaxation in some of the states but mostly all states were in lockdown with heavy restrictions on non-essential activities.

### Analysis and Interpretation

Qualitative thematic analysis was done by the coding, categorization and theme generation which was done after meticulous data immersion. A comprehensive coding frame with definitions and examples for each item was designed by peer debriefing and researcher triangulation to guide the coder in identifying the main four themes and sub-themes.

The codes were generated inductively under the broad domains of 'impact of alcohol prohibition policy among various stakeholders' and 'response to the prohibition policy' for the newspaper reports of the initial two weeks that is till 5th April. For the remaining 2 weeks a deductive approach was taken for coding. However, any additional

codes, discovered were documented and discussed. Two of the authors (AG and AB) independently undertook the coding. AG and AB are both qualified addiction psychiatrists and have been working in the field of addiction medicine for more than six years. All the coding was done manually. Each characteristic was coded as being either present (1) or absent (0). We did not force concordance between the investigators in order to explore multiple perspectives. In case of any additional code generation by one of them (AB or AG), it was taken into account by mutual consensus.

Once all the codes were finalized, themes and sub-themes were generated by triangulation. A diagramming approach was taken to understand the connections between the themes and subthemes. The themes were labelled tentatively with the objective of finalizing the names following the third team meeting.

Three team meetings and peer debriefings were done during this period. The first meeting aimed to (a) document theoretical and reflexive thoughts; (b) share thoughts about potential codes. The second meeting was held following the inductive code generation and creation of the coding framework. The third meeting was held with the objectives of (a) ratifying any additional codes; (b) discussing the main themes and sub-themes and vetting by the team members. The overarching flow of ideas was noted. In sum we assumed a factist epistemological paradigm, the emerging categories/sub-themes and themes led us to an overall understanding of the response of all the stakeholders to this sudden prohibition

The themes, sub-themes, and codes retrieved from each article were entered into an excel sheet by TM and these were cross-checked by AG. The frequencies were mentioned in the content analysis

We followed the methodology by Göbekli et al. (2019) and Nowell et al. (2017).

Ethical clearance was obtained from the All India Institute of Medical Sciences, Rishikesh, India- ethics committee (Ref: 54/02/PSY/2020–167).

## Results

A total of 350 news articles from 90 newspapers were accessed for the study. For further details please see the article selection flow diagram (Fig. 1).

.....The three major newspapers contributing to these media reports were: Times of India (11.1%), The Hindu (6.6%), and The Indian Express (5.7%). For other mastheads please see supplementary table 1.

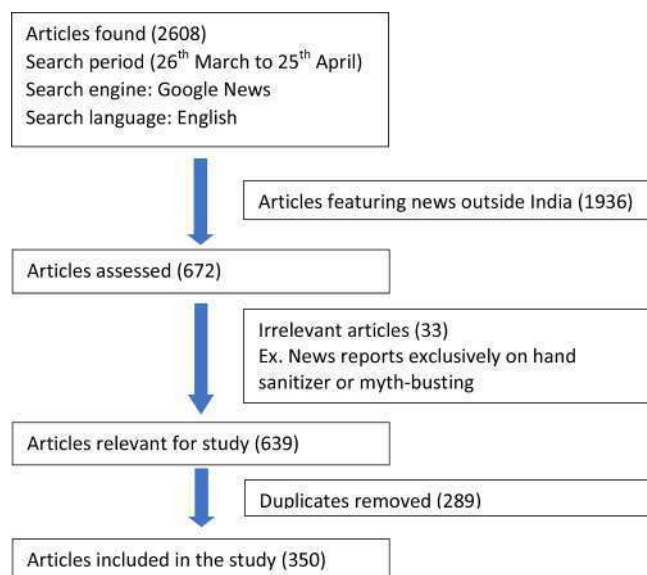


Fig. 1. Flow diagram of article search and selection.

All articles were published between 26th of March, 2020 and 25th of April, 2020. Among them, 157 articles had only online publication and the rest (193) had both print and online versions. The news articles from national and regional news were 86 (24.5%) and 264 (75.5%), respectively. Regional articles were from 22 states and union territories. Kerala (20.8%), Karnataka (9.7%), Telangana (8%), Tamilnadu (7.4%), and West Bengal (5.7%) were the first five states represented in the regional news. The types of articles and their states of origin are depicted in supplementary table 2. Fig. 1 gives a detailed distribution of the states represented in the analysis.

.....Four main themes emerged when all the 350 articles were analysed: (a) “the beneficial aspects of the policy,” (b) “the harmful aspects of the policy,” (c) “non-compliance and attempts to change and/ or subvert the policy,” and (d) “popularity and level of public buy-in of the policy.” We could identify two additional themes, which could not be considered as direct repercussions of the sudden prohibition, nevertheless were important markers of societal attitudes towards individuals who use alcohol. These themes are “use of stigmatising language” and “ethical concerns”. Table 1 gives an example of the coding schemes, and generation of sub-themes and themes.

Fig. 2 depicts the themes and sub-themes in a nutshell.

### The beneficial aspects of the policy

The main theme “beneficial aspects of the policy” is represented by the following codes:

#### Opportunity for treatment

Several medical practitioners described the lockdown as “an opportunity for treatment” of persons with alcohol dependence. As per a newspaper report, a document generated by the National Drug Dependence Treatment Centre, All India Institute of Medical Sciences (AIIMS), referred to the lockdown situation as a blessing in disguise for some people who could use this opportunity to quit drinking altogether (Phull, 2020).

#### Increase in treatment-seeking

Media reports indicated that the number of people presenting with alcohol withdrawal to functioning outpatient services and emergency departments of general and psychiatric hospitals, and addiction treatment centres showed a sharp rise in the weeks following the enforcement of the lockdown. The articles reflected similar news coming largely from the southern parts of the country (Kerala, Telangana, Tamilnadu) both from the cities and the rural districts.

One news report quoted the superintendent of the Institute of Mental Health in Erragadda, Hyderabad saying -

“We have received 96 to 100 patients today who are suffering from withdrawal symptoms. Close to 90 per cent of them are dealing with the withdrawal of alcohol..” (Mojumder, 2020)

Reports from addiction treatment centres under the department of excise in Kerala, “Vimukthi”, read- “According to the officials of Vimukthi, ever since then, in just a week's time, 64 people were admitted to the 14 deaddiction centres under Vimukthi alone. “This is not the usual pattern. Not more than 20–30 people usually get admitted to the Vimukthi centres in a week....” (Mithun & Joseph, 2020)

Calls to the national helpline numbers as well as different state helplines for alcohol and other substance use saw an unprecedented rise. A title of one news article read -

“Coronavirus lockdown: Helpline for drug addicts, alcoholics reports 200% surge in calls”(Business today.in, 2020a)

A hospital from Tamilnadu, too, reported within the first week of the ban - “We have been getting at least five to six calls per day from places like Chennai and Hyderabad in the past week, and the number is sure to go up as the lockdown progresses” (Nainar N, 2020)

**Table 1**  
A Prototype of Themes and Sub-Themes With Their Associated Codes.

Article excerpts	Codes	Sub-themes	Themes
“..a directive by the Chief Minister of Punjab declared the supply of beverages as essential items, along with groceries in light of the urgency due to COVID-19 pandemic..” (Srivastava, 2020)	Inclusion of alcohol in the list of essential commodities	Non compliance of the states	Non-Compliance And Attempts To Change And/ Or Subvert The Policy
“The Assam government ... has given permission for the opening of liquor shops for a limited time in the state... According to the order by the Additional Commissioner of Excise, the Indian Made Foreign Liquor (IMFL) shops shall open from 10:00 AM to 5:00 PM on the permitted days.” (FPJ Webdesk Correspondent 2020; Letter sent by Shri SK Medhi April 12, 2020)	Limited hours sale of alcohol		
“According to a government order issued to the excise commissioner, Director General of Police, Managing Director of the Kerala State Beverages Corporation and the health department, the Beverage Corporation authorities must issue limited quantities of Indian Made Foreign Liquor (IMFL) to those who are in possession of the ‘passes’...”(Jayakumar, 2020)	Distribution of special liquor passes		
“The Chief Minister has said the government is also considering the option of online sale of liquor as the sudden unavailability of alcohol may lead to social problems.” (SNS, 2020)	Plans for online delivery and doorstep delivery		
“...the Kerala State Beverages Corporation, which is the sole distributor of liquor in the state, decided to deliver liquor at doorsteps of the needy” (Raghunath, 2020)			
“In an apparent bid to shore up revenues, the West Bengal government has decided to impose 30 per cent sales tax on wine and beer, sources in the finance department said on Monday. The government issued a notification in this regard on April 7 and the new prices came into effect from April 9” (PTI, 2020)	Tax hikes		
“..an Excise officer said most of the prescriptions did not have the seal of the doctors and were fake. Some brought prescriptions from retired and private doctor..” (Express News Service, 2020)	Forging prescriptions for obtaining alcohol passes	Non compliance at the individual level	
“A COVID volunteer was arrested by the Varkala police on Saturday for selling alcohol made using various components, including sanitisers, and for selling it to clients to whom he delivered it on his bike.” (Express News Service, 2020)	Attempts to brew alcohol at home		
“Amid the nation-wide lockdown, a Hyderabad resident distributed alcohol pegs among the people... ...Yesterday I was returning to my residence in Hyderabad's old city after completing my work, meanwhile in Champapet area I noticed that a woman suffering from convulsion/fits due to alcohol. She was shifted to a hospital later on. Other people are also there who desperately need alcohol, as they are addicted to it. I had an alcohol bottle at my residence. So, I thought of distributing alcohol pegs to such people...” (News18, 2020)	Good Samaritan response		
“...there have been several instances of alcohol thefts that have been reported across states. For instance, in Maharashtra, four incidents of thefts were reported within a span of 48 hours from liquor shops and beer bars which are shut from March 18 after the government ordered the lockdown. The thieves ran away with liquor worth over Rs 1 lakh from all the four places”	Thefts/Robberies of bars, liquor shops and hotels	Illicit and criminal activities	
“With liquor vends shut since the nationwide lockdown, authorities in Delhi have cracked down on those selling or transporting alcohol illegally...In April, 855 bottles of IMFL, 12,503 bottles of CML and 4868 bottles of beer were seized by the police. Police also intercepted an ambulance, which was illegally transporting 25 cartons of liquor.” (PTI, 2020)	Smuggling illicit liquor and spurious liquor		
“Several residents of DLF Phase 1, South City, Sohna Road and Golf Course Road fell into the trap of “liquor home delivery” and lost nearly ₹4000 in each case, the police said.” (Dhankar, 2020)	Online scams		

#### Involvement of the self-help groups

Alcoholics Anonymous (AA) arranged for telephonic communication as part of a pan India initiative to continue their meetings during the time of lockdown severely restricting movement. With the use of conference calls and different slots for better coordination, these meetings are being held. The reports were from both southern and north-eastern states namely from Kerala, Karnataka, and Meghalaya.

Reports read- “In a pan India Initiative, AA is using telephonic communication where callers are put on a conference call – since people are working from home, different slots are provided. Regional meetings are also held separately. The addicts’ families can participate in the conference calls. Only addicts will be allowed to speak,” said a member of Karnataka area committee, AA.....” (De’sousa, 2020)

#### Tele-consultation services

Telemedicine and tele-counselling services were initiated in

different parts across the country. In one of the states, a free online counselling platform was launched. In several places, counsellors worked from home, attending calls from patients or their family members (Mithun & Joseph, 2020).

#### Reduction of domestic violence

One of the opinion types of article indicated a possible beneficial aspect of the alcohol prohibition could be a reduction in domestic violence (Agarwal & Srivas, 2020). Their assumption was based on a study conducted in the slums of Mumbai, which revealed women whose husbands consumed alcohol were two times more likely to experience intimate partner violence than those whose husbands did not consume alcohol (Begum, Donta, Nair & Prakasam, 2015). This report assumed significance in the background of increased complaints of domestic violence received by the National Commission for Women, within the first one week of lockdown (Khandekar, 2020).

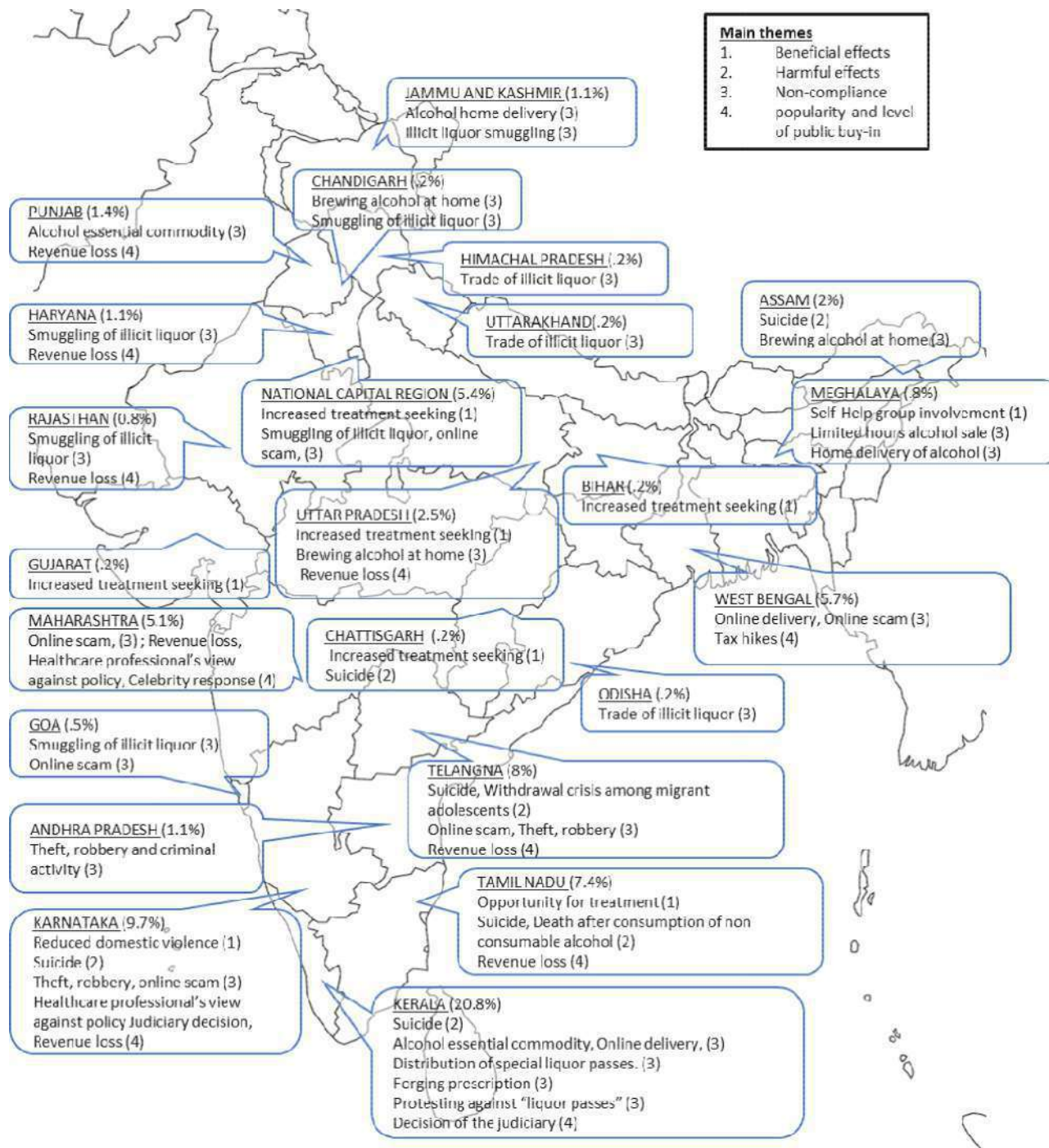


Fig. 2. State-wise distribution of main themes, sub-themes, and codes.

*The Harmful Aspects Of The Policy*

As a recent study estimated, an approximate 57 million people in India had problematic use of alcohol, almost half of whom consumed alcohol in a dependent pattern (Ambekar et al., 2019). The newspaper reports possibly indicated the distress experienced by this population, reflected by the following codes.

*Suicide*

This was perhaps the most tragic and extreme fallout of the sudden unavailability of alcohol and one of the first news topics related to the ban on alcohol which came to light. The southern state of Kerala

reported the death of 6 people by suicide within the first 3 days of lockdown (Jayakumar, 2020). As per the news reports, all such deaths could be attributed to severe distress from marked withdrawal symptoms in these persons with alcohol dependence. In addition to Kerala, suicide deaths or attempts allegedly due to non-availability of alcohol were reported from Assam, Meghalaya, Karnataka, Chattisgarh, Telangana, and Tamil Nadu. Although the media predominantly observed these deaths by suicide as a fall-out of distress due to non-availability of alcohol some did report alternative or additional perspectives of mental health problems and depression (Swamy, 2020).

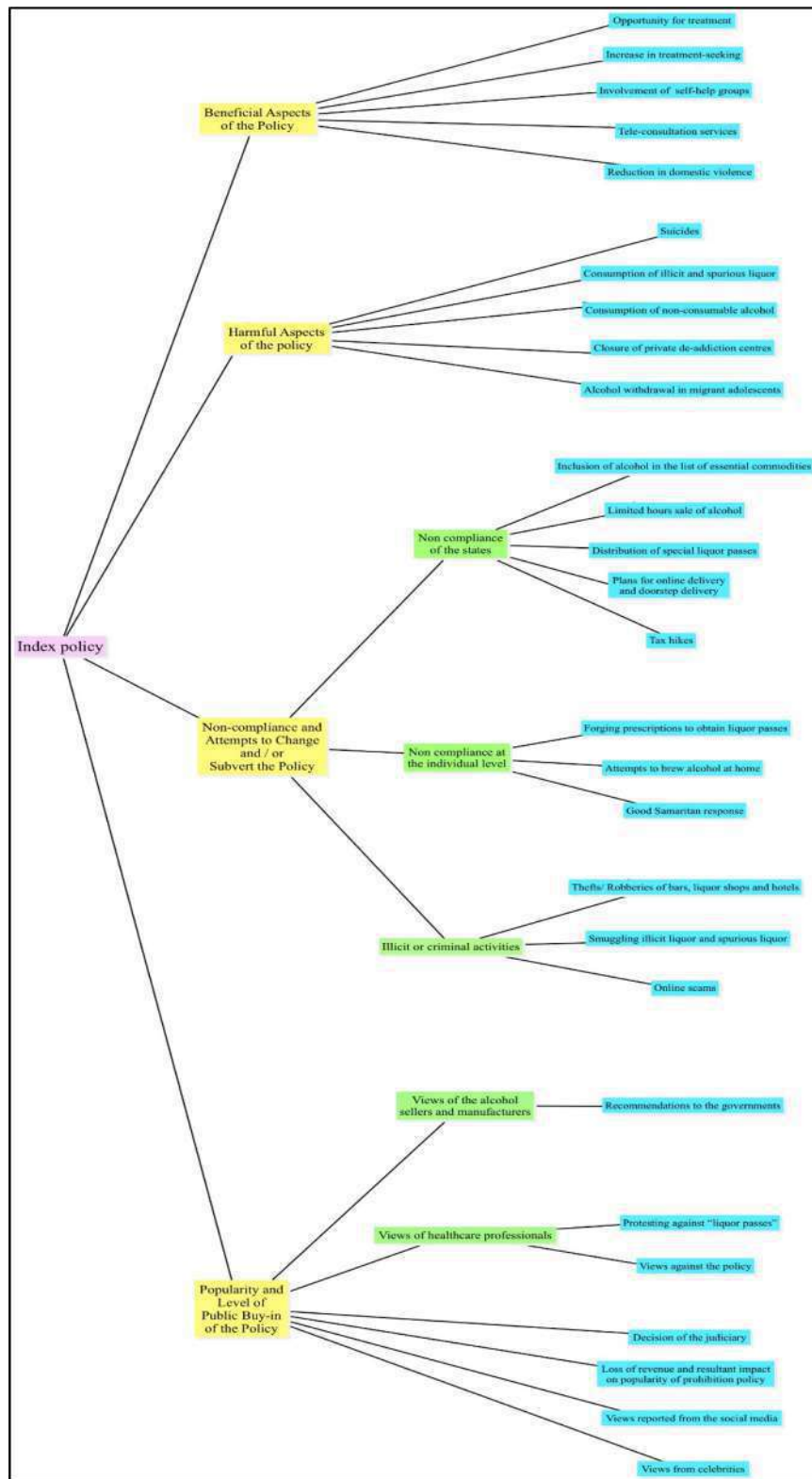


Fig. 3. The themes, sub-themes, and codes.

*Consumption of non-consumable alcohol*

According to the media reports, as people resorted to desperate measures to access alcohol, some people drank non-consumable forms of alcohol such as paint varnish, after-shave lotions or hand sanitisers. Within the first couple of weeks of lockdown, several such incidents were reported from Tamil Nadu where 6 people died after drinking

hand sanitisers or paint varnish and soft drinks mixed with after-shave lotion (DHNS, 2020). One such case was also reported from Kerala, and nine from Uttar Pradesh (Swamy, 2020).

*Consumption of illicit and spurious liquor*

Media reported that sales of illicit liquor shot up rapidly following

the ban. Although the prices were several times higher than usual, stocks of illegally bought liquor were clearing at a very rapid pace. Few people could afford such high prices. Those not having enough money, looked for cheaper alternatives and often ended up consuming spurious liquor, risking their health. Reports of illicit and spurious liquor consumption and resultant deaths and hospitalizations were reported from Uttar Pradesh and Tamil Nadu (Siddiqui, 2020).

#### *Alcohol withdrawal in migrant adolescents*

In the slums of Hyderabad, one newspaper report noted that this significant population of teenage children of poor migrant workers with alcohol dependence, began to experience symptoms of marked alcohol withdrawal. The article quoted the head of a non-profit organisation running shelter camps in the city saying -

“At least 20 minors in the camps sheltering over a hundred migrant workers and homeless persons have been showing moderate to severe withdrawal symptoms.”(Menon, 2020)

#### *Closure of private de-addiction centres*

The high demand for treatment was not always met with a corresponding increase in the treatment provisions. Media reports suggested that most of the private de-addiction centres decided to remain closed or function only with the admitted patients, due to the lockdown. All new patients were referred to government hospitals for management. Due to most centres refusing new admissions and referring patients to government hospitals, people seeking treatment remained unattended. However, such reports came only from Tamil Nadu (Lakshmanan, 2020).

#### *Non-Compliance And Attempts To Change And Or Subvert The Policy*

We could identify the following three sub-themes under this main theme- non-compliance at the state level, at the individual level, and illicit or criminal activities.

##### *Non-compliance from the States*

#### *Inclusion of alcohol in the list of essential commodities*

The states of Kerala and Punjab had initially included alcohol among the list of essential commodities, to continue its sale even post lockdown. In Kerala, while private liquor stores were closed, the state-run Kerala State Beverages (Manufacturing and Marketing) Corporation Limited (BEVCO) remained open. However, both states had to stop following directives from the government of India. The government of Punjab had requested government of India to allow the sale to address the significant loss of revenue which followed banning the sale of alcohol. In tune with this, the International Spirits and Wine Association of India, lobbied the Government of India to classify alcohol as an ‘essential item’.

#### *Limited hours sale of alcohol*

The northeastern states of Assam and Meghalaya allowed the sale of alcohol for limited hours on permitted days while under strict enforcement of social distancing and other precautionary measures (ANI Correspondent, 2020). In Assam, the state government allowed the opening of liquor shops, from 10 am to 5 pm. Distilleries, breweries, bottling plants were also allowed to open (Additional Commissioner of Excise, 2020). In Meghalaya, liquor stores opened from 9 am to 4 pm from 13th to 17th April. Only a single member from each household would be permitted to buy, along with measures restricting movements between the districts. Meghalaya also permitted home delivery of alcohol in areas without liquor shops. However, following a second directive from the Government of India refusing any relaxation to alcohol sale or production, both states had to withdraw their orders.

As per Times of India 7th April report, The Excise department of

Govt of Karnataka made a proposal to allow sale of liquor between 10 am and 1 pm. The newspaper reported that this may improve excise earning and state revenue but on the flip side of it sale for only a few hours a day may lead to huge rush thereby violating guidelines to prevent the virus (Gejji, 2020). However, later it was withdrawn by the Karnataka Government.

#### *Distribution of special liquor passes*

In Kerala, the state government formulated plans to supply alcohol upon certification by a government medical practitioner that the person was experiencing symptoms of alcohol withdrawal. The government cited the recent suicides among those experiencing alcohol withdrawal as the primary reason for initiating this unprecedented step. It decided to issue special "liquor passes" from the state excise department on the production of such certification (Government of Kerala, 2020) They placed a limit of 3 litres of alcohol per person for a week and plans were to supply the alcohol to the homes of the applicants (PTI, 2020a).

#### *Plans for online delivery and doorstep delivery*

The state of West Bengal had started making plans to enable online home delivery of alcohol, ensuring that the norms of social distancing were maintained while attempting to generate revenue from the sales. The state of West Bengal saw a discrepancy between the messages conveyed by police and excise departments regarding the same piece of information, again suggesting inter-department incoordination (FPJ Webdesk, 2020a). Kerala had planned doorstep delivery so that crowding at liquor outlets could be avoided. However, none of the plans could be enacted. In those areas without liquor shops, Meghalaya has allowed home delivery (Team Latestly, 2020). There have been various whatsapp groups forwarding numbers of people selling alcohol in metro cities like Mumbai at escalated rates (FPJ Webdesk, 2020b).

#### *Tax Hikes*

As mentioned in the Press Trust of India and corroborated from the notice issued by the revenue department of the Government of West Bengal, the state government attempted to make up for the loss in revenues by imposing a sales tax of 30% of the MRP in addition to the existing excise and additional taxes (PTI, 2020b; Government of West Bengal, 2020) However, for alcohol users who were forced to pay up to 100 % more than the usual price as per different newspaper reports (TNN, 2020).

#### *Non-compliance at the individual level*

#### *Forging prescriptions for obtaining alcohol passes*

When the government of Kerala decided to provide special "liquor passes" through the state excise department, to persons experiencing signs and symptoms of alcohol withdrawal upon certification by a government medical practitioner, a large number of fake prescriptions were detected. Most lacked the doctor's seal while some were from retired doctors, private doctors or Ayurvedic practitioners all of which led to the rejection of their applications. A newspaper report read, “an Excise officer said most of the prescriptions did not have the seal of the doctors and were fake. Some brought prescriptions from retired and private doctors (Express News Service, 2020a).”

#### *Attempts to brew alcohol at home*

Another way that people responded to the situation was trying to brew alcohol at home. An article read, “Some social media users are also trying to brew and share recipes for home-made alcohol (De sousa, 2020).” Another newspaper reported an incident of selling illicit home-made liquor by a “socially connected” person from Kerala, “A COVID volunteer was arrested by the Varkala police on Saturday for selling alcohol made using various components, including sanitisers, and for selling it to clients to whom he delivered it on his bike (Express News Service, 2020b).” People were also using free rice given in ration shops

for the preparation of country liquor - this has been reported from Assam (G Plus News, 2020). In some parts of West Bengal previously banned liquors were again found to be brewed. An example:

*'Rakshi, a traditional distilled Nepali beverage banned in Bengal, has suddenly outstripped illicit country liquor in demand in several parts of Barrackpore police commissionerate during the lockdown. Police have found out that a few Nepali families, who sell momos and other Chinese fast food, at Khardah are behind the revival of the strong drink that is usually made from rice, barley or millet'*(Chaudhury, 2020)

#### Good Samaritan response

A newspaper article reported on one of the most circulated viral videos showing a man distributing alcohol to daily wage workers in Hyderabad, prompting varying comments of "crazy", "fame-seeking", "dev-maanush (Godsent)" and also sparked debates on the pros and cons of the ban (Khandekar, 2020).

#### Illicit or criminal activities

This one month period saw a spate of illegal activities related to the consumption of alcohol. While some struggled to cope with the sudden stoppage of alcohol, others saw opportunities to make money through illegal means, often leading to disruption and arrests. The following codes illustrate such activities.

#### Thefts/Robberies of bars, liquor shops and hotels

Amidst the unavailability of alcohol, there have also been a growing number of thefts and robberies of bars and liquor stores. The majority of such reports came in from the states of Karnataka, Maharashtra, Tamil Nadu, Telangana, Chhattisgarh and Andhra Pradesh along with capital Delhi (Shekhar, 2020).

#### Smuggling illicit liquor and spurious liquor

While the sale of alcohol from legal outlets remained closed, there was an increase in smuggling illicit and spurious liquor. There were frequent reports of seizures of large amounts of illicit liquor by the authorities. Innovative means of smuggling were seen such as hiding alcohol in milk cans or sale from authorised milk booths, while reports came in of a stash of 25 cartons of liquor in an ambulance in Delhi (PTI, 2020c). Grey market sellers during this time charged double the price and even hooch was expensive (Reuters, 2020). Alcohol was sold under the garb of essential items and medications - it was found to be smuggled in milk cans by a person posing as a milkman or as homeopathic medications (Joshi, 2020; Team Newsable, 2020).

#### Online Scams

As people continued to search for alcohol, several reports of online scams came to the fore. Most of these gangs established contacts through social media, promising online delivery of alcohol, usually charging exorbitant rates, meanwhile getting access to bank account details and often making away with large sums amounting to lakhs of rupees. While authorities cautioned against such fraudulent activities, people's desperate search for alcohol often led them to these traps. News of such frauds were reported in different parts of the country with the cities of Kolkata, Mumbai, Bengaluru, Hyderabad, Gurugram, Mangalore witnessing many such cases. Social media has also been used as a tool by online fraudsters claiming to sell alcohol and people selling illicit liquor or home-brewed liquor to access their target population, with anonymity inherent in this medium of communication undoubtedly promoting such use. As an example, several residents have been cheated online by making payment through e-wallet or other UPI platforms, as reported by the media outlet, Hindustan Times (Dhankhar, 2020).

Newspapers have also reported details about the modus operandi of such illegal transactions of alcohol, such as:

The masterminds "would never meet the buyer anticipating that he

would get caught. He would cross-check the name of buyers on True Caller before processing the deal," said an official. After stashing the liquor bottle at the designated spot, he would call the buyer and give the location. He would hide and watch from a distance to ensure that the liquor reached the right person' (The Hindu Correspondent, 2020b).

#### Popularity And Level Of Public Buy-In Of The Policy

The prohibition of alcohol enforced by the Government of India received a mixed response from the stakeholders, as detailed in the media analysed herein. While a large number of states, organizations of alcohol manufacturers and sellers, and a few celebrities opposed the ban, a few other states, health professionals, and the judiciary supported or upheld the prohibition (PTI, 2020d).

#### Views of the alcohol sellers and manufacturers

The different sellers' bodies repeatedly tried to draw the focus towards the loss of revenue and rise in black market sales of alcohol while trying to persuade the Government of India and state governments to relax the ban on alcohol.

One newspaper report quoted the International Spirits and Wines Association of India (ISWAI) chairman saying -

*"States are strapped for cash. 15 - 30 percent of a state's revenue comes from alcohol. This is a significant revenue stream that comes directly to state coffers and can help in these cash-strapped times particularly when there is pressure to provide a safety net"*(BusinessToday.In, 2020b).

#### Recommendations of sellers and manufacturers to the governments

The sellers' body - Confederation of Indian Alcoholic Beverage Companies (CIABC) made recommendations to the commerce minister of the Government of India, health minister and chief ministers of all states to allow home delivery of alcoholic beverages. They also focussed on the sudden lack of employment of the workers in the huge alcohol industry while urging the government to resume the sale of liquor.

#### Plans for phased re-openings

The CIABC and International Spirits and Wines Association of India (ISWAI) requested phased re-openings of liquor stores outside the hotspot areas, for a longer duration to reduce crowding. They also suggested providing licenses to the shops for 3-4 home delivery workers through which the government could control the frequency and the amount of liquor being delivered.

#### Online delivery

The sellers' bodies also advocated for online alcohol delivery or e-tailing of alcohol. They had recommended this to minimise the gathering in front of liquor shops. They also suggested identity proof for age verification during applications made online or through phone calls.

#### Views of healthcare professionals

There were widely varying reactions of the medical fraternity and other sources of help to the different situations which arose in the country in relation to the ban on alcohol. The following two codes provide an illustration.

#### Protesting against "liquor passes"

As discussed, when Kerala decided to issue special "liquor passes" to those suffering from alcohol withdrawal upon such certification by government medical practitioners, the medical professionals in the state as well as across the country criticised the move, calling it "unethical". The Kerala Government Medical Officers Association (KGMOMA) protested by observing a black day and wearing black badges and bands to work. News reports quoted a KGMOMA office-bearer saying -

*"There are scientific methods of treating people with withdrawal*

*symptoms and that's the medical protocol. This is something which will affect our morale and numerous side effects will surface. We will not be doing this.*" (IANS, 2020)

Other medical bodies such as the IMA (Indian Medical Association) and Indian Society of Gastroenterology's Kerala Chapter refused to prescribe it, saying it was against medical ethics. The KGMOA and the IMA then filed petitions in the Kerala High Court to stop the government from proceeding further with provision of "liquor passes."

#### Views against the policy

However, not all medical professionals were aligned to the policy of prohibition. The Director of the Centre for Mental Health Law and Policy in Pune expressed his belief that the current alcohol crisis was a result of the states' contradictory approach to alcohol which was both puritanical and pragmatic (Hamid & Harigovind, 2020). A psychiatrist in Karnataka also filed a Public Interest Litigation against the sudden ban and advocated for allowing the liquor shops to open. This plea was turned down by Karnataka High Court (The Hindu Correspondent, 2020a).

#### Decision of the judiciary

The high courts of Kerala and Karnataka were primarily involved in this scenario for differing reasons. In Kerala, as mentioned above, the KGMOA and IMA filed petitions to stop the government's decision to provide alcohol, based on certifications by doctors. The Kerala High Court stayed the move for three weeks (Prathapan TN vs State of Kerala and others, 2020). A newspaper report quoted the bench as saying -

"We are concerned that the state government has taken a unilateral decision to administer more alcohol to persons suffering from alcohol withdrawal syndrome. This is a recipe for disaster." (Swamy, 2020)

In Karnataka, following a PIL filed by a private psychiatrist requesting reopening of liquor shops, the Karnataka high court ordered the psychiatrist to contribute Rs 10,000 to the Prime Minister's Fund.

#### Loss of revenue and resultant impact on popularity of prohibition policy

The loss of revenue was cited as one of the major reasons for the states to oppose the alcohol prohibition. The estimated daily revenue loss due to stoppage of alcohol sales was around USD 9.3 million daily in India, and most of the states earned around 15–30% of their revenue from alcohol. The worst-hit states were Maharashtra, Uttar Pradesh, Telangana and Karnataka, which earned approximately USD 320 million, USD 340 million, USD 290 million and USD 267 million respectively during the financial year 2019–20.

#### Views reported from the Social media

We did not conduct a qualitative analysis of the social media but the thematic analysis of the newspaper reports identified a particular sub-theme with the response from the social media. In an age of digitisation and ubiquitous social networking through the internet, social media has quickly become the source of information of dubious authenticity, often acting as a tool for rumour-mongering. It has also evolved as a platform for expression of opinions of a significant portion of the population. Consequently, in the present scenario, social media platforms have been used in diverse ways.

The social media platform Twitter saw trends of #LiquorFreeIndia doing the rounds which drew a lot of reactions, both light-hearted and those with serious overtones (Saxena, 2020). A viral video depicted a political leader of the ruling party in the newly enforced prohibitionist state of Bihar, in an inebriated state and led to significant public shaming and political mudslinging.

#### Views from celebrities

Celebrities from different fields had their own take on the situation. While some advocated for the ban, there were others including a

famous movie director who urged the state governments to relax the ban and allow alcohol sales for limited hours. Newspaper article mentioned veteran Bollywood actor's tweet: "Think. Government should for some time in the evening open all licensed liquor stores. Don't get me wrong. Man will be at home only what with all this depression, uncertainty around. Cops, doctors, civilians etc... need some release (Bangalore Mirror Bureau, 2020).

The following themes were not directly related to the alcohol prohibition but were relevant for understanding the socio-cultural milieu and newspaper reporting standards.

#### Use Of Stigmatising Language

A common theme that featured in most of the news articles that were analysed was the use of stigmatizing language in the context of alcohol use and dependence. Terms such as "tipplers", "addicts", "boozers" and "drunkards" used to refer to persons with alcohol dependence is a reflection of this stigma. Many of these words were used in the title of the news article (Indulekha, 2020; Nidheesh, 2020).

#### Ethical concerns

One of the other noticeable themes that emerged from the news reports was the lack of privacy of the affected individuals, with articles on reported suicide or isopropanol (methanol) poisoning providing detailed personal identification data.

#### Content analysis

We performed a content analysis to determine the frequency of the themes, sub-themes and codes. There was coexistence of different themes, sub-themes and codes within a single article. The most prevalent theme was 'non-compliance and attempts to change and or subvert the policy' which was found around 370 times in the articles. There were various state-driven endeavours to subvert this ban-like 'distribution of liquor pass' (n=82, 22.1%), 'plans for online and doorstep delivery' (n=71, 19.2%), 'limited hours sale of alcohol' (n=39, 10.5%), 'Inclusion of alcohol in the list of essential commodities' (n=12, 3.2%) and 'tax hikes' (n=5, 1.4%). Non-compliance at the individual level consisted of 'attempts to brew alcohol at home' (n=16, 4.3%), 'forging prescription to obtain liquor pass' (n=3, 0.8%) and 'Good Samaritan response' (n=3, 0.8%). There were various reports of illegal activities non-complying with this ban, like 'smuggling of illicit and spurious liquor' (n=113, 30.5%), 'Online Scams' (n=17, 4.6%) and 'Thefts/Robberies of bars, liquor shops and hotels' (n=9, 2.4%).

The 'popularity and level of public buy-in' was the next most common theme, which appeared 181 times in our search. The main sub-themes were 'view of healthcare professionals' which was found 63 times in our search. 'Doctors' protest against the "liquor pass" (n=58, 32%). Some doctors also expressed their views against the national policy (n=5, 2.8%) As a result the judiciary had passed decisions (n=42, 23.2%). Another subtheme was 'Views of the alcohol sellers and manufacturers' that appeared 38 times. The alcohol sellers recommended for the resumption of business to the governments (n=38, 21%) through phased reopening of the liquor shops or online delivery. The most frequent cause proposed for these recommendations was 'revenue loss' (n=17, 9.4%). There was considerable 'social media response' both for and against the ban (n=15, 8.3%). Celebrities (n=6, 3.3%) also expressed their opinions regarding the ban.

There were 143 accounts of the 'harmful effects' of the abrupt alcohol ban. It included several reports of suicide (n=82, 57.3%), fatal or near-fatal consequences of consumption of non-consumable alcohol like aftershave lotion or hand sanitizer (n=39, 27.3%), and consumption of spurious liquor (n=18, 12.6%). The other aspects of the harm were the 'closure of private de-addiction centres' (n=3, 2.1%) and alcohol withdrawal in migrant adolescents (n=1, 0.7%).



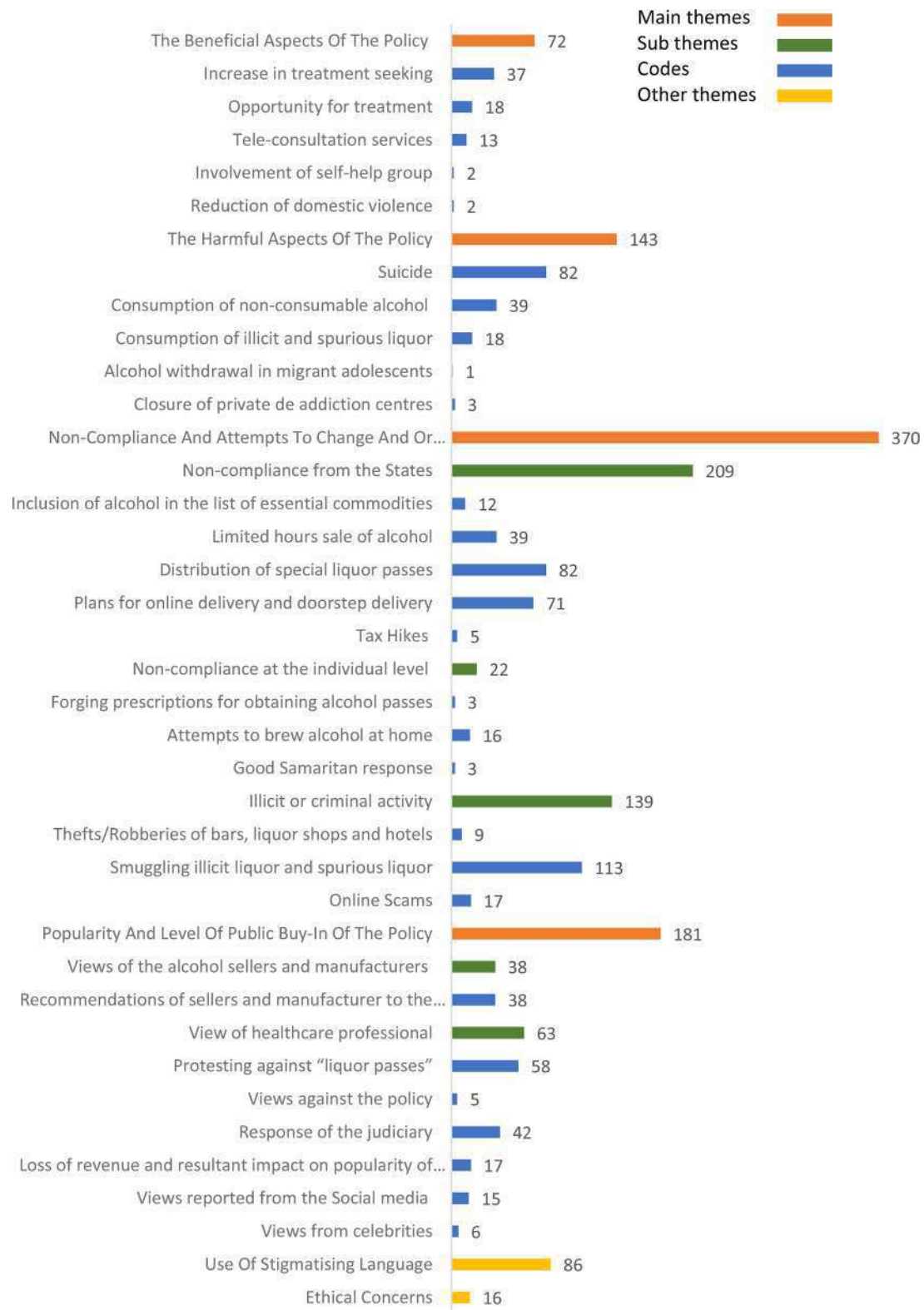


Fig. 4. Bar chart showing frequencies of appearance of themes, subthemes, and codes.

Although many news reports focussed on the negative and subversive aspects of the ban, there were 72 accounts of the beneficial effects of the ban. On the part of the patients, this led to increased treatment-seeking (n = 37, 51.4%) for alcohol use. The service providers were also viewing this ban as an ‘Opportunity for treatment’ of patients with alcohol use disorder (n = 18, 25%). As in-person consultation was not a viable treatment option, the teleconsultation services flourished as

an alternative treatment platform (n = 13, 18.1%), and self-help groups like ‘Alcoholics Anonymous’ also played their role in helping those in need of treatment (n = 2, 2.8%). The ban on alcohol has presumably led to a relative reduction in domestic violence during the lockdown period (n = 2, 2.8%).

We found the use of stigmatizing languages (like ‘drunkard’, ‘tippler’, ‘alcoholic’) in 86 articles and contents with ethical concern (like

exposing the names and other personal details of suicide victims) in 16 articles.

The distribution of frequency of the themes, sub-themes, and codes are presented in Fig. 4.

## Discussion

We conducted thematic analyses of 350 articles, published over a span of one month in a wide-range of English dailies and online-only newspapers. We followed a predetermined and systematic approach to retrieve the newspaper articles, to do the thematic analysis and extraction of themes and sub-themes. We believe this was a relatively novel, feasible, resource-friendly and time-saving strategy to indicate the possible effects of this sudden national policy. One basic premise of the rigour of this study has been the trustworthiness and reflexivity as reflected by the authors by clarifying their own perspective as addiction psychiatry professionals (Lincoln, Guba, & Pilotta, 1985). Credibility has been established by peer scrutiny of the coding process and data triangulation by a discussion of the results amongst the authors. We also carried out a content analysis of the themes to quantify the relative dominance of the themes and to make the qualitative research transparent and replicable. Both thematic and content analysis added to the methodological triangulation and the overall robustness of the qualitative study. However, the authors acknowledge that the dynamic nature of qualitative results is variable based upon the epistemological and ontological paradigms assumed (Silverman, 2005).

Drawing a causal inference (as was done by the media reports) would have been an oversimplification for several reasons- (a) the Covid-19 pandemic itself might increase the risk of suicide by enhancing the risk of mental illness, loss of employment, financial hardships, and bereavement (Gunnel et al., 2020), (b) Some media reports had actually suggested a possibility of underlying depression in many of these individuals (Swamy, 2020). A psychological autopsy could have been a scientifically valid way to discern the possible causes.

Countries such as the USA, where alcohol sale was not banned during the pandemic, had witnessed several cases of methanol poisoning due to consumption of alcohol-based hand rubs (Yip et al., 2020). Similar cases, on a large scale, were also reported from Iran, which is otherwise a dry country (Haghdooost, 2020). These instances were likely to be driven by the myth that consumption of alcohol-hand rubs will kill the SARS-CoV2. Therefore, the events of consumption of non-alcoholic beverages, reported by the Indian newspapers could also be a result of similar myths.

The content analysis revealed media reports focussed more on the harmful aspects of the policy than the potential benefits of prohibition. Nevertheless, this result was not an evidence of harms outweighing the benefits because media reports were not done with scientific rigor and there was financial, political, and ideological bias inherent to the reporting.

In sum, the qualitative analysis of newspaper reports indicated potential public health-related benefits and harms of the sudden alcohol prohibition in India. Future research could systematically explore issues flagged by the media reports.

Our study results showed a few limitations in India's alcohol policy:

Firstly, alcohol policy in India was a state-matter. Therefore, ban imposed by the Government of India on alcohol unmasked the in-coordination between the Government of India and the states, between the states, and even within departments of a state. The disconcerted attempts to subvert the national level policy resulted in confusion among the public and medical professionals. The judiciary had to intervene in one particular case. All these were reflective of the in-coordination in the planning and implementation of alcohol policy.

Secondly, alcohol is a huge revenue generating commodity for the states and therefore, the alcohol policy is largely driven by financial incentives rather than a focus towards public health (Benegal, 2005).

Thirdly, states' attempt to subvert the policy by the Government of India by alcohol home delivery and online delivery was potentially harmful for several reasons- (a) Evidence from Russia showed 90

percent stockpiled alcohol at home and only a very small proportion intended to use it as hand sanitizer (Neufeld, 2020). Commentators also raised the possibility of overcompensated drinking-at home in the absence of social inhibitions (Neufeld, 2020); (b) the boredom, stress, and social isolation during the pandemic could contribute to increase in alcohol use (The Lancet Gastroenterology Hepatology 2020; Hoblin & Smith, 2020); (c) economically disadvantaged group of individuals with alcohol use disorders would not be able to afford either online or home delivery of alcohol. Importantly, they are more vulnerable to alcohol-related harms as opposed to the group, which could afford such services (Katikireddi et al., 2017); (d) easier access to alcohol might give a wrong message to the non-using population that alcohol is an essential commodity and reduce the public perception of harm (Hoblin & Smith, 2020). All these factors together suggested that home or online delivery of alcohol was likely to produce more harm than benefit.

### *The implication for the future alcohol policy*

Firstly, the lockdown, prohibition, and consequent response from the stakeholders indicated a need for national alcohol policy in India. The disconnected attempts of states to restore 'normalcy,' discrepancies between state departments, conflicts with the Government of India, and the resultant confusion among the public could have been averted by national-level policy. Secondly, the Indian alcohol policy requires a public health re-orientation, i.e. policy aimed at reducing the harms of alcohol, both at the individual and the societal level (Babor et al., 2010). Beginning with the abrupt prohibition and to recurrent themes of the compulsion for the states to compensate for the excise-related revenue loss, the involvement of commercial entities in decision making (even remotely), an under-equipped health care infrastructure, and desperate measures of state to "prescribe alcohol" to alleviate suffering were some glaring examples of a lack of public-health oriented decision making. A comparison of alcohol control policies among 30 countries, across the globe, showed an inverse relationship between alcohol harms and the strength of policy measures (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007). The strength was defined by the "Alcohol Policy Index," with public health as the basic common denominator. Thirdly, the "suddenness" of the prohibition might have been responsible for most of the potential harms and confusion between the states and the Government of India. A discussion with the states and other stakeholders prior to the enforcement of the prohibition could have resulted in a more coordinated implementation of the policy. Fourthly, the harmful aspects of the prohibition were largely applicable to individuals with alcohol dependence. Our analysis revealed the need for improving the availability and access to treatment, and enhancing public awareness for the same. Finally, use of stigmatizing words to describe people with alcohol use-related problems and direct breach of privacy indicated that there is a need for media reporting guidelines to use neutral language and to monitor the level of adherence with the existing guidelines.

### *Limitations*

This study has several limitations. Firstly, the analysis was based on the English newspapers with online access. News reports published in regional languages were not reviewed for the content analysis. Nevertheless, a majority of the news items accessed and analysed were from the regional-section of national newspapers or regional newspapers. Secondly, our narrative was solely based on news reports, which might be biased because of its political predilections and financial conflicts of interest. However, we conducted an extensive newspaper survey and included all news items retrieved by our search. Thirdly, newspaper reports are not peer-reviewed literature and no causal inference should be drawn from the reports, such as an increase in the incidence of death by suicide might also be contributed by the financial burden, stress of the outbreak, or underlying mental illness. However, these reports suggested a trend, which should be subjected to scientific scrutiny in the future. Fourthly, by design, we reviewed the

first one month of post-lockdown prohibition. In India, prohibition continued even after that. Although our thematic analysis captured the immediate effect of prohibition on public health and on other stakeholders it might have missed some delayed responses such as permitting alcohol sale through food-delivery mobile applications in a few states or opening of shops for limited hours in a few others.

### Conclusion

The newspaper analysis indicated beneficial and harmful aspects of an unplanned and unprecedented alcohol prohibition during the lockdown. The absence of a national-level alcohol policy was made apparent by the reflexive, disconnected, and conflictual policy measures. The lack of a public health orientation to the policy augmented the harm. The sudden alcohol prohibition was, perhaps, a learning lesson for countries like India, which are yet to have a strong public health-oriented national alcohol policy and emphasized the need for a balanced approach aiming at the reduction of alcohol-related harm. Nevertheless, the harms, perceived from the media reports, should be balanced against the potential benefits of prohibition such as reduction of domestic violence and increased treatment seeking. Besides, one should exercise caution in drawing any firm conclusion from media reports, which are not considered to be a source of scientific evidence. A disproportionately higher reporting of harmful effects of alcohol prohibition could result from visibility or presentation bias of media reporting. Having said that, we believe, the analysis of newspaper reports underlined the possible areas for future research.

### Declarations of Interests

None to declare.

### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.drugpo.2020.102940.

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## Research Paper

# Can google trends search inform us about the population response and public health impact of abrupt change in alcohol policy? A case study from India during the covid-19 pandemic



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## ABSTRACT

**Background:** Sudden alcohol prohibition in India during the COVID-19 pandemic presented an opportunity to test whether Google Trends data could indicate population responses and the public health impact of alcohol policy. We hypothesized, following prohibition: there would be a significant change in the relative search volumes (RSV) of alcohol-related queries; that temporal analysis of the trends would reflect a public response to policy changes; and that geospatial analysis of RSV would correlate with the prevalence of alcohol use.

**Methods:** Three different search periods were used to test the hypotheses. The search inputs were based on potential public response to alcohol prohibition, as evidenced by the literature, newspaper articles, and consensus. We used RSV as the unit of analysis. Mean RSV of search queries, pre-post implementation of prohibition, were compared. Smoothing of scatter plots examined the temporal association of trends with policy measures. Multiple linear regression tested the relationship of state-wise RSV and alcohol use prevalence.

**Results:** Post-implementation of prohibition, a significant increase in the RSV was observed for searches related to alcohol withdrawal ( $p < 0.001$ ), how to extract alcohol from sanitizer ( $p = 0.002$ ), alcohol home delivery online ( $p < 0.001$ ), alcohol home delivery ( $p < 0.001$ ), and sleeping pills ( $p = 0.006$ ). The trends suggested a decrease in general interest in alcohol but increased demand, and a possible connection with changes in policy measures. State-level RSV and alcohol use prevalence did not reveal a significant relationship.

**Conclusion:** Google trend is a potential source of rapid feedback to policymakers about population responses to an abrupt change in alcohol policies.

## Introduction

Google Trends is an open-source online portal of Google Inc. It provides data with temporal and geospatial patterns of relative search volumes of user-specified search terms. Institute of Medicine has recognized a complementary role of internet search 'Big Data' and considers it as an extension of the existing data foundations (Brownstein, Freifeld & Madoff, 2009). India has an ever-growing number of internet users, which is second in the world. The latest report by the Internet & Mobile Association of India estimated 503 million internet users (more than 30% of India's population), distributed evenly between the urban and rural areas (Mishra & Chandani, 2020). More than 98% of internet users use Google

as their search engine. Google Trends search has been predominantly used for surveillance of infectious disease epidemics. Although the use of Trends data for mental health and substance use disorders has been on the rise, suicidal behavior and the emergence of new psychoactive substances have dominated the research domains so far (Bright, Bishop, Kane, Marsh & Barratt, 2013; Gallagher et al., 2012; Mukherjee et al., 2020; Nuti et al., 2014; Yang, Tsai, Huang & Peng, 2011).

The Global Status Report on Alcohol and Health (2018) revealed that India had a per capita alcohol consumption of 5.7 L and an increasing trend observed in the last decade; moreover, the trend was highest among the other South-East Asian Region (SEAR) countries. More than 90% of the consumption consisted of distilled spirits. A growing trend was also seen in the proportion of people with heavy episodic

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drinking (WHO, 2018). Both the amount and pattern would lead to adverse public health impacts. As per the International Wines and Spirits Record (IWSR) Drinks Market Analysis, India is the ninth-largest consumer of alcohol and the second-largest consumer of spirits in the world (IWSR Drinks Market Analysis). A recent national survey revealed 5.2% of India's population, an estimated 57 million people were either harmful or dependent alcohol users; however, the magnitude varied widely across the states (Ambekar et al., 2019).

Following overnight notice, on March 25, 2020, India declared a nationwide lockdown to contain the spread of SARS-CoV-2. The Epidemic Diseases Act (1897) was implemented, and offices, transport, and all non-essential services were shut down. Only emergency medical care and the sale of essential food and beverages were permitted. There was a complete prohibition on manufacturing, transport, sale, and purchase of alcohol, implemented on the same day. There is no national-level alcohol policy in India. Consequently, several states took disparate measures by making provisions for alcohol supply to nullify the prohibition. Some states (e.g., Kerala, West Bengal, Assam, Meghalaya) tweaked the prohibition policy imposed by the Government of India by allowing "home delivery of alcohol," "online alcohol sale," "alcohol sale for limited hours of the day," "alcohol prescription by a registered medical practitioner." These measures could be implemented only for a few days and were thwarted either by the Government of India or by the legal mandate. Some other states (e.g., Punjab, Maharashtra, Karnataka, Odisha) proposed to implement some of these measures and requested approval from the government of India but finally the changes did not ensue. (FPJ Webdesk 2020b, 2020, 2020c; Government of Kerala. Kerala Excise Department, 2020). Therefore, the alcohol policy witnessed either a short-lasting change in some states or contemplation of change in other states. In sum, a de facto prohibition lasted from March 25 to May 3, 2020 (Lockdown phase 1 and 2). Following May 3 (Lockdown phase 3), mounting pressure from the state governments forced the center to pay heed to their demands, and the prohibition was gradually lifted.

Given the growing number of internet users and significant magnitude of alcohol use, sudden alcohol prohibition presented an unprecedented opportunity to perform a "case study" as to whether Google Trends data could indicate the population responses and public health-related ramifications of abrupt changes in alcohol policy.

Google Trends generally represent the level of online interest for particular search inputs. The prevailing literature on Google Trends reveals that Google searches could also be a "proxy indicator" of behavior at the population level. Studies from the UK and the USA have consistently reported the association between suicide-related Google searches and suicide rates among the general population (Barros et al., 2019; Kristoufek, Moat & Preis, 2016; Mc Carthy, 2010). Studies on influenza-like illness and gastroenteritis showed a strong correlation between specific online queries related to these illnesses and percentages of physician visits or emerging epidemics (Ginsberg et al., 2009; Pelat, Turbelin, Bar-Hen, Flahault & Valleron, 2009; Zimmer, Leuba, Yaesoubi & Cohen, 2018). The assessment of popularity and harms caused by novel psychoactive substances with Google Trends data is another example showing that Google Trends is a sensitive tool for understanding a "novel" and emergent phenomenon.

The sudden and unprecedented prohibition of alcohol could result in changes in population behavior. A media analysis suggested different types of population responses and possible public health impact following COVID-19 related alcohol prohibition in India (Ghosh et al., 2020). We expected Google Trends to detect the behavioural response at the population level to the "novel" and "emergent" alcohol ban in India imposed on March 25, 2020.

We started with the following hypothesis: (a) following the prohibition, a significant change would be observed in the online interest of user-specified search terms related to alcohol; the change in the online search interest was a "proxy marker" of population behavior, which in turn could indicate the public health impact of the alcohol policy (b)

temporal analysis of Google Trends (for specific search queries) would reflect the public response to the policy changes; the temporal association would suggest a possible connection between the particular policy measure and fluctuations of online interest (or population behavior) (c) The third hypothesis was based on the assumption that there would be a higher demand for alcohol during prohibition in states with a higher prevalence of alcohol use, and the alcohol-related search could be proportional to the increased demand. Therefore, the geospatial analysis of the search trend would correlate with the state-level prevalence of alcohol use.

## Methods

### Google trends

Google Trends provides a relative search volume (RSV), which is the query share of a user-specified term, normalized by the highest query share of that term over the time-series, for a specific location and period (Choi & Varian, 2012). It is a two-staged process. The first stage estimates the relative popularity, i.e., the ratio of a query's search volume to the sum of the search volumes of all possible queries of the geography and time range. In the second stage, the resulting numbers are scaled on a range of 0 to 100 based on a topic's proportion to all searches. The first stage ensures the popularity of the search term should be independent of internet traffic. Moreover, "Trends" eliminates repeated searches by the same person over a short period of time, and it shows only data for popular terms. These would (a) prevent spurious inflation of search volume by a single user; (b) ensure the user-specified search terms are popular enough to generate a time-series trend.

In our paper, we used RSV as the unit of analysis. We added up the daily RSV to generate the RSV mean and standard deviation for the various periods under study.

### Search procedure

#### Search filters

We performed the search on the "Google Trends website." The following filters were used: location ("India"), categories ("all categories," which includes twenty-seven search categories), type of search ("web search"). We customized the time range as per the study requirement.

#### Search periods

March 10 to April 9, 2020: The lockdown and prohibition on alcohol were enforced on March 25. Therefore, March 10 to April 9 took into account the search trends two weeks before and two weeks following the prohibition. We examined the changes in the mean RSV of user-specified search inputs before and after March 25 (i.e., the day of implementing alcohol prohibition). This was done to test our first hypothesis, i.e., there would be a significant change of online interest of alcohol-related terms following the ban. The search was carried out on May 12.

March 10 to May 23, 2020: This time period included trend searches pre-prohibition (March 10 to March 24), during complete prohibition (March 25 to May 3), and the phasic withdrawal of prohibition (May 4 to May 23). The more comprehensive time range was chosen to capture the "trends" of the search inputs and their fluctuations with the alcohol policy changes made over time. We could test our second hypothesis of visualizing population response to changing policy measures.

The same search period was also used for conducting the "control" search inputs.

The search was conducted on May 25.

March 25 to May 3: This time range captured the period of complete alcohol prohibition. We performed the geospatial search by accessing the sub-region RSV (i.e., state-wise RSV for India) for this time period. The third hypothesis of a positive relationship between state-wise RSV of specific search inputs and state-wise prevalence alcohol use was tested using this time range.

### Search inputs

The search inputs were based on (a) brainstorming of investigators-AG, AB, FR, SC. The first two have been working in the field of addiction psychiatry for more than six years, and the latter two are addiction psychiatry trainees, (b) literature on the public health impact of alcohol prohibition, and (c) newspaper reports published during the period of this study. The inputs were finalised after consensus among the authors (AG, FR, SC, AB). We carried out a Trends analysis of 3 related terms- 'alcohol,' 'wine,' and 'liquor.' The normalised graph (Supplementary figure 1) showed largely overlapping trends. We decided to uniformly use 'alcohol' for all our search inputs. The final search inputs were: "alcohol"; "alcohol sale"; "alcohol availability"; "alcohol home delivery"; "how to make alcohol at home"; "alcohol withdrawal"; "sleeping pills"; "how to extract alcohol from sanitizer"; "alcohol substitute"; "alcohol in black"; "alcohol treatment"; and "de addiction center." As we entered our pre-specified search items, Google Trends provided options for other related search terms. We opted for the one with a higher relative search volume. For example, we entered the pre-specified term- "alcohol in black market." However, in the related terms, we found a significantly higher RSV for "alcohol in black." Hence, the final Google Trend was generated with the search term- "alcohol in black." We did not use plus sign (+), minus signs (-), or quotations marks for search terms.

The search terms purported to discover searches related to alcohol dependence were: "alcohol withdrawal," "sleeping pills," "how to extract alcohol from sanitizers" (suggestive of compulsion of use or craving; use despite the knowledge of harmful consequences), "alcohol substitute," "alcohol in black," "alcohol treatment" and "deaddiction centers." Other search terms were more generic and applicable to both dependent and nondependent uses of alcohol.

We did two "control" Trends searches. One search query was "coronavirus." As it is a "novel" virus and has produced a significant public health concern, it was expected to stimulate public interest. Should Google Trends be able to detect the online interest and generate the desired trajectory, its performance as a proxy of population interest and behavior could be confirmed in the Indian context. For another search input ("alcohol"), we ran a duplicate search for the same period (March 10 to May 25) last year (2019). This was to rule out any specific pattern in the online interest during this time of the year.

All data were downloaded as .csv files.

### Other data source

The state-wise prevalence of alcohol use was accessed from the published report by the Ministry of Social Justice & Empowerment (Ambekar et al., 2019). State-level data of internet users were available for the year 2018, from the report by Telecom Regulatory Authority of India ((The Indian Telecom Services Performance Indicators July – September 2018 2020). However, this report combined data for some states (e.g., Madhya Pradesh and Chattisgarh). We estimated the number of internet users of the individual states from the population ratio.

### Adherence to reporting guidelines

We adhered to the Nuti and colleagues guidelines for documentation of Google Trends (Nuti et al., 2014). The checklist has been incorporated as supplementary Table 2. The interpretation of the trends data was based on independent observations and consensus to minimize the potential subjective bias.

### Statistical analysis

The relative search volumes (RSV) 2-weeks before and after the implementation of alcohol prohibition were tested by an independent sample *t*-test, with the assumption of unequal variance. Any significant changes were detected by a *p*-value of <0.05 (two-tailed). The

Google Trends curves were smoothed by the Locally Weighted Scatterplot Smoothing (LOWESS), done by the python program. The degree of smoothing or the span value was kept at 0.25. A lower span value was likely to minimize the sum of square error and had actually produced optimal curves on visual inspection. We ran a linear regression model with RSV from each state as the dependent variable, and prevalence of alcohol use and the number of internet users as independent variables. The standardized coefficients, *t*-values, and two-tailed significance were calculated.

## Results

### Comparison of relative search volume (RSV) before and after implementation of prohibition

RSV of all the pre-specified search inputs was compared with unpaired *t*-test. Post-implementation of prohibition, a significant increase in the RSV was observed in alcohol withdrawal ( $p < 0.001$ ), how to extract alcohol from sanitizer ( $p = 0.002$ ), alcohol home delivery online ( $p < 0.001$ ), alcohol home delivery ( $p < 0.001$ ), and sleeping pills ( $p = 0.006$ ). However, following the declaration of alcohol prohibition, a significant decrease was seen in the RSV of the search input: alcohol ( $p < 0.001$ ). No significant changes were observed in: alcohol sale ( $p = 0.34$ ), alcohol availability ( $p = 0.91$ ), alcohol in black ( $p = 0.70$ ), homemade alcohol ( $p = 0.67$ ), and alcohol treatment ( $p = 0.65$ ). The comparison could not be made for the search input, "alcohol alternate" because of too few data points. Please see Table 1 for further details.

### Visual inspection and interpretation of the 'control' curves

A "control" curve with the search input "Coronavirus" was generated to tap people's general interest and as a 'proxy' of population behavior in response to the novel viral pandemic. The RSV showed a sharp peak in the 3rd week of March when the cases in India were rapidly escalating. Gradually over a period, the rise plateaued before touching the baseline. The observed trend was in line with the expectation: any novel phenomenon would initially garner a lot of interest, which would gradually reduce (Supplementary figure 2). This control curve would suggest Google Trends is sensitive to public interests, concerns, or intentions in the Indian population. The second "control" curve was the trend for 'alcohol' from March 10 to May 23, 2019. The trend did not show any peak or trough during this period. This would suggest seasonal or "yearly" Trends of the alcohol-related search were unlikely. Besides, no extra-ordinary alcohol policy-related measures were undertaken during this time in 2019; therefore, significant changes in "alcohol" trends

**Table 1**

Comparison of Relative Search Volume (RSV) of search inputs pre and post alcohol prohibition.

Search inputs	RSV (March 10 to March 24) Mean (SD)	RSV (March 26 to April 9)	t-value	p-value
Alcohol	70 (14.84)	46.37 (13.76)	4.52	0.000008
Alcohol sale	35.4 (29.73)	46.06 (31.56)	0.95	0.31
Alcohol withdrawal	32.4 (16.02)	67 (21.70)	4.97	0.000023
Alcohol availability	30.46 (33.76)	31.87 (38.10)	0.11	0.91
Alcohol home delivery	8.87 (6.55)	41.13 (25.42)	4.75	0.00013
Alcohol home delivery online	4.27 (11.26)	41.25 (25.09)	5.21	0.00002
how to extract alcohol from sanitizer	0 (0)	22.94 (24.84)	3.58	0.0021
Alcohol treatment	42.33 (12.20)	45.12 (20.97)	0.44	0.65
Sleeping pills	54.67 (12.35)	69.37 (15.49)	2.87	0.0066
Alcohol substitute	52.4 (17.53)	30.27 (31.93)	2.35	0.03
Homemade alcohol	45.2 (27.82)	40.87 (28.39)	0.42	0.67
Alcohol in black	53.53 (28.91)	49.2 (31.50)	0.39	0.70

were not observed (Supplementary figure 3). In other words, fluctuations of search trends observed in this year's data could be considered as a function of the alcohol prohibition and other policy changes.

#### *The temporal relationship between alcohol policy measures & google trends of pre-specified search inputs*

We did a thorough visual inspection of the LOWESS modified Google Trends curves to examine the correlation between the changing alcohol policy (or contemplating a change in policy) and public health response. After independent examination of the Trends and interpretation of putative relationships, a meeting was held among four authors (AB, AG, FR, SC), all independent view-points were discussed, and a consensus was reached.

Increased demand for alcohol persisted throughout the period of prohibition, as evidenced by the trends of 'alcohol availability,' 'alcohol home delivery,' and 'alcohol home delivery online.' The rise in the trend of 'alcohol withdrawal' following the commencement of the prohibition was a tell-tale sign. This trend coincided with the trend for 'sleeping pills,' suggesting people's need for treatment. The 'alcohol treatment' graph did not show any definite peak. The Google Trends for 'extraction of alcohol from sanitizer' reflected the desperation of people to alleviate sufferings, persistent demand, and a lack of definite policy of fulfilling the treatment needs. The relatively later onset of the peak supported the assumption of desperation. However, the trend of 'alcohol' reflected a reduction in general interest during this time. The details of search inputs, peaks of interest level, an impression about the relationship between changing Trends and alcohol policy have been discussed in [Table-2](#). [Figs. 1, 2, and 3](#) depict the online interest related to the search inputs, "alcohol withdrawal & sleeping pills," "alcohol home delivery," "extraction of alcohol from sanitizer." Other Trends curves have been added as supplementary figures (4 and 5).

#### *Correlation of state-wise prevalence of alcohol use & rsv for search inputs*

The linear regression analyses showed no significant relationship between the state-wise prevalence of alcohol use and geospatial RSV for any of the search inputs. Too few data points precluded analyses of alcohol home delivery online and alcohol availability. The details are included in supplementary Table 1.

## Discussion

Our analysis showed that Google Trends could detect a statistically significant change (of user-specified, relevant search inputs) following a robust change in alcohol policy. Temporal analysis by visual inspection of normalized Trends graphs primarily reflected the population response and public health impact of the policy measures. The inclusive search terms might have been a proxy for population-level behavior of both dependent and nondependent alcohol users. Some of the search inputs (e.g., "how to extract alcohol from sanitizer," "how to make alcohol at home," "alcohol home delivery") were intended to discover the motive of the search. This strategy was borrowed from Ayers and colleagues (2016). Google Trends generates the relative popularity of a search term, followed by relative search volume; hence, possible higher internet traffic during the lockdown would not have impacted the results. However, the state-wise search volumes did not show a significant correlation with the prevalence of alcohol use. Altogether, our study demonstrated the credibility of Google Trends data to inform the policymakers about the direction (but possibly not the magnitude) of the public response to changing alcohol policy. The credibility of the data can be evidenced by its accordance with (a) existing clinical knowledge and concurrent evidence: the rise and fall of 'alcohol withdrawal' nearly corresponded with the clinical course (Kosten and O'Connor, 2003); a significant increase in the number of hospital admissions was also reported, in line with the Trends data for 'alcohol withdrawal' (Narasimha et al., 2020);

(b) literature on alcohol (Hall, 2010); (c) newspaper reports: the first peak of 'extraction of alcohol from sanitizers' and the second and third peaks of 'online alcohol delivery' corresponded with reports of deaths and morbidity after drinking sanitizers and online scams, respectively (Narayanan, 2020; Nath, 2020).

Although a significant increase in the trends of "alcohol home delivery" and "alcohol online delivery" would suggest persistently increased demand for alcohol despite prohibition, the absence of significant changes in search volumes for "alcohol sale," "alcohol availability," and "alcohol in black," appeared to be counterintuitive. We propose the following explanation for this: (a) during the period of the study, COVID-19 cases were rapidly increasing in India, from 618 patients on March 25 to 125,000 cases on May 23. People might have been fearful of venturing out to buy alcohol and explored the "novel" option of home or online alcohol delivery; (b) To contain the rapid spread of infection, the government of India classified districts into graded risk-zones. Out of 718 districts in the country, 414 (57%) fell into the moderate to a high-risk category in May 2020 (Livemint, 2020). The state governments created many containment zones within the high-risk zones to prevent the spread of COVID-19. For example, in the second week of May, there were 338 containment zones in Kolkata, the capital city of West Bengal. In the containment zones, movement was highly restricted, and people could come out only for valid emergency needs. Under this strict vigil, perhaps people avoided going out to purchase alcohol and wanted alternative measures to procure it; (c) searching on the sale of alcohol in the black market has a negative and criminal connotation. Such information is unlikely to be available on the open network.

The non-significant linear regression of the relationship between the state-level prevalence of alcohol use and RSV for online queries could have resulted from the influence of unmeasured (or unavailable) third variables. One such example is the rate of English literacy across the states: we analysed searches made only in English. The general adult literacy rates vary widely across the Indian states, from 93 percent in Kerala to 64 percent in Bihar. However, we do not have any reliable estimates for English literacy. Besides, twenty-two languages are scheduled by the Indian Constitution, and there is no national language. Therefore, conducting an online search in any particular regional language was not worthwhile. This was in contrast to Google Trends research done in other non-English speaking Asian countries such as Japan and Taiwan, where researchers used search inputs in respective national languages (Yang et al., 2011; Sueki, 2011). Another limitation that may account for the non-significant result is that the data for the prevalence of alcohol use, internet usage, and relative search volumes of online queries were obtained at different time points, in 2019, 2018, and 2020, respectively. The discordant data points might have also contributed to the non-significant results owing to a possible change in the first two parameters during the last 1–2 years. Finally, the estimated prevalence of alcohol use disorders could have been a better marker of "alcohol demand." However, the state-level data of only the top ten Indian states regarding the prevalence of alcohol use disorders are available in the public domain Ambekar et al., (2019). In sum, the non-significant regression informed us about two important points regarding the Google Trend-based research: (a) Google Trends would perform best in either English speaking countries or in countries with a uniform national language, (b) more robust results would require availability, access, and periodic update of the key comparison variables, such as prevalence of alcohol use.

Our study should be read in light of the following limitations: (a) this was an observational study. Therefore, no definite causal inference should be drawn between changing alcohol policy and the public health response; (b) the search inputs were limited to English. The 2011 census estimated that a little more than 12 to 30 percent of the Indian population could read, write, and speak English. Although it is the second most common language spoken in the country, we acknowledge this as a serious limitation of our study (Census, 2011). (c) illegal and criminal



**Table 2**  
The relationship of alcohol policy measures and public response.

Search inputs	Peaks of "online interest" level	Alcohol policy measures taken (contemplated) during the time	Interpretation
Alcohol	Largely a flat curve from March 30 to May 3, i.e. during lockdown 1.0 & 2.0 The two peaks were before the lockdown 1.0 and during lockdown 3.0	During lockdown 1.0 & 2.0: complete alcohol prohibition (centrally enforced) During lockdown 3.0: prohibition was gradually lifted in several states	A significant reduction in the general interest in alcohol during the period of prohibition
Alcohol sale	Flat curve till the beginning of lockdown 3.0 The graph rose during lockdown 3.0	There were no additional restrictions on alcohol sale before lockdown 1.0 There was a complete prohibition during lockdown 1.0 and 2.0 There was uncertainty about the alcohol sale and mode of sale during lockdown 3.0	Uncertainty forced people to search for potential sources of "alcohol sale" Demand for alcohol continued after prohibition
Alcohol withdrawal	Peak between March 29 to 4 th April	Prohibition on alcohol during this period	People with possible alcohol use disorders suffered from (or anticipated) withdrawal symptoms Personal stock might explain a relatively later onset and lasting peak
Alcohol availability	The larger peak started around April 5 and touched baseline around 6–7th May	Centrally enforced prohibition Several states (e.g. Kerala, Chattisgarh) permitted alcohol "on prescription" or opened outlets for limited duration; decisions revoked in 3–4 days	Increased demand for alcohol continued during the period of prohibition The later peak might be contributed by the expectation generated from state alcohol policies
Alcohol home delivery	Two small peaks in the first two weeks of lockdown	Several states started or contemplated home delivery of alcohol (e.g. Kerala, West Bengal, Punjab) during the two initial peaks	Demand for alcohol continued unabated during the lockdown
&Alcohol home delivery online	A large peak during lockdown 3.0	States started home delivery (e.g. Odisha, Chhattisgarh, West Bengal, Kerala) during lockdown 3.0	Public expectation of home delivery (or online delivery) The occurrence of online scams reported in the newspaper coincided with the second peak Largest peak represented increased demand after the prohibition was lifted
Alcohol from sanitizer	Two peaks: first one began after the lockdown 1.0 and second one started with the lockdown 2.0 Ended during lockdown 3.0	Total prohibition during lockdown 1.0 and 2.0 Gradual opening up of retail and online sale during lockdown 3.0	Increased demand for alcohol The desperation of people (possibly with use disorders) to control withdrawal and craving. Several newspaper reports of death and morbidity due to hand sanitizer consumption was also reported during the end of lockdown 1.0
Alcohol in black	No peak as such A slight rise of the RSV following lockdown 1.0, which stabilized within a week A relatively high RSV continued throughout the period of lockdown 1.0 and 2.0	Effective policing reported in the media	The prohibition was for a short span of time Effective implementation through policing might have been possible
Alcohol treatment	No peaks	A large majority of the drug and alcohol treatment centres were closed All public conveyance were stalled	Treatment needs persisted during the prohibition but no specific policy was formulated to address the need
Sleeping pills	No peaks but RSV increased following the lockdown 1.0	Prohibition of alcohol Imposed home isolation	Increased demand for sleeping pills Possible reasons: alcohol withdrawal To alleviate fear and anxiety-related to COVID-19 To self-treat insomnia
Sleeping pills & Alcohol withdrawal combined	The 'alcohol withdrawal' peak coincided with the first peak of 'sleeping pills'	Alcohol prohibition No policy to address the treatment need	Reflected public response of searching for treatment to alleviate withdrawal

activities (such as black marketeering of alcohol) might be less visible on the open net.

In sum, our study had significant implications for alcohol and drug policy research and practice. Firstly, we showed a rapid, robust, and consistent change in the Google Trends search with the changing alcohol policy. Few data sources can assist policymakers in reflecting on policy change, and Google Trends is one such potential source of rather rapid feedback about responses to policies. However, we recognize this case study was an extreme example of abrupt alcohol prohibition, which might have exaggerated the Trends data. Whether and how incremental alcohol policy measures (e.g., higher pricing, taxation, restricted availability, restrictions in advertising) affect Google Trends remains to be

seen. We believe a relatively longer duration of observation might be needed to examine the credibility of the Trend data under these circumstances. Secondly, Google Trends data could also be tested in the future for other licit substances, such as tobacco and cannabis (in states and countries where recreational or medicinal use is legal). One might examine the effect of legalization of recreational use of cannabis by (a) comparing the online interest of cannabis-related terms before and after legalization, and comparing the geospatial differences (states in which it is legalized vis a vis where cannabis is illegal) of online interests; (b) examining the relative search volumes of terms describing symptoms of intoxication for early detection of harmful effects. The latter example was aligned with the evidence of early and reliable detection of infectious

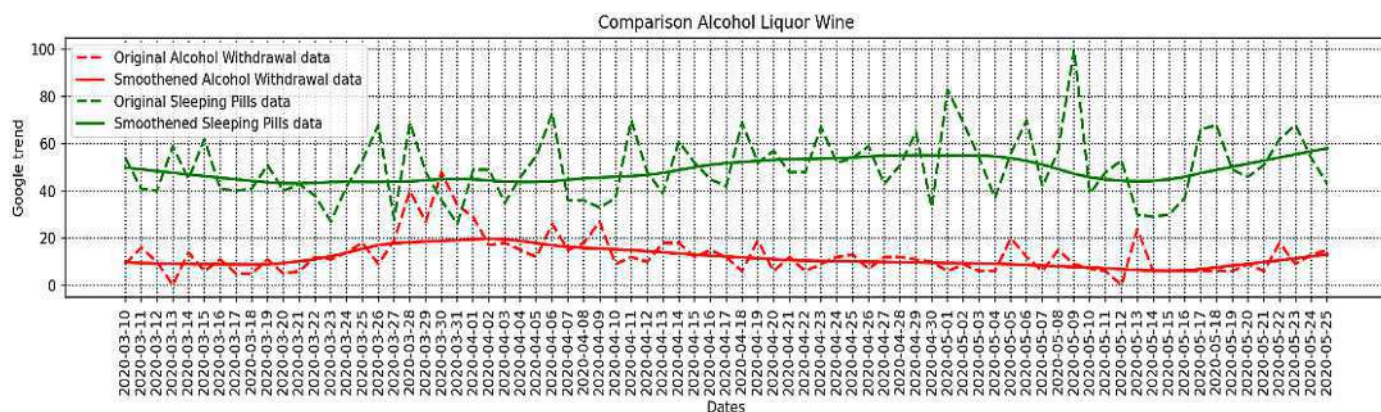


Fig. 1. Relative search volumes (RSV) of "alcohol withdrawal" and "sleeping pills" on a scale of 0 to 100. Thick, unbroken lines show trends using Locally Weighted Scatterplot Smoothing (LOWESS). Thin broken lines are daily RSV from March 10 to May 23 2020. The red and green represent Trends for alcohol withdrawal and sleeping pills, respectively [Data Source: Google Trends].

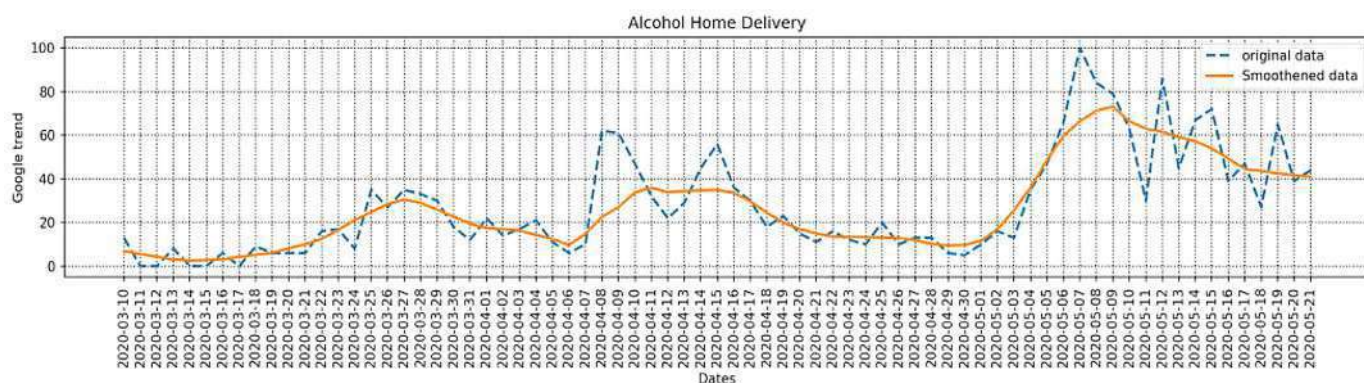


Fig. 2. Relative search volumes (RSV) of "alcohol home delivery" on a scale of 0 to 100. Thick, unbroken lines show trends using Locally Weighted Scatterplot Smoothing (LOWESS). Thin broken lines are daily RSV from March 10 to May 23 2020. [Data Source: Google Trends].

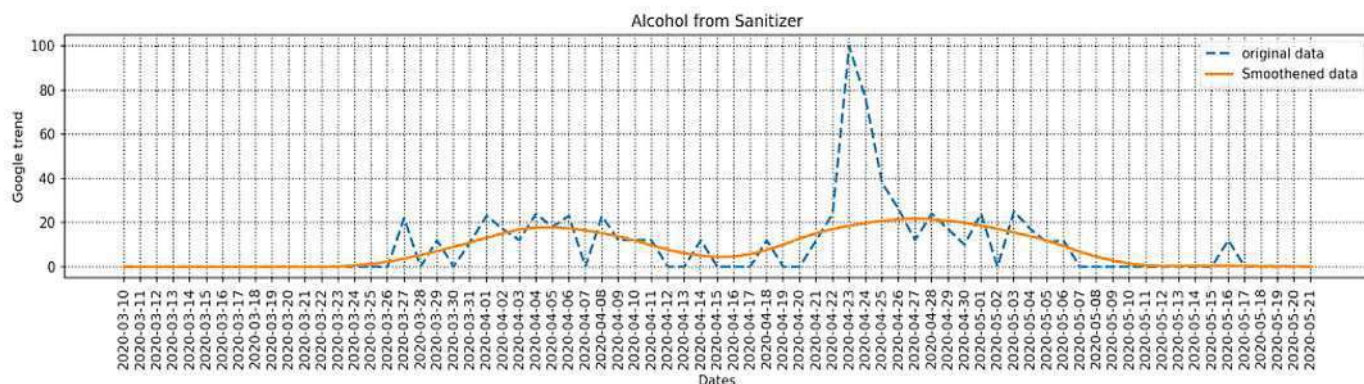


Fig. 3. Relative search volumes (RSV) of "extraction of alcohol from sanitizer" on a scale of 0 to 100. Thick, unbroken lines show trends using Locally Weighted Scatterplot Smoothing (LOWESS). Thin broken lines are daily RSV from March 10 to May 23. [Data Source: Google Trends].

disease epidemics with Trend data (Chan, Sahai, Conrad & Brownstein, 2011; Ginsberg et al., 2009). Thirdly, Google Trend data could capture the public response, even in a non-English speaking country. Finally, we explored and validated the credibility of this inexpensive, accessible Big Data source, which has yet to be tapped to modulate alcohol or drug policy.

**Declaration of Interests**

None.

**Supplementary materials**

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.drugpo.2020.102984](https://doi.org/10.1016/j.drugpo.2020.102984).

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Rapid Communication

# Disulfiram Ethanol Reaction with Alcohol-Based Hand Sanitizer: An Exploratory Study

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## Abstract

**Aims:** We conducted a cross-sectional survey to estimate the prevalence and clinical manifestation of disulfiram ethanol reaction (DER) and isopropanol toxicity (IT) in patients with alcohol use disorders, on disulfiram. Alcohol-based hand rub contains either ethanol or isopropanol or both. COVID-19 pandemic has led to wide scale usage of sanitizers. Patients with alcohol use disorders, on disulfiram, might experience disulfiram ethanol like reactions with alcohol-based sanitizers.

**Methods:** We telephonically contacted 339 patients, prescribed disulfiram between January 2014 and March 2020. The assessment pertained to the last 3 months (i.e. third week of March to third week of June 2020).

**Result:** The sample consisted of middle-aged men with a mean 16 years of alcohol dependence. Among the 82 (24%) patients adherent to disulfiram, 42 (12.3%) were using alcohol-based hand rubs. Out of these, a total of eight patients (19%; 95% CI 9–33) had features suggestive of DER; four of whom also had features indicative of IT. Five patients (62.5%) had mild and self-limiting symptoms. Severe systemic reactions were experienced by three (37.5%). Severe reactions were observed with exposure to sanitizers in greater amounts, on moist skin or through inhalation.

**Conclusion:** Patients on disulfiram should be advised to use alternate methods of hand hygiene.

## INTRODUCTION

Disulfiram is one of the time-tested and widely used long-term pharmacotherapeutic approaches for alcohol use disorders (AUD). It was approved in Sweden and Denmark in 1949, whereas the US Food and Drug Administration approved this medication in 1951 (Suh et al., 2006; Kragh, 2008).

Alcohol is metabolized to acetaldehyde by alcohol dehydrogenase. Acetaldehyde is subsequently metabolized to acetic acid by acetaldehyde dehydrogenase (ALDH). Disulfiram blocks ALDH enzyme leading to accumulation acetaldehyde. This results in a range of unpleasant symptoms, from tachycardia, headache, flushing, nausea, vomiting to cardiac arrhythmias and seizures—disulfiram

ethanol reaction (DER). DER develops within 10–30 minutes after alcohol use. As disulfiram irreversibly blocks ALDH, it can take up to 2 weeks to replenish the enzyme once the medication is stopped. DER may happen with ethanol from any sources other than the alcoholic beverages (Center for Substance Abuse Treatment, 2009). Literature suggests the development of such reactions with other lower aliphatic alcohol and solvents, which usually are metabolized by the ALDH enzyme (Haddock and Wilkin, 1982; Ehrlich et al., 2012).

Alcohol-based hand rubs are frequently used as hand hygiene measures during the COVID-19 pandemic. In many public places, the use of hand sanitizers is mandatory before entry (World Health Organization, 2020). Most of the alcohol-based hand sanitizers

contain between 60 and 80% isopropanol or ethanol alone or in combination.

A case report on DER in a with alcohol-based hand sanitizer has already been published from India (De Soussa, 2020). Nevertheless, DER after application of alcohol on the intact skin is a debatable entity, as the systemic absorption of alcohol through intact skin surface is minimal. In one study, it appeared that alcohol absorption from previously moist skin might explain the possibility of DER after using alcohol-based shampoo or aftershave lotion (Haddock and Wilkin, 1982). A recent commentary raised the possibility of absorption of clinically significant amounts of alcohol from pulmonary circulation while inhaling the sanitizer after local application (Brewer and Streeb, 2020). All these evidences come from individual case reports, and there is a need to conduct systematic research in this area.

We aimed to estimate the prevalence and clinical manifestations of DER and isopropanol toxicity (IT) with alcohol-based hand rubs among patients with alcohol use disorder receiving disulfiram.

## MATERIAL AND METHODS

Although the first case of COVID-19 was detected on 30 January, India witnessed a rapid rise in the number of cases in the first and second week of March. The Ministry of Health, among other measures, advised using alcohol-based hand rubs to minimize the risk of infection. Within the first few weeks, the high demand for hand sanitizer depleted its stock from the market. Later, it was included in the list of essential items ensuring wider availability, access and affordability.

We conducted the study among patients with alcohol use disorder receiving disulfiram from tertiary care substance use disorder treatment centers catering to patients from the entire northern and parts of western and eastern India. This study was approved by the institutional ethical committee.

### Design and sample

It was a cross-sectional survey. We assessed patients who were prescribed disulfiram for maintenance treatment for alcohol use disorder between January 2014 and March 2020. Assessments were done between 21 June and 14 July 2020.

### Procedure

We identified subjects and their phone numbers through an outpatient-based register and conducted telephonic interviews. A semi-structured tool was specially designed for this study. This tool consisted of four sub-sections—socio-demographic profile, alcohol-related information, disulfiram-related information (which included adherence), information on alcohol-based hand rub use and reaction-related details (Supplementary Panel 1). Treatment adherence with disulfiram was assessed with a brief adherence rating scale (Byrley et al., 2008). Assessment pertained to the last 3 months (i.e. third week of March to third week of June 2020).

### Statistical analysis

The analysis was performed using MS Excel software. Descriptive analyses were expressed by appropriate statistics—mean, standard deviation, frequency and percentages. We compared the groups with or without DER, with regard to demographic and clinical variables,

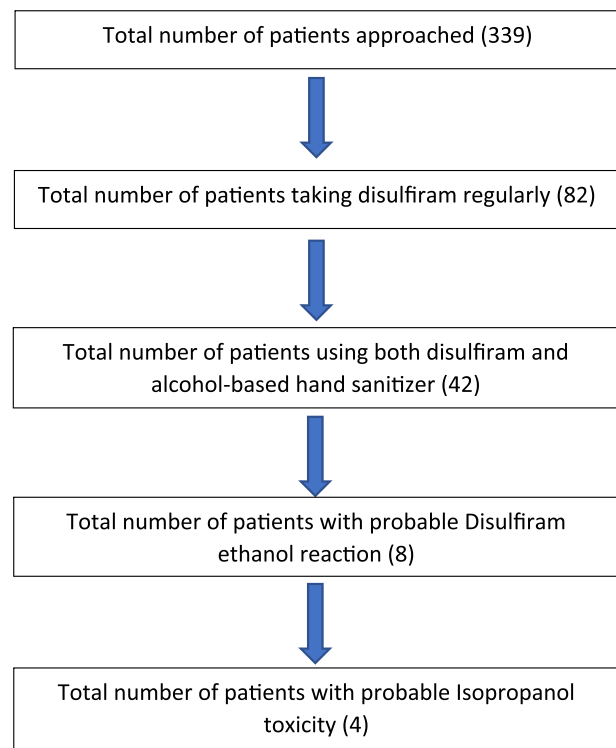


Fig. 1. Flow diagram of recruitment of the subjects.

using either unpaired *t*-test and chi-square test. The confidence interval of the estimated prevalence of DER was calculated by Wilson's method (Brown et al., 2001).

## RESULTS

We contacted a total of 339 patients who were prescribed disulfiram between January 2014 and March 2020. Eighty-two (24%) of them were adherent to disulfiram for the last 3 months. Forty-two (12.3%) of them had concurrently used hand sanitizer and disulfiram. Out of these, a total of eight patients (19%; 95% CI: 9–33) had features suggestive of DER—four of whom also had features indicative of IT along with DER (Fig. 1).

### Clinical and demographic characteristics of the population

The population was middle-aged adult (mean age ~42 years) men with the education of up to intermediate level (mean 12.7 years). They were mostly employed (85.7%), hailing from the nuclear family (81%) and urban background (76%). On average, they had started using alcohol from their early 20s (20.4 years). The mean duration of alcohol use and dependence was 19 years (228.4 months) and 16 years (158.9 months), respectively. The average pre-treatment consumption of alcohol was around 548.7 ml of 40% alcohol. Eleven (26.2%) patients had comorbid medical illnesses. There were two cases of hypertension and one each for chronic obstructive pulmonary disease, benign prostatic hyperplasia, neuropathy, coronary artery disease (CAD), fatty liver and type 2 diabetes mellitus. The rest of the three patients had multiple physical comorbidities. Among the eight patients (19%) having comorbid psychiatric conditions, mood disorder was the most prevalent (depressive disorder

**Table 1.** Case by case description of reaction with disulfiram

Serial number	Age (years)	Medical comorbidity	Disulfiram ethanol reaction		Isopropanol toxicity		Need for medical attention	Sanitizer particulars		Behaviour change		Possible hypothesis
			Description	Frequency	Description	Frequency		Nature	Daily use (ml)	Change in medication adherence	Change in handwashing practice	
1	51	No	Heat and redness over face and neck, Heat and sweating all over body	Rare	NIL	NA	No	Ethanol	6	No	Hand wash with soap-water	Possible inhalation
2	35	No	More than usual amount heat and redness over hands, heat and sweating over the body	Rare	NIL	NA	No	Isopropanol	25	No	None	Higher amount, inhalational
3	29	No	Heat and sweating over hands and all over body if more amount is used, Nausea and vomiting, vertigo	Frequent	NIL	NA	No	Both	6	No	Hand wash with soap-water	Higher amount, inhalational
4	37	No	Heat and redness over hands, Occasional difficulty in breathing, Palpitations and chest discomfort, anxiety, restlessness	Frequent	NIL	NA	No	Isopropanol	5	Yes	Hand wash with soap-water	Usual amount—local reaction.
5	41	HTN	Difficulty in breathing, weakness, fatigue, giddiness, confusion after being sprayed with more than usual amount of sanitizer	Frequent	Dizziness, Ataxia	Rare	Yes	Isopropanol	4	No	Hand wash with soap-water	Generalised reaction—Higher amount, inhalational
6	42	No	Heat and redness over face and neck, Nausea and vomiting, Difficulty in breathing, Anxiety, restlessness, Weakness, fatigue, Giddiness	Frequent	Dizziness, Palpitations	Frequent	No	Both	15	Yes	Hand wash with soap-water	Absorption from Moist hand
7	40	No	Heat and redness over hands. Self-limiting	Frequent	Dizziness, Palpitations	Frequent	No	Both	6	No	Non-alcoholic hand rub	Local reaction after exposure
8	34	CAD	Heat and redness over face and neck (no local reaction)	Once	Dizziness, palpitation, Ataxia	Once	Yes	Both	10	Yes	None	Systemic reaction after exposure

in four patients and bipolar disorder in one). Two patients had comorbid anxiety spectrum disorder (one each with agoraphobia and generalized anxiety disorder), and one had a dissociative personality disorder (Supplementary Table 1). The diagnosis of comorbidities was recorded from the case files. Only three (7.1%) patients had concurrent occupational exposure to solvents and alcohol, and none of them had developed DER with hand sanitizer. The patients were using a fixed dose of 250 mg per day for a mean duration of around 1 year (54.1 weeks; median 34 weeks; range 4–260 weeks), and their mean adherence rating score was 88.3 (out of possible 100). Sixteen patients (38.1%) used predominantly liquid sanitizer, 19 patients (45.2%) used gel-based and seven patients (16.7%) used both. Eight (19%) and seven (16.7%) patients used ethanol and isopropanol-based sanitizer predominantly. Nineteen (45.2%) used both. The rest of the patients were unaware of the composition of the hand sanitizer used. On average, patients used hand sanitizer around six times per day (median, 5 times; range 1–25 times).

### Clinical details of the reaction

When individual cases were examined, the usual reaction was a local irritation. In those patients, the characteristic feature was localized heat and redness usually, and on using more than the usual amount, there was a generalized reaction on the face, neck and body. One patient with pre-existing hypertensive illness had breathlessness, giddiness and confusion. Dizziness, palpitation and ataxia were standard features of IT among our patients. Five of the patients did not require medical attention. Three sought medical advice and were managed conservatively. Two of these three patients had medical comorbidity (hypertension and CAD). Treatment adherence to disulfiram was affected in three patients (37.5%). Six patients (75%) considered using alternative ways of hand sanitization (Table 1).

We compared the group with or without any history of DER to explore potential clinical correlates. However, there were no significant differences of age, age of onset of alcohol use, age, and duration of dependence, frequencies of medical and psychiatric comorbidities.

## DISCUSSION

Our study revealed that nearly one in five patients developed DER or IT with alcohol-based hand sanitizers. Forty percent of those developing reaction required medical attention. Two out of three patients who had local reactions with the usual amount of sanitizer developed more severe and systemic reactions with a higher dose, suggested a possible dose–response relationship of alcohol hand rub and disulfiram–ethanol reaction. The application of a higher dose may lead to more extensive local absorption or systemic absorption through pulmonary vasculature during the evaporation of the sanitizer. Local absorption of clinically significant amounts of alcohol from intact skin is still a debatable entity, but it may occur from moist skin (Haddock and Wilkin, 1982). This might be the etiology of reaction, at least in one of our patients. In other cases, the possible etiology may be systemic absorption of alcohol in the sanitizer, as no definite history of application on moist or breached skin was available. One of the patients was sprayed with sanitizer and developed a severe systemic reaction. A small experimental study showed that breath alcohol concentration did not rise even after 20 minutes of cutaneous exposure to alcohol-based hand sanitizer, when inhalation was restricted. However, alcohol concentration raised significantly when the subject was allowed to inhale the sanitizer after topical application (Brewer and Streeb, 2020). Therefore, a possible systemic

absorption of sanitizer through the pulmonary route must be avoided in patients on disulfiram. Those patients with co-existing medical disorders had greater severity of the reaction and had to seek treatment. Hence, these groups of patients should exercise caution using hand sanitizer and disulfiram (Suh et al., 2006). Clinicians might consider an alternative to disulfiram in patients with cardiac comorbidities.

Another important finding is the presence of symptoms of isopropanol poisoning in a subgroup of patients. The common symptoms were dizziness, ataxia and palpitation. This indicates the pharmacological effect of disulfiram on the metabolism of other lower aliphatic alcohols. Literature suggests the presence of such a reaction after the local application of isopropyl alcohol, and this is more pronounced when the same is applied to hydrated skin (Haddock and Wilkin, 1982).

Nearly 40% of the patients discontinued disulfiram as a result of the reactions. Therefore, DER with hand rubs might lead to treatment non-adherence, which could trigger a subsequent relapse to alcohol.

This study has some limitations. The vast majority of patients were non-adherent to disulfiram. Although previous literature reported poor adherence, the nationwide lockdown implemented in the third week of March, too, negatively impacted treatment adherence in our patients (Williams, 2005). We could not use inferential statistics and examine the risk factors because of the overall small sample size and a lower number of patients with DER.

Nevertheless, our study had the following lessons for clinicians: (a) alcohol hand rubs can produce disulfiram ethanol like reaction in a minority, (b) of these, the majority had a mild and self-limiting response, (c) systemic response could result from inhalation of sanitizer spray, (d) higher amount of hand sanitizer use and use in moist skin would increase the risk of reaction, (e) patients with medical comorbidity should exercise special caution and (f) the experience of DER following exposure to the alcohol-based disinfectants can increase the risk of disulfiram discontinuation putting the patients at greater risk for the resumption of alcohol use. Clinicians should inform their patients on these possibilities and advise them on use of alternate methods of hand hygiene, such as washing hands with soap water. In cases where it is not possible to avoid alcohol-based sanitizers, it is advisable to use alcohol hand rubs cautiously and preferably on dry skin. For patients, not able to adhere to the alternative hand hygiene measures, a change of medication might be considered.

## SUPPLEMENTARY MATERIAL

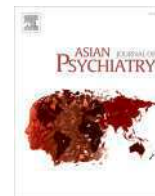
Supplementary material is available at *Alcohol and Alcoholism* online.

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## Letter to the Editor

## Profile of patients availing psychiatry emergency services pre and post lockdown at a tertiary care center of North India



### 1. Introduction

The novel Corona Virus has shaken the health care system worldwide. It is not just the patients afflicted with COVID-19, that are bearing the brunt of the pandemic, but the closure of routine health care services has left patients with various illnesses in a lurch (Tandon, 2020). Resources that were allocated for various specialties, emergency departments, skill development, and infrastructure creation, have all been redirected to managing patients infected with COVID-19, and for the testing persons suspected to have COVID-19 infection. As a result of the same, healthcare is becoming even more inaccessible to those who are suffering from other illnesses. The pandemic has challenged the healthcare capacity in developed and developing nations alike. During the lockdown period, health care services were limited to emergency services only.

In India, a nationwide lockdown was imposed from 24th March 2020. As a result of the same, all forms of public transport were suspended and people were restricted to their homes to curb the spread of the virus. This came in as a shock to some of the people with various health conditions, who were planning to consult the health care facilities in the near future. The same was seen in other parts of the world too, with significant fall in emergency room visits, delays in attending emergency rooms as well as outpatient clinics, and undergoing therapeutic interventions (Bernstein and Sellers, 2020; Lazzarini et al., 2020; Masroor, 2020; Rosenbaum, 2020).

Like other specialties, Psychiatry services have also been affected worldwide. Reports emerging from the United States of America, China, and Italy suggest that COVID-19 led to the closure of the psychiatry wards and the need to re-organize systems. In India too, mental health services, both at the institutional level and in the private sector have been affected significantly (Grover et al., 2020a; Grover et al., 2020b). During the lockdown period, there was shrinkage of almost all kind of services, except for Telepsychiatry services, which saw expansion during this period (Grover et al., 2020a, Grover et al., 2020b, Grover et al., 2020c).

Lockdown and the ongoing pandemic also have led to an increase in the prevalence of psychological morbidity (Grover et al., 2020d). Additionally, there are multiple reports of people indulging in self-harming behavior, either due to fear of COVID-19 (Sahoo et al., 2020a), substance withdrawal (Rani et al., 2020), or worsening of primary psychiatric disorder or emergence of new psychiatric ailments (Grover et al., 2020e; Muruganandam et al., 2020). Attending to patients with COVID-19 has also increased the prevalence of psychological morbidity among health care workers, either due to fear of contracting the infection, fear of carrying the infection to home (Gupta et al., 2020; Mehra et al., 2020; Sahoo et al., 2020b), and the use of personal

protective equipment (Spoorthy et al., 2020; Dua et al., 2020).

In terms of health care services available to the people requiring the immediate attention of clinicians, besides Telepsychiatry services (Bojdani et al., 2020; Grover et al., 2020a), patients had no other alternative other than coming to the emergency services was available. Accordingly, there is a need to understand the impact of the pandemic on the utilization of emergency services, which has not been studied in the Indian context. Thus, this study aimed to assess the profile of patients attending the Psychiatry Emergency Services at a tertiary care center after the imposition of lockdown and compare the same with the profile of the patients attending the emergency services during the pre-lockdown period.

### 2. Materials & methods

This study was conducted at the Emergency Services Department of the Postgraduate Institute of Medical Education and Research, Chandigarh, which is a tertiary care hospital in North India. The Psychiatry Emergency Services caters to patients attending medical, surgical, trauma, as well as paediatric services. Before the COVID-19 pandemic, patients referred from the out-patient services for urgent care, other hospitals, as well as those coming by self-referrals were seen in the Emergency Services. During the lockdown period, after the onset of the COVID-19 pandemic, mostly only those patients requiring emergency care, referred from other hospitals, or those who attended on their own, or those initially seen in the telepsychiatry services and considered to require emergency care were attended.

The patients coming to various emergency set-ups of the hospital are initially evaluated by the primary team (i.e., internal medicine, general surgery, orthopaedics, or pediatrics), who based on their evaluation seek psychiatric opinion. The patients referred to the psychiatry emergency team are initially evaluated by a trainee doctor under the supervision of a senior resident and consultants. The patients are managed by the Psychiatry Emergency Services independently or jointly with the medical/surgical teams till they are stabilized, transferred to the wards, or discharged. After initial medical stabilization, a treatment plan is formulated which may constitute investigations and treatment in the emergency services, consultations with various specialties, transfer of the patient to a medical (including psychiatry) or surgical ward, and discharge and follow-up plan. All psychiatric diagnoses are made per the International Classification of Diseases-10 (ICD-10) ("WHO | International Classification of Diseases (ICD)," 1993) criteria.

Besides documenting the details of the psychiatric issues in the parent team file, the Psychiatry Emergency team maintains records of all the patients, from the time of admission to discharge which includes the sociodemographic profile, clinical details, diagnosis, and management

done.

For the purpose of this study, the records of all patients attending the Psychiatry Emergency Services from 1st January 2020 to 25th July 2020 were retrieved. Comparisons were made between the patient profile before the imposition of the nationwide lockdown i.e. from 1st January 2020 to 23rd March 2020 (83 days) and after the imposition of the lockdown i.e. from 24th March 2020 to 25th July 2020 (123 days). A longer duration was considered in the post-lockdown period to have an equal sample size in both the groups.

### 3. Results

During the study period, a total of 587 patients attended the Psychiatry Emergency Services. In the pre-lockdown period, a total of 291 patients were assessed, while 296 patients were assessed in the post-lockdown period. The average number of patients seen per day was 3.5 before the lockdown, which fell to 2.4 per day after the imposition of the lockdown. The mean age was significantly lower for the patients evaluated in the post-lockdown period ( $t = 2.93$ ;  $p = 0.003^{**}$ ) and there was a reduction in the proportion of elderly patients availing the emergency services, however, it was not statistically significant. Compared to the patients attending the emergency services, during the pre-lockdown period, those attending the service during the post-lockdown period had a significantly higher mean number of years of education ( $t = -2.54$ ;  $p = 0.01^*$ ) (Table 1).

Nearly 15 % of the patients in both the time frames had more than one psychiatric diagnosis. Compared to the pre-lockdown period, a significantly higher proportion of patients attending the emergency services after the imposition of lockdown was suffering from an Axis I diagnosis ( $\chi^2 = 6.71$ ;  $p = 0.01^*$ ). In the post lockdown period as compared to earlier, a lower proportion had a diagnosis of F0 category ( $\chi^2 = 19.14$ ;  $p < 0.001^{***}$ ), a higher proportion had a diagnosis belonging to the F2 category ( $\chi^2 = 4.85$ ;  $p = 0.02^*$ ). A higher proportion of patients were diagnosed to be suffering from Mania with psychotic symptoms ( $\chi^2 = 4.50$ ;  $p = 0.03^*$ ). No significant difference was found for other diagnostic categories (Table 2).

Compared to the pre-lockdown period, during the lockdown period there was a significant decline in the proportion of patients diagnosed

**Table 1**  
Sociodemographic profile of the patients seen pre- and post-lockdown.

	Pre Lockdown (01/01/2020-23/03/2020) N(%) / Mean(SD) N=291	Post Lockdown (24/03/2020-25/07/2020) N(%) / Mean(SD) N = 296	T Test/ Chi square test (p value)
<b>Patients seen per month</b>	105 (9.86)	72 (20.61)	2.1(0.08)
<b>Patients seen per day</b>	3.5 (1.97)	2.4(1.69)	3.68(<0.001)***
<b>Age in years (Mean)</b>	40.54 (18.22)	36.43(15.69)	2.93(0.003)**
≤18 years	13(4.5)	13(4.4)	0.002(0.96)
18–59 years	223(76.6)	247(83.4)	0.41(0.51)
≥60 years	55(18.9)	36(12.2)	1.82(0.17)
<b>Gender</b>			
Male	191(65.6)	163(55.1)	6.86(0.009)**
Female	100(34.3)	133(44.9)	
<b>Education in years</b>	9.61(4.23)	10.49(4.09)	-2.54(0.01)*
<b>Occupation</b>			
Employed	113(38.8)	101(34.1)	1.40(0.23)
Unemployed	178(61.2)	195(65.9)	

**Table 2**  
Clinical Profile of patients seen before and after the lockdown.

	Pre Lockdown (01/01/2020-23/03/2020) N (%) N = 291	Post Lockdown (24/03/2020-25/07/2020) N (%) N = 296	T Test/ Chi square test (p value)
More than one diagnosis	44(15.4)	39(13.6)	0.003(0.95)
<b>Axis 1</b>	178(61.2)	211(71.3)	6.71(0.01)*
<b>F0 category diagnosis</b>	104(35.7)	58(19.6)	19.14 (<0.001)***
Delirium	86(82.7)	49(84.5)	14.00 (<0.001)***
Dementia	5(4.8)	3(5.2)	0.145(p = 0.70)@
Delirium Superimposed on dementia	3(2.9)	2(3.4)	0.68#
Organic Psychosis & organic personality	10(9.7)	4(1.4)	1.90(0.16)@
<b>F1 category diagnosis</b>	46(15.8)	50(16.9)	0.12(0.72)
Alcohol	20(43.5)	25(50.0)	0.51(0.47)
Opioid	16(34.8)	12(24.0)	0.67(0.41)
Cannabis	3(6.5)	3(6.0)	1.0#
Benzodiazepine	1(2.2)	0	0.49#
Only Tobacco	4(8.7)	2(0.7)	0.44#
More than 1 substance (includes combination of Alcohol, Opioid and tobacco)	2(4.3)	8(16.0)	2.45(0.11)@
<b>F2 Category diagnosis</b>	40(13.7)	61(20.6)	4.85(0.02)*
Schizophrenia	24(60.0)	37(60.7)	2.85(0.09)
Acute and Transient Psychosis	7(17.5)	13(21.3)	1.79(0.18)
Schizoaffective disorder	0	3(4.9)	0.24#
Psychosis NOS	9(22.5)	8(13.1)	0.07(0.77)
<b>F3 Category diagnosis</b>	99(40.0)	116(39.2)	1.68(0.19)
<b>Depressive Illness</b>	60(60.6)	72(62.1)	1.15(0.28)
First Episode	38(63.3)	39(54.1)	0.002(0.96)
Recurrent Depressive Disorder	22(36.7)	33(45.9)	2.25(0.13)
<b>Currently Severe Episode</b>	43(71.7)	45(62.5)	0.02(0.88)
Without Psychotic Symptoms	19(44.2)	28(62.2)	1.71(0.19)
With Psychotic Symptoms	24(54.8)	27(37.8)	0.14(0.70)
<b>Bipolar disorder</b>	39(39.4)	44(37.93)	0.25(0.61)
Hypomania	2(5.1)	0	0.24#
Mania without psychotic symptoms	15(38.4)	9(20.5)	1.67(0.19)
Mania with psychotic symptoms	8(20.5)	19(43.2)	4.50(0.03)*
Mild-moderate depression with/without somatic Symptoms	2(5.1)	3(6.8)	1.00#
Severe depression	7(17.9)	1(2.3)	3.25(0.07)@
Severe depression with psychotic symptoms	2(5.1)	5(11.4)	0.54(0.46)@
Mixed episode	3(7.7)	2(4.5)	0.68#
Remission	0	5(11.4)	3.15(0.07)@
<b>F4 Category diagnosis</b>	42(14.4)	41(13.9)	0.04(0.83)
Dissociation	12(28.6)	18(43.9)	1.15(0.28)
Acute Stress reaction	11(26.2)	3(7.3)	3.70(0.05)@
Adjustment disorder	7(16.7)	7(17.9)	0.001(0.97)
Panic disorder	2(4.8)	1(2.4)	p = 0.62#
Agoraphobia	1(2.4)	0	p = 0.49#
Specific Phobia/Hypochondriasis (COVID related)	0	1(2.4)	p = 1.00#
Obsessive Compulsive Disorder	6(14.3)	3(7.3)	0.48(0.48)@

(continued on next page)

Table 2 (continued)

	Pre Lockdown (01/01/2020- 23/03/2020) N (%) N = 291	Post Lockdown (24/03/2020- 25/07/2020) N (%) N = 296	T Test/ Chi square test (p value)
Anxiety NOS	3(7.1)	7(17.1)	0.86(0.35)
<b>F6 Category diagnosis</b>			
Cluster B(Borderline and antisocial)	2(0.7)	4(1.4)	0.68#
Cluster C (Anxious)	1(50.0)	3(75.0)	p = 0.62#
<b>F 7 Category diagnosis</b>			
Intentional Self harm	3(1.0)	5(1.7)	0.11(0.74)@
Overdose/poisoning	38(13.1)	43(14.5)	0.26(0.60)
Hanging	32(84.2)	26(60.5)	5.6(0.01)*
Cutting	6(15.8)	11(25.6)	1.16(0.28)
Firearm	0	5(11.6)	2.91(0.08)@
	0	1(2.3)	p = 1.0#
<b>Catatonia</b>			
Affective	23(7.9)	16(5.4)	1.47(0.22)
Psychotic	11	6	0.41(0.52)
Organic	8	6	0.03(0.86)
Others (Obsessive Compulsive Disorder)	3	4	p = 0.41#
	1	0	p = 1.0#
<b>Factors preceding the intentional self-harm</b>			
Underlying Mental Illness	16(42.1)	16(37.2)	0.002(0.96)
Not Known	7(18.4)	13(30.2)	1.75(0.18)
COVID related stress	0	2(4.7)	0.49#
Stressor/Impulsive	15(39.5)	12(27.9)	0.40(0.52)
Z63: Other problems related to primary support group, including family circumstances	7(2.4)	14(4.7)	2.29(0.12)
<b>Management Done \$</b>			
Drugs	269(92.4)	260(96.6)	3.49(0.06)
Psychotherapy	140(48.1)	122(41.6)	2.82(0.09)
Investigations & referrals	195(67.0)	175(59.1)	3.91(0.04)*
No intervention	3(1.0)	11(3.7)	3.46(0.06)@

\*: p &lt; 0.01.

\*\*\*: p &lt; 0.001.

@: Chi square test with Yates' correction.

#: Fisher's exact test.

\$: The sum of the percentage exceeds one hundred as more than one intervention may have been done in the same patient. F categories: as per the ICD-10.

with delirium, acute stress reaction, number of patients presenting with self-harm by ingestion of poison (Table 2).

The majority of the patients received pharmacotherapy as a part of their treatment along with investigations and referrals to other specialties. Psychotherapeutic intervention was done in more than 40 % of the patients during both the time frames. In the post-lockdown period, a significantly lower proportion of patients underwent investigations and referrals as compared to the pre-lockdown period ( $\chi^2 = 3.91; p = 0.04^*$ )

#### 4. Discussion

The closure of regular outpatient services due to COVID-19 pandemic has left the patients in a situation, where they have nowhere to go. However, patients experiencing new-onset severe symptoms, experiencing a relapse, or experiencing suicidal behavior, have no other place to go, other than consulting the emergency services.

Compared to the pre-lockdown period, a significantly higher proportion of female patients attended the emergency services during the lockdown period. This may be a reflection of a higher level of stress for females during the lockdown period. There are many reports of domestic

violence, an increase in the interpersonal issues between the couples, and increased workload on the women during the lockdown period (Vora et al., 2020). These all could have led to a more negative impact on women and resultantly seeking psychiatric help more often. In terms of age, there was a reduction in the proportion of elderly seeking psychiatric help, during the lockdown period, when compared to the pre-lockdown period. This is understandable in the background of the fact that elderly people, especially those with multiple physical co-morbidities are more vulnerable to COVID-19 infection and mortality (Leung, 2020). This could have led to them not availing the emergency psychiatry services, despite having psychiatric symptoms requiring urgent attention.

When the number of patients attending the emergency services per day was evaluated, there was a significant reduction in the number of patients seen per day, which is understandable, considering the travel restrictions. In the present study, during the pre-lockdown period, delirium was the most common psychiatric diagnosis and was the major driver of the F0 diagnostic category of ICD-10. Previous studies from our center also suggest that delirium is the most common psychiatric diagnosis, seen in patients evaluated in emergency setting (Grover et al., 2015). However, when the diagnostic profile of patients attending the emergency services during the lockdown period was evaluated, it was seen that there was a significant reduction in the proportion of the patients diagnosed with delirium and a F0 diagnosis. This significant reduction, possibly reflects, reduction in the number of patients with severe physical illnesses, attending the emergency services, as delirium is usually seen in the background of a physical decompensation. This can also be attributed to a possible reduction in referrals from other specialties, as well as overall reduced attendance of patients in the emergency room.

Further, the present study suggests that there was an increase in the proportion of patients with a diagnosis of schizophrenia, availing the emergency services, during the lockdown period. This finding suggests that, in the absence of routine regular services, possibly many patients with schizophrenia experienced a relapse of symptoms and presented to the emergency services. There could be many reasons for relapse, such as difficulty in procuring/purchasing the medication, an increase in the level of stress, and an adverse household environment. Studies done during the lockdown period have provided evidence for all these (Grover et al., 2020a,b; Muruganandam et al., 2020). These findings suggest that people with various mental illnesses are in need of health care services and there is a need to strengthen the emergency services to cater to people with severe mental disorders.

The prevalence of self-harm in both the study periods was similar and comparable to the previous studies. However, the method used showed a change in distribution. Although the use of poison was the most common method, the proportion in the post-lockdown period was lower. A possible reason for this could be lack of access to the same as a result of the restriction of movement and decreased availability at the local shop due to the lockdown. There was an increase in the absolute number of patients presenting with hanging during the lockdown period, however, when compared to the pre-lockdown period, this was not statistically significant. This finding is supported by many reports suggesting an increase in the number of violent suicidal attempts and completed suicides during the lockdown period (Dsouza et al., 2020).

The present study has certain limitations, which include the recording of only a few variables for analysis. Second, we did not evaluate the exact reason for seeking psychiatric help, as understanding this could be more useful in organizing the services and fulfilling the need of the patients attending the emergency psychiatry services.

To conclude, the present study suggests that compared to the pre-lockdown period, during the lockdown period there was a significant reduction in the number of patients seeking emergency psychiatry services. The present study also suggests that the major contributor to this reduction was a lower number of patients with delirium. Additionally, the present study suggests that there was an increase in the number of

patients diagnosed with schizophrenia, presenting to the emergency. These findings have certain implications for the organization of services in the emergency set-up.

#### Financial disclosure

We have no financial disclosure to make.

#### Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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**Original article**

**Parents views about online classes during the ongoing COVID-19 pandemic:**

**A web-based cross-sectional survey**

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**Abstract**

**Aim:** To assess the impact of online classes (started in view of COVID-19 pandemic) on the physical and psycho-behavioural parameters of children as perceived by their parents.

**Methodology:** A cross-sectional web-based survey was carried out among the parents of children attending the online classes due to the ongoing pandemic.

**Results:** 289 parents (either mother/father, or any other relative; 67.8% - mothers) responded to the survey. The majority of the responders perceived online classes to be less comfortable, less satisfactory; and reported that their children had poor attention and concentration, had a lower level of learning in the theoretical and practical aspect of the subject. Most parents reported their child gets distracted and engages in surfing the internet or participating in online competitions. About half of the parents reported an increase in irritability (45.0%), the increased demand to go to school (45.0%), and a reduction in self-hygiene/care (43.3%). The other common behavioural problems as reported were stubbornness (36.3%), demanding behaviour (30.0%), tantrums (27.3%), and manipulativeness (27.0%).

**Conclusion:** These preliminary findings suggest that the level of learning with in-person school-based classes is far superior to the online classes. The online classes might have a negative impact on the behaviour and physical health of the children.

**Keywords:** *Online classes, Physical health, Mental health, Behavioural Problem*

## **Introduction**

COVID-19 pandemic has emerged as a major threat to human beings. It has led to the closure of educational institutions at all levels in most part of the world and has impacted the education of a large proportion of the students. In India, it is estimated that the closure of school has impacted over 240 million children [1]. The pandemic has caused a halt to the education system and learning process among children [2].

To overcome this problem, governments all across the globe allowed the continuation of education through “online classes” or “e-learning”. In India, the online classes started in some part of India from the first week of April and gradually, the trend spread across the country [3]. This transition to online learning has impacted not only students who have had to adjust to a new learning environment but also their parents who have had to deal with this emerging technology and monitoring of children round the clock [4].

This method of learning and teaching is new, both for the students and teachers. A study involving 1,003 adults aged 18+ from the U.S. showed that 44% of respondents reported that their children had no experience with online learning tools before COVID-19. This figure was 62% for parents of children in kindergarten (62%) [4]. Parents have to face some common challenges like keeping children focused on homework, juggling daytime responsibilities with children’s schoolwork, providing the Smartphone/laptop with good internet connectivity and unclear instruction from the teachers. With online classes, students may experience challenges as it relates to increased screen time. They may experience increased fatigue, headaches, lack of motivation, avoidance/procrastination, ineffective time management, feelings of isolation due to limited socialization in-person, minimized awareness and understanding of others due to absence of the in-person dialogues [5]. The most common adverse consequences considered of the transition to online classes are its

impact on sleep habits [6]. Further, online classes have also been shown to affect the mental and physical health of the students. The common problems faced by the parents are poor connectivity of the network, ambient noises in online classes, videos turned off, minimum interaction between teachers and students, which makes things tough for their children to concentrate in a study [3].

Online classes have also increased the burden on the parents. An online survey, which involved 1000 parents showed that parents faced difficulty in keeping their children focused on work (50.31%), establishing a daily routine (49.26%), balancing household responsibilities and teaching (41.83%), establishing a wake-up and bedtime schedule (33.40%), balancing working from home and teaching (33.31%), and helping the children to understand the content to be taught (33.20%) [9].

Despite the association of online classes with so many physical, mental or behavioural problems to date, there is limited data on the impact of online classes on the behaviour, sleep, physical, or mental health of children and their impact on the parents. In this background, this exploratory study aimed to assess the impact of online classes on the physical, behavioural and mental health of children and the behaviour of parents.

## **Methods**

It was an online cross-sectional survey conducted in the northern part of India during the period of 21<sup>st</sup> June 2020 to 17<sup>th</sup> July 2020. An online questionnaire was circulated through Whatsapp. The participants were contacted personally or through Whatsapp groups. The link was designed in a way that a person could respond only once by using a particular device. The survey questionnaire was in English. The institutional ethics committee approved the study. The survey message clearly stated that the participants were free not to participate and participation in the survey implied consent.

The survey questionnaire evaluated the socio-demographic profile of the parents and the child, including the age, gender, locality, educational qualification of the parents, number of children, current home setting, etc.

A self-designed questionnaire was designed to evaluate the characteristics of the online classes, type of the online classes attended by the children, the problem faced with online classes, various aspects of the online classes, advantage and disadvantage of online classes, changes in behaviour and habit of the child after the start of the online classes, the impact of online classes on the pattern of the sleep, physical and mental health, and behaviour of a child, the impact of online classes on the parents/ family.

Descriptive statistics were applied, mean and standard deviation were calculated for the continuous variables and frequency, and percentages were calculated for the discontinuous variables. Data was analysed by using SPSS 20.0 version.

## **Results**

Three hundred twenty-four participants completed the survey. The responses were verified for the IP addresses to remove any of the possible duplicate entries, and incomplete entries were also checked. Based on this, data of 289 participants with a mean age of 38.2 ( $\pm 5.7$ ) years of the participants were included. The majority of the participants were females (67.8%) and from the urban background (75.4%). A small proportion of the participants were from semi-urban (15.2%) and rural (9.3%) locality. The majority of the participants were graduate or postgraduate (67.5%). For more than half of the participants (58.4%), at the time of the survey, one of the parents was working out of home, and the children were mostly with the other parent at home. Among the respondent, about two-third were mothers (67.1%), followed by fathers (29.8%) and other relatives (3.1%). The mean age of the child about whom the respondents reported the survey was 11.4 ( $\pm 3.6$ ) yrs. A majority (93.8%) of the children studied in private schools, which were of English medium. The majority of them



were attending online ‘live’ classes (83.7%), this was followed by interactive classes/sessions (19.7%) and online pre-recorded classes (17.6%), with some attending more than one mode of online teaching. Most of the students were using Smartphone device (74.4%) to attend the online classes, and this was followed by laptop (27.7%), desktop computers (4.8%), tablet (4.8%), smart television (2.4%) and others devices (1.4%). A small proportion of the participants used more than one device to attend online classes. The most common way to access the online classes was personal data pack (45.7%), followed by home Wi-Fi (34.6%), use of data from the mobile pack of one of the parent/family member (20.7%), broadband connection (7.3%) and others (1.4%). Details of the online classes as described by parents are shown in Table-1.

**Table-1: Which of the following is true for the online classes which your child attends?**

<b>Variables</b>						<b>Yes n (Freq%)</b>
The child attends the classes by using a device, which is his/her personal device						88 (30.4)
It is mandatory to put on the self-video for the child throughout the class duration so that they can be seen by the teacher						181 (62.6)
Child attends the class, by putting on the self-video for the most part of the class						175 (60.6)
Classes occur with breaks in between every 1-2 classes						208 (72.0)
The child tries to avoid the online classes						85 (29.4)
The child is given homework in the online classes						246 (85.1)
The child attends the online classes under the constant supervision of one of the parents/elders						207 (71.6)
<b>Problem faced by the child during the online classes</b>						
Difficulty in logging in						52 (18.0)
Frequent connectivity issues leading to disconnection from the online classes						115 (39.8)
Problems with video streaming						23 (8.0)
Problems with audio streaming						29 (10.0)
Problems with both audio and video streaming						78 (27.0)
Ambient noise in the house due to lack of privacy						48 (16.6)
Other						48 (16.6)
<b>How often does your child indulge in the following activities while attending online classes?</b>						
<b>Variables</b>	<b>Never</b>	<b>Occasionally</b>	<b>Sometimes</b>	<b>Often</b>	<b>Always</b>	
Surfing internet	141 (48.8)	45 (15.6)	48 (16.6)	17 (5.9)	21 (7.3)	
Watching TV	171 (59.1)	31 (10.7)	38 (13.1)	14 (4.8)	14 (4.8)	
Playing games on the mobile/ tablet/laptop/PC	173 (59.9)	38 (13.1)	36 (12.5)	11 (3.8)	13 (4.5)	
Chatting on Whatsapp/	181 (62.7)	44 (15.2)	31 (10.7)	8 (2.8)	6 (2.1)	

Telegram/FB Messenger					
Doing online shopping	242 (83.7)	15 (5.2)	12 (4.2)	--	---
Blogging	248 (85.8)	12 (4.2)	6 (2.1)	--	---
Social Media (Face book, Instagram, We-Chat, Snap Chat, Telegram)	210 (72.7)	32 (11.1)	22 (7.6)	3 (1.0)	1 (0.3)
Participating in online competitions	141 (48.8)	49 (17.0)	46 (15.9)	11 (3.8)	22 (7.6)

**Occasionally:** i.e., once or twice for 5-10 minutes in < 50% of the classes,

**Sometimes:** i.e., once or twice for 5-10 minutes in >50% of the classes

**Often:** i.e., once or twice for 10 -20 minutes in > 50% of the classes

**Always:** i.e., spend >50% of your time in the online on these activities

When the participants were asked to rate the various aspects of online classes when compared to the regular classes attended by their children, participants reported more negative aspects than the positive aspects (Table-2).

**Table-2: Rating of online classes, when compared to the regular classes**

Variables	Not applicable	As much as regular classes	Less than regular classes	More than the regular classes
Comfortable	21 (7.3)	14 (4.8)	236 (81.7)	18 (6.2)
Overall Satisfaction	34 (11.8)	20 (6.9)	227 (78.5)	8 (2.8)
Attention and Concentration	21 (7.3)	21 (7.3)	233 (80.6)	14 (4.8)
Retention of knowledge	19 (6.6)	22 (7.6)	234 (81.0)	14 (4.8)
Learning theoretical aspect of the subject	18 (6.2)	23 (8.0)	238 (82.4)	10 (3.5)
Learning practical aspects of the subject	33 (11.4)	23 (8.0)	219 (75.8)	14 (4.8)
Ability of your child to sit satisfactorily for the duration of the class	18 (6.2)	25 (8.7)	226 (78.6)	20 (6.9)
Distraction of your child from the ongoing class	53 (18.3)	26 (9.0)	150 (51.9)	60 (20.8)
Enthusiasm of your child to attend the class	28 (9.7)	27 (9.3)	211 (73.0)	23 (8.0)
Participation of your child in the online class question and Answer session	17 (5.9)	25 (8.7)	218 (75.4)	29 (10.0)

When the participants were asked about the child's change in behaviour and habits since the onset of the online classes, a significant proportion of the participants reported negative impact in various emotional, behavioural and physical health domains (Table-3 & 4).

**Table-3: Change in behaviour and habits of your child since the onset of the online classes**

<b>Variables</b>	<b>Increased</b>	<b>No Change</b>	<b>Decreased</b>
Irritability	130 (45.0)	113 (39.1)	27 (9.3)
Stubbornness	105 (36.3)	135 (46.7)	26 (9.0)
Demanding	87 (30.1)	142 (49.1)	40 (13.8)
Tantrums	79 (27.3)	149 (51.6)	31 (10.7)
Manipulativeness	78 (27.0)	143 (49.5)	37 (12.8)
Telling lies to use the screen media on the pre-text of classes	69 (23.9)	145 (50.2)	48 (16.6)
Duration of use of screen media	199 (68.9)	47 (16.3)	21 (7.3)
Playing outdoor games	30 (10.4)	65 (22.5)	171 (59.2)
Playing indoor games	133 (46.0)	77 (26.6)	57 (19.7)
Duration of playing games on phone	136 (47.1)	87 (30.1)	45 (15.6)
Duration of use of social media	107 (37.0)	119 (41.2)	40 (13.8)
Demand to go to school	130 (45.0)	77 (26.6)	58 (20.1)
Self-care/hygiene	125 (43.3)	99 (34.3)	41 (14.2)
Change in appetite	79 (27.3)	130 (45.0)	52 (18.0)

**Table-4: Online classes affecting physical health, mental health & behavior of your child**

<b>Variables</b>	<b>No impact</b>	<b>Some negative impact</b>	<b>Significant negative impact</b>	<b>Significant positive impact</b>	<b>Some positive impact</b>
Eyes /Vision	59 (11.1)	132 (45.7)	75 (26.0)	10 (3.5)	13 (4.5)
Ears/Hearing	135 (46.7)	99 (34.3)	33 (11.3)	3 (1.0)	19 (6.6)
Physical activity	99 (34.3)	96 (33.2)	68 (23.5)	8 (2.8)	18 (6.2)
Eating habits	135 (46.7)	87 (30.1)	40 (13.8)	7 (2.4)	20 (6.9)
Overall behavior	138 (47.7)	80 (27.7)	37 (12.8)	15 (5.2)	19 (6.6)
Use of screen media devices for purposes other than classes	106 (36.7)	104 (36.0)	44 (15.2)	7 (2.4)	28 (9.7)
Sleep	150 (51.9)	76 (26.3)	34 (11.8)	6 (2.1)	23 (8.0)
Socialization	117 (40.4)	87 (30.1)	47 (16.3)	7 (2.4)	31 (10.7)
Mood	127 (43.8)	87 (30.1)	36 (12.5)	11 (3.8)	28 (9.7)
Stubbornness	139 (48.1)	83 (28.7)	31 (10.7)	8 (2.8)	28 (9.7)

When the participants were asked in general about the advantages and disadvantages of the online classes, a lower proportion identified various advantages, compared to the proportion of the participants who reported various disadvantages. When asked about the preferred mode of classes in the future for their children, most of the participants opted either for ‘only in-

person classes' or a mix of online and in-person classes, with more in-person classes (Table-5).

When asked about the impact of the online classes on the parents/family members taking care of the child for the online classes, about one third or more of the participants reported an increase (slightly or significantly) in irritability, sadness, anxiety, distress, workload, feeling of lack of freedom, disturbance in the routine, disturbance in sleep, difficulties in relationship with the child, and difficulties in relationship with the partner/spouse (Table-5).

**Table-5: Advantages, disadvantage of online classes and its impact on parents**

<b>Variables</b>	<b>Frequency (%)</b>
<b>Advantages of Online classes</b>	
Do not have to travel	127 (43.9)
Do not have dress up	91 (31.5)
No cancellation	29 (10.0)
No need to meet others	80 (27.7)
No chance of bullying	53 (18.3)
Cost-effective way of learning	34 (11.8)
Can go back to the recording again	57 (19.7)
Can see the recording at own will	44 (15.2)
Equal chance of participation in discussion, through the chat	65 (22.5)
Can multitask	35 (12.1)
Scheduled and less in number than usual classes at college	29 (10.0)
Less time duration of the online class compared to usual class	47 (16.3)
Minimal or almost no home task given	18 (6.2)
Can hide the video and escape from getting viewed/scrutinised by teachers	28 (9.7)
Others	26 (9.0)
<b>Disadvantages of online classes</b>	
Cost-effective	37 (12.8)
Poor interaction with peers	106 (36.7)
Poor learning of practical aspects	130 (45.0)
Social isolation	73 (25.3)
Loneliness	82 (28.4)
A feeling of detachment	67 (23.3)
Poor learning	88 (30.4)
Strain on eyes	199 (69.9)
Boring	69 (23.9)
Face difficulty with internet connectivity	110 (38.1)
Feel it's unreal and does not feel it to be interesting	63 (21.8)
Difficulty in writing or noting down main points/ Preparing notes	90 (31.1)
Feels overburdened with daily online classes	78 (27.0)
Others	16 (5.5)

<b>Preference for future classes for their children</b>					
Only online classes					29 (10.0)
Only in-person classes					106 (36.7)
A mix of online and in-person classes, with more of in-person classes					117 (40.5)
A mix of online and in-person classes, with more of online classes					21 (7.3)
<b>Impact of online classes on parents and family after the start of online classes</b>					
<b>Variables</b>	<b>Significantly less</b>	<b>Slightly less</b>	<b>No change</b>	<b>Slightly more</b>	<b>Significantly more</b>
Irritability in parent supervising the online classes	43 (14.9)	29 (10.0)	87 (30.1)	70 (24.2)	27 (9.3)
Sadness in parent supervising the online classes	31 (10.7)	30 (10.4)	102 (35.3)	61 (21.1)	24 (8.3)
Anxiety in parent supervising the online classes	30 (10.4)	28 (9.7)	87 (30.1)	71 (24.6)	32 (11.1)
Distress in parent supervising the online classes	30 (10.4)	28 (9.7)	91 (31.5)	62 (21.5)	36 (12.5)
Comfort level in the parent supervising the online classes	48 (16.6)	55 (19.0)	78 (27.0)	43 (14.0)	22 (7.6)
Overall workload on the parent supervising the online classes	17 (5.6)	26 (9.0)	64 (22.1)	76 (26.3)	60 (20.8)
Feeling of lack of freedom in parent supervising the online classes	24 (8.3)	21 (7.3)	98 (33.9)	58 (20.1)	43 (14.9)
Disturbance in the routine of the parent supervising the online classes	27 (9.3)	16 (5.5)	72 (24.9)	79 (27.3)	51 (17.6)
Disturbance in the sleep of the parent supervising the online classes	16 (5.5)	19 (6.6)	116 (40.1)	55 (19.0)	38 (13.1)
Relationship issues or difficulty in handling other children	20 (6.9)	19 (6.6)	116 (40.1)	59 (20.4)	30 (10.4)
Relationship issues with the partner/spouse due to supervising the online classes	22 (7.6)	18 (6.2)	131 (45.3)	51 (17.6)	22 (7.6)

Half (50.5%) of the participants reported that if school reopen shortly, they will be “not at all comfortable” in sending their children to the school, and another 15.9% of participants responded as ‘not comfortable to some extent’. Only 12.5% of the participants reported that they were ‘completely comfortable’, and 13.8% reported ‘comfortable to some extent’ in sending their children to schools.

## **Discussion**

This exploratory study evaluated the views of the parents or other caregivers of children about the impact of online classes on the physical, behavioural and mental health of children and behaviour of parents. As there is a lack of much data on this subject, at places we would compare our findings with the available literature in social media on the topic.

The survey participants were one of the guardian of children, a majority (93.8%) of whom were studying in private schools, which were of English medium. The high representation of parents of students of English medium private schools may be a reflection of starting of online classes in these schools. The present survey shows that majority of the students were attending online live classes (83.7%), using a Smartphone device (74.4%), by using a personal data pack. These findings are in contrast to the survey done in the United States of America (USA), which reported that 62% of the students were attending the online classes mostly by using a laptop (62%), followed by Tablets (40%) and desktop (25%). This difference could be due to the issues of availability and affordability of equipment other than Smartphones, which are part of many households in India. A majority of the participants reported frequent connectivity issues leading to disconnection from the online classes, along with other problems like the problem with both audio and video streaming, difficulty in logging in and ambient noise in the house due to lack of privacy. These findings possibly reflect a lack of infrastructure and internet connectivity, which are important for proper

online video streaming. Studies from other parts of the world also suggest that noise and other distraction in the home make it challenging for the students to concentrate on studies or sit comfortably for the duration of the class [4].

In terms of the parental perception of the online classes, three-fourth of the participants reported that online classes to be less comfortable, less satisfactory, associated with less attention and concentration, and poor learning. These findings are supported by the survey from the United States [7]. The major drawback of online classes is learning the practical aspects involving the laboratory, physical activity, arts, music, etc., which cannot be taught through online classes. The findings of the present study also reflect the same and suggest that, at this moment, although online classes may be a substitute for the regular classes to tide over the ongoing pandemic crisis, in the long run, these cannot possibly substitute the regular classes.

One of the common problems reported by the guardians was a distraction from the classes, with children indulging in surfing the internet or participating in online competitions while attending the classes. These could be due to various factors. The distraction could be attributed to the lack of supervision by the parents, apparent perception of the absence of a teacher, perception of not being caught, availability of option to indulge in other activities unlike the structured nature of the regular classes, type of ongoing teaching, etc. These findings also suggest that education in school and regular classes are not only limited to the syllabus only. There are other aspects like manners, discipline, morals, interaction and interaction with teacher's face-to-face, taking the classroom seriously, which cannot be ensured through the online platform [8]. This fact was reflected by the findings of the present study, in which the majority of the participants preferred the choice of in-person classes instead of online classes for future.

When the guardians were asked about the change in behaviour of children after the starting of online classes, it was reported that there was an increase in the duration of use of screen media or playing games on the phone and indoor game, irritability, stubbornness, demanding behaviour, tantrums, and manipulateness. These findings could be a reflection of ongoing restrictions due to the pandemic, besides being the impact of the starting of online classes. Studies from other parts of the world have also suggested an increase in sedentary lifestyle and sedentary entertainments such as playing video games, watching television, and reduction in playing outdoor games etc. with an increase in the use of internet-related activities [9,10]. Studies done in the pre-COVID era have also documented similar behavioural problems in the form of irritability, short-temperateness or stubbornness, a sudden deterioration in the quality of work and becoming disrespectful towards the others among the students attending online classes [11]. In the current ongoing pandemic era, the change in behaviours could be because of various factors like social disconnectedness, sedentary lifestyle, disruption of daily routine activities, being scrutinized by parents round the clock and lack of physical activity or outdoor games etc.

The present study also suggests a significant negative impact of online classes on the sleep pattern with delay in the time to get up in the morning, delay in the time to go to bed and time to fall asleep and increase in the duration of sleep. Our findings are supported by the previous survey's, which also suggest the association of sleep-related issues online and use of the internet [12].

In terms of impact on the physical health of a child, significant proportions of the participants reported that online classes had a negative impact on their child's eye/vision, physical activity, use of screen media devices for purposes other than classes, hearing, eating habits, mood, and socialization. Previous studies which have evaluated the impact of excessive use or prolonged use of screen media suggest that this is associated with symptoms like eye



fatigue, headache, blurring of vision, dry eyes, double vision, and head and neck pain [13]. In medical term, it is also referred to as computer vision syndrome, as an eye and vision problem seen in a long-term computer, tablet, and cell phone user [14]. These findings suggest that online activities come with their problems and limitations. Possibly these findings have formed the basis for restriction of screen time for children, even while attending online classes. The government of India released the PRAGYATA guidelines, which recommend a cap on the screen time for students [1]. This guideline suggests that online classes for pre-primary students should not be for more than 30 minutes a day. For classes 1st to 8th, not more than two online sessions of up to 45 minutes each should be conducted in a day. For the senior students, from class 9th to 12th, the online classes should be limited to a maximum of four sessions of up to 45 minutes each per day. The guidelines have been issued, keeping in mind the overall development of the students with an aim to cut down undue screen time and its adverse consequences on the child [1].

Studies from other parts of the world also suggest that parents face problems in the form of keeping their children focused on schoolwork (instead of other online activities), establishing a daily fix routine for themselves, balancing household responsibilities and teaching, establishing a wake-up and bedtime schedule, balancing working from home and teaching, anxiety and depression due to real-world concern [7]. Our findings also echo these reports and suggest that online classes are not only taxing for the children but also could be taxing for the parents. Further, if both the parents are working (especially from home due to the prevailing pandemic), it adds to the burden of both work and taking care of children's education at the same time. In the present study, one parent was working out of home in the three-fourth of the participants, and the other parent had to bear the burden of online classes of their kin.

The present survey has certain limitations, which need to be considered while interpreting the results of the survey. These include a small sample size and the predominance of parents of children studying in English medium private schools. We also did not collect the data on the number of children attending online classes in each household, which can be an essential factor related to the overall burden of the parents supervising online classes during the ongoing pandemic. Further, the survey was carried out during the ongoing pandemic, and some of the findings could have been impacted by the prevailing pandemic situation, which has also led to many social restrictions.

To conclude, the present survey suggests that online classes are not very well accepted by the parents of children, and these have a negative impact on the behaviour and physical health of the children and also have a negative impact on the mental health of the parents. The preliminary findings also suggest that the level of learning with regular classes cannot be matched by the online classes. Hence, although online classes have emerged as a substitute of regular classes in the ongoing pandemic, these may not be able to replace regular schooling, which possibly provides more holistic learning opportunity to the children.

Future studies must attempt to overcome the limitations of the present survey, and there is a need to compare the various modes of teaching, i.e., online classes and regular classes and come up a best-fit model to accommodate both the modes of teaching, which would be acceptable to not only the children, but also other stakeholders like parents, teachers, and administrators.

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# Views of Medical Students about Online Classes Started during the COVID-19 Pandemic: An Online Exploratory Survey from India

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## Abstract

**Aim of the Study:** To evaluate the views of medical students about online classes started in view of COVID-19 pandemic. **Methodology:** An online survey was conducted using Survey monkey platform<sup>®</sup>. A survey link which was sent through the WhatsApp platform<sup>®</sup> to the MBBS/BDS students across the country. The survey questionnaire evaluated the views about the various aspects of the online classes. **Results:** A total of 1059 students completed the survey, of which 1033 entries were analyzed. The participants' mean age was 20.8 years with nearly equal male-to-female ratio, majority being MBBS students who were taking part in online classes mostly from home (95.4%), by using smart phones (85%). When asked to compare the experience of online classes with regular in-person classes, a majority of the participants reported having poor attention and concentration, poor retention of knowledge, poor learning of theoretical aspects of subject, poor learning of practical aspects of the subject, poor questions/answers sessions, and only 38.9% and 10.6% rated online theory and online practical classes as 'good' or 'very good,' respectively. The most common advantages of online classes reported by the students were that they do not have to travel (69%) and do not have to dress up (69.9%), while the most commonly reported disadvantages included poor learning of practical aspects (75%), followed by strain on eyes (73.4%) and difficulties with internet connectivity (64.8%). A small proportion of students 'occasionally' or more often indulged in surfing Internet, Chatting on WhatsApp/Telegram/FB Messenger, and using Social Media (Facebook, Instagram, We Chat, Snap Chat, and Telegram) while attending online classes. **Conclusions:** This study suggests that although various colleges are running online classes, as a substitute for the regular in person classes in view of the need for social distancing, these classes are not well received by the students and are possibly does not fulfilling the desired needs of the students. Further, the present study suggests that students still prefer in-person classes.

**Keywords:** COVID-19, medical students, online education

## INTRODUCTION

To tackle the rapid rise of cases in India and to curb the community spread of ongoing COVID-19 pandemic, National level "Lockdown" was declared starting from midnight of March 25, 2020 and extended across the nation up to May 31, 2020. After this, states were allowed to decide about the lockdown and relaxations depending on the number of cases. While lockdown has several beneficial aspects to control the spread of infection, it caused almost a pause to the educational/teaching activities. In this regard, to resume the teaching curriculum, many educational institutions (schools, colleges, and universities) of all courses started online classes for their students to keep the students busy with academic activities and complete the scheduled curriculum.<sup>[1]</sup>

Owing to the COVID-19 pandemic,<sup>[2]</sup> medical curriculum was made online in many medical colleges worldwide and the MBBS (medical stream) and BDS (dental stream) students' classes were taken by faculty members on various online platforms. There have been several concerns on postgraduate training programs in almost all streams<sup>[3-5]</sup> and undergraduate

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practical classes.<sup>[6]</sup> Small-group clinical skill sessions, flipped classroom models, online practice questions, teleconferencing lectures, procedural simulations in virtual platforms have been encouraged to bridge the educational gaps during the COVID era.<sup>[6,7]</sup> Moreover, the postgraduate exit examinations procedures/formats were changed in many colleges/universities, and in some scenarios, online examinations were also conducted.<sup>[8,9]</sup>

It has been suggested that the online classes/academics have been found to be quite beneficial as these can help in high caliber learning experience, improved attendance and engagement, digitally trackable learning, flexible timings, budget friendly, reduced distractions, and quick assessment.<sup>[10,11]</sup> However, there are some negative perceptions about it among the general public and parents, some of which are that these academics are time-consuming, are associated with excessive use of internet data, lack of concentration, less supervision of the teachers, and risk of getting hooked to the Internet. However, some of the negative aspects of online academics include poor social interaction or personal connection between peers and teachers which is quite essential for personality development requires extensive time management skills from students; and many a times, students have increased workload as compared to usual routine teaching classes. The assignments given to the students in these online classes are also required to be submitted through E-mails or in the form of pictures which can be quite tedious to the students and the teachers as they were never used to such teaching technologies before.<sup>[12]</sup>

Being an entirely new concept, although the essential mode of teaching in the current pandemic situation, there can be several drawbacks and teething issues.

In this regard, as more and more number of MBBS and BDS colleges have started online academics, it is essential to know the viewpoints of the students about online classes. In this background, the current study was planned with an aim to evaluate the views of medical students about online classes started in view of COVID-19 pandemic.

## METHODOLOGY

It was an online survey conducted by using Survey monkey platform<sup>®</sup>, through a survey link that was sent through the WhatsApp platform<sup>®</sup> to the MBBS/BDS students across the country. The survey was conducted during the period of June 6, 2020–June 26, 2020. The participants could respond to the survey link only once by using one device. The participants were requested to forward the link to their colleagues pursuing the MBBS/BDS course.

The study was approved by the Institute's Ethics Committee. The survey invitation clearly stated that the participation was voluntary, participants have the right not to participate in the survey and participation in the survey would imply providing informed consent. The survey link also stated clearly that those not willing to participate can ignore the message. Confidential and anonymity was assured in the invitation message.

To be included in the study, the students were required to be pursuing MBBS/BDS, aged >18 years, of either gender, able to read English and providing informed consent to participate. The survey questionnaire was made available in English and consisted of the following instruments: (1) Demographics and personal characteristics: A basic information sheet which included the participant's age, gender, locality, current place of residence, course details, and if their college/institute had been doing online classes since COVID-19 lockdown period and (2) A self-designed Questionnaire – a specially designed questionnaire to evaluate the various aspects of online teachings, the device used for the online classes, any problems faced during classes, perceived advantages and disadvantages along with a comparison to previous mode of usual teaching curriculum.

The IP addresses were verified to rule out duplicate entries.

Descriptive statistics were applied, and the data collected were analyzed using SPSS 16.0 version (SPSS Inc. Released 2007, SPSS for Windows Version 16.0. SPSS Inc., Chicago). The Chi-square test and independent t-test were used to compare for any gender differences in the categorical and continuous variables, respectively.

## RESULTS

During the study period, a total of 1059 students completed the survey. However, from the total 1059 participants, 26 participants reported that their colleges were not running any online classes and were excluded. The final sample included in the analysis was 1033. The participants' mean age was 20.8 (standard deviation-1.44) years with nearly equal male-to-female ratio (males-49.2% and females 50.8%). More than half of the participants were from the urban background (58.8%), and this was followed by those from semi-urban (21.8%) and rural (19.5%) locality. Majority (95.4%) of the participants were staying at home during lockdown and small proportions of them were staying at hostel (3.4%) or were staying as paying guest (1.3%). Students from dental (BDS) stream comprised of only 3.1% of the total sample and rest were MBBS students. Majority of the participants were studying in government colleges (45.2%) and this was followed by those studying in government aided colleges (46.7%). Very few (8.1%) students were from private medical/dental colleges.

The participants reported of using more than one device as per their convenience or availability of resources for the online classes. The most common device used was smart phones (85%), followed by laptops (23.2%), desktop (2.4%), tablets (7.1%), and other devices (1.7%) to attend the online classes. Majority (79%) of the participants used personal data pack (79%), followed by personal Wi-Fi (24.9%) and other (6.2%) resources of internet connection to attend the online classes.

When the students were asked to compare the experience of online classes with regular classes on different aspects, most

of them reported the online classes to be less comfortable and less satisfactory. A majority of the participants reported having poor attention and concentration, poor retention of knowledge, poor learning of theoretical aspects of subject, poor learning of practical aspects of the subject, and poor questions/answers sessions [Table 1].

Further, when the students were asked to rate their experience of regular classes and online classes, it was seen that significantly higher proportion of the participants rated in person theory (68.9%) and practical classes (67.6%) as “good” or “very good.” However, on the similar questions for online classes, only 38.9% and 10.6% rated online theory and online practical classes, respectively, as “good” or “very good” [Table 2].

When the opinion of the students about the advantages and disadvantages of online classes was evaluated, the most common advantages reported by the students were that they do not have to travel (69%) and do not have to dress up (69.9%). Other advantages of online classes reported by one-fourth to one-third of the participants included flexibility of multitasking, no need to meet others, can hide the video and escape from getting viewed/scrutinized by teachers, can go back to the recording again, lesser number of classes than the usual classes at college and less time duration of the online class compared to usual class [Table 3]. Other aspects such as these being cost-effective, lack of cancellation, lack of bullying, ability to view the recording on will, and minimal or no home task given were considered to be the advantages by less than one-fourth of the participants.

In terms of disadvantages, the most commonly reported disadvantages included poor learning of practical

aspects (75%), followed by strain on eyes (73.4%) and difficulties with internet connectivity (64.8%), poor interaction with peers (54.5%), boring (46.6%), poor learning (46.3%), feeling of detachment (40.4%), feeling overburdened with daily online classes (39.5%), social isolation (38.9%), difficulty in writing or noting down main points/preparing notes (38.8%), and loneliness (36.4%) [Table 3].

When the students were asked to choose the format for future classes (online vis-à-vis in-person or combined), only 8% opined for only online classes, whereas 30% opined for in person classes and about half (47.9%) suggested for a mix of online and in-person classes with more of in-person classes [Table 3].

When asked about indulgence in different activities while attending the online classes, it is evident that a proportion of students “occasionally” or more often (i.e., often or always) indulged in surfing internet, Chatting on WhatsApp/Telegram/FB Messenger, and using Social Media (Facebook, Instagram, We Chat, Snap Chat, and Telegram) [Table 4]. When the gender differences in indulgence in various activities were evaluated, it was seen that compared to females, higher proportion of males more often indulged in surfing internet ( $<0.001^{***}$ ), playing games on the mobile/tablet/laptop/PC (0.029)\*, and watching pornography ( $<0.001^{***}$ ).

## DISCUSSION

The present study was aimed at evaluating the views of medical students about online classes. The web-based survey had 1033 medical students from the different parts of the country. As at present, there is limited data on this subject, it is difficult to compare the findings of the present study with the

**Table 1: Overall rating of online class on various aspects by the students ( $n=1033$ )**

Variables	Frequency (%)			
	Not applicable/ did not respond	Less than the regular classes	As much as regular classes	More than the regular classes
Comfortable	43 (4.2)	716 (69.3)	17 (1.6)	257 (24.9)
Overall satisfaction	46 (4.5)	890 (86.2)	12 (1.1)	85 (8.2)
Attention and concentration	56 (5.4)	866 (83.8)	25 (2.4)	86 (8.3)
Retention of knowledge	66 (6.4)	847 (82.0)	24 (2.3)	96 (9.3)
Learning theoretical aspect of the subject	50 (4.8)	854 (82.7)	14 (1.4)	115 (11.1)
Learning practical aspects of the subject	262 (25.4)	735 (71.2)	7 (0.7)	29 (2.8)
Questions and answers session	147 (14.2)	703 (68.1)	9 (0.9)	174 (16.8)

**Table 2: How would you rate the quality of the following based on your experience in the college in which you are pursuing the course**

Variables	Frequency (%)				
	Not applicable/did not respond	Bad	Neither good, nor bad	Good	Very good
In person theory classes	6 (0.6)	46 (4.5)	269 (26.0)	567 (54.9)	145 (14.0)
In person practical classes	53 (5.1)	83 (8.0)	198 (19.2)	487 (47.1)	212 (20.5)
Online theory classes	10 (1.0)	123 (11.9)	499 (48.3)	326 (31.6)	75 (7.3)
Online practical Classes	255 (24.7)	263 (25.5)	405 (39.2)	87 (8.4)	23 (2.2)

**Table 3: Advantages and disadvantages of online classes as reported by students**

	Frequency (%)
Advantages (multiple responses allowed)	
Do not have to travel	713 (69.0)
Do not have dress up	722 (69.9)
No cancellation	188 (18.2)
No need to meet others	317 (30.7)
No chance of bullying	201 (19.5)
Cost-effective way of learning	218 (21.1)
Can go back to the recording again	263 (25.5)
Can see the recording at my own will	240 (23.2)
Equal chance of participation in discussion, through the chat	255 (24.7)
Can multitask	376 (36.4)
Scheduled and less in number than usual classes at college	252 (24.4)
Less time duration of the online class compared to usual class	255 (24.7)
Minimal or almost no home task given	148 (14.3)
Can hide the video and escape from getting viewed/scrutinized by teachers	291 (28.2)
Others	47 (4.5)
Disadvantages (multiple responses allowed)	
Poor interaction with peers	563 (54.5)
Poor learning of practical aspects	775 (75.0)
Social isolation	402 (38.9)
Loneliness	376 (36.4)
A feeling of detachment	417 (40.4)
Poor learning	478 (46.3)
Strain on eyes	758 (73.4)
Boring	481 (46.6)
Face difficulty with internet connectivity	669 (64.8)
Feel it is unreal and does not feel it to be interesting	444 (43.0)
Difficulty in writing or noting down main points/preparing notes	401 (38.8)
Feels overburdened with daily online classes	408 (39.5)
Others	35 (3.4)
If you are given an option to choose for future classes, what would you choose	
Only online classes	88 (8.5)
Only in-person classes	317 (30.7)
A mix of online and in-person classes, with more of in-person classes	495 (47.9)
A mix of online and in-person classes, with more of online classes	133 (12.9)

**Table 4: Self-reported indulgence in the different activities while attending the online classes**

Variables	Frequency (%)				
	Never	Occasionally (i.e., once or twice for 5-10 min in <50% of the classes)	Sometimes (i.e., once or twice for 5-10 min in >50% of the classes)	Often (i.e., once or twice for 10-20 min in >50% of the classes)	Always (i.e., spend >50% of your time in the online on these activities)
Surfing internet	290 (28.1)	335 (32.4)	164 (15.9)	143 (13.8)	101 (9.8)
Playing games on the mobile/tablet/laptop/PC	723 (70.0)	140 (13.6)	88 (8.5)	49 (4.7)	33 (3.2)
Watching pornography	978 (94.7)	29 (2.8)	7 (0.7)	11 (1.1)	8 (0.8)
Chatting on WhatsApp/Telegram/FB Messenger	241 (23.3)	405 (39.2)	188 (18.2)	124 (12.0)	75 (7.3)
Doing online shopping	828 (80.2)	128 (12.4)	46 (4.5)	20 (1.9)	11 (1.1)
Blogging	938 (90.8)	52 (5.0)	23 (2.2)	14 (1.4)	6 (0.6)
Social media (FB, Instagram, WeChat, Snapchat, Telegram)	359 (34.8)	365 (35.3)	146 (14.1)	104 (10.1)	59 (5.7)

existing literature. Hence, we would try to discuss the possible implications of the findings of the present study.

This study suggests that students mostly used smart phones with personal data packs to access the online classes, and



majority stayed at their homes due to lockdown following the onset of the pandemic. The use of smart phone devices to attend the online classes, being the most common device can be understood from various perspectives. First, is the lack of availability of proper equipment, i.e., laptop or desktop. Second, this can be understood from the perspective of convenience. Using the smart phone, the students could assess the classes anywhere, which may be possible with the use of desktop, or to a certain extent, with the laptop. The use of smart phones for online classes can have demerits of severe strain on the eyes.

The present study suggests that, compared to the regular classes, the participants reported the online classes to be less comfortable and less satisfactory. A majority reported having poor attention and concentration, poor retention of knowledge, poor learning of theoretical aspects of subject, poor learning of practical aspects of the subject, and poor questions/answers sessions. In addition, only about two-fifth of the participants considered online theory and only 10% of the participants considered online practical classes as “good” or “very good” and majority favored for in-person classes. This lower level of rating of online classes could be due to multiple factors, such as the issues with the devices used for attending the classes, connectivity issues, difficulty in adjusting to this new mode of learning, and organization of the classes by the teachers in the way which may not be acceptable to the students. Considering this way of online teaching to be an innovative way of teaching and many students might not be habituated to such way of teaching, it can be expected to have problems related to satisfaction and learning as in-person regular classes. These findings suggest that, possibly at this moment, both the students and teachers are not very much geared up for the exclusive online classes. These findings also provide preliminary evidence to suggest that online classes may not be able to replace the in person classes in near future. In the present study, the participants reported poor learning of both theoretical and practical aspects of the subject which can be understood as an in-person theoretical class have a personal touch between the teacher and student and an in-person practical class has an add on advantage of hands-on skill practice which lacks in online classes.<sup>[13]</sup> Moreover, studies evaluating faculty members opinion on online classes have reported that they were unable to teach practical modalities of clinical work and inability to assess students’ understanding during online lectures.<sup>[13]</sup>

With regard to the advantages of online classes, there are reports of both teachers and students reporting online modalities to be encouraging, student-centeredness, students can learn asynchronously at any time in a day by going back to the recorded sessions and the classes helped in maintaining the continuity of education.<sup>[13-15]</sup> In the present study too, a significant proportion of the participants reported advantages of online classes as lack of requirement to get ready and travel to college, flexibility of multitasking, no need to meet others, escaping from viewed/scrutinised by teachers, ability to go

back to the recorded classes, lower number and shorter duration of classes compared to usual class as some of the advantages of the online classes. These advantages reported by the study participants are quite broad and hence provide insight to the perception of the students about the convenience of the online classes and possible difficulties they face in attending the routine in-person regular classes. The findings of the present study also suggest that there is a need to look into the issues of cancellation of regular classes, and bullying faced by the students. At present, in most of the institutes, the regular classes are not recorded; hence, students have no option of going back to the classes. In addition to asking the students to attend the online classes, having an option to record the classes, which can be assessed by the students at their ease can possibly help in better learning. Further, suppose the regular classes are available in the recorded format. In that case, these can take away the pressure from the students of preparing notes while attending the classes and possibly can also help in the reduction of cancellation of classes. If a teacher is not available for the class, then this repository of the online classes may be played for the students, which may be better than a cancelled class.

The participants also recognized disadvantages of the online classes in the form of poor learning of practical aspects, strain on eyes, difficulties with internet connectivity, poor interaction with peers, boring, poor learning, feeling of detachment, feeling overburdened with daily online classes, social isolation, difficulty in writing or noting down main points/preparing notes, and loneliness. Few studies which evaluated students from Chinese university during COVID-19 pandemic have shown that about half of the students felt that the teaching objectives were not fully attained, they had difficulty in “focus and restraint, had issues related to unstable network speed, noisy environment at home and lack of professional equipment.<sup>[14,15]</sup> Findings of the present study also support the same. Taken together, these findings possibly suggest that online teaching cannot replace the in-person regular classes because of various issues. In India, in many households, the availability of space for online classes, without any disturbance for few hours itself, can be a problem, especially when there are more than one child in the household and if they have classes of different streams same time.

The present study also suggests that while attending the online classes, a significant proportion of students often get distracted and indulge in different activities such as surfing Internet, Chatting on WhatsApp/Telegram/Facebook Messenger, and using Social Media (Face book, Instagram, We Chat, Snap Chat, and Telegram). These behaviors were more often seen in males when compared to females. Previous surveys that have also looked at the distraction while attending the online classes have also come up with similar findings.<sup>[13,14]</sup> These findings possibly reflect that, attending online classes probably does not give that kind of structure as is present in real classroom, absence of the teacher in reality and an option of switching off the video possibly provides an avenue to the students to indulge in these activities. Other factors, such as lack of supervision

by the parents and poor teaching quality could also contribute to the same.

The present study further suggests that the majority of the participants preferred in-person classes or a system with majority of the classes being in-person with a small proportion of online classes. Previous studies have not looked at this aspect. However, our findings suggest that current generation is at present not prepared for the exclusive online education.

The present study has certain limitations, which needs to be kept in mind while interpreting the findings. First, it was a web-based survey with a cross-sectional study design, was limited to those having access/received the link. The study findings must be interpreted in light of the fact that the responses were limited to the questions asked and there could be many other factors, which were not tapped in the study. However, despite these limitations, the study can be regarded as the first of its kind to explore the various aspects of online teachings from the students' perspectives during COVID-19 pandemic.

## CONCLUSIONS

The present study provides some insights into the online classes that have been started in view of the COVID-19 pandemic. The study suggests that although various colleges are running online classes, as a substitute for the in-person classes in view of the need for social distancing, these classes are not well received by the students and are possibly not fulfilling the students' desired needs. Possibly, our system at present is not prepared for the online classes. Further, the present study suggests that students still prefer in-person classes. Accordingly, even after the pandemic, while deciding about the mode of education, we need to consider the importance of the in-person classes, and the system should not exclusively or predominantly rely on online classes for teaching.

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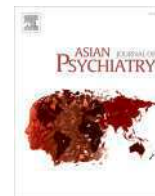
Nil.

## Conflicts of interest

There are no conflicts of interest.

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Letter to the Editor



## Can lowering of haematological monitoring for clozapine be considered in the future?

### 1. Introduction

Clozapine was introduced in 1958, and after initial skepticism due to the lack of extrapyramidal side effects, it was shown to be effective in the management of patients with schizophrenia. After the initial evidence for its efficacy in the management of schizophrenia, the use of clozapine received a significant blow with the Finnish epidemic of neutropenia, in which, within four months of the introduction of clozapine in Finland, eighteen patients developed one or more severe blood dyscrasias, 9 of whom died, and this led to the withdrawal of clozapine, initially from Finland and then from most of the European countries and United States (Amsler et al., 1977; Crilly, 2007). The Finnish epidemic led to the recommendation of regular haematological monitoring of the patients on clozapine (Crilly, 2007). Although later studies, beyond doubt, proved the efficacy of clozapine in patients with treatment-resistant schizophrenia (TRS) (Kane et al., 1988), it is often underused in patients with TRS, especially because of the need for monitoring of haemogram (Grover et al., 2015).

Available data suggest that the incidence of neutropenia with clozapine is 3.8 %, with only 0.9 % patients developing severe neutropenia (i.e., neutrophil count of  $<500$  cell/ $\mu$ L), and severe neutropenia is associated with low mortality rates (0.0013 %) (Myles et al., 2018). It is further suggested that the risk of neutropenia is highest during the first 18 weeks, and the risk reduces significantly after one year of starting clozapine (Myles et al., 2018). Available data also suggest that the risk of severe neutropenia in patients receiving clozapine is not significantly different from that reported with other antipsychotics (Schulte, 2006). It is further suggested that the risk of severe neutropenia with clozapine may be comparable to antithyroid agents (Suhast et al., 2021). However, despite this, the use of clozapine requires life-long monitoring of haemogram. This requirement of lifelong monitoring has contributed significantly to the underutilization of clozapine (Grover et al., 2015).

During the ongoing pandemic, due to lockdown, different authors recommended different haematological monitoring levels for patients on clozapine. It is suggested that the haematological monitoring of patients on clozapine can be reduced to once in 3 months if the patient has been on clozapine for more than one year and does not have a history of any absolute neutrophil count going below 2000 cells/ $\mu$ L (or less than 1500/ $\mu$ L if the patient has benign ethnic neutropenia) (Siskind et al., 2020).

However, little is understood about the impact of this reduced monitoring of patients on clozapine during the ongoing pandemic. One of the studies from Japan showed the safety of this extended haematological monitoring for patients on clozapine during the ongoing pandemic (Hata et al., 2021). This study included data of 41 patients, of whom 19 patients underwent extended haematological monitoring (i.e., once in 3 months after one year of starting of clozapine) while receiving

clozapine, and authors reported lack of any haematological adverse events in these patients (Hata et al., 2021). However, the authors did not provide information about how long this extended monitoring was done for these patients.

In India, there are no specified guidelines for monitoring of haemogram in patients receiving clozapine. The monitoring varies from centre to centre and clinician to clinician (Grover et al., 2015). At our centre, we usually monitor the haemogram weekly for the first 16–18 weeks, and after that, the monitoring is reduced to once a month (Grover et al., 2020b). Given the lack of national consensus in regular times, no national-level recommendations were also made during the ongoing pandemic.

At our centre, we have a pool of patients on clozapine, and during the beginning of the pandemic, we contacted them and informed them about the need for continuation of medications, COVID-19 appropriate behavior, monitoring of haemogram monthly depending on the feasibility, contact the treating team in case of relapse or any psychiatric emergency and if the patient develops features of COVID-19 infection (Grover et al., 2020a).

In the background of limited information on the impact of lowered monitoring of haemogram for patients receiving clozapine, this study aimed to evaluate the frequency of haematological monitoring over the last 12 months in a pool of 295 patients who have been on clozapine treatment before starting of the pandemic.

### 2. Methodology

This study was done in a tertiary care hospital in north India. The ethics committee of the Institute approved the study, and verbal consent was obtained from the patients and caregivers to collect the information.

#### 2.1. Setting

In our department, data of patients started on clozapine is maintained in a SPSS format, and their follow-up status is updated from time to time. The data includes the basic demographic and clinical information. During the COVID-19 pandemic, the psychiatry outpatient services were shut down from the 25th of March 2020 to the 31st of October 2020. The outpatient services resumed from the 1st of November 2020 and continued till the 8th of April 2021, and then again shut down due to the second wave of COVID-19. During the beginning of the pandemic, we telephonically contacted our patients on clozapine. We informed the patients and their caregivers about the risk of COVID-19 infection, precautions to be taken, COVID appropriate behavior (use of mask, frequent hand hygiene measures, and maintaining social distancing), being in contact with the treating team, maintain medication adherence, contacting the treating team in case patient experiences relapse, and

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continuing the haematological monitoring. However, due to the lockdown, many patients were not able to undergo the haemogram testing. We were in touch with 356 patients during this time.

For this study, we contacted all these patients. Those admitted in psychiatry inpatient setting, or in those whom clozapine was stopped due to any reason or those who were started on clozapine for the first time after the first lockdown were excluded. The information was collected between the 1st of April to the 28th of April 2021. These patients were informed about the aim of this study and were requested to provide information about the frequency of haematological monitoring, medication adherence, and development of COVID-19 infection.

### 3. Results

Out of the 356 patients on clozapine, who were in touch with us, 17 could not be contacted, 18 patients were admitted to the inpatient unit and 26 patients were started on clozapine for the first time after the declaration of the first lockdown. Those admitted to the inpatient unit or started on clozapine for the first time were excluded, as they were expected to undergo haemogram more frequently, either because of being in the hospital, or because of starting of clozapine. Seventeen patients could not be contacted, either because of wrong phone number, non-availability of the phone or them not responding to the phone calls. Hence, the study sample comprised 295 patients with a mean age of 38.38 (SD: 12.02) years, with a range of 15–77 years. The mean duration of education for the study sample was 12.12 (SD: 3.75) years. More than half of the study sample comprised of males (57.6 %). About two-third of the study participants were unmarried (70.2 %), from nuclear families (64.7 %), urban locality (66.1 %), Hindu (68.8 %) by religion, were unemployed (69.8 %) and came from a household with monthly income < 10,000 Indian rupees. The mean age of onset of illness was 22.04 (SD: 7.99) years. The mean age of starting clozapine was 32.35 (SD: 10.35) years. A small proportion of the patients had diabetes mellitus (13 %), hypertension (8.8 %), and dyslipidemia (18.6 %) at the last follow-up prior to the lockdown. About one-eighth had a history of tobacco use (smoking: 13.6 %; chewing tobacco: 4%), and one-tenth had a history of alcohol use (9.2 %) in their lifetime. The mean dose of clozapine for the study sample was 231.64 (110.66) mg/day with a range of 25 mg–600 mg and a median dose of 225 mg/day.

Of the 295 patients, the majority (n = 262; 88.8 %) of them were on clozapine for more than one year, 18 (6.1 %) were on clozapine for more than six months but less than one year, and 15 (5.1 %) were on clozapine for less than six months prior to declaration of the national lockdown in 23rd of March 2020. Overall, the mean duration of clozapine in March 2020 was 65.77 (63.04) [range: 3–396] months.

Majority of the patients i.e., 275 (93.2 %) were taking clozapine at the prescribed doses with 100 % medication adherence during the period of March 2020 to March 2021. In the month before assessment 95.9 % (n = 285) reported 100 % medication adherence. The major reason for non-adherence during the last 12 months was non-availability of medications (n = 11; 4%). The other less common reasons for non-adherence for some duration were dengue infection (n = 1), undergoing surgical procedure (n = 1), refusal to take medication by the patient (n = 1), perceived improvement by the family members (n = 1), excessive sedation (n = 3), worsening of symptoms (n = 1), excessive sialorrhea (n = 1), perceived weakness due to the medication (n = 1), and weight gain (n = 2).

Two patients died during this period, i.e., April 2020 to March 2021. The cause of death in two of these patients was sudden cardiac arrest, with one patient aged 67 years and the other patient aged 65 years. Both these patients did not have any signs of infection of any kind, including COVID-19 infection just prior to death.

During the study period, additionally one patient developed a severe respiratory infection. However, his haemogram was normal, and he was not found to be infected with COVID-19 on Reverse Transcriptase Polymerase Chain Reaction. On further investigation, the person was found

to have pneumonia and was treated with antibiotics, and he improved. His clozapine could be continued without any interruption. Only three other patients had developed COVID-19 infection, which was moderate in intensity. None of them required hospitalization, and all of them improved without any complication. These patients were continued on clozapine during the acute phase of COVID-19 infection.

About two-third of the participants could not visit the outpatient during the time frame when the outpatient services had resumed in between (i.e., the 1st of November 2020 to the 8th of April 2021).

In terms of haemogram, 31.2 % of the patients had not got a single haemogram done in the 12 months. Only 8.6 % of the patients had ten or more haemogram done during the 12 months (Table 1). About three-fourth of the study sample (79.7 %) underwent less than four haemogram monitoring over 12 months.

Overall, only five patients were detected to have some haematological abnormalities, with 2 having low total leucocyte count, but this did not amount to neutropenia, and on repeat investigations, it improved. One patient was found to have low platelet count along with fever, and on further investigation, was found to have Dengue fever. One patient was found to have a high eosinophil count, and on further evaluation, no definite cause could be found, and the eosinophil count normalized on its own in subsequent testing. One patient was found to have low haemoglobin level, which was most likely due to nutritional deficiency.

All the incidences of respiratory infection, COVID-19 infection, and haematological abnormalities were seen in patients on clozapine for more than one year.

### 4. Discussion

The present study suggests that for patients receiving clozapine, lower haematological monitoring is not associated with any adverse haematological side effects. In our study, five patients experienced haematological side effects other than neutropenia, and two patients died. For 2 of the patients who expired during the period under evaluation, the mortality could not be attributed to any kind of infection, including COVID-19 infection. Additionally, during the first wave of COVID-19 infection (i.e., from April 2020 to March 2021), only three patients developed COVID-19 infection without any fatal outcome.

In the present study, none of the patients experienced neutropenia, despite the three-fourth of the study sample (79.7 %) undergoing less

**Table 1**  
Frequency of haemogram done during March 2020 to April 2021.

Variables	Frequency (%) N = 295
Extended haemogram monitoring ( $\geq 4$ times in 12 months)	60 (20.4)
<b>Frequency of haemogram monitoring</b>	
0	92 (31.2)
1	45 (15.3)
2	66 (22.4)
3	32 (10.8)
4	16 (5.4)
5	6 (2.0)
6	4 (1.4)
7	2 (0.7)
8	1 (0.3)
9	6 (2.0)
10	12 (4.1)
11	4 (1.4)
12	9 (3.1)
Abnormality detected on haemogram	5 (1.6)
<b>Type of abnormality detected</b>	
Low total leukocyte count	2 (0.7)
Low haemoglobin	1 (0.3)
Low platelet	1 (0.3)
High eosinophil count	1 (0.3)

than four haemogram monitoring over 12 months. Based on this finding, it can be said that in the future, there is a need to reconsider the need for monthly monitoring of haemogram in patients receiving clozapine for more than one year. However, it could be argued that these patients did not undergo haematological monitoring; hence, neutropenia could have been actually missed. However, it is essential to remember that all the patients who developed neutropenia during the Finnish pandemic had features of infections. It was said that, in many of these patients, the infection was initially missed, and this contributed to mortality (Crilly, 2007). However, our entire sample except for five (one developed pneumonia, one developed severe respiratory illness and three developed COVID-19 infections) did not develop features of infection. Hence, it can be said that it is unlikely that neutropenia could have been missed. These findings provide robust evidence that the monitoring of haemogram can be reduced after one year of use of clozapine.

Many authors have presented arguments in favor of reducing the haematological monitoring in patients on clozapine (Myles et al., 2018; Nielsen, 2020; Suhas et al., 2021). In a meta-analysis of 108 studies, the authors reported that the peak of neutropenia with clozapine occur at one month and, after this, declines to negligible at one year of treatment (Myles et al., 2018). In another metanalysis, the authors included 20 studies and concluded that the risk of neutropenia was not significantly increased for patients receiving clozapine compared to other antipsychotics (Myles et al., 2019). The present study's findings also support the findings of low risk of neutropenia with clozapine and challenge the conventional neutrophil count monitoring, especially after one year of clozapine therapy. Although the number of patients in the subgroup of 6 months to 1 year was low, lack of neutropenia in this group also suggests a need to evaluate this timeframe further to reconsider the recommendations for haematological monitoring.

Further, in terms of other haematological side effects, one patient developed thrombocytopenia, which on investigation, was found to be related to Dengue fever. Two patients developed transient granulocytopenia, without associated neutropenia (i.e., ANC < 2,000 cells/mm<sup>3</sup>). In none of the patients, these abnormalities were fatal. These findings further prove that haematological abnormalities seen in patients on clozapine are associated with a low fatality rate.

The present study has certain limitations. A larger sample and monitoring of patients for a longer duration could have given more robust evidence. However, this may not be ethically feasible in the presence of the current level of recommendations for haemogram monitoring for patients on clozapine. The study period under consideration in the present study was the COVID-19 pandemic period. During this period, the patients and caregivers were possibly more cautious about the risk of infection and could have taken precautions to prevent infection, which is usually not practiced to this extent. Hence, this could have reduced the risk of infection with clozapine.

To conclude, this study provides evidence that the lack of or reduced haematological monitoring in patients on clozapine for more than one year is not associated with fatal outcomes. Hence, there is a need to reconsider the monitoring recommendations, as this can reduce the chances of current practices of low utilization of clozapine in patients of TRS who deserve to receive a trial of clozapine.

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#### Declaration of Competing Interest

The authors report no declarations of interest.

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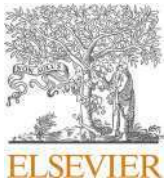
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Letter to the Editor



## Incidence and outcome of COVID-19 in patients with schizophrenia: A Study from India

Data emerging from various parts of the globe suggest that compared to controls, patients with mental illnesses develop a more severe infection, are more likely to be hospitalized and are at a higher risk of mortality (Fond et al., 2021; Ji et al., 2020; Nemani et al., 2021; Tzur Bitan et al., 2021; Vai et al., 2021). Further, the data suggest that patients with schizophrenia are less likely to be admitted to the intensive care unit and this is attributed to the discrimination against the patients with schizophrenia (Fond et al., 2021). In terms of the type of antipsychotics available data suggests that, compared to patients on other antipsychotics, those on clozapine have a higher risk of developing COVID-19 infection (Govind et al., 2020). In terms of the risk of COVID-19 infection, data is conflicting with some of the authors suggesting a lower incidence of COVID-19 infection in patients with schizophrenia (Tzur Bitan et al., 2021), whereas others suggest a higher rate of COVID-19 infection (Wang et al., 2021). A recent systematic review which included data on risk of COVID-19-related mortality, hospitalization and intensive care unit admission rates, from different parts of the world suggests lack of data from India (Vai et al., 2021). In this background, this study aimed to evaluate the incidence of COVID-19, the need for hospitalization due to COVID-19 infection, and mortality due to COVID-19 in patients with schizophrenia. The additional aim was to understand the extent of the vaccination against COVID-19 infection among patients with schizophrenia and the incidence of COVID-19 infection in their families.

This study was conducted in a tertiary care teaching hospital in north India. The study was approved by the Institute Ethics Committee and the participants were enrolled by obtaining verbal informed consent.

At our center, prior to the onset of the pandemic, out of all the patients with schizophrenia, following up at our center, we had a list of 594 patients with a diagnosis of schizophrenia, whose contact details were available with us. A majority of these patients were on clozapine ( $n = 356$ ) at last follow-up.

For this study, we tried to contact all these patients in the last week of June 2021 to evaluate the incidence of COVID-19 infection, the severity of COVID-19 infection, the need for hospitalization, and the outcome of COVID-19 infection in the form of mortality. During the telephonic survey, initially, the patient/caregivers were explained about the purpose of the study, their queries were addressed and verbal informed consent was obtained. The collected data was analyzed in the form of frequency, percentages, mean and standard deviation. Comparisons were made by using the Chi-square test and  $t$ -test.

Out of the 594 patients, 567 (95.45%) patients could be contacted, of whom 32 patients had developed COVID-19. Among those who developed COVID-19 infection, 23 were on clozapine alone or clozapine being one of the antipsychotic medication and 9 were on non-clozapine antipsychotics. Of those on clozapine, 12 patients developed COVID-19 infection during the first wave of COVID-19, i.e., prior to April 2021,

and remaining developed COVID-19 infection during the second wave. In the non-clozapine group, 5 developed an infection during the first wave and 4 developed the infection during the second wave.

When those who developed COVID-19 infection and those who did not develop COVID-19 infection were compared, those who developed the infection were more educated, from the urban locality, had comorbid hypertension, were on antihypertensive medication and a higher proportion of them had a family member positive for COVID-19 infection (Table 1). When the same comparisons were made for patients receiving clozapine, significant differences between those who developed and those who did not develop the COVID-19 infection were seen on the same variables as seen in the whole sample, except lack of a significant difference for locality. Whereas in the non-clozapine group, when those who developed and those who did not develop COVID-19 infection were compared, significant differences were seen only for those having a family member with COVID-19 infection, which was significantly higher among those who developed COVID-19 infection.

In terms of severity of the COVID-19 infection, 6 patients were completely asymptomatic and were detected to have infection during the routine testing for getting admitted to the psychiatry ward or receiving electroconvulsive therapy. Except for one patient, in all other patients, the COVID-19 infection was not-severe (i.e., they did not require oxygen support and the oxygen saturation did not fall below 90%), and admission was not required for the COVID-19 infection. When the sequence of infection in patients and the family members was evaluated, in 18 patients, the family members were infected before the patient, and in 8 patients, the patient was detected to be COVID-19 positive before the family member. For 3 cases, both the patient and the family members were detected to be COVID-19 positive at the same time, and in another 3 cases, only patient was infected.

When the incidence of COVID-19 infection in the family members only (but not in the patient was evaluated), 22 family members were detected to be positive for COVID-19, but the patient never developed COVID-19 infection, despite coming in contact with the family members.

Except for one patient on clozapine, whose dosage was reduced due to drug toxicity symptoms, rest of the patients continued psychotropics at prescribed dosage during the acute phase of infection.

In the whole sample, 2 patients died during the period of March 2020 to June 2021. The deaths were noted in patients who did not develop COVID-19 infection and both these patients were elderly (age > 60 years), and the cause of death was not related to any kind of infection. Based on the information provided by the family members, the cause of mortality was attributed to cardiac events in both the patients.

The present study suggests that the incidence of COVID-19 infection in patients with schizophrenia is 5.6%, with no significant difference in the incidence between those receiving clozapine and those receiving

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**Table 1**  
Comparison of demographic and clinical variables of patients of schizophrenia those who developed and who did not develop COVID-19 infection.

Variables	COVID-19 positive group Frequency (%) or Mean (SD) N = 32	COVID-19 negative group Frequency (%) or Mean (SD) N = 535	Chi-square value/t-value (p-value)
<b>Socio demographic</b>			
Age (years)	38.59 (10.03)	36.68 (11.86)	−0.894 (0.372)
Education (years)	13.84 (3.15)	12.33 (4.12)	−2.2044 (0.041)*
<b>Age group</b>			
<45 years	24 (75.0)	409 (76.4)	0.035 (0.851)
≥45 years	8 (25.0)	126 (23.6)	
<b>Age group</b>			
<60 years	30 (93.8)	504 (94.2)	Y = 0.000 (1.000)
≥60 years	2 (6.2)	31 (5.8)	
<b>Gender</b>			
Male	14 (43.8)	314 (58.7)	2.764 (0.096)
Female	18 (56.2)	221 (41.3)	
<b>Marriage</b>			
Married	11 (34.4)	171 (32.0)	0.081 (0.776)
Unmarried	21 (65.6)	364 (68.0)	
<b>Family</b>			
Nuclear	22 (68.8)	360 (67.3)	0.029 (0.864)
Extended/joint	10 (31.2)	175 (32.7)	
<b>Locality</b>			
Urban	27 (84.4)	336 (62.8)	6.100 (0.014)*
Rural	5 (15.6)	199 (37.2)	
<b>Religion</b>			
Hindu	21 (65.6)	389 (72.7)	0.757 (0.384)
Non-Hindu	11 (34.4)	146 (27.3)	
<b>Occupation</b>			
Employed	9 (28.1)	105 (19.6)	1.358 (0.244)
Unemployed/Housewife	23 (71.9)	430 (80.4)	
<b>Household income</b>			
Less than 10,000/month	17 (53.1)	267 (49.9)	0.125 (0.724)
More than 10,000/month	15 (46.9)	268 (50.1)	
<b>Clinical</b>			
Age of onset of illness (years)	22.47 (7.35)	22.47 (8.28)	0.711 (0.477)
Duration of illness (months)	137.87 (92.65)	128.67 (101.35)	−0.501 (0.616)
Any comorbidity	10 (31.2)	111 (20.7)	1.984 (0.159)
Hypertension	5 (15.6)	32 (6.0)	4.604 (0.032)*
Diabetes	4 (12.5)	42 (7.9)	Y = 0.363 (0.547)
Dyslipidaemia	2 (6.2)	67 (12.5)	Y = 0.602 (0.438)
Coronary artery disease	0 (0)	3 (0.6)	FE = 1.000
Any substance use	3 (9.4)	81 (15.1)	Y = 0.404 (0.525)
<b>Substance use type</b>			
Smoking	2 (6.5)	63 (11.8)	Y = 0.445 (0.504)
Chewing tobacco	0 (0)	17 (3.2)	Y = 0.240 (0.624)
Alcohol use disorder	2 (6.2)	30 (5.6)	Y = 0.000 (1.000)
<b>Last physical follow up</b>			
Before lockdown	21 (65.6)	321 (60.0)	0.278 (0.597)
After November 2020	11 (34.4)	213 (40.0)	
<b>Drugs</b>			
<b>Antipsychotic</b>			
Clozapine	23 (71.9)	317 (59.3)	2.004 (0.157)
Non- clozapine	9 (28.1)	218 (40.7)	
<b>Number of antipsychotics</b>			
One antipsychotic	28 (87.5)	496 (92.7)	Y = 0.544 (0.461)
More than one antipsychotic	4 (12.5)	39 (7.3)	
<b>Antidepressant use</b>			
Yes	10 (31.2)	135 (25.2)	0.574 (0.449)
No	22 (68.8)	400 (74.8)	
<b>Mood stabilizer use</b>			
Yes	2 (6.2)	27 (5.0)	Y = 0.000 (1.000)
No	30 (93.8)	508 (95.0)	
<b>Antihypertensive use</b>			
Yes	5 (15.6)	32 (6.0)	4.604 (0.032)*
No	27 (84.4)	503 (94.0)	
<b>Antidiabetic use</b>			
Yes	4 (12.5)	42 (7.9)	Y = 0.363 (0.547)
No	28 (87.5)	493 (92.1)	
<b>Antilipidemic drug use</b>			
Yes	2 (6.2)	67 (12.5)	Y = 0.602 (0.438)
No	30 (93.8)	468 (87.5)	
Number of medications	1.94 (0.17)	1.87 (1.0)	−0.365 (0.715)
<b>Adherence in last year</b>			
100%	28 (87.5)	457 (85.4)	Y = 0.004 (0.947)
Less than 100%	4 (12.5)	78 (14.6)	
<b>Adherence in last month</b>			

(continued on next page)

Table 1 (continued)

Variables	COVID-19 positive group Frequency (%) or Mean (SD) N = 32	COVID-19 negative group Frequency (%) or Mean (SD) N = 535	Chi-square value/t-value (p-value)
100%	30 (93.8)	490 (91.6)	Y = 0.010 (0.920)
Less than 100%	2 (6.2)	45 (8.4)	
<b>COVID-19</b>			
<b>Status of COVID-19 vaccination prior to COVID-19 positive status</b>			
At least 1 dose	1 (3.1)	–	–
Not vaccinated	31 (96.9)	–	–
COVID-19 positive in family member	18 (56.2)	22 (4.1)	117.351 (0.001)***

other antipsychotic medications. According to an estimate, population of India is 1,394,528, 165 and the number of COVID-19 cases in India is 31,219, 374 (as of third week of July 2021). Accordingly, the incidence of COVID-19 in the country is about 2.23%. When we compare the incidence findings of COVID-19 infection of the present study with this data, it can be said that the incidence of COVID-19 in patients with schizophrenia is higher than the general population. It is important to note that this is a crude way to compare the figures, but this was done, as the breakup of incidence of COVID-19 in different age-groups in India was not available. This finding of higher incidence of COVID-19 in patients with schizophrenia is similar to the findings reported from China (Wang et al., 2021).

In terms of severity of COVID-19 infection, our data contradicts the findings from other countries, which have reported that patients with schizophrenia are more likely to be hospitalized and are at a higher risk of mortality (Vai et al., 2021). The lower hospitalization rates in the present study could be argued to be due to the lack of availability of facilities, especially during the second wave of the infection. However, this appears to be less likely because, in the majority of the patients, the infection was not severe enough to require hospitalization. Our findings also contradict the finding from the United Kingdom, which suggest that compared to other antipsychotics, patients on clozapine are at higher risk of developing COVID-19 infection (Govind et al., 2020).

It is important to note that the incidence of psychosis in patients with various viral infections varies from 0.9 to 4% (Brown et al., 2020). Accordingly, it can be said that there is a bilateral interaction between psychosis and various viral infections. Hence, in the ongoing pandemic, clinicians managing both new and old patients with psychosis should enquire about the history of COVID-19 infection.

Our study has certain limitations, which included small sample size and a lack of a control group.

To conclude, the present study suggests that the incidence of COVID-19 infection in patients with schizophrenia is 5.6%, which appears to be higher than that seen in the general population. There was no significant difference in the incidence of COVID-19 between those receiving clozapine and those receiving other antipsychotic medications. In the majority of the patients with schizophrenia, the COVID-19 infection was not severe, and the majority of the patients did not require oxygen support and hospitalization. The majority of the patients also did not require a change in the doses of psychotropic medications during the acute phase of COVID-19 infection.

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#### CRedit authorship contribution statement

SG: Concept, drafting of the manuscript, collection of data, analysis of data, final approval of the manuscript.

SK: Concept, drafting of the manuscript, collection of data, analysis of data, final approval of the manuscript.

AS: Concept, drafting of the manuscript, collection of data, final approval of the manuscript.

CN: Concept, collection of data, final approval of the manuscript.

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#### Declaration of competing interest

None.

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ACCELERATED RESEARCH

## Evaluation of Psychological Impact of COVID-19 on Health-Care Workers

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### ABSTRACT

**Background:** Little information is available from India about the psychological impact of COVID-19 on health-care workers.


**Aim:** The current study aimed to evaluate the psychological issues among the health-care workers (HCW) during the COVID-19 pandemic.

**Materials and Methods:** An online survey using Survey Monkey® platform was carried out to evaluate depression (using Patient Health Questionnaire-9), anxiety (using Generalized Anxiety Disorder Questionnaire-7), and other psychological issues (using a self-designed questionnaire).

**Results:** The study sample comprised 303 participants with a mean age of 41.2 (standard deviation: 11.1) years. A majority of them were male (69%) and married (79.9%). Nearly half (46.2%) of the participants had either anxiety disorder or depression or both and 12.9% of HCW had suicidal behavior. Higher level of anxiety and depression scores were associated with being female, having undergone quarantine, directly involved in the care of COVID-19 patients, and younger age (<30 years). Higher prevalence of depression and anxiety disorder was seen in younger (<30 years) age group, being a doctor (compared to paramedics). In addition, higher prevalence of depression was seen in those who were directly involved in the care of patients with COVID-19 infection.

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**Conclusion:** About half of the HCWs are suffering from psychiatric morbidity, specifically anxiety, in the wake of the COVID-19 pandemic. There is a need to assess all the HCWs for psychiatric morbidity and provide them with psychological support.

**Key words:** Anxiety, COVID-19, depression, Health-Care Workers

## INTRODUCTION

COVID-19 has emerged as a highly infectious and contagious, acute severe respiratory syndrome, which was declared as a pandemic by the World Health Organization in March 2020 (Huang *et al.*, 2019). According to the data from some of the previous infectious epidemics, such as severe acute respiratory syndrome (SARS), middle-east respiratory syndrome, influenza H1N1, or Ebola, it is evident that the onset of a sudden and immediate life-threatening illness leads to a tremendous amount of the pressure on health-care workers (HCWs). As generally known, the COVID-19 pandemic is more contagious than SARS, and it has led to a severe threat to the general population at large and HCWs too.<sup>[1-3]</sup> Increased workload, mental unpreparedness, physical and psychological exhaustion, unavailability of the personal protective equipments (PPEs),<sup>[4]</sup> risk of infection to self and spreading the infection to others, lack of support from the organization,<sup>[5]</sup> and need to make ethically and morally difficult decisions to save the life of patients are some of the issues, which are threatening the psychological integrity of the HCWs across the globe. The resilience of the HCWs is further compromised by the prevalent stigma,<sup>[6,7]</sup> lack of social support,<sup>[6]</sup> isolation,<sup>[8]</sup> fear of contagion to their loved ones,<sup>[9]</sup> working with new and frequently changing protocols, and caring for their colleagues who have fallen sick.<sup>[10]</sup> In views of these factors, HCWs are more vulnerable to have mental health problems including anxiety, depression, sleep disturbance, and stress.<sup>[11,12]</sup>

Available data from the studies done during the various epidemics and current COVID-19 pandemic suggest that the prevalence of anxiety disorder among HCWs ranges from 10.5% to 44.6%, with a pooled prevalence of 23.2%.<sup>[13]</sup> Among the doctor and nurses, the pooled prevalence was 17.9% for mild anxiety and 6.9% for moderate-severe anxiety.<sup>[10,14-17]</sup> In terms of depression, the prevalence rate varies from 8.9% to 50.4%, with the pooled prevalence of 22.8%.<sup>[13]</sup>

In terms of risk factors associated with psychiatric morbidity among the HCWs, some of the studies suggest that psychological morbidity is more among the women,<sup>[10,18,19]</sup> younger HCWs,<sup>[7]</sup> nurses (compared to doctors),<sup>[10]</sup> frontline HCWs (compared = to the administrative staff),<sup>[17]</sup> parents of dependent children,<sup>[8]</sup> need to undergo quarantine,<sup>[20]</sup> working for longer hours than the usual,<sup>[11]</sup> less experienced,<sup>[19]</sup> inadequate training,<sup>[19]</sup> part-time employee,<sup>[7]</sup> and those with preexisting physical or psychological problems.<sup>[18]</sup>

Little is understood about the psychiatric morbidity of HCWs from India, in the time of COVID-19 pandemic and only one study so far ( $n = 152$ ) had evaluated the mental health impact of COVID-19 on doctors in West Bengal which had found that about 34.9% surveyed doctors were depressed, and about 40% had anxiety.<sup>[21]</sup> In this background, the current study aimed to evaluate the psychological morbidity among HCWs.

## MATERIALS AND METHODS

This was a cross-sectional, web-based study, in which data were collected between April 2, 2020, and May 5, 2020. The online bilingual (English and Hindi) survey questionnaire was circulated using e-mail, WhatsApp, text message, etc. Snowball sampling technique was used. The survey link was sent to various HCWs at different hospitals across the country, and they were requested to forward it further. The link was designed in such a way, that only one response can be generated using one device. Approval for this study was obtained from the Ethics Committee of the Indian Psychiatric Society, and the survey was conducted under the aegis of Research and Education Foundation Committee of the Indian Psychiatric Society. Participation in the survey implied consent. The survey questionnaire was designed to collect information about:

### Demographics and personal characteristics

A basic information sheet includes the subject's age, gender, marital status, educational qualifications, and current work profile.

A self-designed questionnaire to evaluate the effect of quarantine on stress, anxiety, and feeling of scared and reaction of a family toward the person were included.

### Patient Health Questionnaire-9

The Patient Health Questionnaire (PHQ) is a 9-item validated questionnaire, which evaluates depression as per the Diagnostic and Statistical Manual, Fourth revision. Each item is rated on a 4-point scale of "0" (not at all) to "3" (nearly every day), with higher scores indicating a higher level of depression. The scale has excellent reliability and validity, sensitivity and specificity of 88% for major depression. A cutoff score of  $\geq 10$  is considered to be an indicator of depression.<sup>[22]</sup> Hindi translated version of the scale was used which had been well-validated in many previous studies.

### Generalized Anxiety Disorder-7 scale

Generalized Anxiety Disorder-7 (GAD-7) is a 7-item anxiety scale, with each item rated on a 4-point scale of 0–3, with higher scores indicating a higher level of anxiety. Cutoff scores of 5, 10, and 15 are interpreted as representing mild, moderate, and severe levels of anxiety on the GAD-7. The scale has adequate psychometric properties in the form of reliability and validity, sensitivity, and specificity.<sup>[23]</sup> Hindi translated version of the scale was used which had been well validated in many previous studies.

Data were analyzed using statistical package for social sciences, sixteenth edition (SPSS-16) (SPSS Inc. Released 2007. SPSS for Windows, Version 16.0. Chicago, SPSS Inc.). Continuous variables were analyzed in the form of mean, standard deviation (SD), and median. Categorical variables were assessed as frequency and percentages.

## RESULTS

The total number of responses received were 303 responses. The mean age of the participants was 41.2 (SD: 11.1) years. A majority of them were male (69%), married and living with their spouse (69.3%). Majority of the participants had done their postgraduation, were working as faculty members in different institutes, and were posted in speciality outpatient setting at the time of participation in the survey [Table 1]. A small proportion (10.9%) of the respondents had undergone quarantine before the participation in the survey.

### Anxiety and depression in the study participants

Nearly half (46.2%) of the participants had either anxiety disorder or depression or both [Table 2]. One-eighth (12.9%) of HCWs had suicidal behavior (as rated as 1 or more for the item number 9 of PHQ-9).

When enquired about the response of the family, about half the participants reported that their family was “mostly/always” happy about their being on duty, worried about they getting ill [Table 3].

### Feeling and emotions due to COVID-19 infection

When asked about their emotional response, about two third reported “mostly/always” feeling useful, feeling optimistic, and about half of them reporting feeling proud of self. About one-third were “mostly/always” scared of not getting the PPE [Table 4]. Negative emotions were less often rated as “mostly/always” [Table 4].

More than half of the participants responded that they were satisfied with the availability of PPEs such as N95 mask, sanitizers, food, cleanliness, testing, and other supports provided by the organizations [Table 5].

### Factors associated with Psychiatric morbidity

When those who had undergone quarantine were compared

**Table 1: Demographic and workprofile of the participants (n=303)**

Variables	Frequency, n (%)
Age (years), mean (SD)	41.2 (11.1)
Gender	
Male	209 (69.0)
Female	94 (31.0)
Marital status	
Married and living with spouse	210 (69.3)
Married and staying away from spouse	32 (10.6)
Currently single	61 (31.1)
If you are a health care worker, kindly mention your position	
Junior resident	29 (29.6)
Senior resident	38 (12.5)
Faculty member	101 (33.5)
Medical officer	58 (19.1)
Nursing staff	5 (1.7)
Paramedical Staff	72 (23.0)
Place of current work profile	
General ward duties	36 (11.9)
Emergency medical OPD	21 (6.9)
Emergency surgical OPD	3 (1.0)
Specialty OPD	103 (34.0)
Screening of COVID-19 patients (i.e., fever, URTI infection OPD)	14 (4.6)
Managing COVID-19 patients in isolation wards/ICUs	34 (11.2)
Involved in sampling of COVID-19 patients	10 (3.3)
Working in laboratory testing COVID-19 samples	4 (1.3)
Involved in imaging/neuro-imaging testing/X-ray in COVID-19 patients	4 (1.3)
Contact tracing	4 (1.3)
Managing COVID-19 patients in quarantine	3 (1.0)
Part of back-up team	9 (3.0)
Involved in training of healthcare workers	6 (2.0)
Others	52 (17.2)
Have you been quarantine	
Yes	33 (10.9)
No	270 (89.1)

OPD - Outpatient department; URTI - Upper respiratory tract infection; ICU - Intensive care unit; SD - Standard deviation

with those who had not undergone quarantine, it was seen that those who had undergone quarantine had a higher level of anxiety (<0.001<sup>\*\*\*</sup>) and depression (<0.001<sup>\*\*\*</sup>) scores. They also had a higher prevalence of anxiety disorder (<0.001<sup>\*\*\*</sup>). Compared to males, female participants had significantly higher anxiety (0.001<sup>\*\*\*</sup>) and depression (0.002<sup>\*\*</sup>) scores. When those who were aged <30 years were compared with those ≥30 years, it was seen that younger people had more anxiety (0.001<sup>\*\*\*</sup>) and depression (<0.001<sup>\*\*\*</sup>) scores and also had a higher prevalence of depression (<0.001<sup>\*\*\*</sup>) and anxiety disorder (0.019<sup>\*</sup>). When doctors were compared with paramedical staff, doctors had higher anxiety (0.03<sup>\*</sup>) and depression (0.004<sup>\*\*\*</sup>) scores and also had a higher prevalence of depression (0.037<sup>\*</sup>) and anxiety disorder (0.006<sup>\*\*\*</sup>). When those who had done duty in the COVID areas and those who had not done duty in the COVID area were compared, it was seen that those who had done duty in COVID area

had higher depression (0.002\*\*) and anxiety (0.013\*) scores and had a higher prevalence of depression (<0.001\*\*\*).

## DISCUSSION

In the challenging times of outbreak of the COVID-19, HCWs across the globe are at the forefront of prevention of spread of COVID-19 and treatment of patients who developed COVID-19 infection. This has not come without the extra-effort by the HCWs belonging to all the cadres. The present study reflects the psychological impact of the pandemic on the HCWs. In the present study, nearly half of the HCWs reported anxiety or depression or both. Prevalence of anxiety was significantly higher than that reported for depression. Studies done on HCWs, using the similar scales across the different parts of the globe, suggest the prevalence of anxiety to varying between 10.5% and 44.7% and that of depression vary between 8.9% and 50.7%.<sup>[10,14,15,16-18,24-27]</sup> Findings of the present study are in this reported range. The prevalence of current depressive and anxiety disorders as per the National Mental Health Survey (NMHS) data is 0.8% and 3.6%, respectively, in India.<sup>[28]</sup> Although, it can be argued

that the NMHS relied on diagnosing psychiatric disorders using Mini International Neuropsychiatric Interview, and the present study relied on the use of PHQ-9 and GAD-7, the considerable difference in the prevalence cannot be attributed entirely to the methodological differences. Hence, it can be said that the pandemic has led to an increase in the psychiatric morbidity among the HCWs, who has been working in adverse situations and facing multiple mental health issues.<sup>[29]</sup> Another survey, which was done during this pandemic, has also come up with similar prevalence rates for depression and anxiety among the HCWs.<sup>[30]</sup> All these findings suggest that there is an urgent need to screen all the HCWs for mental morbidity and they must be provided adequate psychological support while providing the services during this COVID times. In the present study, participants who were females and had undergone quarantine reported higher level and higher prevalence of anxiety and depression. Previous studies have also shown a similar association of higher level of anxiety and depression with female gender.<sup>[10,26]</sup> Higher prevalence of anxiety and depression among those who had undergone quarantine and had done COVID-19 duties is understandable. Previous studies have also reported a higher prevalence of common mental disorders (such as anxiety and depression) in people who undergo quarantine<sup>[31,32]</sup> and worked with patients with COVID-19 infection.

Besides psychiatric morbidity, in terms of emotional response, about two-thirds of the participants reported “mostly/always” feeling useful, feeling optimistic, and about half of them reporting feeling proud of self. These factors possibly reflect the personality dimension of the HCWs, who despite working in adverse situations and at risk of infection for themselves and their family members, were dedicated to their work like soldiers. Similarly, nearly half of the participants also reported that, despite their families being worried about them getting ill were happy about them being on duty. These factors also reflect the supportive nature of the families of the HCWs. Previous studies have not assessed these dimensions. Hence, it is not possible to compare these findings with the existing literature. About one-fourth to one-third of the participants were not happy with various measures such as availability of PPEs, N-95 mask, availability of sanitizers, and provisions made for quarantine. These findings are worrisome and suggest that there is a need to improve these provisions, for the HCWs to feel safe while working. Governments should not compromise on these and should provide adequate protection to all the HCWs.

**Table 2: Anxiety and depression in the study participants (n=303)**

Variables	Whole sample, frequency, n (%); range, median
Mean GAD-7 score, mean (SD), range (median)	4.8 (5.0), 0-21 (4.0)
Severity of anxiety	
Normal (0-4)	164 (54.1)
Mild (5-9)	92 (30.4)
Moderate (10-14)	27 (8.9)
Moderate-severe (15-19)	14 (4.6)
Severe (≥15)	6 (2.0)
Mean PHQ-9 score, mean (SD), range (median)	4.7 (5.5), 0-27 (3.0)
Severity of depression	
Minimal (0-4)	191 (63.0)
Mild (5-9)	71 (23.4)
Moderate (10-14)	21 (6.9)
Moderate severe (15-19)	9 (3.0)
Severe (≥20)	11 (3.6)
Overall prevalence	
Percentage of responders reporting GAD score ≥5	139 (45.9)
Percentage of responders reporting PHQ-9 score ≥10	41 (13.5)
Number of participants has anxiety disorder only	99 (32.7)
Number of participants has depressive disorder only	1 (0.3)
Number of participants has both anxiety and depressive disorder	40 (13.2)
Any psychiatric illness present	140 (46.2)

GAD-7 - Generalized Anxiety Disorder-7; PHQ - Patient Health Questionnaire-9; SD - Standard deviation

**Table 3: Reaction of the family toward the health-care workers**

Variables	Not at all (%)	Sometimes (%)	Mostly (%)	Always (%)
My family is happy for me being on duty	60 (19.8)	102 (33.7)	98 (32.3)	43 (14.2)
My family is worried about me getting ill	27 (8.9)	138 (45.5)	88 (29.0)	50 (16.5)

**Table 4: Feelings and emotions due to corona virus infection**

Variables	Not at all (%)	Sometimes (%)	Mostly (%)	Always (%)
Feeling sad	136 (44.9)	137 (45.2)	21 (6.9)	9 (3.0)
Feeling scared	92 (30.4)	164 (54.1)	37 (12.2)	10 (3.3)
Feeling tense	91 (30.0)	152 (50.2)	49 (16.2)	11 (3.6)
Feeling anxious	94 (31.0)	166 (54.8)	30 (9.9)	13 (4.3)
Feeling angry	165 (54.5)	119 (39.3)	15 (5.0)	4 (1.3)
Feeling demoralized	148 (48.8)	126 (41.6)	17 (5.6)	12 (4.0)
Feeling irritable	137 (45.2)	140 (46.2)	22 (7.3)	4 (1.3)
Feeling numb	218 (71.9)	70 (23.1)	9 (3.0)	6 (2.0)
Feeling lonely	168 (55.4)	91 (30.0)	33 (10.9)	11 (3.6)
Feeling socially disconnected	159 (52.6)	97 (32.0)	35 (11.6)	12 (4.0)
Feeling useful	30 (9.9)	72 (23.8)	123 (40.6)	78 (25.7)
Feeling being used	143 (47.2)	97 (32.0)	36 (11.9)	27 (8.9)
Feeling pathetic about self	206 (68.0)	67 (22.1)	19 (6.3)	11 (3.6)
Feeling like running away from work	197 (65.0)	73 (24.1)	19 (6.3)	14 (4.6)
Feeling optimistic	38 (12.5)	79 (26.1)	115 (38.0)	71 (23.4)
Feeling helpless	152 (50.4)	114 (37.6)	25 (8.3)	12 (4.0)
Feeling hopeless	188 (62.0)	84 (27.7)	22 (7.3)	9 (3.0)
Scared of contacting the infection	56 (18.5)	170 (56.1)	59 (19.5)	18 (5.9)
Scared of death	179 (59.1)	111 (36.6)	9 (3.0)	4 (1.3)
Feeling proud of yourself	50 (16.5)	85 (28.1)	84 (27.7)	84 (27.7)
Feeling stigmatized	212 (70.0)	71 (23.4)	13 (4.3)	7 (2.3)
Scared that you will not get the support from the administration	88 (29.0)	117 (38.6)	58 (19.1)	40 (13.2)
Scared that you will not get PPEs	83 (27.4)	130 (42.9)	62 (20.5)	28 (9.2)
Feeling angry that there are no adequate safety equipment to function	77 (25.4)	137 (45.2)	61 (20.1)	28 (9.2)
Not able to sleep	159 (52.5)	108 (35.6)	30 (9.9)	11 (3.6)
Worried issues such as food and safety	148 (48.8)	111 (36.6)	33 (10.9)	11 (3.6)
Tense about increase in workload	173 (57.1)	88 (29.0)	35 (11.6)	7 (2.3)
Tense about getting infected with COVID-19	70 (23.1)	169 (55.8)	44 (14.5)	20 (6.6)
Tense about unknowingly spreading the infection	47 (15.5)	178 (58.7)	58 (19.1)	20 (6.6)

PPE - Personal protective equipment

**Table 5: Availability and provision of personal protective equipment, food, and testing**

Variables	Extremely dissatisfied (%)	Slightly dissatisfied (%)	Neither satisfied nor dissatisfied (%)	Slightly satisfied (%)	Extremely satisfied (%)
Availability of sanitizers	38 (12.5)	40 (13.2)	44 (14.5)	81 (26.7)	100 (33.0)
Availability of masks ( <i>n</i> -95)	75 (24.8)	55 (18.2)	34 (11.2)	69 (22.8)	70 (23.1)
Availability of masks other than ( <i>n</i> -95)	33 (10.9)	46 (15.2)	49 (16.2)	75 (24.8)	100 (33.0)
Availability of PPEs	75 (24.8)	55 (18.2)	45 (14.9)	74 (24.4)	54 (17.8)
Cleaning of the area	47 (15.5)	50 (16.5)	36 (11.9)	82 (27.1)	88 (29.0)
Transport	45 (14.9)	29 (9.6)	69 (22.8)	81 (26.7)	79 (26.1)
Food	31 (10.2)	32 (10.6)	66 (21.8)	71 (23.4)	103 (34.0)
Provision of testing	66 (21.8)	54 (17.8)	57 (18.8)	82 (27.1)	44 (14.5)
Provision of qauratnine, in case if you are suspected/infected with COVID-19	62 (20.5)	38 (12.5)	81 (26.7)	60 (19.8)	62 (20.5)

PPE - Personal protective equipment

The present study has certain limitations, which include small sample size and relying on snowball sampling. Information was not available about the speciality of the participants; hence, the present study does not provide any information about the level of anxiety and depression across different speciality areas. The present study did not evaluate other factors such as social support, support from the organization, access to psychological intervention, training received or not, any extra compensation received or not for COVID duties, history of physical or psychological disorder, societal support, and self-stigma. Further, the present study also did not evaluate the personality dimension, sleep disorders, coping, substance dependence, and duration of

duty hours. All these variables can influence the prevalence of psychiatric morbidity. Further, other limitations associated with web-based surveys (using Whatsapp® platform) such as unable to determine the response rate, inability to get the information of nonresponders, possibility of one responder participating through different browser/second sim card/device, etc., are applicable to the current study too.

### CONCLUSIONS

To conclude, the present study suggests that about half of the HCWs were suffering from psychiatric morbidity, in the wake of the COVID-19 pandemic. Psychiatric morbidity is

mainly in the form of issues related to anxiety. Accordingly, there is a need to develop a plan to assess all the HCWs for psychiatric morbidity and provide them with psychological support.

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### Conflicts of interest

There are no conflicts of interest.

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ACCELERATED RESEARCH

## State of mental health services in various training centers in India during the lockdown and COVID-19 pandemic

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### ABSTRACT

**Background:** There is some information from different developed countries that mental health services have been badly affected by the COVID-19 pandemic. Little information is available from India.

**Aim:** The aim of this study was to evaluate the impact of lockdown and COVID-19 pandemic on mental health services in India's various training centers.

**Materials and Methods:** In an online survey, information was collected from various training centers of India through E-mail or WhatsApp.

**Results:** Responses were received from 109 institutes. The majority of the responses were received from state-funded government medical colleges and private medical colleges. Since the lockdown and COVID-19 pandemic, brain stimulation treatments have completely stopped. Other, most affected services included electroconvulsive therapy, inpatient services, outpatient services, and psychotherapy services. However, there was an expansion of teleconsultations services because of the lockdown and the COVID-19 pandemic. In three-fourth of the centers mental health services were being provided to the patients with COVID-19 infection. In most of the institutes, mental health professionals were involved at different levels in the COVID-19 responsibilities. These included providing helpline services to the general public, screening people in quarantine for mental health issues, providing clinical care to COVID-19 patients, screening health care workers (HCWs) for mental health issues, and training the HCWs.

**Conclusion:** COVID-19 pandemic and lockdown have led to the collapse of regular mental health services. The present study also shows that mental health professionals are playing a significant role in addressing the prevailing psychiatric morbidity, specifically related to the COVID-19 related issues, and taking care of the HCWs.

**Key words:** COVID-19, mental health services, pandemic


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## INTRODUCTION

COVID-19 was declared as a pandemic on March 11, 2020, and within 2 weeks, the Government of India imposed a nationwide lockdown. COVID-19 pandemic and the lockdown affected various service sectors badly, with health-care services being one of the same. Immediately after the lockdown, the outpatient services were closed at many places, and the health-care services were limited to emergency services or those dedicated to patients with COVID-19 infection. At many places, some of the wards were converted to COVID-19 wards, and new COVID-19 hospitals were commissioned at other places. In addition, quarantine centers were made functional. Many health-care professionals were involved in managing the people and in contact tracing of cases.

All these have led to a reorganization of the health-care services with people from different specialties working together to address the COVID-19 pandemic. The COVID-19 wards and hospitals are being managed by multidisciplinary teams, in which people from different departments are looking after the various issues. These include administrative matters, issues related to the procurement of personal-protective equipment, contact tracing, increasing awareness of general public and health-care professionals about the COVID-19 infection, training of health-care workers (HCWs), and managing patients with COVID-19 disease.<sup>[1]</sup> Sudden reorganization of services and the formation of multidisciplinary teams are posing their challenges in the functioning and smooth running of the services. At places, mental health professionals are involved in some of these services, but the exact level of participation is unknown. Understanding the level of involvement of the mental health professionals can help in formulating policy at the level of a professional organization.

As with other specialties, the mental health services have also been badly impacted by the lockdown and the pandemic across the globe, and India is no exception. Data from different parts of the world suggest that in many countries the inpatient care has been severely hit, with a reduction in the number of patients in the inpatient setting, restriction in the admission of new patients, and reorganization of the existing inpatient services. Similarly, outpatient services have also been restricted to only a few patients, and patients requiring acute care are seen at the emergency services. Consultation-liaison psychiatry (CLP) services have also been curtailed; electroconvulsive therapy (ECT) and brain stimulation services (such as repetitive transcranial magnetic stimulation [rTMS] and transcranial direct stimulation [tDCS]) have also been affected.<sup>[2-5]</sup> The pandemic has also led to an increase in the number of patients visiting the emergency services, need to get the rapid COVID-19 test before psychiatric

hospitalization, reorganization of inpatient care, and services.<sup>[2]</sup> At many places, the CLP services have also adapted to the telecommunication, rather than continuing with the face-to-face contact, as a preventive measure to the spread of infection.<sup>[2-5]</sup>

In India, various medical colleges and central government-funded institutes provide psychiatric services to a large proportion of the patients. Further, response to the COVID-19 pandemic mainly involves government set-ups or institutional set-ups, it is important to understand the state of mental health services and the role of mental health professionals in these settings. In this background, this survey aimed at evaluating the impact of COVID-19 pandemic and the lockdown on the mental health services, the involvement of mental health professionals in the institutional response to the COVID-19 pandemic, kind of mental health problems encountered in people in quarantine and HCWs, problems encountered in running the mental health services and difficulties faced by the patients in getting the medications.

## MATERIALS AND METHODS

This survey was conducted under the aegis of the Research, Education, and Training Foundation subcommittee of the Indian Psychiatric Society (IPS) after obtaining necessary approval from the Ethics Committee of the Indian Psychiatry Society for Research.

As no specific questionnaire was available, a study specific questionnaire was designed to evaluate the impact of the pandemic on the various service areas, percentage reduction in the services after the lockdown, involvement of the mental health professionals in the COVID response at the institutional level, services provided to people in quarantine and those with COVID-19 infection, common type of mental health conditions encountered by the clinicians in different group of people, and problems faced while running the mental health services.

For this, a survey link was generated by using the Survey Monkey platform. The list of medical institutions providing MBBS courses was obtained from the website of Medical Council of India,<sup>[6]</sup> and the list of institutes providing Diplomate of National Board was generated. Based on the institutes' names, efforts were made to identify at least one faculty member from each institute. These faculty members were sent the survey link during the period of 1<sup>st</sup> to May 18<sup>th</sup>, 2020. Regular reminders were sent, and in case, even after repeated reminders, the response was not received, then the survey was sent to additional faculty members from the particular institute. Faculty members were identified for some of the institutes, and they were sent the survey link using the WhatsApp.



## RESULTS

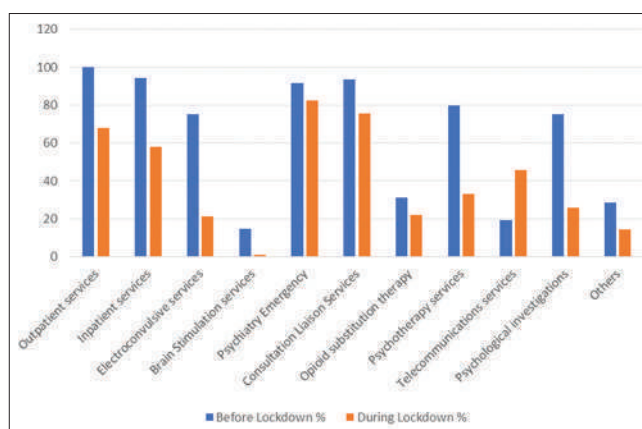
Valid information was received from 109 institutes, of which majority were state-funded government medical colleges ( $n = 53$ ; 48.6%), and this was followed by the private medical colleges ( $n = 30$ ; 27.5%), central government-funded institutes ( $n = 19$ ; 17.4%) and others ( $n = 7$ ; 6.4%). Out of the 109 institutes, 12 (11.0%) were mental hospital setting, and the majority were general hospital psychiatry units (GHPUs) (89.0%). The majority of the responders were working at the level of professors ( $n = 47$ ; 42.9%), and 50 (45.9%) responders were head of the department.

As is evident from Table 1, >90% of the institutes were providing outpatient services, inpatient services, CLP services, and psychiatry emergency services (PES) before the pandemic and the lockdown. However, with the lockdown, there was a significant reduction in the institutes continuing with ECT, inpatient services, outpatient services, and psychotherapy services. However, at the majority of the places, the CLP and PES services were continued. However, the telecommunication (telemedicine/telepsychiatry) services showed expansion, in the form of starting of services, in about one-fourth of the institutes [Table 1 and Figure 1].

However, although some of the services were continued, the brain stimulation (such as rTMS and tDCS) services have entirely shut down, and there was a significant reduction

in number of patients started on ECT. Other service areas were also significantly affected [Table 2 and Figure 2].

In terms of involvement of mental health professionals in COVID-19 response at the institutional level, in about four-fifth (79.8%) of the institutes, mental health professionals were involved at different levels in the COVID-19 reaction of the institute. The most common level of involvement was at the level of providing helpline services to the general public. This was followed by screening people in quarantine for mental health issues, providing clinical care to COVID-19 patients, screening



**Figure 1:** Impact of lockdown and pandemic on the mental health services

**Table 1: Impact of lockdown and pandemic on the mental health services**

Variable	Frequency (%)	
	Services provided before lockdown	Services continued during the lockdown
Outpatient services (OPD)	109 (100.0)	74 (67.9)
Inpatient services (IPD)	103 (94.5)	63 (57.8)
ECT services (ECT)	82 (75.2)	23 (21.1)
BSS (rTMS, tDCS)	16 (14.7)	1 (0.9)
Psychiatry emergency services (EMG)	100 (91.7)	90 (82.6)
Psychiatry CL services	102 (93.6)	82 (75.6)
OST services	34 (31.2)	24 (22.0)
Psychotherapy services (PSYT)	87 (79.8)	36 (33.0)
Telecommunication (telemedicine/telepsychiatry) services (TELE)	21 (19.3)	50 (45.9)
Psychological investigations (PSYCHOL)	82 (75.2)	28 (25.7)
Other Services	31 (28.4)	16 (14.3)

ECT – Electroconvulsive therapy; OPD – Outpatient department; IPD – Inpatient department; BSS – Brain stimulation services; tDCS – Transcranial direct stimulation; rTMS – Repetitive transcranial magnetic stimulation; CL – Consultation-liaison; OST – Opioid substitution therapy

**Table 2: Percentage reduction in the mental health services compared to the prelockdown prior at different centers**

Variable	Mean (SD) (n=109)	Mean (SD) <sup>@</sup>
Percentage reduction in the number of patients admitted to your ward	77.2 (17.7)	74.6 (15.4)
Percentage reduction in the number of patients initiated on ECT	91.9 (17.6)	74.1 (24.2)
Percentage reduction in the number of patients initiated on brain stimulation treatments	100	100
Percentage reduction in the number of patients started on opioid substitution therapy	57.9 (37.2)	40.0 (30.6)
Percentage reduction in the number of patients seen in the emergency services	66.3 (25.6)	57.1 (23.9)
Percentage reduction in the number of patients seen in the outpatient services	75.7 (20.1)	66.6 (16.2)
Percentage reduction in the number of patients seen in the consultation-liaison psychiatry services	70.1 (23.2)	66.9 (22.1)

<sup>@</sup>The percentage refers to the number of places, where these services were continued, i.e., centers where these services have not closed down completely. SD – Standard deviation; ECT – Electroconvulsive therapy

HCWs for mental health issues, and training the HCWs for behavioral change required while being on duty in the COVID-19 ward [Table 3].

When asked explicitly about the modality of providing services, mental health services were being provided to people in quarantine and those with COVID-19 infection, mainly by telecommunication modes, with either the voice calls or video calls. However, in about half of the institutes, the mental health professionals were asked to provide services in-person [Table 4].

The mental health problems encountered in different group of people, it was seen that the predominant problems encountered were categorized as anxiety, and this was followed by insomnia, depression, boredom, and stigma in people in quarantine and among the HCWs in quarantine or on duty in the COVID-19 wards [Table 5].

When asked about the problems faced in running the mental health services, the most common issues pointed out were the modification of psychological

treatments to suit the teleconsultations (60.6%) and change required for psychological therapies to maintain social distancing (51.4%). Other issues identified included problems faced in managing staff (29.4%), lack of empathy with the patients (20.2%), poor rapport (41.3%), difficulty in diagnosing the problems (25.7%), legal issues (22%), and other issues (17.4%).

In terms of research, at more than half of the institutes' ( $n = 55$ ; 50.5%), mental health professionals were involved in carrying out research related to COVID-19 infection, and the Institutional Ethical Committee was functional in less than half of the institutes ( $n = 49$ ; 45.0%).

In terms of problems faced by the patients in procuring the medications, it was noted that more than half of the patients were facing challenges in purchasing benzodiazepines. This was followed by difficulty in obtaining antipsychotics, antidepressants, mood stabilizers, and stimulant medications [Table 6].

When asked about overall satisfaction with the mental health services being catered, the participants rated their level of satisfaction as 46.6% (standard deviation: 27.6).

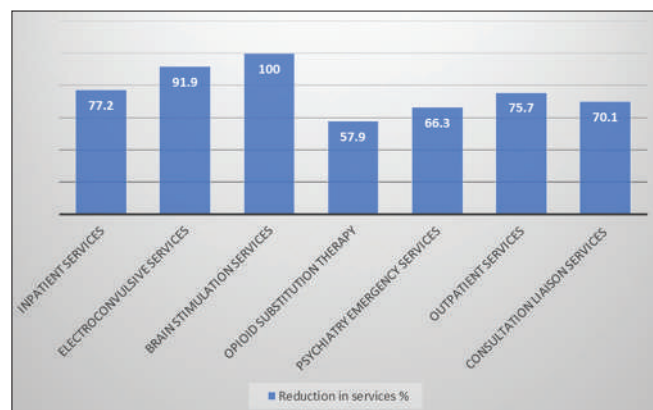


Figure 2: Percentage reduction in various services

## DISCUSSION

The present survey involved a collection of information from 109 teaching institutes across the country. At present, about 300 institutes are involved in psychiatry training in the country. Considering this, the level of participation was about one-third. Overall, it is estimated that there are 542 medical institutes in the country;<sup>[6]</sup> however, all the institutes do not have psychiatry residency training. If one takes this figure of 542 into account, the response rate was 19.2%. If one compares the level of response, with that seen in a previous survey, which evaluated the state of CLP

Table 3: Involvement of mental health professionals in COVID-response at the institutional level

Variables	Frequency (%)			
	Yes	No	Not aware	No response
Does your hospital has a COVID-19 ward, or has it been converted into a COVID-19 hospital	87 (79.8)	22 (20.2)	-	-
Not applicable – mental hospitals	20 (18.3)	15 (13.8)	1 (0.9)	73 (67.0)
Administrative roles	56 (51.4)	21 (19.3)	2 (1.8)	30 (27.5)
Policy making	32 (29.4)	36 (33.0)	3 (2.8)	38 (34.9)
Training the HCWs for using PPEs	30 (27.5)	42 (38.5)	3 (2.8)	34 (31.2)
Training the HCWs for behavioral change required while being on the COVID-19 ward	63 (57.8)	22 (20.2)	1 (0.9)	23 (21.1)
Providing clinical medical care (as part of a medical team) to COVID-19 patients	67 (61.5)	20 (18.3)	1 (0.9)	21 (19.3)
Screening and managing mental health issues among the HCWs	66 (60.6)	20 (18.3)	3 (2.8)	20 (18.3)
Preparing The HCWs for COVID-19 area duties	42 (38.5)	33 (30.3)	3 (2.8)	31 (28.4)
Screening and managing mental health issues among the persons in quarantine	72 (66.1)	21 (19.3)	3 (2.8)	13 (11.9)
Screening and managing mental health issues among patients with COVID-19 patients	65 (59.6)	24 (22.0)	2 (1.8)	18 (16.5)
Screening and managing mental health issues among the family members of patients with COVID-19 and those in quarantine	44 (40.4)	34 (31.2)	5 (4.6)	26 (23.9)
Providing helpline service to the general public	78 (71.6)	14 (12.8)	1 (0.9)	16 (14.7)
Publicity and mass media campaign	50 (45.9)	29 (26.6)	6 (5.5)	24 (22.0)

HCW – Health care workers, PPEs – Personal protective equipment

services in the country,<sup>[7]</sup> it can be said that the response rate was higher for this survey.

The present study suggests that lockdown led to the marked disruption of services, involving brain stimulation, ECT, inpatient services, outpatient services, and psychotherapy services. However, at the majority of the places, the CLP and PES services were continued. Further, it is essential to note that, even though the services were continued, overall, there was a marked reduction in the proportion of patients seen in different institutes. This disruption of services is in line with the data emerging from other countries.<sup>[2-5,8,9]</sup> However, data which have come from these countries are limited to particular institutes or area. In contrast, to this, data of this survey provides valuable insight into the whole country.

This high level of disruption in the outpatient and other mental health services across the country is understandable considering the restriction in movement due to lockdown, fear of getting infected, and concern in the mind of mental health professionals for seeing patients without proper PPEs. Disruption of the inpatient services can be understood from the perspective of the fact that in most

places, inpatient care in these institutes is provided through the GHPUs, which have open wards. In the wake of the COVID-19 epidemic, it is difficult to control the movement of patients, caregivers, and other visitors. Some of the emerging data from China suggest that people with severe mental disorders are at higher risk of developing COVID-19 infection.<sup>[9]</sup> These factors have possibly contributed to the closure of inpatient units at various places. A brain stimulation therapy requires direct contact of the machine with the patient's body and the use of the same machine in different patients will require sanitization of the machine and other equipment. This possibly explains the closure of these services in most places. ECT despite involving general anesthesia and some level of aerosol generation has been continued at few places.

This high level of disruption of mental health services, when the general level of psychological distress in the general population has possibly increased,<sup>[10,11]</sup> suggests that many people in need of mental health services are left to their resources or the resources of their family members. This high level of disruption of mental health services can lead to an increase in agitation, violence, and suicidal behavior due to a lack of proper and adequate treatment. These are reports of suicide attempts being made by people experiencing substance withdrawal.<sup>[12,13]</sup> These factors suggest that, after the lockdown, when the mobility is going to increase, the mental health care set-ups may be flooded with cases, and the setups need to prepare themselves to take care of these patients. People working in the different institutions and the IPS as a professional organization should come up with certain guiding principles to cater to the needy patients.

One positive aspect of restriction of the movement and the fear of infection is the expansion of the telecommunication (telemedicine/telepsychiatry) services, in the form of starting of these services, in about one-fourth

**Table 4: Services provided to the patients with COVID-19 or those in quarantine and with COVID-19 infection**

Variables	Frequency (%)
Not aware	7 (6.4)
No mental health services being provided at my institute	14 (12.8)
Mental health professionals are providing or are expected to provide services in person	57 (52.3)
Mental health professionals are providing services through telephonic voice calls	62 (56.9)
Mental health professionals are providing services through video calls (Whatsapp, Skype, Wechat, etc.)	40 (36.7)
Others	8 (7.3)

**Table 5: Mental health problems encountered in people in quarantine and among health-care workers**

Variables	Frequency (%)		
	Non-HCWs in quarantine	HCWs in quarantine	HCWs on COVID-19 duty
Not applicable	22 (20.2)	24 (22.0)	36 (33.0)
Anxiety	84 (77.1)	71 (65.1)	59 (54.1)
Depression	59 (54.1)	40 (36.7)	41 (37.6)
Anger	41 (37.6)	32 (29.4)	32 (29.4)
Irritability	63 (57.8)	46 (42.2)	42 (38.5)
Insomnia	71 (65.1)	55 (50.5)	43 (39.4)
Fatigue	23 (21.1)	32 (29.4)	28 (25.7)
Guilt	15 (13.8)	14 (12.8)	19 (17.4)
Perception of stigma and discrimination	51 (46.8)	34 (31.2)	37 (33.9)
Boredom	63 (57.8)	42 (38.5)	23 (21.1)
Fear of death	48 (44.0)	32 (29.4)	39 (35.8)
Substance withdrawal and craving	31 (28.4)	9 (8.3)	11 (10.1)
Worries related to family members	63 (57.8)	49 (45.0)	47 (43.1)
Dissatisfaction with the services	33 (30.3)	27 (24.8)	23 (21.1)
Other (please specify)	4 (3.7)	7 (6.4)	8 (7.3)

HCW – Health-care workers

**Table 6: Problems faced by the patients in procuring medications**

Variables	Frequency (%)
Not able to get the required antidepressants	42 (38.5)
Not able to get the required antipsychotics	45 (41.3)
Not able to get the required mood stabilizers	35 (32.1)
Not able to get the required benzodiazepines	62 (56.9)
Not able to get the required cognitive enhancers	20 (18.3)
Not able to get the required opioid substitution therapy	28 (25.7)
Not able to get the required stimulants	35 (32.1)
Other (please specify)	34 (31.2)
Availability is not a problem	27 (24.8)
Injectables not available	3 (2.8)
Affordability is an issue	2 (1.8)
Rural area people are facing problems	2 (1.8)

of the institutes. This has possibly been fuelled by the need for such services, in the absence of routine outpatient services, need to provide services by avoiding in-person contact, the convenience of use, and recent telemedicine guidelines from the Government of India. Further, these services are also being used for providing mental health services to people in quarantine and those with COVID-19 infection. Expansion of these services has possibly brought some respite to the needy patients and their family members.

When looks at the findings of this survey regarding the involvement of mental health professionals in the COVID-19 response at the institutional level, it is evident that mental health professionals are contributing to the COVID-19 response. The involvement of mental health professionals in providing helpline services to the general public, screening people in quarantine for mental health issues, providing clinical care to COVID-19 patients, screening HCWs for mental health issues, and training the HCWs at most places suggest active involvement of the profession. However, lack of such a role across all the institutes suggests that there is a need to increase the awareness among the administrators and the policy makers about the mental health issues arising out of the pandemic. Another important aspect in which mental health professionals were involved in only 50% institutes were the administrative roles and involvement in policy-making in only about one-fourth of the institutes.

Usually, mental health is often neglected, and the majority of the resources are directed to addressing the physical health issues. The mental health professionals should also look at the pandemic as an opportunity to emphasize the fact that there is “no health without mental health.” The mental health professionals and professional organizations like IPS can come up with suggestions, like, although COVID-19 infection *per se* has not affected everyone’s physical health and if at all it affects everyone, everyone is not going to have severe symptoms to require intensive care unit care; but COVID-19 pandemic and the lockdown is affecting the mental health of everyone and hence, the

mental health issues of the general public, HCWs, people in quarantine, people with COVID-19 infection and those who have recovered from COVID-19 infection require proper attention. The mental health professionals should actively get involved in emphasizing this fact, rather than waiting for being called for their services. In terms of administrative and policy-making role, the mental health professionals should take the initiative to emphasize the fact that our specialty is unique from the perspective of not only handling the clinical issues but also can contribute significantly in understanding the psyche of the general public and those suffering from the infection; additionally, mental health professionals can contribute significantly to the conflict and crisis resolution, which is seen at many places due to involvement of people from multiple disciplines, who are usually not accustomed to working with each other.

Another important aspect that comes out of this survey is the high prevalence of insomnia, anxiety, and depression in people in quarantine and HCWs. In addition, other important mental health issues emerging during the lockdown and pandemic include stigma, fear of death, boredom, and irritability. This fact suggests that mental health professionals have to address these clinical and psychosocial issues effectively. However, in dealing with these issues, it is becoming apparent that these emotional factors are manifesting in a slightly different way than the way the mental health professionals are used to seeing in their routine clinics. In many of the sufferers, these are mild and possibly require more psychosocial support, rather than the use of medications.<sup>[14]</sup> Accordingly, there is a need to develop interventions to address these mild mental health issues by developing manuals for psychological aid and providing services in a step cared manner, so that psychiatrists are involved in managing the severe end of the spectrum and those with mild symptoms are managed by those with a limited level of training. Mental health professionals need to suitably modify and utilize commonly used interventions such as activity scheduling, behavioral activation, anger management, relaxation techniques, yoga, etc., to address some of these mental health issues.

This survey also shows that the use of telecommunications services in clinical care is also coming up with problems such as issues related to empathy, rapport, making appropriate diagnoses, and specific legal issues. These findings suggest the need for continuing medical education programs and research this area to understand the best techniques to overcome some of these limitations of the technology and to understand the legal issues.

In terms of problems faced by the patients in getting the medications, the present study reflects issues in getting different classes of drugs. Accordingly, this issue should be taken up by the IPS and other professional organizations

with the government to facilitate, proper availability of the medications to the patients to avoid relapse of symptoms.

This survey has certain limitations. Although people from different institutes across the country participated in this research, still the participation was low. The assessment of the functioning of mental health services and the role played by the mental health professionals in the pandemic may be limited by the assessment questionnaire, and many other aspects may not have been covered. The assessment of the expansion of telecommunications services was cursory, and this survey did not detail the exact modalities, quality of services, perception, and satisfaction of the mental health professionals and the patients about the teleservices. Similarly, the disorders reported in HCWs and persons in quarantine were based on recall and not on review of exact data.

## CONCLUSIONS

To conclude, this survey suggests that the COVID-19 pandemic and lockdown have led to the collapse of regular mental health services to a large extent. However, there is an expansion of telemedicine services in the country. The present survey also suggests that mental health professionals have not been assigned/have not taken up different roles that they can take up in the wake of COVID-19 pandemic to emphasize that there is “no health without mental health.” Further, this survey also suggests that mental health professionals have to play a major role in addressing the prevailing psychiatric morbidity, specifically related to the COVID-19 related issues, take care of the HCWs and act as advocates for their patients in terms of availability of proper psychotropic medications.

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## Conflicts of interest

There are no conflicts of interest.

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## Impact of COVID-19 pandemic and lockdown on the state of mental health services in the private sector in India

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### ABSTRACT

**Background:** No information is available about the impact of lockdown and COVID-19 pandemic on the mental health services in the private practice in India.

**Aim:** The current study is aimed to assess the impact of the COVID-19 pandemic and lockdown on the state of Mental Health Services in the Private Sector in India.

**Materials and Methods:** An online survey was carried out using the Survey Monkey platform during the period of 1<sup>st</sup> to 15<sup>th</sup> May 2020 among the members of the Indian Psychiatric Society.


**Results:** Three hundred and ninety six responses were analysed. There was a reduction in revenue generation by about 70%. All kinds of services, including outpatient services, inpatient services, psychotherapy services, consultation-liaison, and electroconvulsive therapy (ECT) services, were severely affected. One-third of the participants were using the teleservices during the pandemic. The most common problem faced in running the services included modifying the psychological treatment to maintain social distancing, and managing the staff. Besides providing clinical care to the patients, the majority of the mental health professionals reported that they were involved in increasing awareness about the mental health consequences of pandemic and the lockdown and addressing myths related to the spread of infection.

**Conclusion:** The pandemic and the lockdown have markedly impacted mental health services in the private sector. ECT services, inpatient services, psychotherapy services and outpatient services are the most affected. However, the COVID-19 pandemic and lockdown have led to the expansion of teleconsultation services.

**Key words:** COVID-19, lockdown, mental health services, pandemic, private sector

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## INTRODUCTION

The COVID-19 pandemic has led to a significant negative impact on the provision of mental health services globally. Available data from China suggest that during the COVID-19 pandemic patients with psychiatric ailments faced more barriers and problems, compared to patients in other departments.<sup>[1]</sup> It is also suggested that patients with psychiatric ailments are more vulnerable to COVID-19 contamination, even in relatively isolated places.<sup>[1]</sup> Data from Wuhan Mental Health Centre suggested that about 50 patients with psychiatric disorders and 30 medical staff developed COVID-19 infection. It is also documented that many psychiatric hospitals refused to take new inpatients.<sup>[1]</sup> Similarly, data from the United States suggest that pandemic has had a significant impact on access to care, quality of care provided, and modality of delivery of care. It is reported that continuity of care in a different environment had been maintained, at the cost of bypassing the legal provisions and privacy rules.<sup>[2]</sup> In some countries like Italy, the mental health services were also compromised initially, with some of the psychiatry inpatient facilities being converted to COVID intensive or subintensive units.<sup>[3]</sup>

It is also reported that psychiatric outpatient services have evolved and have incorporated various teleservices or virtual services to provide mental health care.<sup>[2]</sup> Data from other countries such as Australia, Italy, etc., also suggest the expansion of remote location teleservices for providing mental health-care services.<sup>[4]</sup> However, the teleservices have not been universally accepted, and some patients have expressed that they still would prefer in-person consultations,<sup>[2]</sup> whereas, at other places, patients have been reported to accept the telephone consultation, given the fear of getting infected.<sup>[4]</sup> Many new patients are apprehensive of starting medications just based on teleconsultation.<sup>[2]</sup> In other countries like Italy, telephonic reviews are encouraged, and outpatients' services have been restricted.<sup>[3]</sup> Data also suggest that patients on psychiatric treatments are facing challenges such as difficulty in getting the medications and difficulty in getting the necessary investigations done to continue the psychotropics.<sup>[2]</sup>

The pandemic has also brought forth the need to change in the functioning of psychiatry inpatient facilities.<sup>[5]</sup> In countries like Italy, for the inpatient setting, various recommendations have been made in the form of a reduction in staff on duty, providing information and training the inpatients about the symptoms of COVID-19 and hygiene measures, maintaining constant vigil to prevent the spread of infection, suspension of group activities in the ward, revision of discharge mechanism to minimize the contact of old patients with the new patients, develop isolation procedures in the ward, and online video-conferencing for all staff meeting activities.<sup>[3]</sup> At some places, such as Massachusetts, considering the increase in

the need for more inpatient care, the acute inpatient units have been opened to cater patients who have psychiatric ailments and have additionally got infected with COVID-19, which is medically not serious to the extent of admitting the person in infectious disease units.<sup>[2]</sup>

The pandemic has also brought forth many ethical challenges for mental health professionals. The issues which concern mental health professionals include personal protection, personal treatment needs in case they get infected, impact on others if they get infected, economic crisis, ethical issues for self and others, and training. The training of residents has also been compromised in the wake of the pandemic.<sup>[2]</sup> It is also possibly changing the ways of learning for the medical students and residents and has led to an opportunity to innovate.<sup>[2]</sup>

In India too, the lockdown was declared after about 2 weeks of the declaration of a pandemic. This led to the closure of the majority of the health-care services, especially in the private sector. Because of the sudden declaration of the lockdown, the patients with mental disorders are not able to seek consultations for their ailments. In addition, the pandemic has also led to severe psychological distress in the general public at large, and the need for mental health services has expanded.<sup>[6]</sup> Pandemic has also brought forth many myths, which are influencing the mental health, behavior, and practices of people at large.<sup>[7]</sup>

Although there are some data from various parts of the globe, little is understood about the impact of a pandemic on the mental health services in India. A previous survey showed that the pandemic has severely impacted the mental health services in the teaching institutes.<sup>[8]</sup> In India, a major proportion of the patients pay for their health care out of their pocket, and a significant proportion of the mental health care is catered by the private sector,<sup>[9]</sup> which includes people with single chamber outpatient practice, mental health inpatient setting owned by professionals, mental health services provided through the corporate hospitals or multispecialty hospitals. At some places the services are provided through the charitable organization. Most of these places work on the principle of charging the majority of the patients of the services utilized. Such kinds of private mental health services are in a way unique to India. In this background, this study aimed to evaluate the impact of lockdown and pandemic on the mental health services in the private sector, change in the practice of psychiatry, the role played by mental health professionals during the pandemic besides providing the routine clinical care, profile of patients and problems faced by the patients in procuring medications.

## MATERIALS AND METHODS

This study was carried out under the aegis of the Research, Education, and Training Foundation sub-committee of

the Indian Psychiatric Society. The study was approved by the Ethics Committee of the Indian Psychiatry Society for Research. This online survey was carried out by using the Survey Monkey platform during the period of 1<sup>st</sup> to 15<sup>th</sup> May 2020. Using the E-mail addresses from the directory of the Indian Psychiatric Society, E-mails were sent to all the members of the society with a valid E-mail address to respond to the survey. In addition, the link for the survey was also circulated by WhatsApp among the members of the society to complete the survey. Participation in the survey was voluntary and periodic reminders were sent to the members to complete the survey. The survey questionnaire was designed to keep the COVID-19 pandemic and the associated lockdown situation in mind.

## RESULTS

Out of the 6269 E-mail addresses to which the survey was sent, the survey bounced back for 822 (13.1%) E-mail addresses. Only about half ( $n = 3106$ ; 49.5%) of the peoples opened the survey and 2038 (32.5%) of the members did not open the mail. Out of the total 489 (7.8%) responses, 428 responses were received by E-mail links, and 61 responses were received by WhatsApp link. Out of these responses, 396 (81%) responses were found to be complete on most of the aspects and were considered for further analysis. The majority ( $n = 161$ ; 40.7%) of the participants were running their single-chamber outpatient clinic and this was followed by those working in corporate hospitals ( $n = 78$ ; 19.7%), those running their hospital with inpatient facility ( $n = 69$ ;

17.4%), those running their hospital with the only outpatient facility ( $n = 54$ ; 13.6%), and those working in other set-up formed 8.6% ( $n = 34$ ) of the total participants. The mean number of years of being in private practice (information provided by 351 participants) was 14.6 (standard deviation: 11.9) years.

As is evident from Table 1 and Figure 1, mental health services were significantly affected for all kinds of services, with the most affected being the outpatient services, psychotherapy services, consultation-liaison psychiatry services, inpatient services and electroconvulsive therapy (ECT) services. However, there was the expansion of the teleservices, with the use of the same almost doubled during the lockdown period.

When specifically the proportionate reduction in particular services was evaluated, ECT services were the most affected with nearly 90.7% reduction in initiation of ECT, this was followed by a reduction in the number of patients admitted to the inpatient reduced by 76.7% [Table 2 and Figure 2]. When a similar analysis was done for places where the services were still running, it was evident that at these places too, there was a significant reduction [Table 2]. Overall, there was about 70% of the revenue generated by psychiatrists [Table 2].

In terms of modalities used for providing the services during the lockdown period, only two-fifth (42.7%) were running the regular outpatient services, and only one-fifth (18.7%)

**Table 1: Services provided before and during the lockdown period**

Variables	Before lockdown, n (%)	During the lockdown period
Outpatient services	396 (100.0)	233 (58.8)
Inpatient services	153 (38.6)	64 (16.2)
ECT services	122 (30.8)	31 (7.8)
Brain stimulation services (rTMS, tDCS)	36 (9.1)	12 (3.0)
Psychiatry emergency services	189 (47.7)	149 (37.6)
Psychiatry consultation-liaison services	256 (64.6)	110 (27.8)
Opioid substitution therapy services	68 (17.2)	27 (6.8)
Psychotherapy services	244 (61.6)	66 (16.7)
Telecommunication (telemedicine/telepsychiatry) services	104 (26.3)	206 (52.0)
Psychological investigations	164 (41.4)	27 (6.8)
Other (please specify)	32 (8.1)	44 (11.1)

ECT – Electroconvulsive therapy; rTMS – Repetitive transcranial magnetic stimulation, tDCS – Transcranial direct current stimulation

**Table 2: Impact of pandemic and lockdown on the specific services**

Variable	Mean (SD) (n=396)	Mean (SD) <sup>@</sup>
Percentage reduction in the patients that have been admitted in your inpatient facility	76.7 (28.9)	67.1 (22.2)
Percentage reduction in the patients that have been initiated on ECT	90.7 (10.8)	61.4 (34.4)
Percentage reduction in the patients that have been initiated on brain stimulation treatments, after the declaration of Lockdown	63.8 (46.7)	63.2 (42.1)
Percentage reduction in the patients that have been started on oral substitution therapy	60.8 (39.3)	41.6 (31.6)
Percentage reduction in the patients that have been seen in Emergency	65.9 (27.7)	57.5 (25.3)
Percentage reduction in the patients that have been seen in the outpatient	71.6 (20.5)	65.4 (18.3)
Percentage reduction in providing consultation to the medically ill patients of your colleagues	68.3 (28.3)	65.5 (21.0)
Percentage reduction in monthly income	69.8 (23.9)	-

<sup>@</sup>The mean was calculated for places, where the services were still running. SD – Standard deviation; ECT – Electroconvulsive therapy



were providing consultation-liaison psychiatry services. In terms of providing teleservices, about one-third were using both voice and video calls, with some proportions being paid and some being free of cost. Overall, about one-third of the mental health professionals were providing services free of charge. In terms of professional satisfaction, the participants rated their satisfaction with a mean figure of 45.8% [Table 3].

In terms of challenges faced in running the practice, in case the participants were seeing patients, either in person or through the teleconsultations, the most common problem identified was a reduction in revenue collection ( $n = 234$ ; 59.1%), and this was followed by the need for modifying the psychological treatments to suit the teleconsultations ( $n = 206$ ; 52%), modifying the psychological treatments to maintain social distancing ( $n = 173$ ; 43.7%), and managing the staff ( $n = 185$ ; 46.7%). Other factors,

**Table 3: Modalities of providing mental health services during the lockdown period**

Variables	Frequency (%)
Total shut down	25 (6.3)
Only voice calls (free of charge)	108 (27.3)
Only voice calls (paid services)	12 (3.0)
Only voice calls (a combination of free and paid services)	31 (7.8)
Only video calls (free of charge)	11 (2.8)
Only video calls (paid services)	13 (3.3)
Only video calls (a combination of free and paid services)	22 (5.6)
Both voice and video calls (free of charge)	61 (15.4)
Both voice and video calls (paid services)	26 (6.6)
Both voice and video calls (a combination of free and paid services)	132 (33.3)
Regular outpatient services	169 (42.7)
Regular consultations to medically ill patients	72 (18.7)
How much are you satisfied with the kind of services which you are currently providing to your patients (Likert score 0-100)	45.8 (28.6)

which were identified by about one-fourth of the people, included lack of empathy ( $n = 61$ ; 15.4%), probable legal issues ( $n = 106$ ; 26.8%), and difficulty in diagnosing the problems ( $n = 96$ ; 26.8%), while providing care through teleconsultations.

In terms of problems being encountered by the patients, more than half of the participants reported that patients were having difficulty in purchasing benzodiazepines ( $n = 222$ ; 56.1%), and this was followed by difficulties associated with the purchase of antipsychotics ( $n = 174$ ; 43.9%), antidepressants ( $n = 146$ ; 36.9%), mood stabilizers ( $n = 126$ ; 31.8%), stimulants ( $n = 110$ ; 27.8%), and opioid substitution therapy ( $n = 84$ ; 21.2%) and other medications ( $n = 91$ ; 23%).

In terms of mental health professionals providing services to people in quarantine and health-care workers (HCWs), it was seen that the most common problem encountered among people in quarantine, who were non-HCWs, HCWs in quarantine, and HCWs working with people with COVID-19 infection, was anxiety, and this was followed by insomnia, depression, irritability, boredom, and fear of death. Overall these symptoms were more often in people in quarantine who were not HCWs, followed by HCWs in quarantine and those on duty working with COVID-19 patients [Table 4].

When the participants were asked to describe their role as a mental health professional, in response to the pandemic and the lockdown, besides their routine clinical care, about three-fourth of the professionals reported involvement in increasing awareness about the mental health consequences of the pandemic and the lockdown and about half were providing free teleconsultation to the general public, free of cost. About two-third were also involved in providing free teleconsultations to their patients and about two-fifth of them donated funds for the government response to

**Table 4: Mental health problems encountered in people in quarantine and health-care workers**

Variables	Frequency (%)		
	People in quarantine (non-HCWs)	People in quarantine (HCWs)	HCWs working with patients with COVID-19 infection
Not applicable	127 (32.1)	141 (35.6)	198 (50.0)
Anxiety	243 (61.4)	204 (51.5)	134 (33.8)
Depression	176 (44.4)	136 (34.3)	102 (25.8)
Anger	119 (30.1)	92 (23.2)	69 (17.4)
Irritability	170 (42.9)	138 (34.8)	84 (21.2)
Insomnia	195 (49.2)	149 (37.6)	98 (24.7)
Fatigue	79 (19.9)	91 (23.0)	58 (14.6)
Guilt	46 (11.6)	54 (13.6)	41 (10.4)
Perception of stigma and discrimination	130 (32.8)	98 (24.7)	74 (18.7)
Boredom	167 (42.2)	90 (22.7)	46 (11.6)
Fear of death	150 (37.9)	102 (25.8)	90 (22.7)
Substance withdrawal and craving	119 (30.1)	39 (9.8)	24 (6.1)
Worries related to family members	184 (46.5)	153 (38.6)	99 (25.0)
Dissatisfaction with the services	83 (21.0)	79 (19.9)	53 (13.4)
Other (please specify)	13 (3.3)	11 (2.8)	9 (2.3)

HCWs – Health-care workers

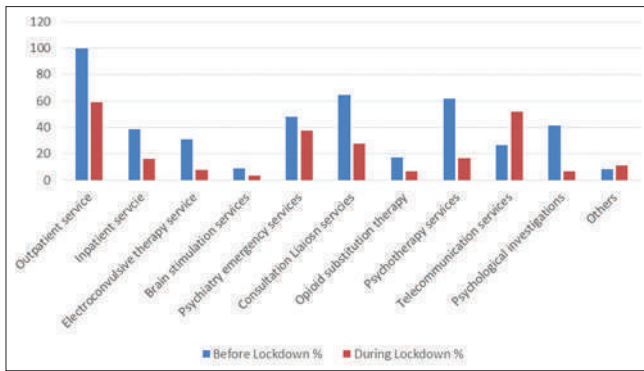


Figure 1: Services provided before and during lockdown

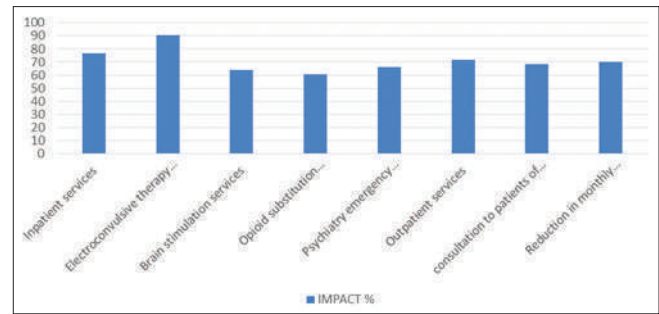


Figure 2: Impact of pandemic and lockdown on the specific service

Variables	Frequency (%)
Increasing awareness about the mental health consequences of the pandemic and the lockdown	295 (74.5)
Addressing the myths about the pandemic and the Lockdown	208 (52.5)
Providing free Tele-consultation to the general public	186 (47.0)
Providing free Tele-consultation to your patients	269 (67.9)
Donated funds for the Governmental response to the pandemic	166 (41.9)
Others	
Awareness through social sites/WhatsApp/you tubes/ media	21 (5.3)
Social activities like distributing food, drugs, money, etc.	34 (8.6)
Research and webinar activities	11 (2.8)

the pandemic. About half reported indulging in addressing the myths related to the pandemic and the lockdown and involved in providing free teleconsultations to the general public. A small proportion of the participants also reported that they were involved in increasing mental health awareness through social sites, involved in social activities, research, and conducting webinars [Table 5].

**DISCUSSION**

This survey aimed to evaluate the impact of a pandemic on the mental health services in the private sector in India. The findings of this survey reflect that the COVID-19 pandemic and the lockdown has led to significant compromise in providing mental health-care services to the general public at large. All kind of mental health services have got affected, but the services which have been most affected were the ECT services, inpatient services, and outpatient services. Further, at places where these services were continued, there was a significant reduction in the quantum of services provided. Although it can be said that the outpatient services have been somewhat replaced or compensated by the expansion of the teleservices, but these can be said to be at the early phase of expansion. The high level of compromise with the outpatient services suggests that a large proportion of the patients with various mental health

problems are left to their resources and to the resources of their families in dealing with mental health problems.

The impact of the lockdown on the outpatient services is understandable considering the desired restriction in the morbidity, possible fear of getting infected in the mind of the patients, and also the mental health professionals. This level of compromise in the outpatient, inpatient, emergency services, consultation-liaison psychiatry services, ECT services, brain stimulation services suggests that mental health services have been badly hit by the lockdown. This also reflected by about 70% reductions in the revenue generated by mental health professionals. This finding is supported by the reports from the United States, which also suggests the COVID-19 pandemic has resulted in an economic crisis as an outcome for mental health professionals.<sup>[2]</sup> A survey from India, conducted among the ophthalmologists during the mid-April 2020, also suggests that lockdown and pandemic has led to financial difficulties, with slightly more than one-third (37%) reporting difficulty in meeting their living expenses.<sup>[10]</sup>

Although it is not clear from this survey, it is quite likely that this high level of disruption of mental health services has been mainly due to travel restrictions, rather than mental health professionals not making themselves available for the services.

In terms of governmental response to the COVID-19 pandemic, somehow, the mental health component is grossly missing except for mass media messages to stay back at home, maintain social distancing, use of masks and sanitizers, and recognizing signs and symptoms of COVID-19 infection. However, the COVID-19 pandemic and the associated lockdown is possibly associated with psychological issues, which are over and above the baseline prevalence reported in the general population.<sup>[6]</sup> There are mental health concerns of the general public at large, health-care workers, people in quarantine, those infected with COVID-19 infection, and those who have recovered from COVID-19 infection.<sup>[11]</sup> All these suggest that there is a need to reorganize the services to maintain the continuity of services and to expand the services to address the emergent mental health issues due to the pandemic.<sup>[12]</sup>

One such reorganization of the services has already begun, with the expansion of the teleconsultations, through voice calls and teleconferencing. The timely releases of telemedicine guidelines<sup>[13]</sup> have facilitated the same. However, as is evident from this survey, implementing of teleconsultation requires modifying the psychological treatments.

What can be learned from this experience is that in future, in such exigencies, the mental health services should be geared up to adapt to the emerging situation, and rather than closing the services, the services can be continued with the required modifications. It is true that possibly the teleconsultations cannot replace the in-person consultations, but in an exigency, clinicians should be prepared to adapt to more of teleconsultations, rather than continuing with the face to face consultations. For continuing with the in-person outpatient services, systems need to be developed to ensure the safety of the mental health professionals, all the other staff involved in managing the mental health set-ups, and also our patients.<sup>[12]</sup>

This survey has certain limitations. First, overall the participation rate was low. A stage sampling method could have led to the selection of a focused group of participants and a better response rate. However, this could be due to a lack of specific identification for those in private practice and those in institutional services. As a requirement of the survey, the participants were required to be in the private practice of some form. The impact on the mental health services as assessed by the survey was limited to the extent of coverage of the questionnaire, and some of the aspects may not have been covered.

## CONCLUSIONS

To conclude, the present survey suggests that the mental health services in the private sector have been markedly impacted by the lockdown and the pandemic. The services which have been most affected include ECT services,

inpatient services, and outpatient services. Overall, there is also a significant compromise in the revenue generated by the mental health professionals in private practice. However, the pandemic and the lockdown have led to the expansion of the teleconsultation services, which is possibly facilitated by the release of telemedicine guidelines by the Government of India.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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## Letter to the Editor

**Telephonic monitoring of patients on clozapine in the resource-poor setting during the COVID-19 pandemic**


Sir,

Patients of schizophrenia receiving clozapine require close clinical monitoring of their absolute neutrophil count (ANC), given the risk of neutropenia with clozapine. COVID-19 pandemic and the ensuing lockdown has come as a blow to the patients of schizophrenia, who have been receiving clozapine.

Treatment Response and Resistance in Psychosis (TRRIP) working group recently developed a consensus statement, which recommended that the frequency of monitoring of ANC can be reduced to once in 3 months, if the person has been receiving clozapine for more than one year and has never had an ANC of  $<2000/\mu\text{L}$  (or  $<1500/\mu\text{L}$  if a history of benign ethnic neutropenia is present) or the person has no safe or practical access to ANC testing (Siskind et al., 2020). For patients receiving clozapine for 6 to 12 months, the recommendation for monitoring of ANC needs to be decided on a case to case basis. Other recommendations include monitoring of the mental state by face to face interview or teleconsultation, and an urgent physician assessment in person or by teleconsultation along with the evaluation of ANC if the patient develops respiratory symptom (Siskind et al., 2020). While receiving clozapine, if the patient develops fever and symptoms of flu, the dose of clozapine should be reduced to about half to avoid clozapine toxicity and can be later optimized. Clozapine levels can be done, depending on availability (Siskind et al., 2020).

It is also known that acute infection, such as pneumonia can lead to clozapine toxicity, especially if the clozapine titration is done at a faster pace (Wu et al., 2019). Recent data also suggest that patients from Asia may require lower doses than used in Caucasians (de Leon et al., 2020a, 2020b).

In contrast, to the United States, where clozapine dispensing and blood monitoring is done through Risk Evaluation and Mitigation Strategy (REMS) (Leung et al., n.d.), no such strategy is available in India. The clinicians prescribing clozapine themselves have to monitor the ANC and titrate the doses of clozapine. In India, there are no national guidelines for monitoring of ANC for patients on clozapine.

It is also known that patients receiving clozapine are at increased risk of developing a respiratory infection (Wu et al., 2019).

With the COVID-19 pandemic resulting in the virtual closure of almost all the laboratory and outpatient services, it has become difficult to monitor the patients on clozapine in a major part of India. Since the lockdown, we initiated the telephonic services for the patients on clozapine to educate them about the symptoms of COVID-19, need for continuation of medications and monitoring of ANC, when to consult the treating doctor and when to contact the emergency services. Additionally, the patients and the caregivers were informed to send the ANC

reports telephonically to the treating doctor, so that the dose can be further increased or if the ANC is low, then the doses are withheld and repeat investigations are ordered.

In this background, during the subsequent follow-up, we evaluated the clinical status (both psychological and physical) of the patients on clozapine, monitoring of ANC, medication adherence, and satisfaction with the telephonic consultations. Additionally, we also evaluated the difficulty faced by the patient and families in getting the clozapine supply and difficulties in getting the ANC done. These evaluations were done by telephonic interview, during which the patient and families were also provided further information about the regular monitoring, and what to do if the patient develops symptoms of flu. We telephonically contacted, 227 patients of schizophrenia, out of whom we could reach out to 205 patients of schizophrenia, who were on clozapine, after about 6 weeks of lockdown and they were interviewed after obtaining verbal informed consent.

The mean age of the study participants was 33.7 (SD: 10.8) years, with a mean duration of education of 12.4 (SD: 3.7) years. The mean age of onset was 22.41 (SD: 8.5) years and the mean dose of clozapine use was 244.05 (SD: 107.2) mg/day. The majority of the participants were male (55.1%), currently single (70.3%), unemployed/homemakers (72.2%), belonging to the Hindu religion (71%), from nuclear families (74.6%), and urban background (74.1%). The mean duration of clozapine use was about 5 years (59.35: SD 56.02 months) at the time of assessment and 25 patients were receiving clozapine for less than one year, of whom 20 were on clozapine for  $<6$  months.

The majority of the patients reported that they were in touch with their treating doctor (81.5%), with contact initiated by the treating team in 79% of patients. The majority (75.5%) of the patients and their family members were satisfied to a large extent, for being able to remain in touch with the treating doctor. During the lockdown period, fortunately 96.6% of the patients were taking the clozapine according to the recommended doses, while others were taking less than the prescribed doses (3.3%) and one patient discontinued the medication. Only 8% of the patients experienced worsening of their symptoms. About one-fourth of the patients had difficulty in procuring clozapine, with clozapine not being available in their locality for 15.1% of cases and 3.4% have had to switch their brand of clozapine. Only one-fourth (24.4%) of the patients were able to get the ANC done in the previous month. Fortunately, the majority of the patients (97.6%) cooperated with their family in following the rules of the lockdown, with three-fourth of the patients (77.1%) of the patients remaining inside the house. In terms of other measures, hand hygiene measures were being followed by 60% of the patients, 50.7% of patients were using the face mask and 29.8% of patients were being able to follow social distancing. Although the majority of the patients and the caregivers were aware of fever (76.6%) and cough (75.6%) as the symptoms of COVID-19, only a small proportion of the patients and caregivers were aware of other symptoms, such as sore throat (23.9%) and other flu-like symptoms (37.6%). A small proportion (4.9%) of the patients had developed respiratory symptoms in the previous month and had to visit the emergency services (2%). Only 1 patient developed severe respiratory symptoms

and was diagnosed with pulmonary tuberculosis and 1 patient had a relapse of his symptoms requiring admission to the inpatient unit. During the period of lockdown, in 6 cases, who were started on clozapine 1 month before the lockdown, the doses of clozapine could be increased, with monitoring of ANC. This led to an improvement in the clinical status of the patients. None of our patients died during this period or developed symptoms of COVID-19 infection. None of the patients, those who had access to the laboratory and had the ANC done, developed blood dyscrasia.

Clinicians across the globe are facing the clinical dilemma, in that, on one hand the monitoring of ANC is relaxed, especially for patients who were receiving clozapine for more than one year and have no infection. On the other hand, patients on clozapine are at a higher risk of developing pneumonia and at a higher risk of death (de Leon et al., 2020a, 2020b). In the ongoing pandemic, if a patient develops pneumonia, a differential diagnosis of COVID-19 or other viral infections comes into the picture (Guan et al., 2020). Hence, clinicians are often unsure about how to go about monitoring their patients.

Our experience demonstrates that in a resource-poor setting, telephonic consultations, as recommended by the TRRIP working group (Siskind et al., 2020) could be an important resource to monitor patients receiving clozapine. Accordingly, clinicians in the resource-poor setting should monitor their patients on clozapine, by using telecommunication modalities, as it is predicted that the COVID-19 pandemic is going to continue for about 1 year (Mahase, 2020).

This teleconsultation model involving voice calls, use of messages to transmit the ANC, and other reports and prescriptions can continue beyond the pandemic and emerge as a cost-effective alternative or additional monitoring model to the routine hospital visits for monitoring. Accordingly, it can be said that the clinicians should take initiative in the resource-poor setting to contact their patients, educate them about the risks of neutropenia and other infection, in the ongoing pandemic.

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#### Contributors

SG: designing the study, collecting the resource material, writing the research proposal, coding the data, analysis of data, writing the draft of the paper, final approval of paper

EM: designing the study, writing the research proposal, analysis of data, writing the draft of the paper, final approval of paper

SC: designing the study, writing the research proposal, analysis of data, writing the draft of the paper, final approval of paper

AM: designing the study, writing the research proposal, analysis of data, writing the draft of the paper, final approval of paper

SS: designing the study, writing the research proposal, analysis of data, writing the draft of the paper, final approval of paper.

#### Declaration of competing interest

None.

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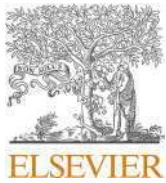
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# Schizophrenia Research

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Letter to the Editor

## Starting clozapine in patients with schizophrenia during the ongoing pandemic

### 1. Introduction

Clozapine is one of the most effective antipsychotics in patients with treatment resistant schizophrenia. However, during the ongoing pandemic some of the reports suggest that patients on clozapine have higher risk of COVID-19 infection (Govind et al., 2020), have drop in the neutrophil count with COVID-19 infection, which recovers to near normal with subsidence of infection (Bonaccorso et al., 2021). Some of the data also suggest that COVID-19 infection and associated pneumonia can lead to clozapine toxicity (Cranshaw and Harikumar, 2020).

On the other hand some of the consensus statements have emerged which suggest that for patients on clozapine for more than 1 year, the frequency of monitoring of absolute neutrophil count (ANC) can be reduced to every 3 months, if the patients does not have a history of ANC count going below 2000/ $\mu$ L (or <1500/ $\mu$ L if history of benign ethnic neutropenia) (Siskind et al., 2020). However, it is further recommended if the patients who are on clozapine experience symptoms of infection, urgent consultation with the physician and evaluation for ANC need to be considered. It is suggest that this assessment could be either done in person or by tele-health based on local protocols. The third recommendation suggest that if a person on clozapine develops COVID-19 infection or signs and symptoms of infection, dose of clozapine can be reduced to half to avoid clozapine toxicity (Siskind et al., 2020). Other authors have suggested that if a patient on clozapine presents with respiratory symptoms, it is better to get an urgent antigen test along with a full blood count, to distinguish between the side effects of clozapine and COVID-19 infection (Gee et al., 2020). With regard to continuation of clozapine in persons who develop COVID-19 infection, it is suggested that clozapine should be continued, wherever possible, and if required the dose should be reduced with monitoring of clozapine levels. Another suggestion which has been made includes use of vitamin-D in all patients on clozapine to protect them against the likelihood and severity of COVID-19 infection (Gee et al., 2020). Some of the studies have also shown safety of the extended haematological monitoring (Hata et al., 2021).

Although, lot has been discussed about, what is to be done for patients receiving clozapine, little information is available for starting of clozapine during the ongoing pandemic in patients requiring the same. Further, the recommendations suggest that the monitoring of patients who have been recently started on clozapine must be monitored as per the earlier recommended protocol (Siskind et al., 2020). One of the case series reported starting of clozapine in an elderly person, who had a exposure to a person with COVID-19 infection, and responded well to clozapine (Boland and Dratcu, 2020).

COVID-19 pandemic has led to reduction in physical contact with the patient and emergence of Telepsychiatry services across the globe. In India too, Government of India, notified the telemedicine practice

guidelines (Telemedicine Practice Guidelines, India, 2020), at the beginning of the pandemic and this has helped the needy patients in a big way. However, there are issues with regard to the prescription of certain medications which can be issued through tele-consultations. The medications which can be prescribed have been categorized into 4 categories: Category O, Category A, Category B, and prohibited list (Category C). Category O includes the over the counter medications, which can be prescribed during the first teleconsultation. The Category A includes medications which are relatively safe and have low potential for abuse and the oral antipsychotics which are categorized in this list includes olanzapine, risperidone, and haloperidol, etc. These can also be prescribed during the first/new consultation. The Category B drugs include 'add on drugs', which can be prescribed during the tele-follow up consultations. Category C includes the prohibited drugs which cannot be prescribed by the teleconsultations. Clozapine accordingly does not fall in the category O, A and B drugs and necessarily requires prescription only by physical consultation.

As is evident from the literature, efforts must be made to minimize the exposure of the patients on clozapine to reduce their chances of infection and appropriate monitoring must be done to detect neutropenia at the earliest. Hence, prescribing clozapine to patients in need has become difficult. In this series, we present the report of 17 patients who were started on clozapine, during the ongoing pandemic (from mid Jan 2020 onwards), and were monitored by a combination of lower number of inperson visits and intervening period of monitoring by telepsychiatry.

### 2. Case descriptions

Retrospective analysis of this data was approved by the Ethics Committee of the Institute. As is evident from the Table 1, all the patients were diagnosed with psychotic illnesses and were on treatment for long, and fulfilled the criteria for treatment resistant schizophrenia as given by Kane et al. (1988). During the ongoing pandemic, families were finding it difficult to manage them. These patients contacted the psychiatry telepsychiatry services or emergency services with acute symptoms. As it was not possible to start clozapine by teleconsultations, these patients were either admitted to the psychiatry inpatient setting or were called for physical consultation (in the emergency setting or the physical outpatient setting). The patients and the family members were explained about the need for treatment, treatment options including clozapine, need for haematological monitoring during the use of clozapine and need for regular follow-up with the services physically, and increased risk of COVID-19 infection while on clozapine. After obtaining informed consent, these patients were started on clozapine after the physical consultation. They were given clozapine prescription for 2–4 weeks, depending on the distance, and were asked to send the haemogram

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**Table 1**  
Profile of patients started on Clozapine.

Sl no	Age in years	Gender	Place of starting clozapine (inpatient/outpatient/emergency)	Date of starting clozapine	CGI-severity score at the time of starting clozapine	Clozapine dose achieved (in mg/day)	Concomitant medications	CGI-severity score at the time of last follow-up while on clozapine	CGI-improvement score at the time of last follow-up while on clozapine	Side effects encountered
1	30	M	Outpatient	18.1.2020	7	287.5	None	3	2	H
2	41	M	Outpatient	10.2.2020	6	125	None	3	2	C, H
3	33	M	Inpatient	10.2.2020	7	225	None	3	2	C, S, H,
4	28	M	Inpatient	11.2.2020	7	100	Valproate 750 mg Lorazepam 2 mg	3	2	C, S, H, T
5	37	M	Inpatient	11.2.2020	7	175	None	3	2	S, H
6	31	M	Inpatient	10.03.2020	6	200	Sertraline 100 mg	3	2	C, S, H, W
7	28	M	Inpatient	4.4.2020	7	200	Fluoxetine	3	2	S, H, W
8	22	F	Inpatient	8.4.2020	7	150	Escitalopram 20 mg Metoprolol 12.5 mg ECT	4	2	C, S, H, W, T
9	40	M	Inpatient	4.5.2020	7	250	ECT Olanzapine LAI	4	2	S, T
10	20	F	Emergency	12.6.2020	7	150	None	4	2	H
11	29	F	Outpatient	20.8.2020	6	200	None	3	2	S, W
12	29	M	Outpatient	8.9.2020	6	150	None	3	2	C, H
13	29	M	Inpatient	10.9.2020	7	337.5	Amitriptyline 25 mg Metoprolol 12.5 mg ECT Olanzapine LAI	4	3	S, C, T
14	19	M	Outpatient	26.9.2020	6	100	Fluoxetine 20 mg	4	2	S
15	23	M	Outpatient	16.11.2020	7	125	None	3	2	S, H
16	36	F	Outpatient	3.12.2020	6	175	None	3	2	S, H
17	22	F	Outpatient	27.1.21	6	100	None	3	2	S, H

C-Constitution; S-Sedation; H-Hypersalivation; T-Tachycardia; W-Weight gain; ECT-Electroconvulsive therapy; LAI: Long acting injectable; M- Male; F- Female.

reports on weekly basis by using the Whatsapp. The prescription for 2–4 weeks included charting of the clozapine doses for next 2–4 weeks in escalating doses, with a rider that the medicines could be increased only when the clinician approves the haemogram reports. Further, they were allowed to contact the clinicians telephonically at any time in case of the emergency. Patients started on clozapine as inpatients were initially monitored in the inpatient setting for 6 to 12 weeks and then the monitoring was continued at the outpatient basis, with a combination of in-person visits and Telepsychiatry consultations. This model led to successful use of clozapine in all these patients, with all experiencing significant improvement in their psychopathology (Table-1). None of our patient started on clozapine, did not develop COVID-19 infection, and all of them showed significant clinical improvement.

However, during the ongoing pandemic we could not start clozapine in few of the patients, who were not able to visit us at least once due to various reasons. Additionally, some of the patients/caregivers were judged by the clinicians that they would not be able to understand the prescription with respect to when and how to increase the dose of clozapine. Hence, clozapine was not started for such patients.

### 3. Discussion

The ongoing pandemic has led to difficulties in starting clozapine due to the absence of regular outpatient services and most of the consultations shifted to telepsychiatry or emergency setting. However, the telepsychiatry guideline does not allow starting of clozapine for the new tele-consultations (Telemedicine Practice Guidelines, India, 2020). Due to this many patients requiring clozapine could not be started on the same. This has been further complicated by the emerging reports of higher risk of COVID-19 infection in patients on clozapine (Govind et al., 2020). The emerging recommendations have suggested no change in the

haematological monitoring during the initial 6 months, with some disagreement between monitoring between 6 months to 1 year, and decrease in the frequency of monitoring of haemogram after 1 year (Siskind et al., 2020; Remington and Powell, 2020). This left the patients in lurch, who were started on clozapine, but with the emergence of pandemic, could not follow-up with the outpatient services like before.

In the past, traditionally clozapine, if started on outpatient basis required weekly visits of the patients to the outpatient services for haemogram monitoring. This could be a costly affair, as this involves traveling of the patient and the caregivers (Verma et al., 2021). Prior to pandemic, telepsychiatry monitoring had no legal mandate and any adverse outcome could lead to a legal consequence for the prescriber. However, with the emergences of telepsychiatry services, from our case series, it can be said that, now a combination of in-person and telepsychiatry consultation can help in reduction in number of visits to the hospital, without interfering with the monitoring of the haemogram. Possibly this can also improve the adherence to the haematological monitoring and possibly medication adherence too.

Further, our case series suggests that clozapine can be safely started in patients requiring the same, with close monitoring during the ongoing pandemic. Hence, the clinicians should not refrain from starting of clozapine in patients who require the same. However, while recommending clozapine, clinicians should psychoeducate the patients and caregivers about the haematological monitoring, the precautions to be taken to avoid COVID-19 infection and report to the clinicians at the earliest in case patient manifests any signs of respiratory infection or any other kind of infection. Based on our experience of safe use of clozapine during the ongoing pandemic and incorporation of telepsychiatry consultation in the monitoring of patients on clozapine, certain recommendations can be made for the clinical practice (Table 2). Following these recommendations even after the pandemic is over can help in

**Table 2**

Recommendations for starting clozapine and monitoring by telepsychiatry consultations.

1. Evaluate the patient for possible treatment resistant schizophrenia
2. Seek consent of the patient/caregiver for starting of clozapine
3. Inform the patient and the caregiver about the side effects of clozapine, including neutropenia/agranulocytopenia and need for haematological monitoring, possible increased risk of COVID-19 infection in patient on clozapine
4. Inform the patient and the caregiver about the need to visit the hospital at the time of starting clozapine and for few times during the initial few months of clozapine
5. Check the availability of smart phone or any other device, that can be used by the patient and family to send the haemogram reports to the clinician
6. Patient has access to a local laboratory to get the haemogram done
7. While prescribing clozapine and recommending the escalating doses for period of 2–4 weeks, the instructions should be clearly mentioned as to when to go the next level of clozapine dose (i.e., after the haemogram report has been approved by the clinician) and when to stop clozapine (as per the recommendation by the clinician)
8. Ensure that patient and family are able to understand how to taper off the ongoing medications
9. Patient and family be prepared to report to the hospital, if the clinicians desired them to come, in the emergence of any side effect requiring immediate clinical attention or patient has features of infection (including COVID-19 infection)
10. Patient and family are prepared to contact the clinician at the time of emergency

monitoring patients on clozapine with lower cost of treatment in developing countries and resource poor setting.

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#### Declaration of competing interest

All authors have no conflicts of interest to declare.

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ACCELERATED RESEARCH

## Psychological impact of COVID-19 lockdown: An online survey from India

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### ABSTRACT

**Background:** The COVID-19 pandemic has led to a complete shut-down of the entire world and almost all the countries are presently in a “lockdown” mode. While the lockdown strategy is an essential step to curb the exponential rise of COVID-19 cases, the impact of the same on mental health is not well known.

**Aim:** This study aimed to evaluate the psychological impact of lockdown due to COVID-19 pandemic on the general public with an objective to assess the prevalence of depression, anxiety, perceived stress, well-being, and other psychological issues.

**Materials and Methods:** It was an online survey conducted under the aegis of the Indian Psychiatry Society. Using the Survey Monkey platform, a survey link was circulated using the Whatsapp. The survey questionnaire included perceived stress scale, Patient Health Questionnaire-9, Generalized Anxiety Disorder-7, Warwick-Edinburgh Mental Well-being Scale to assess perceived stress, anxiety, depression, and mental well-being, respectively. The survey link was circulated starting from April 6, 2020 and was closed on April 24, 2020.


**Results:** During the survey, a total of 1871 responses were collected, of which 1685 (90.05%) responses were analyzed. About two-fifth (38.2%) had anxiety and 10.5% of the participants had depression. Overall, 40.5% of the participants

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had either anxiety or depression. Moderate level of stress was reported by about three-fourth (74.1%) of the participants and 71.7% reported poor well-being.

**Conclusions:** The present survey suggests that more than two-fifths of the people are experiencing common mental disorders, due to lockdown and the prevailing COVID-19 pandemic. This finding suggests that there is a need for expanding mental health services to everyone in the society during this pandemic situation.

**Key words:** Anxiety, COVID-19, Depression, Stress

## INTRODUCTION

One of the extreme challenges for survival is facing a pandemic of an infectious disease of the COVID-19 type.<sup>[1]</sup> The World Health Organization (WHO) declared COVID-19 as a pandemic on March 11, 2020 and as on March 24, 2020, more than 3.5 lakhs cases have been confirmed and more than 14,000 deaths have been reported, affecting 190 countries worldwide (WHO website dated March 24, 2020 at 21:00 pm Indian standard time)<sup>[2]</sup> and these figures have exponentially increased to about 27.19 lakhs cases with about 1.9 lakhs deaths in 1 month time (WHO website date April 25, 2020 at 05:30 pm Indian standard time).<sup>[3]</sup>

To tackle the rapid rise of cases in India and to curb the community spread, national level “lockdown” was declared starting from midnight of March 25, 2020 initially for 21 days, which was later extended up to May 3, 2020, with assurance that the basic needs of the general public will be taken care of.<sup>[4]</sup>

“Lockdown” is an emergency protocol that prevents public from moving from one area to the other. Complete lockdown further means that persons should stay where they are currently and no entry/exit movements would be allowed further. It can be both a preventive and an emergency strategy in order to save the lives of the vulnerable or at-risk persons. In this scenario, all educational institutions, shopping arcades, factories, offices, local markets, transport vehicles, airports, railways, metros, and buses are completely shut down except hospitals, police stations, emergency services like fire station, petrol pumps, etc., and groceries. In recent times, lockdown had been very well documented during September 9/11 attacks in New York (3 day lockdown) and during riots in several countries. As social distancing is an important public health solution to tackle the spread of COVID-19, many affected countries such as China, Italy, the United States, France, and Malaysia have also enforced lockdowns of public spaces effectively.<sup>[5,6]</sup>

While lockdown can be a significant and effective strategy of social distancing to tackle the increasing spread of the highly infectious COVID-19 virus, at the same time, it can have some degree of psychological impact on the

public. It is well known that quarantine/isolation for any cause and in the context of a pandemic (Severe Acute Respiratory distress Syndrome, 2003) has been associated with significant mental health problems ranging from anxiety, fear, depressive symptoms, sense of loneliness, sleep disturbances, anger, etc., in the immediate few days of isolation, and later with symptoms of posttraumatic stress disorder and depression after discharge from the hospital.<sup>[7]</sup> However, the psychological impact of lockdown on the general public has not been studied yet. Man being a social animal, such restrictions on free movements can lead to anger, frustration, loneliness and depressive symptoms. There can be fear/apprehension among the public related to supply of basic amenities like groceries and milk supplies, medicines, care of previously sick persons in the family due to other medical causes, elderly persons staying alone, restriction of free movements, having a prevailing sense of being imprisoned in one’s own house or “being in house arrest,” etc., Moreover, lockdown can lead to a “panic” mode of stockpiling of essential commodities without maintaining social distancing as advised by the government.<sup>[8]</sup>

Lockdown can have different effects on different age groups. It may be difficult to engage the children at home throughout the day. This can be a source of stress to the parents. Similarly, due to the vulnerability of elderly for COVID-19 infections, others would avoid to meet the elderly, which can be a major source of distress, both for the elderly and their family members.

Unlike western countries, Indians are thought to be more social and have more social networks, engage in several religious festivals, and get-togethers across the year.<sup>[9]</sup> This can be attributed to India’s diverse culture and traditions.<sup>[10]</sup> In this regard, a complete lockdown can have a downgrading effect on the psyche of the general public. It can also have a long lasting effect on the economy, farming and daily wage earners of the country. While it is an utmost necessary step to be taken at present to combat the COVID-19 infection, steps should be taken to mitigate the possible psychological impact of lockdown in the general public.

Moreover, recent reports suggest that the government’s sudden enforcement of lockdown has created many hurdles to the economically disadvantaged populations

as evident from the mass exodus of migrant workers and concerns about starvation among people in slum areas.<sup>[4]</sup> A recently published sentiment analysis of lockdown through twitter (analysis as evident from tweets extracted from 25<sup>th</sup> to 28<sup>th</sup> March 2020;  $n = 24,000$  tweets) reported that the prominent sentiment was positive and trust on the government; further, many respondents reported sadness and worries about the problems of daily wage laborers during lockdown.<sup>[11]</sup> However, no national-wide data on the psychological impact of lockdown in India are available. Therefore, the current study was planned with an aim to evaluate the psychological impact of lockdown on the general public with an objective to assess the fear, perceived stress, and psychological problems related to lockdown due to COVID-19 infection in India.

## MATERIALS AND METHODS

It was an online survey conducted under the aegis of Research, Education and Training sub-Committee of Indian Psychiatric Society. Using the Survey Monkey platform, a survey link was circulated using the Whatsapp. The survey questionnaire was translated into 11 Indian languages (Hindi, Odia, Bengali, Marathi, Tamil, Telugu, Kannada, Malayalam, Punjabi, Gujrati, and Urdu) besides being used in English. The link was designed in such a way, that only 1 response can be generated using one device. The survey questionnaire consisted of the following instruments:

### Demographics and personal characteristics

A basic information sheet which included information about the subject's age, gender, marital status, educational qualifications, and current work profile.

A questionnaire to evaluate the effect of lockdown on relationship with family members/neighbors/significant others and how lockdown had affected one's emotions, feelings, and behaviors in different aspects of life.

### *The Warwick-Edinburgh Mental Well-being Scale*<sup>[12]</sup>

It is 14-item scale covering both hedonic and eudaimonic aspects of mental health including positive affect (feelings of optimism, cheerfulness, and relaxation), satisfying interpersonal relationships and positive functioning (energy, clear thinking, self-acceptance, personal development, competence, and autonomy). It has good content validity and high test-retest reliability.<sup>[12]</sup> The total score was determined by adding the score of all the 14 items. A higher score indicates greater positive well-being. A score of  $\leq 40$  has been reported to indicate high risk for depression.<sup>[13,14]</sup>

### *Patient Health Questionnaire-9*

The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common

mental disorders.<sup>[15]</sup> The PHQ-9 is the depression module, which scores each of the 9 Diagnostic and Statistical Manual-IV criteria as "0" (not at all) to "3" (nearly every day). This questionnaire is found to have excellent reliability and validity, and sensitivity and specificity of 88% for major depression.

### *Generalized Anxiety Disorder-7 Scale*

It is a 7-item anxiety scale with good reliability as well as criterion, construct, factorial, and procedural validity. Cutoff points of 5, 10, and 15 are interpreted as representing mild, moderate, and severe levels of anxiety on the Generalized Anxiety Disorder (GAD)-7.<sup>[16]</sup> Increasing scores on the scale are strongly associated with multiple domains of functional impairment. Although GAD and depression symptoms frequently co-occurred, factor analysis confirmed them as distinct dimensions. Moreover, GAD and depression symptoms have differing but independent effects on functional impairment and disability. There is good agreement between self-report and interviewer administered versions of the scale. This study employed self-reported version.

### *Perceived stress scale*

It is a 10-item scale widely used to assess the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress.<sup>[17]</sup> The questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the perceived stress scale (PSS) ask about feelings and thoughts during the last month. It has adequate psychometric properties.<sup>[18]</sup> For this survey, we had reduced the time limit to 15 days.

The survey link was circulated in 12 Indian languages starting from of April 6, 2020, i.e. after 10 days of declaration of lockdown, and the survey was closed on April 24, 2020. The link was circulated by the Exponential Non-Discriminative snowballing method, people receiving the message were requested to complete the survey and then forward the link to their close contacts in various Whatsapp group, Facebook, and Twitter platforms.

The study was approved by the Ethics Committee of the Indian Psychiatric Society, for the research purposes. Descriptive statistics were applied and the data collected was analyzed using SPSS 20.0 version. Pearson's co-relation co-efficient and Spearman's co-relation co-efficient were used to find the association between different variables.

## RESULTS

During the survey, a total of 1871 responses were collected of which 1685 (90.05%) responses were analyzed (which were complete in all aspects, except for information on age available

for 1653 participants only). The median duration of completing the survey was 12<sup>th</sup> day of the lockdown period (mean: 12.84, standard deviation [SD]:2.04; Range: 11<sup>th</sup> day to 21<sup>st</sup> day).

The mean age of the participants (1653 responses) was 41.26 (SD: 13.67) years. About three-fifths of the participants (63.7%) were male, about three-fourth were married (72.6%), three-fifth had completed postgraduation (61.8%), majority were employed (self-employed/employed in government sector or private sector) (78.9%). With regard to profession, slightly less than half of the responders (47.1%) were health-care workers (HCWs). In terms of current level of working during lockdown, about one-fifth of responders (21.1%) were not going to work and rest were either working from home for few hours (17.7%) or for usual hours (8.5%) and some were going for work for few hours (16.6%) [Table 1].

### Perceived stress, anxiety, depression, and mental well-being during lockdown

The mean PSS score for the study participants was 16.56 (SD - 5.60) and about 70% of the participants reported moderate level of stress and one-fourth reported mild stress after the onset of the lockdown period. The mean GAD-7 score was 4.14 (SD - 4.84) and about one-fourth participants (23.7%) fell into the category of moderate symptom severity. The mean PHQ-9 score of the participants was 3.63 (SD - 4.81) with majority of the participants reported “no or minimal depressive symptoms” but 18.5% reported mild depressive symptoms and a small proportion of the participants reported moderate (5.8%) and moderate-to-severe depression (3.0%). The mean Warwick-Edinburgh Mental Well-being Scale (WEMWBS) score for the study participants was 43.92 (SD - 8.79). When the cut off for high risk of depression (i.e., score ≤40) was applied, about 70% of the participants (71.7%) had score ≤40, suggesting poor mental well-being [Table 2].

### Comparison of anxiety, depression, stress, and well-being of health-care workers and non health-care workers

As about a half of the responders were HCWs (47.1%), we compared the data of the HCWs and those who were not HCWs. Compared to HCWs, non-HCWs had significantly higher mean PHQ-9 score, higher proportion of them had depression, if mild depression is taken into account, and lower proportion of them had poor mental well-being. Details are mentioned in Table 2.

### Effect of lockdown on relationships

Nearly half of the responders reported marked improvement in their relationships with their spouse/partner (47.4%), children (44.2%), and with parents (47.3%) after the beginning of lockdown period. Further, about three-fifth of the participants reported marked improvement in their relationship with their neighbors (61.8%) and office colleagues (59.6%) during the lockdown period [Table 3].

**Table 1: Sociodemographic profile (n=1685)**

Variables	Frequency (%)/ mean (SD)
Age (n=1653)	41.26 (13.67); range: 14-87
Sex	
Male	1074 (63.7)
Female	611 (36.3)
Marital status	
Married	1223 (72.6)
Unmarried	401 (23.8)
Widowed	16 (0.9)
Divorced/separated	22 (1.3)
Others	11 (0.7)
Details not available	12 (0.7)
Educational qualification	
Less than matriculation	7 (0.4)
Matriculation	21 (1.2)
Intermediate/+2	57 (3.4)
Graduate	539 (32)
Postgraduate	1041 (61.8)
Diploma	20 (1.2)
Occupation	
Self-employed	410 (24.3)
Employed in government sector	413 (24.5)
Employed in private sector	511 (30.3)
Home maker	86 (5.1)
Unemployed	77 (4.6)
Retired	99 (5.9)
Student	83 (4.9)
Others	6 (0.4)
Profession	
Doctor	764 (45.3)
Nurse	30 (1.8)
Engineer	117 (6.9)
Lawyer	40 (2.4)
Bureaucrat	38 (2.3)
Businessman	103 (6.1)
Business management consultant	65 (3.9)
Home maker	87 (5.2)
Politician	4 (0.2)
IT professional	30 (1.8)
Student	10 (0.6)
Retired	5 (0.3)
Teaching	64 (3.8)
Others	328 (19.5)
Level of working	
Not going to work	490 (21.1)
Working from home for few hours	299 (17.7)
Working from home for usual hours	143 (8.5)
Working from home for more than usual hours	92 (5.5)
Going to work for few hours	279 (16.6)
Going to work as usual	160 (9.5)
Going to work and doing work, more than usual hours	67 (4.0)
Others	147 (8.7)
Details not available	8 (0.5)

SD – Standard deviation

### Effect of lockdown on one's emotions, feelings and various aspects of life

The effect of lockdown on one's emotions, feelings, and various aspects of life was evaluated on likert scale with the following, options “no change,” “slightly increased,” “markedly increased,” “slightly decreased,” “markedly decreased,” and “can't

**Table 2: Perceived stress, anxiety, depression, and mental well-being during lockdown and comparison of these variables between health care workers and nonhealth-care workers**

Variables	Whole sample (n=1685) Mean (SD)/frequency (%)	Non-HCWs (n=891), n (%)	HCWs (n=794), n (%)	t-test/Mann-Whitney U-value/Chi-square test (P)
Mean PSS-10 score, range (median)	16.56 (5.60), 0-37 (17.0)	16.61 (5.40)	16.51 (5.81)	0.356 (0.722)
Severity of stress				
Low stress (0-13)	437 (25.9)	225 (25.3)	212 (26.7)	1.351 (0.509)
Moderate stress (14-26)	1181 (70.1)	634 (71.2)	547 (68.9)	
Severe stress (>27)	67 (4.0)	32 (3.6)	35 (4.4)	
Mean GAD-7 score, range (median)	4.41 (4.84), 0-21 (3.0)	4.61 (4.93)	4.19 (4.73)	U=334575.0 (0.052)
Severity of anxiety				
Normal (0-4)	1042 (61.8)	535 (60.0)	507 (63.9)	5.612 (0.132)
Mild (5-9)	400 (23.7)	216 (24.2)	184 (23.2)	
Moderate (10-14)	147 (8.7)	79 (8.9)	68 (8.6)	
Severe (≥15)	96 (5.7)	61 (6.8)	35 (4.4)	
Mean PHQ-9 score, range (median)	3.62 (4.81), 0-27 (2.0)	3.90 (4.93)	3.33 (4.66)	U=328912.5 (0.011)*
Severity of depression				
Minimal (1-4)	1197 (71.0)	613 (68.8)	584 (73.6)	10.275 (0.036)*
Mild (5-9)	311 (18.5)	173 (19.4)	138 (17.4)	
Moderate (10-14)	98 (5.8)	55 (6.2)	43 (5.4)	
Moderate severe (15-19)	50 (3.0)	36 (4.0)	14 (1.8)	
Severe (≥20)	29 (1.7)	14 (1.6)	15 (1.9)	
Mean mental well-being score, range (median)	43.9 (8.8), 14-56 (45.0)	43.42 (8.94)	44.48 (8.60)	-2.465 (0.014)*
Number of participants with WEMWBS score ≤40	1208 (71.7)	617 (69.2)	591 (74.4)	5.562 (0.018)*
Overall prevalence				
Percentage of responders reporting GAD score ≥5	643 (38.16)	356 (40.0)	287 (36.1)	2.581 (0.108)
Percentage of responders reporting PHQ-9 score ≥10	177 (10.5)	105 (11.8)	72 (9.1)	3.296 (0.069)
Percentage of responders reporting only GAD score ≥5 but PHQ-9 <10	506 (30.0)	275 (30.9)	231 (29.1)	0.627 (0.429)
Percentage of responders reporting PHQ-9 score >10 but GAD-7 <5	40 (2.4)	24 (2.7)	16 (2.0)	0.834 (0.361)
Percentage of responders reporting both GAD score ≥5 + PHQ-9 score >10	137 (8.1)	81 (9.1)	56 (7.1)	2.335 (0.127)

\* $p < 0.05$ . SD – Standard deviation; HCWs – Health-care workers; PSS – Perceived stress scale; GAD – Generalized anxiety disorder; WEMWBS – Warwick-Edinburgh Mental Well-being Scale; PHQ – Patient health questionnaire

say” [Table 3]. In most of the areas, majority of the participants reported no change, yet about one-third of the study participants reported slight worsening (increase) of negative emotions such as sadness (30.7%), anxiety (36%), irritability (32.2%), frustration (32.3%), and fear and apprehension (33.8%). About one-fifth of the participants reported increase in feelings of loneliness (21.3%) and fear of death (20.8%). Another 10%–15% of participants reported marked worsening of these negative emotions. Slight increased in social connectedness was reported by 18.7% and marked increase in use of social media was reported by about one-third (35.1%) of the participants.

Regarding somatic symptoms, sleep, appetite and fatigue, there was slight worsening (increase) in these features in about one-fifths of responders [Table 4]. About one-third to about three-fifth of the participants reported slight or marked increase in activities such as exercise, faith in God, watching movies, internet gaming, playing indoor games, sexual activity, reading books, painting, cooking, and cleaning [Table 4]. There was marked reduction in shopping and spending in a significant proportion of the participants.

### Stress due to COVID-19 infection

More than one-third of the participants (38.5%) had fear of getting infected with COVID-19 infection, always wore masks and protective equipment even in open spaces (37.9%),

invested majority of their time reading or watching COVID-related facts (38.5%), and had anxiety when dealing with febrile patients/family members (38.8%). One-fourth of the responders reported feelings of pessimism or hopelessness (23.3%), feeling detached from others (24.0%), feeling exhausted (24.3%) and had trouble falling asleep/frequent awakenings (27.7%). Further, about one-fifth of the responders reported having avoided COVID-19-related information (20.8%), had anxiety/palpitations (19.3%) and had deterioration in the work performance (19.3%). About 30% of the participants reported of feeling irritated and angry on self or others, and with the uncertainty about frequent modifications of infection control procedures (32.0%). About one-fourth of the participants also reported fear of going out of home, because of fear of infecting family members. Only 10% of the responders reported experiencing stigma and rejection in neighborhood because of working in the hospital/being kept in quarantined facility, and a similar proportion was reluctant to work or considered resignation after discharge [Table 5].

### Relationship between anxiety, stress, sadness, mental well-being, and duration of lockdown period

Higher level of stress, depression, and anxiety correlated positively with each other and negatively with the well-being. It was further seen that there was significant

**Table 3: Effect of lockdown on relationships**

Variables	Frequency (%)				
	No change	Slightly improved	Marked improved	Slightly worsened	Markedly worsened
Relationship with family members	661 (39.2)	563 (33.4)	304 (18.0)	122 (7.2)	35 (2.1)
Relationship with your spouse/partner	277 (16.4)	476 (28.2)	799 (47.4)	121 (7.2)	12 (0.7)
Relationship with children	387 (23.0)	477 (28.3)	744 (44.2)	56 (3.3)	21 (1.2)
Relationship with parents	274 (16.3)	544 (32.3)	797 (47.3)	57 (3.4)	13 (0.8)
Relationship with your neighbors	123 (7.3)	424 (25.2)	1042 (61.8)	82 (4.9)	14 (0.8)
Relationship with your office colleagues	123 (7.3)	411 (24.4)	1004 (59.6)	127 (7.5)	20 (1.2)

**Table 4: Effect of lockdown on one’s emotions, feelings, and various aspects of life**

	Frequency (%)					
	No change	Slightly increased	Markedly increased	Slightly decreased	Markedly decreased	Cannot say
Sadness	613 (36.4)	518 (30.7)	181 (10.7)	175 (10.4)	96 (5.7)	102 (6.1)
Anxiety	509 (30.2)	606 (36.0)	218 (12.9)	203 (12.0)	98 (5.8)	51 (3.0)
Irritability	595 (35.3)	545 (32.3)	213 (12.6)	184 (10.9)	97 (5.8)	51 (3.0)
Frustration	59 (35.2)	545 (32.3)	231 (13.7)	146 (8.7)	101 (6.0)	69 (4.1)
Loneliness	709 (42.1)	359 (21.3)	248 (14.7)	160 (9.5)	127 (7.5)	82 (4.9)
Social connectedness	579 (34.4)	315 (18.7)	167 (9.9)	295 (17.7)	268 (15.9)	61 (3.6)
Social isolation	527 (31.3)	378 (22.4)	385 (22.8)	176 (10.4)	139 (8.2)	80 (4.7)
Fear and apprehension	575 (34.1)	569 (33.8)	222 (13.2)	165 (9.8)	91 (5.4)	63 (3.7)
Fear of death	893 (53.0)	351 (20.8)	176 (10.4)	73 (4.3)	60 (3.6)	132 (7.8)
Sleep	652 (38.7)	367 (21.8)	225 (13.4)	285 (16.9)	104 (6.2)	52 (3.1)
Appetite	880 (47.5)	378 (22.4)	182 (10.8)	261 (15.5)	39 (2.3)	25 (1.5)
Pain	1103 (65.5)	190 (11.3)	158 (9.4)	97 (5.8)	37 (2.2)	100 (5.9)
Fatigue	836 (49.6)	372 (22.1)	162 (9.6)	157 (9.3)	98 (5.8)	60 (3.6)
Exercise	569 (33.8)	376 (22.3)	193 (11.5)	247 (14.7)	248 (14.7)	52 (3.1)
Substance use, including alcohol	1009 (59.9)	173 (10.3)	125 (7.4)	78 (4.6)	157 (9.3)	143 (8.5)
Use of social media	323 (19.2)	489 (29.0)	591 (35.1)	140 (8.3)	108 (6.4)	34 (2.0)
Faith in god	844 (50.1)	308 (18.3)	358 (21.2)	74 (4.4)	67 (4.0)	34 (2.0)
Watching movies	515 (30.6)	534 (31.7)	436 (25.9)	107 (6.4)	58 (3.4)	35 (2.1)
Internet gaming	913 (54.2)	311 (18.5)	269 (16.0)	57 (3.4)	50 (3.0)	85 (5.0)
Playing indoor games (without using the gadgets)	813 (48.2)	417 (24.7)	227 (13.5)	69 (4.1)	54 (3.2)	105 (6.2)
Sexual activity	945 (56.1)	241 (14.3)	165 (9.8)	109 (6.5)	112 (6.6)	113 (6.7)
Shopping	477 (28.3)	196 (11.6)	61 (3.6)	188 (11.2)	707 (42.0)	56 (3.3)
Spending	377 (22.4)	160 (9.5)	60 (3.6)	370 (22.0)	681 (40.4)	37 (2.2)
Reading books	599 (35.5)	529 (31.4)	264 (15.7)	133 (7.9)	114 (6.8)	46 (2.7)
Drawing/painting	1018 (60.4)	252 (15.0)	211 (12.5)	23 (1.4)	33 (2.0)	148 (8.8)
Cooking	596 (35.4)	461 (27.4)	449 (26.6)	72 (4.3)	42 (2.5)	65 (3.9)
Cleaning	380 (22.6)	603 (35.8)	505 (30.0)	118 (7.0)	52 (3.1)	27 (1.6)

positive correlation between the perceived stress and severity of depression with the duration of lockdown period [Table 6].

**DISCUSSION**

With no alternative ways to escape from the COVID pandemic, almost all the countries have adopted the lockdown strategy as a potentially effective strategy to fight against the COVID-19. India was also quite early in its response to impose lockdown, as early as, within 2 weeks of declaration of COVID-19 as a pandemic, i.e., March 25 (WHO declared COVID-19 to be pandemic on March 11, 2020). Even though this strategy is an important measure to tackle the exponential rise of COVID cases, it has widespread impact on the economy, psyche, and daily living of the public. In this regard, the current study was

planned to evaluate the psychological impact of lockdown on the general public with an objective to assess the fear, perceived stress, and psychological problems related to lockdown due to COVID-19 pandemic in India.

Some of the strengths of the survey were that it was translated into 11 Indian languages along with English. Further, the survey questionnaires also included the evaluation of impact of lockdown on relationship with significant others and how the lockdown affected one’s emotions and feelings. Besides, the use of some self-designed questionnaire, the survey also included well-validated scales usually used for community surveys such as GAD-7, PHQ-9, PSS, and WEMWBS (for well-being).<sup>[19-22]</sup>

The prevalence rates of depressive symptoms and anxiety symptoms based on cut off scores of PHQ-9 and GAD-7

**Table 5: Stress due to coronavirus disease-19 infection**

Variable	Frequency (%)		
	Yes	No	Not applicable
Feared getting infected more severely with corona virus	648 (38.5)	900 (53.4)	137 (8.1)
Feeling pessimism or hopelessness	393 (23.3)	1172 (69.6)	120 (7.1)
Absence of emotional response - feeling numb/no happiness or sadness	324 (19.2)	1162 (69.0)	199 (11.8)
Feeling exhausted	409 (24.3)	1119 (66.4)	157 (9.3)
Reduced awareness or being in a daze/feeling confused/unable to think clearly	311 (18.5)	1249 (74.1)	125 (7.4)
Feeling detached from others	404 (24.0)	1155 (68.5)	126 (7.5)
Always wore mask and protective equipment even in open spaces	639 (37.9)	940 (55.8)	106 (6.3)
Invest majority of free time reading or watching corona virus-related information	649 (38.5)	968 (57.4)	68 (4.0)
Anxiety when dealing with febrile patients/family members	653 (38.8)	781 (46.4)	251 (14.9)
Avoided corona virus related information	350 (20.8)	1186 (70.4)	149 (8.8)
Had anxiety/palpitations	325 (19.3)	1284 (76.2)	76 (4.5)
Felt irritated/angry on self or others	526 (31.2)	1087 (64.5)	72 (4.3)
Had trouble falling asleep/frequent awakening	467 (27.7)	1156 (68.6)	62 (3.7)
Uncertainty about frequent modification of infection control procedures	540 (32.0)	1001 (59.4)	144 (8.5)
Poor concentration and felt indecisive	409 (24.3)	1156 (68.6)	120 (7.1)
Afraid to go to home because of fear of infecting family	402 (23.9)	1013 (60.1)	270 (16.0)
Deteriorating work performance	325 (19.3)	1103 (65.5)	257 (15.3)
Reluctant to work or consider resignation after discharge	163 (9.7)	1109 (65.8)	413 (24.5)
Depressed mood - feeling low most part of the day	276 (16.4)	1238 (73.5)	171 (10.1)
Stigmatization and rejection in neighborhood because of hospital work/being kept in quarantined facility	173 (10.3)	1069 (63.4)	443 (26.3)

**Table 6: The association between day of response of lockdown with reported perceived stress, sadness, anxiety, and mental well-being during lockdown**

Variables	Total PSS score, <i>r</i> ( <i>P</i> )	Total GAD score, <i>r</i> ( <i>P</i> ) <sup>#</sup>	Total PHQ-9 score, <i>r</i> ( <i>P</i> ) <sup>#</sup>	Total well-being score, <i>r</i> ( <i>P</i> )
Total GAD score	0.528 <sup>#</sup> (<0.001)***			
Total PHQ-9 score	0.321 <sup>#</sup> (<0.001)***	0.448 <sup>#</sup> (<0.001)***		
Total well-being score	-0.469 (<0.001)***	-0.481 <sup>#</sup> (<0.001)***	-0.391 <sup>#</sup> (<0.001)***	
Days of response of lockdown	0.062 (0.011)*	0.031 (0.197)	0.053 (0.029)*	-0.006 (0.810)

<sup>#</sup>Spearman correlation coefficient. GAD – Generalized anxiety disorder; PSS – Perceived stress scale; PHQ – Patient health questionnaire

were 10.5% and 38.2%, respectively. A comparison of our findings with those of the National Mental Health Survey (NMHS)<sup>[23]</sup> shows that psychiatric morbidity of common mental illnesses may be higher in our study (40.5%) than the estimated prevalence of 10% in the NMHS.<sup>[24]</sup> It can be argued that the significantly higher prevalence of psychiatric morbidity in the present study compared to the NMHS may be due to the use of different sampling methods and use screening instruments (whereas NMHS employed Mini International Neuropsychiatric Interview), but the screening instruments have been found to have high sensitivity and specificity against the diagnosis made by mental health professionals.<sup>[25,26]</sup> Thus, the difference in the prevalence rates cannot be completely attributed to the difference in the methodology. Hence, it is possible that lockdown period has led to a significant increase in the mental morbidity of mostly milder intensity in the general public. A web-based survey from China, which evaluated the psychological problems among the Chinese people (*n* = 1074) close to the COVID-19 epidemic peak and subsequent lockdown, reported anxiety (mild/moderate/severe as evident from Beck's Anxiety Inventory) in 29% of participants and depression (mild/moderate/severe as evident from Beck's Depression Inventory) in 37% of participants, and poor mental well-being in one-third of its participants.<sup>[27]</sup> The prevalence

of anxiety found in the present study is comparable to the previous study from China, but the prevalence rate of depression is lower. The lower rate of depression in the present survey, compared to the study from China, could be due to the difference in the timing of the study, in terms of the number of COVID-19 cases in the country. The present survey was done at the beginning of the epidemic in the country, compared to the survey from China, which was done, close to the peak of epidemic. The association of higher prevalence of depression, close to the peak of the epidemic, can be understood by the fact that the COVID-19 was associated with higher mortality rate in China, compared to current statistics from India. In the present study too, the association of depression and longer duration of lockdown was seen, which could be an indicator of increase in prevalence of depression with an increase in the number of cases of COVID-19 infection. The prevalence of mild-to-moderate anxiety and depression, in 40.5% of the participants in the present survey indicate that the pandemic and the lockdown is having a big toll on the mental health of people in the country and suggest an urgent need to address the same. The Indian Psychiatric Society took a lead in this direction, in the early stages of the lockdown, by providing free mental health aid to the people desirous of seeking mental health care.

In the present survey, 47.1% of the participants were HCWs and when the prevalence of psychiatric morbidity was compared between the HCWs, when the mild depression (i.e., PHQ-9 score of 5-9) was also included as an indicator of depression. However, when the cut-off of  $\geq 10$  was used for depression, there was no significant difference between the 2 groups. and non-HCWs, it was seen that the prevalence of depression to be significantly higher among the non-HCWs. Existing literature on the mental health problems faced by the HCWs in China during the COVID-19 crisis suggests a significant proportion of HCWs (36.9%) suffered from subthreshold mental health disturbances (as assessed by PHQ-9, GAD-7, Insomnia Severity Index)<sup>[28]</sup> and about 22.4%–50% of HCWs reported experiencing depression, anxiety, significant distress and insomnia.<sup>[29]</sup> Our findings are comparable to these studies among HCWs, if mild anxiety and mild depression are taken into account.

In the present study, in general, majority of the participants reported positive impact of the lockdown on the relationship dimension in terms of relationship with parents, children, spouse, colleagues, and neighbors. The improved relationship could be attributed to the availability of more free time, less work pressure and possible fulfillment of long desired free time. Findings of the present study are supported by many available websites/blogs, which have reported positive aspects of lockdown such as improvement in air quality/healing of nature,<sup>[30]</sup> making people realize value of re-connecting with families<sup>[31]</sup> and improvement in love/dating and family relationships.<sup>[32]</sup> However, the improved relationship dimensions could also be attributed to the fact that, when everyone is fighting a common enemy, the interpersonal relationship issues are forgotten, which is possibly reflected as improved relationships.<sup>[33,34]</sup> Another explanation for the improved relationship could be a fear of death, which often makes people perceive themselves as weak, and hence, have less initiative to fight with others.<sup>[35]</sup>

However, despite improvement in the interpersonal dimension, there was increase in the prevalence of negative emotions such as sadness, loneliness, anxiety, frustration, and fear and apprehension in about one-third to nearly half of the participants. These findings again support the possible increase in the prevalence of depression and anxiety, in the wake of the pandemic. When asked about the COVID-19 infection *per se*, about one-fourth to one-third of the participants reported presence of symptoms related to possible COVID-19 infection to be stressful. Some of the other reported areas for which a significant proportion of participants reported significant stress were fear of getting infected with COVID-19 infection, always wore masks and protective equipment even in open spaces, invested majority of their time reading or watching COVID related facts, had anxiety when dealing with febrile patients/family members, feelings of pessimism or hopelessness, feeling detached from others, feeling exhausted and had trouble falling

asleep/frequent awakenings, avoiding COVID-19-related information, having anxiety/palpitations, deterioration in the work performance and some experiencing stigma and rejection due to their profession related to HCWs or due to being under quarantine. All these findings reflect the fear of infection of contracting COVID-19. While fear of contracting COVID-19 can be considered as justified, considering the worldwide mortality and infection rates, but these could also be attributed to the issues such as media hype and prevailing myths related to COVID-19 infection.

This survey has certain limitations. Despite attempts to circulate widely in all possible social media platforms, wider participation was expected. Accordingly, it can be said that the response rate for the survey was low. About half of the participants were doctors, which suggest that the survey did not have the desired snowballing effect, as much as it was expected. A majority of the participants were postgraduates, which was possibly again influenced by the higher proportion of participants being doctors. The survey was limited to those, who had access to a smart phone device and it can be said that the study participants may not be representative of people from various strata of the country. However, considering the situation, this was the possible best methodology to reach to the people to understand the psychological impact. These limitations suggest that the findings may not be generalizable to every strata of the society.

## CONCLUSIONS

To conclude, the present survey suggests that more than two-fifth of the people are experiencing anxiety and depression, due to lockdown and the prevailing COVID-19 pandemic. This finding suggests that there is a need of expanding the mental health services to everyone in the society during this pandemic situation.

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## Conflicts of interest

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# Anxiety Related to COVID-19 Infection: An Online Survey among the General Public in India

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## Abstract

**Background:** There are widespread anxiety and fear related to contracting COVID-19 infection in the general public ever since the outbreak of COVID-19, which had now increased to a great extent due to the ever-rising number of positive cases and mortality rates associated with COVID-19. **Aim:** The present study aimed to evaluate the anxiety related to contracting COVID-19 infection in the public. **Methodology:** An online survey was conducted using the SurveyMonkey® platform-generated link in which a COVID-19 anxiety-specific questionnaire was used to assess anxiety and worry related to contracting COVID-19. A total of 462 responses were analyzed. About one-sixth (18.8%) of the responders reported anxiety in at least one domain and worry in at least one domain related to contracting COVID-19 infection. While 42.2% of the responders had anxiety in at least one domain, highest being in the domain of anxiety related to behaviors of others, about one-fourth of the responders (26.6%) expressed worry in at least one domain, more in the domain of worry related to family members going out to buy something or for work. Males and people of younger age group had significantly greater anxiety score, and those with a chronic physical illness had significantly greater worry score. **Conclusion:** The present study suggests that there is a heightened level of anxiety in the society due to COVID-19 and about 18.8% of the people may be having anxiety severe enough to require clinical attention. However, the survey findings should be interpreted well with regard to its limitations being circulated in few social media platforms and, therefore, may not be generalized to the entire country.

**Keywords:** Anxiety, COVID-19, worry

## INTRODUCTION

The COVID-19 outbreak since December 2019 and its subsequent transformation into a pandemic had resulted in several challenges to humanity and the health-care system across the World. As per the recent World Health Organization (WHO) Statistics (as on August 10, 2020), COVID-19 had infected >19.4 million individuals across 216 countries with about 7.22 lakhs deaths worldwide.<sup>[1]</sup> The WHO and national authorities of every country have been using various strategies to tackle the COVID-19 infection and minimize the associated mortality. There had been promotion of hand hygiene measures, infection control practices; creating awareness over mobile caller tunes, telecommunication, social media platforms; practicing social distancing, closure of the schools, colleges, shopping arcades, etc., and the “lockdown” strategy and complete “shut down” or seal off strategies are being used to control the spread of COVID-19 infection. While all these measures are of immense importance in view of the

propensity for rapid spread of infection and the associated mortality, these have also created a sense of “panic” in the general public. The repetition of the same instructions again and again so as to safeguard oneself and their significant others from getting infected has also resulted in anxiety, fear, and apprehension in the general public.<sup>[2,3]</sup> Further, irrational panic buying and stockpiling of groceries, medicines, masks, etc., among the general public has added to the fear and anxiety.<sup>[4,5]</sup> While there is uncertainty about resuming back to usual

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routine soon across the World, the COVID-19 pandemic had resulted in an economical set back to all countries, most affected being the low- and middle-class populations of the low- and middle-income countries.<sup>[6,7]</sup> Along with these, there are several rumors/myths related to spreading of COVID-19 infection from particular groups/communities of people, specific objects (newspapers, fomites, etc.) as well as several indigenous methods/strategies to reduce the risk of infection or to cure the infections (ginger/garlic use, herbal teas, drinking hot water/cow's urine, etc.) being circulated in social media platforms that have added to the anxiety.<sup>[8]</sup> Till now, there is no specific cure/vaccine to curb the COVID-19 crisis, which is leading to further uncertainty in the minds of the laypersons. Many persons are also hooked on to the news channels and web pages to keep a track on the growing number of cases per day or even per hour.<sup>[9]</sup> All these add on to the prevailing anxiety and are fuelling the ongoing anxiety of contracting COVID-19 infection.

Time and again, it had been stressed upon not to ignore the mental health needs of the public and the health-care workers during this COVID-19 crisis. Some of the common mental health issues which have been identified so far in patients with suspected infection, those under quarantine, and among health-care professionals are anxiety and depressive symptoms, feelings of hopelessness, feelings of isolation, insomnia, decreased appetite, etc.<sup>[10,11]</sup> Providing psychological first aid to the affected individuals and the health-care workers has been recommended by the WHO.<sup>[12]</sup> In addition, several tips for coping with COVID-19-related anxiety and stress have been proposed by the WHO.<sup>[13]</sup> However, it is essential to know the viewpoints of the general public about their knowledge, awareness about contracting COVID-19 infection, and the level of prevailing anxiety, so as to allay the prevailing anxiety among them. Adequate knowledge about the public's viewpoint about their anxiety and fear about COVID-19 can help in planning appropriate information broadcasting and educational materials/programs which can benefit broader community at large.

Considering the fact that currently there is widespread anxiety among the people, irrespective of the profession, the current study was planned with an aim to evaluate the anxiety related to contracting COVID-19 infection as well to evaluate the prevailing anxiety and concerns of the public related to getting infected with COVID-19.

## METHODOLOGY

It was an online survey to assess the level of anxiety related to the COVID-19 infection. The study was approved by the institute's Ethics Committee.

For formulating the items for the assessment for the study, a focused group discussion was held among 4 mental health professionals telephonically to design a scale to assess COVID-19-related anxiety. In addition, 5 telephonic interviews were held with people who currently reported anxiety related

to COVID-19 and 5 people who presented to the emergency services with COVID-19 anxiety were also interviewed. The specific issues, which emerged during the discussions, were the fact that people are scared of developing the infection themselves, infecting others, have a fear of death/painful death, and were unsure about the extent to which they should follow the hand hygiene measures and social distancing. The fear and anxiety are much more among or for the elderly and those with physical comorbidities. The factors which are associated with rise in anxiety include having symptoms (of cough, fever, rhinitis, etc.), facing certain situations (such as meeting strangers, going out, and bringing things to home), coming to know that someone (relative/neighbor) has been found to be/suspected to be/or quarantined for suspected COVID-19, and following the news related to COVID-19 on various platforms. The autonomic anxiety symptoms are often accompanied by disturbances in sleep, appetite, and mood. Based on this information, a questionnaire was designed to assess anxiety specifically related to COVID-19 infection. Scoring pattern for the different domains was descriptive with ratings of 0–4, except for one domain of the scale, in which participants were asked to rate the items on 0–10 numeric points. For all the domains, mean scores were calculated, and if the participants scored >1 standard deviation of the mean score, they were considered to have anxiety or worry in that domain.

Initial few questions of the survey inquired about the basic information about the participants in the form of age, gender, marital status, employment, educational qualifications, and comorbid physical illness. These were followed by sections, specifically inquiring about psychophysiological reaction on listening to the word COVID-19, worry related to getting infected with COVID-19 or getting near ones infected by COVID-19, general health-care measures one is currently indulging to monitor his/her health parameters (monitoring blood pressure, temperature, pulse, etc.), level of anxiety on experiencing cough, fever, sneezing, etc., and anxiety in different social situations.

The questionnaire had 5 anxiety domains and 2 worry domains. The 5 anxiety domains included anxiety following listening to the word "COVID-19/coronavirus" (8 items); anxiety and level of tension, experienced while experiencing certain symptoms (7 items); behavioral response to anxiety related to contracting COVID-19 infection (3 items); anxiety related to COVID-19 infection in different situations linked with COVID-19 (14 items); and anxiety related to behaviors of others (6 items). The 2 worry domains were worry related to the prevailing scare of COVID-19 infection (15 items) and reaction to the individual when one of his/her family members goes out to buy something or for work (9 items). Based on these sections, the mean total anxiety score and the mean worry score were calculated. In addition, the prevalence of anxiety in each domain was calculated by estimating the proportion of the participants who scored >1 standard deviation above the mean in the particular domain, total anxiety domain, and total worry domain.

The questionnaire thus developed was circulated online through the SurveyMonkey® platform. For this, a link was generated for the questionnaire which was circulated to the general public on the WhatsApp® and Facebook®/Twitter® platforms. A nonprobability snowball sampling technique was followed, in which people participating were expected to forward the link further. The link of the survey was circulated in the 1<sup>st</sup> week of April, i.e., from April 5, 2020, and the survey was closed on April 14, 2020. The survey invitation clearly stated that the participants have the right not to participate in the survey and participation in the survey would imply providing informed consent. Further, it was mentioned that strict confidentiality and anonymity will be maintained. The survey questionnaire was circulated in English language and would take 10–12 min to complete.

Descriptive statistics were applied, and the data collected were analyzed using the Statistical Package for the Social Sciences (SPSS)® (developed by IBM, Stanford, United States), 20.0 version. Frequency/percentages were calculated for nominal/ordinal variables, and mean and standard deviation were calculated for each item score, i.e., continuous variables. Pearson correlation coefficient was used to evaluate the association of anxiety in different domains. Comparisons were done using *t*-test.

## RESULTS

During the survey period, a total of 465 responses were collected, of which 462 responses were included in the analysis (3 responses were excluded due to noncompletion of the entire survey questionnaire). The mean age of the participants (439 responses; other participants did not complete this information) was 40.66 (standard deviation [SD]: 13.82) years. More than half of the participants were males (55.6%), about two-thirds of the participants had completed postgraduation (64.3%), and another one-third had completed graduation (33.3%). Only a small proportion of the participants were educated up to 12<sup>th</sup> (1.7%) or up to 10<sup>th</sup> only (0.6%). Majority of the participants were married (75.6%), and most of them were residing with their spouses (69.5%). In terms of profession, about one-third of the participants were doctors (35%). Majority of the participants were residing in cities (85%),

with a small proportion belonging to town (10.4%), and very few participants were from village (4.1%). About one-fourth ( $n = 120$ ; 26.0%) of the participants had at least one chronic physical morbidity (diabetes mellitus [ $n = 30$ ], hypertension [ $n = 77$ ], malignancy [ $n = 3$ ], and asthma/chronic respiratory illness [ $n = 10$ ]), 36 (2.8%) had a minor illness (obesity [ $n = 30$ ], arthritis [ $n = 4$ ], and migraine [ $n = 2$ ]), and two-third had no physical illness ( $n = 306$ ; 66.2%).

### Psychophysiological reaction to encountering (listening or seeing or both) the word “COVID-19/coronavirus”

As shown in Table 1, half of the participants reported that encountering the word “COVID-19/coronavirus” “sometimes” led to psychological reaction of anxiety and sadness, and about one-fourth reported that it led to anxiety “often/most of the time/always.” About one-sixth reported emotional reaction of sadness “often/most of the time/always.” About one-fourth of the participants reported experiencing “palpitation/increased heart rate” “sometimes or more,” and one-third reported feeling “restless” “sometimes or more.” Other autonomic symptoms were less frequently experienced [Table 1]. The mean score was highest for the anxiety, followed by sadness, restlessness, and palpitations.

### Anxiety and tension on experiencing certain symptoms

Only a few participants reported anxiety and tension related to experiencing certain symptoms. Among the listed symptoms which elicited at least moderate level of anxiety and tension in about one-fourth of the patients was ‘difficulty in breath’. Other symptoms which elicited at least moderate level of anxiety in about 15% or more of the participants were fever and sore throat [Table 2].

### Behavioral response to anxiety

Very few participants showed behavioral responses, in the form of checking their blood pressure, temperature, and pulse, due to anxiety [Table 3].

### Anxiety related to specific situations which can lead to COVID-19 infection

When the participants were given a list of specific situations, which are likely to elicit anxiety of contracting COVID-19, at least moderate level of anxiety was reported for facing situations or having to face the situation by 60% of the participants, if they came to know that neighbor is a confirmed

**Table 1: Anxiety following listening to the word “COVID-19/coronavirus” (anxiety domain 1)**

Variables	Mean (SD)	Frequency (%)				
		Not at all (1)	Sometimes (2)	Often (3)	Most of the time (4)	Almost Always (5)
Anxiety	2.12 (0.97)	118 (25.5)	231 (50.0)	64 (13.9)	36 (7.8)	13 (2.8)
Sadness	1.91 (0.86)	153 (33.1)	233 (50.4)	45 (9.7)	25 (5.4)	6 (1.3)
Palpitations, increased in heart rate	1.32 (0.60)	339 (73.4)	105 (22.7)	10 (2.2)	8 (1.7)	0 (0)
Shortness of breath	1.12 (0.43)	419 (90.7)	34 (7.4)	7 (1.5)	0 (0)	2 (0.4)
Restlessness	1.39 (0.61)	302 (65.4)	144 (31.2)	10 (2.2)	5 (1.1)	1 (0.2)
Choking sensation	1.08 (0.32)	431 (93.5)	27 (5.8)	2 (0.4)	2 (0.4)	0 (0)
Sweating	1.11 (0.41)	421 (91.1)	33 (7.1)	5 (1.1)	2 (0.4)	1 (0.2)
Numbness	1.07 (0.31)	432 (93.5)	26 (5.6)	3 (0.6)	1 (0.2)	0 (0)

SD: Standard deviation

**Table 2: Anxiety and level of tension experienced while experiencing certain symptoms (anxiety domain 2)**

Variables	Mean (SD)	Frequency (%)					
		Not applicable (0)	No change (1)	Mild (2)	Moderate (3)	Severe (4)	Very severe (5)
Having cough	1.8 (0.7)	159 (34.4)	256 (55.4)	0	37 (8.0)	10 (2.2)	0
Having fever	1.7 (0.9)	231 (50.0)	149 (32.3)	0	57 (12.3)	17 (3.7)	8 (1.7)
Having breathing difficulty	1.9 (1.2)	230 (49.8)	113 (24.5)	0	59 (12.8)	42 (9.1)	18 (3.9)
Running nose	1.7 (0.8)	215 (46.6)	192 (41.6)	0	42 (9.1)	10 (2.2)	3 (0.6)
Sneezing	1.7 (0.7)	193 (41.8)	225 (48.7)	0	38 (8.2)	5 (1.1)	1 (0.2)
Sore throat	1.8 (0.9)	196 (42.4)	193 (41.8)	0	51 (11.0)	18 (3.9)	4 (0.9)
Tiredness	1.7 (0.8)	194 (42.0)	217 (47.0)	0	37 (8.0)	11 (2.4)	3 (0.6)

SD: Standard deviation

**Table 3: Behavioral response to anxiety related to contracting COVID-19 infection (anxiety domain 3)**

Variables	Mean (SD)	Frequency (%)				
		Not at all (0)	Once a day or less than once a day (1)	2–5 times a day (2)	6–10 times a day (3)	> 10 times a day (4)
Checking your blood pressure	1.1 (0.4)	400 (86.6)	60 (13.0)	0	0	2 (0.4)
Checking your temperature	1.1 (0.4)	405 (87.7)	50 (10.8)	6 (1.3)	1 (0.2)	0
Checking your pulse	1.1 (0.4)	406 (87.9)	50 (10.8)	6 (1.3)	0	0

SD: Standard deviation

case of COVID-19. Less than half reported moderate level of anxiety reported that they would experience/experienced at least moderate level of anxiety if they came to know that their neighbor is found to be a suspected case of COVID-19 (45%), meeting a person with travel history (45%), on knowing that the person visiting them is a health-care worker managing patients with COVID-19 (35%), and on listening to news related to COVID-19 (31.6%). Other situations which led to or may lead to moderate or higher level of anxiety in at least one-third of the participants were as follows: following statistics of number of COVID-19 cases, following statistics of deaths due to COVID-19, someone standing or sitting close to them, accepting things from strangers, accepting online orders, purchasing things from market, and listening to news that someone in close vicinity is suspected to have COVID-19 infection [Table 4].

### Anxiety related to behaviors of others which can elicit anxiety related to COVID-19 infection

In terms of behaviors of others, which elicited about 50% or more level of anxiety in about one-third of the participants were someone spits near them (44%), someone coughing near them (37%), someone near them reports of fever (36%), someone sneezes near them (35%), someone near them has running nose (33%) and someone near them reports of having visited hospital in last few days (31%) [Table 5].

### Worries related to the prevailing scare of COVID-19 infection

When asked about the worries related to different aspects, more than one-fourth (30.5%) were worried to some extent or more about themselves getting infected with COVID-19. Nearly equal proportion were worried to “some extent or more” about their children (32%) and spouse (33%) being infected.

However, the highest proportion (44.4%) were worried to “some extent or more” about their parents getting infected. When asked about infecting others, about one-fourth were worried to “some extent or more” about themselves infecting their children, spouse, and parents. When asked about they getting infected from others, 45% were worried to “some extent or more.” About one-fourth to one-fifth of the participants were also worried to “some extent or more” with respect to not being able to escape the infection, death of self, death of loved ones, hospitalization, and of being quarantined. A small proportion were worried to “some extent or more” about the issues related to cremation and other rituals [Table 6].

### Worries related to one of your family members going out to buy something or work

When enquired about the worries related to someone from the family going out of home to buy something or work, about one-third or more of the participants reported that they “most of the time or always” instruct him/her for wearing mask (54%), instruct him/her for maintaining social distancing (48.7%), do not allow him/her to enter the house without using the sanitizer at the doorstep (44%), make him/her bath immediately after entering the house (33.1%), and keep his/her belonging (clothes, shoes, etc.) separately (34.9%) [Table 7].

The prevalence of anxiety in each domain was calculated by estimating the proportion of the participants who scored more than one standard deviation for that domain. As shown in Table 8, the proportion of participants with anxiety and worry in each domain varied from 10% to 4% to 19.3%. In terms of proportion of participants with anxiety in at least one domain, 42.2% had anxiety. In terms of worry in at least 1 domain, 26.6% had worries in at least 1 domain [Table 8]. When the proportion of participants with anxiety in at least 1

**Table 4: Anxiety related to COVID-19 in different situations linked with COVID-19 (anxiety domain 4)**

Variables	Mean (SD)	Frequency (%)				
		Not at all (0)	Mild (1)	Moderate (2)	Severe (3)	Very Severe (4)
Seeing a stranger	1.7 (0.8)	214 (46.3)	172 (37.2)	62 (13.4)	12 (2.6)	2 (0.4)
Knowing that the person visiting you has a travel history	2.6 (1.2)	84 (18.2)	149 (32.3)	115 (24.9)	86 (16.6)	28 (6.1)
Knowing that the person visiting you is a health-care worker involved in managing patients with COVID-19	2.2 (1.1)	140 (30.3)	157 (34.0)	100 (21.6)	46 (10.0)	19 (4.1)
Knowing that one of your neighbors is suspected case of COVID-19	2.6 (1.2)	106 (22.9)	127 (27.5)	119 (25.8)	78 (16.9)	32 (6.9)
Knowing that one of your neighbors is found to be COVID-19 positive	2.9 (1.3)	92 (19.9)	94 (20.3)	111 (24.0)	94 (20.3)	71 (15.4)
Listening to News on TV about COVID-19	2.1 (0.9)	133 (28.8)	183 (39.6)	108 (23.4)	29 (6.3)	9 (1.9)
Getting messages on your phone about COVID-19	1.9 (0.9)	207 (44.8)	147 (31.8)	81 (17.5)	20 (4.3)	7 (1.5)
Following the statistics of number of cases of COVID-19	2.2 (0.9)	115 (24.9)	188 (40.7)	112 (24.2)	35 (7.6)	12 (2.6)
Following the statistics of number of deaths due to COVID-19	2.2 (1.0)	110 (23.8)	186 (40.3)	112 (24.2)	41 (8.9)	13 (2.8)
If someone comes and stands or sits close to you	2.2 (0.9)	94 (20.3)	202 (43.7)	112 (24.2)	45 (9.7)	9 (1.9)
Accepting things from strangers	2.3 (1.0)	108 (23.6)	178 (38.5)	107 (23.2)	51 (11.0)	18 (3.9)
Accepting your online orders	2.1 (1.1)	156 (33.8)	154 (33.3)	106 (22.9)	33 (7.1)	13 (2.8)
Purchasing things from the market	2.3 (0.9)	80 (17.3)	216 (46.5)	129 (27.9)	28 (6.1)	9 (1.9)
Listening that someone in your vicinity is suspect to have COVID-19 infection	2.4 (1.1)	102 (22.1)	167 (36.1)	116 (25.1)	56 (12.1)	21 (4.5)

SD: Standard deviation

**Table 5: Anxiety related to behaviors of others which can elicit anxiety related to COVID-19 infection (anxiety domain 5)**

Level of anxiety	Frequency (%)					
	Someone sneezes near you	Someone cough near you	Someone spits near you	Someone near you has running nose	Someone near you reports of fever	Someone near you reports of having visited hospital in last few days
0% (0)	32 (6.9)	27 (5.8)	43 (9.3)	46 (10.0)	42 (9.1)	63 (13.6)
1–10% (1)	93 (20.1)	84 (18.2)	54 (11.7)	78 (16.9)	71 (15.4)	76 (16.5)
11–20% (2)	49 (10.6)	55 (11.9)	49 (10.6)	53 (11.5)	43 (9.3)	53 (11.5)
21–30% (3)	52 (11.3)	49 (10.6)	44 (9.5)	47 (10.2)	51 (11.0)	45 (9.7)
31–40% (4)	53 (11.5)	38 (8.2)	27 (5.8)	40 (8.7)	38 (8.2)	38 (8.2)
41–50% (5)	49 (10.6)	39 (8.4)	46 (10.0)	41 (8.9)	41 (8.9)	46 (10.0)
51–60% (6)	44 (9.5)	39 (8.4)	32 (6.9)	27 (5.8)	26 (5.6)	28 (6.1)
61–70% (7)	21 (4.5)	29 (6.3)	35 (7.6)	31 (6.7)	36 (7.8)	30 (6.5)
71–80% (8)	35 (7.6)	44 (9.5)	43 (9.3)	40 (8.7)	35 (7.6)	30 (6.5)
81–90% (9)	32 (9.6)	36 (7.8)	36 (7.8)	28 (6.1)	47 (10.2)	29 (6.3)
91–100% (10)	25 (5.4)	26 (5.6)	58 (12.6)	30 (6.5)	32 (6.9)	23 (5.0)
Mean scores	5.4 (3.4)	5.5 (3.3)	6.0 (3.7)	5.2 (3.4)	5.2 (3.5)	4.9 (3.4)

domain and worries in 1 domain was estimated, it was seen that 18.8% fulfilled these criteria. The approach used was of a conservative nature in which those responders whose mean score of all domains in anxiety and worry exceeded the mean plus one SD were considered to be positive for anxiety/worry domain and the prevalence was calculated. This was done so as to include all those with increased anxiety and worry greater than the mean score who may require clinical attention.

When the association of different anxiety and worry domains was evaluated, as shown in Table 9, psychophysiological reaction domain of anxiety correlated significantly with all other domains of anxiety and both the domains of worry. Anxiety and tension related to symptom domain correlated

with all the domains of anxiety and worry, except for the behavioral response domain and worries related to one of the family members going out. Other details are given in Table 9. A strong and significant association was seen between mean anxiety score and mean worry score (Pearson’s correlation coefficient value – 0.570;  $P < 0.001$ \*\*\*).

#### Association of anxiety and worries with other variables

When the association of the mean anxiety and mean worry score with respect to sociodemographic variables was carried out, participants who were of younger age had significantly higher anxiety score (Pearson’s correlation coefficient value: –0.108;  $P = 0.023$ \*) and higher worry score (Pearson’s correlation coefficient value: –0.184;  $P < 0.001$ \*\*\*).

**Table 6: Questions relating to worry, which the individual may be experiencing due to the prevailing scare of COVID-19 infection (worry domain 1)**

Variables	Mean score	Frequency (%)				
		Not at all (0)	Worried to a small extent (1)	Worried to some extent (2)	Worried to a large extent (3)	Extremely worried (4)
Worried that you will be infected with COVID-19	2.2 (0.8)	85 (18.4)	236 (51.1)	111 (24.0)	22 (4.8)	8 (1.7)
Worried that your children will be infected with COVID-19	2.1 (1.1)	163 (35.3)	151 (52.7)	94 (20.3)	34 (7.4)	20 (4.3)
Worried that your spouse will be infected with COVID-19	2.2 (1.1)	134 (29.0)	171 (37.0)	99 (21.4)	36 (7.8)	22 (4.8)
Worried that your parents will be infected with COVID-19	2.5 (1.2)	118 (25.5)	139 (30.1)	107 (23.2)	65 (14.1)	33 (7.1)
Worried that you will infect your children	2.0 (1.2)	208 (45.0)	130 (28.1)	65 (14.1)	32 (6.9)	27 (5.8)
Worried that you will infect your spouse	2.0 (1.1)	196 (42.4)	141 (30.5)	68 (14.7)	35 (7.6)	22 (4.8)
Worried that you will infect your parents	1.9 (1.2)	226 (48.9)	121 (26.2)	55 (11.9)	32 (6.9)	28 (6.1)
Worried that others will infect you	2.6 (1.1)	62 (13.4)	192 (41.6)	120 (26.0)	63 (13.6)	25 (5.4)
Worried that you will not be able to escape this infection	1.9 (0.9)	189 (40.4)	176 (38.1)	64 (13.9)	18 (3.9)	15 (3.2)
Worried that your death is round the corner	1.3 (0.7)	357 (77.3)	72 (15.6)	21 (4.5)	7 (1.5)	5 (1.1)
Worried that your loved ones may die	1.7 (0.9)	246 (53.2)	140 (30.2)	44 (9.5)	22 (4.8)	10 (2.2)
Worried about hospitalization	1.8 (0.9)	221 (47.8)	141 (30.5)	69 (14.9)	22 (4.8)	9 (1.9)
Worried about put to quarantine	1.7 (0.9)	248 (53.7)	135 (29.2)	52 (11.3)	20 (4.3)	7 (1.5)
Worried that, if you die, no one from your family will be there to perform the rituals	1.5 (0.9)	339 (73.4)	72 (15.6)	25 (5.4)	17 (3.7)	9 (1.9)
Worried that, if you die, your soul will not be in peace, as your last rites will not be performed as per your religious beliefs	1.2 (0.6)	410 (88.7)	31 (6.7)	13 (2.8)	6 (1.3)	2 (0.4)

**Table 7: Reaction to the individual when one of his/her family members goes out to buy something or for work (worry domain 2)**

Variables	Mean (SD)	Frequency (%)				
		Never (0)	Sometimes (1)	Often (2)	Most of the time (3)	Always (4)
Keep on thinking that whether he/she would be able to avoid people with possible COVID-19 infection	2.1 (0.8)	84 (18.2)	-	279 (60.4)	60 (13.0)	38 (8.2)
Instruct him/her for maintaining social distancing	2.8 (0.9)	24 (5.2)	-	213 (46.1)	72 (15.6)	153 (33.1)
Instruct him/her for wearing mask	2.8 (1.0)	31 (6.7)	-	183 (39.6)	76 (16.5)	172 (37.5)
Keep on calling him/her to check where he/she is	1.8 (0.9)	197 (42.6)	-	181 (39.2)	44 (9.5)	40 (8.6)
Do not allow him/her to enter the house without using the sanitizer at the doorstep	2.5 (1.2)	99 (21.4)	-	160 (34.6)	53 (11.5)	150 (32.5)
Make him/her bath immediately after entering the house	2.2 (1.1)	160 (34.6)	-	149 (32.3)	56 (12.1)	97 (21.0)
Keep his/her belonging (clothes, shoes, etc.) separately	2.3 (1.1)	136 (29.4)	-	165 (35.7)	53 (11.5)	108 (23.4)
Wash his/her belonging separately	2.1 (1.1)	189 (40.9)	-	137 (29.7)	54 (11.7)	82 (17.7)
Do not use anything brought from outside	1.8 (0.9)	204 (44.2)	-	183 (39.6)	39 (8.6)	36 (7.8)

SD: Standard deviation

Compared to females (mean score – 87.2; SD – 29.9), males had higher mean anxiety score (mean: 96.7; SD – 29.4), and the difference was statistically significant (*t*-test value – 3.419; *P* = 0.001\*\*\*). When those with chronic physical illnesses (hypertension and diabetes mellitus), compared to those without these morbidities, patients with chronic physical illnesses had significantly higher worry score (*t*-test value: –2.940; *P* = 0.003\*\*). The mean anxiety and mean worry scores were not related significantly with the place

of residence, educational qualification, current profession, and marital status.

## DISCUSSION

While every possible step is being taken to control the spread of the infection, yet the rapid rise in the number of confirmed cases of COVID-19 and the mortality associated with it along with the “lockdown” across the globe has added to the anxiety and worry in the public.

**Table 8: Estimated prevalence of anxiety and worry related to contracting infection**

Variables	Mean (SD)	Proportion of participants with score of >1 SD of the mean (%)
Psychophysiological reaction (domain 1)	11.1 (2.9)	48 (10.4)
Anxiety and tension related to symptoms (domain 2)	12.4 (4.9)	68 (14.8)
Behavioral response to anxiety (domain 3)	3.4 (0.9)	48 (10.4)
Anxiety related to specific situations which can lead to COVID-19 infection (domain 4)	31.9 (10.7)	71 (15.4)
Anxiety related to behaviors of others (domain 5)	32.5 (18.7)	89 (19.3)
Mean anxiety score	91.47 (30.1)	77 (16.7)
Worries related to the prevailing scare of COVID-19 (domain 6)	28.7 (10.3)	66 (14.3)
Worries related to one of your family members going out to buy something or work (domain 7)	20.5 (6.3)	81 (17.5)
Mean worry score	49.14 (13.36)	206 (44.6)
Proportion of participants with anxiety in different domains		
0 domain		267 (57.8)
1 domain		116 (25.1)
2 domains		39 (8.4)
3 domains		31 (6.7)
4 domains		8 (1.7)
5 domains		1 (0.2)
Number of people with worries in		
0 domain		339 (73.4)
1 domains		99 (21.4)
2 domains		24 (5.2)
Number of people with significant anxiety in at least 1 domain and worries in 1 domain		
		87 (18.8)
Number of people with significant anxiety in at least 3 domains and worries in 1 domain		
		25 (5.5)

SD: Standard deviation

**Table 9: Association between anxiety and worry domains related to contracting COVID-19 infection**

Variables	Psychophysiological reaction (domain 1)	Anxiety and tension related to symptoms (domain 2)	Behavioral response to anxiety (domain 3)	Anxiety related to specific situations which can lead to COVID-19 infection (domain 4)	Anxiety related to behaviors of others (domain 5)	Worries related to the prevailing scare of COVID-19 (domain 6)
Anxiety and tension related to symptoms (domain 2)	0.23 (<0.001)***	XXXX	XXXX	XXXX	XXXX	XXXX
Behavioral response to anxiety (domain 3)	0.115 (0.014)*	0.047 (0.315)	XXXX	XXXX	XXXX	XXXX
Anxiety related to specific situations which can lead to COVID-19 infection (domain 4)	0.427 (<0.001)***	0.453 (<0.001)***	0.097 (0.037)*	XXXX	XXXX	XXXX
Anxiety related to behaviors of others (domain 5)	0.225 (<0.001)***	0.266 (<0.001)***	0.026 (0.575)	0.601 (<0.001)***	XXXX	XXXX
Worries related to the prevailing scare of COVID-19 (domain 6)	0.48 (<0.001)***	0.354 (<0.001)***	0.059 (0.203)	0.536 (<0.001)***	0.300 (<0.001)***	XXXX
Worries related to one of your family members going out to buy something or work (domain 7)	0.226 (<0.001)***	0.062 (0.181)	0.094 (0.043)*	0.387 (<0.001)***	0.389 (<0.001)***	0.226 (<0.001)***

\*\*\* $P < 0.001$ ; \* $P < 0.05$

Many studies have evaluated the prevailing anxiety using different scales, which have reported that 29%–80% of the responders have anxiety or preoccupation with thoughts related to COVID-19.<sup>[14-16]</sup> However, the scales used in these studies are not specific to the prevailing pandemic (Beck Anxiety Inventory and the Generalized Anxiety Disorder-7

item scale), and hence, they may not be able to provide the exact prevalence of anxiety. Hence, it is important to assess the anxiety and worry related to COVID-19 using a specific scale. During the inception and drafting of the study results, only one study was available in this regard. In this study, mental health professionals from Shanghai Mental Health Center, China,



developed a COVID-19-specific “Peritraumatic Distress Index (CPDI)” – a 24-item descriptive scale (score ranging from 0 to 4) which inquired about the frequency of anxiety, depression, specific phobia, cognitive change, avoidance and compulsive behavior, physical symptoms, and loss of social functioning in the past week.<sup>[17]</sup> However, as the anxiety related to COVID-19 is multidimensional, the questionnaire used in the present study possibly provides broader evaluation of anxiety.

Anxiety related to COVID-19 is multidimensional ranging from fear/panic of contracting infection, fear of getting near ones infected, fear of death to different behavioral and avoidance responses in different situations. The study questionnaire so developed was very broad and took into account the psychophysiological reactions in the individuals when they encountered the word “COVID”/coronavirus, experience of anxiety on having symptoms similar to common flu, behavioral response of anxiety, anxiety related to exposure to specific situations in the individual and anxiety related to behaviors of others, worries related to prevailing scare of infection, and worries when any family member goes out for buying essential goods or to work. Therefore, the survey questionnaire so developed attempted to account for almost all the aspects of anxiety and worries associated with contracting COVID-19. Accordingly, it can be said that compared to a previous study from India<sup>[16]</sup> and 2 studies from China,<sup>[14,15]</sup> the estimates of anxiety using this scale may be more useful in assessing the anxiety and also addressing the prevailing myths related to COVID-19 infection and also might help possibly in formulating some recommendations for media, with respect to spreading infection about COVID-19. Further, we attempted to draw cutoffs for the scale, using more conservative approach, to identify people, who may require clinical attention.

Two Chinese studies<sup>[18,19]</sup> which have explored the psychological states of the public during the outbreak of COVID-19 in different regions of China have reported anxiety and depression to be in the range from 6.33%–28.8% to 16.5%–17.17%, respectively (as per the Self-Rating Anxiety Scale, Self-Rating Depression Scale, and Depression, Anxiety, and Stress Scale-21). In the present study, the prevalence of anxiety in at least one domain varied from 10.4% to 19.3%, depending on the various subscales, and the worry varied from 14.3% to 17.5%. When the proportion of people estimated to have anxiety and worry in at least one domain, 18.8% scored above the cutoff, and when more conservative estimate was used, 5.5% of the participants had anxiety in 3 domains and worry in at least 1 domain. If one goes by these conservative estimates, it can be said that at least 5.5%–18.8% of the participants have anxiety and worry, which possibly requires clinical attention and management. Therefore, the current study results are in line with the estimates of the Chinese surveys.<sup>[18,19]</sup>

While three Chinese surveys had revealed that higher rates of anxiety and depressive symptoms in younger people (21–

40 years) and students,<sup>[14,15,19]</sup> another study reported greater anxiety risk in participants aged >40 years.<sup>[18]</sup> In the present study too, when the association of anxiety and worry was evaluated with age, it was seen that anxiety and worry were more in younger people. There could be many reasons for higher prevailing anxiety and worries in younger people, one of which could be due to higher fear of death among young than older people, who are possibly more mentally prepared for adverse outcome at this stage of their life. There is a lack of consensus with respect to the association of gender with anxiety, with some of the studies reporting lack of any gender differences,<sup>[14,15]</sup> and others suggest higher prevalence of anxiety in females.<sup>[18,19]</sup> However, in the present study, males were found to have significantly higher anxiety than females. This could be due to the fact that they are more often expected to go out of the home (for shopping/buying essential commodities, etc.) and work. Further, this can also be attributed to difficulties in maintaining isolation, social distancing, travel restrictions, etc., in Indian context. Another factor which could contribute to this higher anxiety in males is the fact that recent findings have suggested that males are more vulnerable to COVID-19 infection.<sup>[20,21]</sup>

Another finding of the study was higher level of worry in those with chronic physical illnesses such as hypertension and diabetes mellitus, which is understandable, as available data suggest that these people are at increased risk to COVID-19 infection<sup>[22]</sup> and are estimated to have higher level of mortality.<sup>[23,24]</sup>

There are reports to suggest that a heightened level of distress and anxiety due to listening to repeated updates related to COVID-19 and always remaining preoccupied with contracting infection can precipitate physiological symptoms of anxiety which can lead to a vicious cycle of further anxiety and can set the individual to a “panic” mode.<sup>[25]</sup> Similar responses have been provided by the recent online Indian survey from India.<sup>[16]</sup> Findings of the present study too suggests that psychophysiological reaction on encountering the word “COVID-19,” about one-fourth of the responders reported anxiety and sadness “often/most of the time/always” and a sizeable proportion reported “sometimes or more” having physiological symptoms of palpitations (26.6%) and feeling restless (34.7%). These findings suggest that there is a need to draw a line between providing information and overflowing a person with information and this must be kept while reporting facts about COVID-19. Similarly, it can also be said people should seek, useful, desirable information about the infection, rather than trying to follow all the information, which can increase the scare.

With regard to behavioral responses to anxiety related to contracting COVID-19 infection, few participants engaged themselves in checking their blood pressure, temperature, and pulse frequently. This small subgroup of individuals may be considered to be having extreme anxiety, as evident from their behavioral response to anxiety. However, it is also possible that

these behavioral responses were less frequent than estimated because many of the participants were not directly associated with medical profession and hence did not know how to assess these parameters.

The international and national health advisories of the countries have set down many precautions to be carried out in different situations to prevent getting infected by COVID-19 infection, such as avoid going out from home unless in emergency or to buy essential goods, maintain good hand hygiene, maintain social distancing, etc. The present study suggests that the common scenarios in which the participants reported at least moderate level of anxiety were when they came to know that neighbor is a confirmed case of COVID-19, if they came to know that their neighbor is suspected to have COVID-19, while meeting a person with travel history, on knowing that the person visiting them is a health-care worker managing patients with COVID-19 and on listening to news and updates related to COVID-19. Further, behaviors of others which elicited or could elicit about 50% or higher level of anxiety in the responders were when someone would sneeze/sneezed, would cough/coughed, spitted/spits, had running nose near the individual, and when one comes to know that someone near him had visited a hospital in last few days. All these suggest that anxiety related to contracting COVID-19 is not only limited to coming in contact with a COVID-19 patient but also is quite broad and widespread to different situations, and people possibly believe that there may be many undiagnosed cases in the community. While listening to or remaining updated with basic precautions of contracting the infection is advisable, yet it is prudent to overcome the abovementioned related thoughts and responses, and more awareness is required to be dispensed to the public to reduce the anxiety related to COVID-19. It is also possible that these prevailing anxieties might emerge as social isolation, social boycott, and stigmatizing those who contracted the infection.

A study from Singapore which evaluated anxiety during the severe acute respiratory syndrome outbreak also had reported higher level of anxiety toward neighbors being quarantined and while seeking/visiting general practitioner clinics.<sup>[26]</sup> Considering COVID-19 to be a pandemic affecting over a million people across the World, greater degree of anxiety in the public is clearly evident from the findings of the present study. Another study which explored the psychological predictors of anxiety in response to the H1N1 pandemic found health anxiety, contamination fears, and greater disgust sensitivity to be the significant predictors of anxiety in the participants.<sup>[27]</sup> Findings of the present study of anxiety in response to someone sneezing, spitting, coughing, etc., (contamination fears) also point toward similar reactions.

Another important finding of the present study was evidence of worry related to the prevailing scare of COVID-19 infection in about 30% of the responders in different aspects ranging from worries related to getting the infection themselves or development of infection in their children and spouse,

which was further more (44%) with regard to infecting parents. Further, worry related to contracting COVID-19 also extended to not being able to escape infection, death of self, getting hospitalized, or being quarantined. As the COVID-19 infection had been found to be getting transmitted through fomites and can be prevented by following basic hand hygiene, maintaining social distancing, wearing masks, etc., worries related to contracting COVID-19 infection was found to be reflected by repeating asking the family member to follow the precautions when they step out to buy something or for work.

The present study was limited to the responders who had smartphones with Internet and WhatsApp access and ability to read English. Therefore, the study findings depict the anxiety and worries related to contracting COVID infection in the educated mass, majority of whom were residing in cities. Considering the fact that the vast majority of the Indian population resides in small towns and in rural areas and the survey questionnaire was limited to circulation in few social media platforms, the results could not be generalized to the entire country, and there is every possibility of higher or lower level of anxiety and worries in the rural communities related to contracting COVID-19 infection, who are more worried about the impact of pandemic on their livelihood due to lockdown. Other limitations of this survey include the use of a tool which has not been validated before use in public due to the nature of COVID-19 pandemic, limited representation of elderly participants, and inclusion of participants > 18 years. This survey was cross sectional in nature, and resultantly, it might not have captured the dynamic aspect of the psychological responses related to the COVID-19 situation, which is rapidly changing.

In summary, the present study suggests that there is a heightened level of anxiety in the society due to COVID-19 and about 18% of the people may be having anxiety severe enough to require clinical attention. Hence, in this changed scenario, while evaluating people with anxiety and depressive symptoms clinicians should routinely question them about anxiety and worries specifically related to COVID-19 infection, allay the same by providing authentic information and clarifying their myths. In addition, the clinicians need to utilize strategies such as distraction, relaxation exercises, and cognitive therapy to address excessive anxiety. Further, at the community level, mental health professionals should advocate for authentic but useful information for the public, rather than they being flooded with minute-to-minute updates, like that of commentary of a cricket match. Media should refrain from talking much about mortality statistics, ongoing treatment trials, or beneficial effects of certain medications, as this is possibly fuelling the prevailing anxiety in the society. More awareness programs aimed at allaying the anxiety of the common public is the need of the hour.

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## Conflicts of interest

There are no conflicts of interest.

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ORIGINAL ARTICLE

## Sexual functioning during the lockdown period in India: An online survey

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### ABSTRACT

**Aim:** This study aimed to evaluate the impact of lockdown on sexual functioning in India. In addition, impact of lockdown on relationship with the partner and mental health was evaluated.

**Materials and Methods:** An online survey was conducted using changes in sexual functioning questionnaire, Patient Health Questionnaire-4, and a self-designed questionnaire.

**Results:** The mean age of the participants was 41.5 (standard deviation: 11.2; range: 22–77; median: 39.5) years, with the majority being males 385 (85.6%). The participants reported that lockdown led to reduction in the frequency of sexual intercourse and also touching the partner (fondling, caressing, touching, or kissing) when not indulging in sexual intercourse. Majority of the participants reported improvement in the overall relationship, communication with the partner, and interpersonal conflicts. About two-fifths of the participants reported engaging in sexual intercourse more than twice a week or more. About one-fifth screened positive for psychiatric morbidity, with 14.2% screened positive for anxiety, 14.8% screened positive for depression and 8.7% screened positive for both. In both genders, presence of depression and anxiety were associated with lower sexual functioning in all the domains.

**Conclusion:** Lockdown led to a reduction in the frequency of sexual intercourse, and reduction in the frequency of intimacy in the form of fondling, caressing, touching, or kissing partner when not doing sexual intercourse. However, lockdown led to the improvement in overall relationship and communication with the partners and a reduction in interpersonal conflicts.

**Key words:** COVID-19, lockdown, sexual dysfunction

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### INTRODUCTION

Novel coronavirus 2019 (nCoV/SARS-CoV-2/COVID-19) outbreak has posed extreme challenges for survival to humanity. To deal with the COVID-19 infection, most of the countries went through a phase of “lockdown” and are now

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gradually unlocking. During the initial phase, “lockdown” led to no entry/exit movements, and the persons were required to stay wherever they were. Lockdown was considered as both preventive strategies and an emergency strategy to save the lives of the vulnerable or at-risk persons. Government of India implemented “lockdown” with effect from March 25, 2020, across the country to control the spread of COVID-19.<sup>[1]</sup> Lockdown had a significant negative impact on the mental health and overall functioning of the person.<sup>[2]</sup> Additional strategy which was recommended to tackle the spread of COVID-19 infection included social distancing, which possibly impacted the interaction with others.

Lockdown for a man meant staying at home for a longer duration of period and availability of longer time to interact with the spouse.<sup>[3]</sup> Lockdown for women meant an increase in the workload for women, because of everyone being at home throughout the day, higher work pressure, more chances of domestic violence, and interpersonal relationship issues.<sup>[3]</sup> Considering the impact of lockdown on domestic violence, the World Health Organization issued an advisory against domestic violence.<sup>[3]</sup> However, despite increase in the workload, the “lockdown” gave women more opportunity to spend time with their spouses.<sup>[4]</sup>

Lockdown possibly provided more opportunity for sexual intimacy for the couples.<sup>[4]</sup> Few studies from different parts of the world have evaluated the impact of social distancing, quarantine, and lockdown on sexual activity.<sup>[5-7]</sup> An online survey from the United Kingdom, which involved 864 participants showed that, during the period of self-isolation/social distancing, about two-fifth (39.9%) of the participants engaged in sexual activity at least once per week. The presence of sexual activity was associated with being a male, of younger age, taking alcohol, being in a marital relationship or a domestic partnership, and longer duration of self-isolation/social distancing.<sup>[8]</sup>

Another study from Turkey, which evaluated the sexual functioning of 58 females, showed that, compared to 6–12-month period of prepandemic time, the frequency of sexual intercourse during the pandemic increased significantly, and there was a significant improvement in the female sexual functioning index score, compared to that during the time before the pandemic. However, when compared before a pandemic, there was a significant reduction in the use of contraception and desire to become pregnant during the pandemic. In addition, this study showed that there was an increase in menstrual disorders during the pandemic.<sup>[7]</sup> A study from Italy evaluated the sexual satisfaction of 1515 respondents who were quarantined. This study showed a reduction in the frequency of sexual intercourse during the period of quarantine, compared to the earlier. However, the majority of the participants reported sexual desire to be similar (39.2%) or

more than (40.66%) to the previous times. A majority of the participants (78.88%) reported indulging in autoerotism, and this was similar (29.44%) to or more than 39.74% than earlier. There was an increase in the consumption of pornography and marked reduction in sexual satisfaction during the period of being quarantined. It was also seen that sexual dissatisfaction in men was associated with age, whereas in females, it was associated with age, a higher level of depression, and knowing people positive for COVID-19.<sup>[5]</sup>

Little is known about the impact of the COVID-19 pandemic on sexual functioning in people from India. Over the period, many myths have also emerged related to sexual intercourse (such as sexual intimacy with partner can lead to spread of COVID infection) and pregnancy (transmission of COVID infection from mother to the newborn during the process of birth) during the COVID times.<sup>[9]</sup> These can influence the sexual intimacy. Accordingly, there was a need to evaluate the impact of lockdown on sexual functioning. This online survey evaluated the impact of lockdown on sexual functioning, which had not been determined yet in the Indian context. In addition, impact of lockdown on relationship with the partner and mental health was evaluated.

## MATERIALS AND METHODS

This was an online survey conducted using Survey Monkey<sup>®</sup> platform through a link which was sent to people using either Whatsapp<sup>®</sup> or E-mail, using the nonprobability snowball sampling. Initially, the links were circulated by the researchers to their contact and the people receiving the survey link were requested to forward the link further. People receiving the survey link were at freedom to participate or not to participate in the survey. Similarly, there was no compulsion to forward the survey link to others on those receiving the survey link. These were ensured by the nonprobability snowball sampling in that after the initial circulation of the survey link, the direct involvement of the researcher was absent.

The survey invitation mentioned that the participants would have the right not to participate in the survey, and participation in the survey would imply providing informed consent. The participants were also informed that the responses will be anonymized, and there was no chance of them getting identified. The survey link was circulated during the period of May 14 to June 6, 2020. To be included, the participants were required to be aged more than 18 years. The survey was carried out using bilingual (English and Hindi) questions.

Clicking on the invitation link implied providing consent for participation in the study.

The Ethics Committee of the Indian Psychiatric Society approved the study, and the survey was conducted under

the aegis of Research, Education, and Training Foundation of the Indian Psychiatric Society.

### Instruments used

**Changes in Sexual Functioning Questionnaire (CSFQ):**<sup>[10]</sup> The CSFQ is a reliable and valid measure of sexual functioning, which is useful in both clinical and research settings. This is a structured questionnaire designed to measure illness- and medication-related changes in sexual functioning. The scale has separate male and female versions, both of which have 14 items, with each item rated on a 5-point Likert scale. English and Hindi version of the scale, which were available, were used. Permission was sought from the original author of the scale, for use.

A self-designed questionnaire was used to evaluate the effect of lockdown on the relationship with the partner and frequency of sexual intimacy in the past and during the lockdown.

**Patient Health Questionnaire-4 (PHQ-4):**<sup>[11]</sup> The PHQ-4 is a self-administered questionnaire, which has the depression and the anxiety modules, to screen for depression and anxiety, respectively. This questionnaire has excellent reliability and validity, sensitivity and specificity of 88% for major depression.

Data were analyzed using SPSS 20.0 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp., 2011), and the descriptive analysis in the form of frequency, percentages, the mean and standard deviation (SD) was calculated. Comparisons were made by using *t*-test and Chi-square test.

## RESULTS

During this survey period of May 14 to June 6, 2020, 514 responses were received. All the responses which were received from outside the country, verified using the IP addresses were excluded. Similarly, responses received from people below 18 years were also excluded. Responses which were incomplete were not considered for the final analysis. The entries were also checked for duplicacy, and in case of doubt, such responses were excluded. Out of the response received, 26 responses were incomplete, 1 was from a participant <18 years, 6 were from outside India, and 31 were from those who did not have a partner. All these responses were deleted. Finally, 450 responses were found to be complete in all aspects and were analyzed. Majority of the participants were male, married, and postgraduates. The mean age of the participants was 41.5 (SD: 11.2) years. Small proportions of the participants were suffering from chronic physical illness and were on any regular medications. Majority of the participants were spending more than 1 h/day on the screen media [Table 1].

To understand the impact of lockdown on sexual functioning, the participants were asked to keep the month of December

2019 in mind (to give the responses for the time before lockdown), while responding the questions enquiring about prior sexual functioning. Lockdown led to reduction in the frequency of fondling, caressing, touching, or kissing partner when not indulging in sexual intercourse and reduction in the frequency of sexual intercourse [Table 2].

When enquired about the impact of lockdown on the overall relationship with their partner, the majority of the participants reported improvement in the overall relationship, communication with the partner, and interpersonal conflicts [Table 3].

Majority of the participants reported lack of privacy issues (54.1%) during the lockdown period. However, one-third of the participants reported some privacy issue (32.8%) and a small proportion of them reported significant privacy issues (13%). In terms of availability of contraception, a majority (76.7%) reported no worries related to the availability of contraception; a small proportion reported worries related to contraception “somewhat (17%)” and “very much (6.3%).”

As per the assessment of PHQ-4, 14.2% screened positive for anxiety, and 14.8% screened positive for depression. A small proportion (8.7%) screened positive for both, and overall prevalence of psychiatric morbidity (depression, anxiety, or both) was 20.4%.

As is evident from Table 4, less than half of the participants of either gender reported, “much” or “great” enjoyment or pleasure in their sexual activity at the time of assessment. Only about two-fifths of the participants reported engaging in sexual intercourse more than twice a week or more. Other details are shown in Table 4. Similarly, only a small proportion of the females reported indulging in various sexual activities. The mean CSFQ score for males was 44.9 (SD: 9.5), and that for females was 40.2 (SD: 11.8). Overall, female had significantly lower scores on all the domains except for the pleasure domain [Table 4].

In both the genders, presence of depression and anxiety were associated with lower sexual functioning in all the domains [Table 5].

## DISCUSSION

This online survey evaluated the sexual functioning of the people during the lockdown period using a self-designed questionnaire and CSFQ. Findings of the present study suggest that lockdown due to COVID-19 pandemic has led to a reduction in the frequency of sexual intercourse, and reduction in the frequency of intimacy in the form of fondling, caressing, touching, or kissing partner when not indulging in sexual intercourse. Further, the present study suggests that lockdown led to an improvement in overall

**Table 1: Sociodemographic profile of the participants**

Variables	Frequency, n (%) / mean (SD)
Age (years) and range (median)	41.5 (11.2), 22-77 (39.5)
Number of participants aged >65 years	20 (4.4)
Sex	
Male	385 (85.6)
Female	65 (14.4)
Marital status	
Married and living with spouse	389 (86.4)
Married and living away from spouse	35 (7.8)
Unmarried but in a live-in relationship	4 (0.9)
Divorced	4 (0.9)
Single	17 (3.8)
Others (did not specify)	4 (0.9)
Education level	
Up to matric	2 (0.4)
Intermediate	4 (0.9)
Graduate	143 (31.8)
Postgraduate	301 (66.9)
Occupation	
Student	2 (0.4)
Business	27 (6.0)
Housewife	12 (2.7)
Professional	260 (57.8)
Self-employee	155 (34.4)
Retired	13 (2.9)
Type of family set-up	
Husband and wife only	76 (16.9)
Husband, wife, and children	172 (38.2)
Husband, wife, children, and parents	158 (35.1)
Joint/extended family	40 (8.9)
Did not response	4 (0.9)
Do you have a personal bedroom	
Yes	410 (91.1)
No	40 (8.9)
Are you suffering from any chronic physical illness	
Yes (for example-hypertension, diabetes mellitus, chronic obstructive pulmonary disease, asthma, and rheumatoid arthritis) <sup>#</sup>	68 (14.8)
Are you receiving any regular medication for any illness	
Yes	33 (7.2)
Time spent watching television, using social media, laptop, facebook, whatsapp, twitter, etc.	
Up to 1 h/week	53 (11.8)
1-3 h/day	165 (36.7)
3-6 h/day	150 (33.3)
6-9 h/day	55 (12.2)
9-12 h/day	15 (3.3)
>12 h/day	12 (2.7)

<sup>#</sup>Hypertension (n=11), diabetes mellitus (n=6), diabetes mellitus and hypertension (n=3), hypothyroidism (n=2), chronic pain (n=16), PCOS (n=1), coronary artery disease (n=1), chronic kidney disease with asthma (n=1), depression (n=1). SD=Standard deviation, PCOS=Polycystic ovary syndrome

relationship with the partners, communication with the partner, and reduction in the interpersonal conflicts. In terms of psychiatric morbidity, the present study suggests that the prevalence of psychiatric morbidity is about 20.4%, with 8.7%, fulfilling the diagnosis of both depression and anxiety. On CSFQ, less than half of the participants reported enjoyment or pleasure in their sexual activity. About two-fifths of the participants reported engaging in sexual intercourse more than twice a week or more. When the findings of the present study are compared with an online survey from the United Kingdom, which reported the frequency of sexual activity of once per week in 39.9% of participants during the period of self-isolation/social distancing, it can be said that the frequency of sexual

intercourse in participants from India was higher than that reported from United Kingdom,<sup>[8]</sup> despite participants in the present survey reporting reduction in frequency of sexual intercourse. These differences could be attributed to various psychosocial factors, demographic factors, personal/individual differences, timing of the survey with respect to the pandemic, availability of the partner, and possibly giving socially desirable answers. Our findings are also supported by the survey conducted in Italy, which also reported a reduction in the frequency of sexual intercourse during the period of quarantine, compared to the earlier.<sup>[2]</sup> This study also showed that majority of the participants indulged in autoerotism, similar to or more than the earlier; increase in consumption of pornography

**Table 2: Comparison of sexual activities before and during the lockdown period**

	Prior to lockdown (n=450), n (%)	During the lockdown (n=450), n (%)	Chi-square test (P)
Time spent in watching porn/reading erotic material per week			
Nil	181 (40.2)	178 (39.6)	12.263 (0.092)
<15 min/week	101 (22.4)	82 (18.2)	
15-30 min/week	76 (16.9)	64 (14.2)	
30-60 min/week	39 (8.7)	47 (10.4)	
1-2 h/week	31 (6.9)	38 (8.4)	
2-3 h/week	6 (1.3)	19 (4.2)	
3-6 h/week	8 (1.8)	10 (2.2)	
>6 h/week	8 (1.8)	12 (2.7)	
Frequency of masturbation and sexual self-pleasuring acts			
More than once per day	11 (2.4)	15 (3.3)	4.578 (0.333)
Once per day	27 (6.0)	33 (7.3)	
Few times in a week	113 (25.1)	109 (24.2)	
Few times in a month	169 (37.6)	144 (32.0)	
Never	130 (28.9)	149 (33.1)	
Frequency of fondling, caressing, touching or kissing partner when not doing sexual intercourse			
More than once per day	118 (26.2)	124 (27.6)	9.883 (0.042*)
Once per day	66 (14.7)	54 (12.0)	
Few times in a week	142 (31.6)	115 (25.6)	
Few times in a month	84 (18.7)	94 (20.9)	
Never	40 (8.9)	63 (14.0)	
Frequency of sexual intercourse			
More than once per day	14 (3.3)	21 (4.7)	2.163 (<0.001***)
Once per day	42 (9.6)	46 (10.2)	
Few times in a week	175 (39.1)	168 (37.3)	
Few times in a month	188 (41.5)	143 (31.8)	
Never	31 (6.5)	72 (16.0)	

\*P<0.05; \*\*\*P<0.001

**Table 3: Impact of lockdown on the relationship with the partner**

Variables	Very much improved, n (%)	Somewhat improved, n (%)	Not changed, n (%)	Somewhat worsened, n (%)	Very much worsened, n (%)
Overall relationship with my partner during lockdown period	129 (28.7)	124 (27.6)	156 (34.7)	33 (7.3)	8 (1.8)
Level of communication between you and your partner during the lockdown period	155 (34.4)	119 (26.4)	146 (32.4)	24 (5.3)	6 (1.3)
The interpersonal conflicts between you and your partner during lock-down period	98 (21.8)	119 (26.4)	187 (41.6)	40 (8.9)	6 (1.3)

and marked reduction in sexual satisfaction during the period of being quarantined.<sup>[2]</sup> However, in our study, there was no significant change in the frequency of masturbation and sexual self-pleasuring acts or time spent in watching pornography or reading erotic material per week. Our findings also do not support the findings from Turkey, which evaluated females and reported an increase in the frequency of sexual intercourse during the pandemic.<sup>[7]</sup> In fact, we found that higher level of dysfunction in females. These similarities and differences in sexual behavior during the period of lockdown/self-isolation and quarantine in different countries can be attributed to a difference in cultural factors, which possibly influence sexual behavior. Besides these other factors, such as individual/personality factors, timing of the survey, sampling technique, and socially desirable responses could have influenced the frequency of sexual intercourse. In addition, the prevailing myths and incorrect beliefs in the society, with respect to

the sexual intercourse and spread of COVID-19 infection.<sup>[12]</sup> The reduction in the frequency of sexual intercourse or avoidance of sexual intercourse may also be attributed to the fear of spreading the infection or contracting infection to or from the asymptomatic partner. The present study also suggests that a lower score on various domains of CSFQ was associated with higher severity of depression and anxiety scores. However, this should not be interpreted as a cause and effect relationship, as psychiatric morbidity may be a cause or effect of reduced sexual functioning. Previous studies have also reported a negative impact of psychiatric morbidity on the sexual functioning.<sup>[13]</sup>

The present study suggests that lockdown led to an improvement in the relationship with their partner. This improvement can be attributed to a possible reduction of the stress and availability of time. A previous survey from India, which evaluated the psychological impact of lockdown, also



**Table 4: Sexual functioning as assessed by change in sexual functioning questionnaire**

Variables	Male frequency, <i>n</i> (%)/ mean (SD) ( <i>n</i> =385)	Female frequency, <i>n</i> (%)/ mean (SD) ( <i>n</i> =65)	Chi-square test/ <i>t</i> -test ( <i>P</i> )
Compared with the most enjoyable it has ever been, how enjoyable or pleasurable is your sex life right now?			
No enjoyment or pleasure	46 (11.9)	10 (15.4)	1.234 (0.873)
Little enjoyment or pleasure	56 (14.5)	11 (16.9)	
Some enjoyment or pleasure	109 (28.3)	18 (27.7)	
Much enjoyment or pleasure	101 (26.2)	14 (21.5)	
Great enjoyment or pleasure	73 (18.9)	12 (18.5)	
How frequently do you engage in sexual activity (sexual intercourse, masturbation, etc.) now?			
Never	40 (10.4)	11 (16.9)	13.541 (0.009**)
Rarely	51 (13.2)	12 (18.5)	
Sometimes (more than once a month, up to twice a week)	110 (28.6)	25 (38.5)	
Often (more than twice a week)	140 (36.4)	9 (13.8)	
Everyday	44 (11.3)	8 (12.3)	
How often do you desire to engage in sexual activity?			
Never	25 (6.5)	6 (9.2)	3.888 (0.421)
Rarely	42 (10.9)	11 (16.9)	
Sometimes (more than once a month, up to twice a week)	103 (26.9)	19 (29.2)	
Often (more than twice a week)	132 (34.3)	19 (29.2)	
Everyday	83 (21.6)	10 (15.4)	
How much now frequently do you engage in sexual thoughts (thinking about sex, sexual fantasies)?			
Never	11 (2.9)	7 (10.8)	29.973 (<0.001***)
Rarely	51 (13.2)	16 (24.6)	
Sometimes (more than once a month, up to twice a week)	91 (23.6)	26 (40.0)	
Often (more than twice a week)	127 (32.9)	9 (13.8)	
Everyday	105 (27.35)	8 (12.3)	
Do you enjoy books, movies, music or artwork with sexual content?			
Never	53 (13.8)	8 (12.3)	11.136 (0.025**)
Rarely	88 (22.9)	23 (35.4)	
Sometimes (more than once a month, up to twice a week)	110 (28.6)	23 (35.4)	
Often (more than twice a week)	81 (20.9)	9 (13.8)	
Everyday	53 (13.8)	2 (3.1)	
How much pleasure or enjoyment do you get from thinking about and fantasising about sex?			
No enjoyment or pleasure	28 (7.3)	7 (10.8)	6.459 (0.167)
Little enjoyment or pleasure	63 (16.4)	17 (26.2)	
Some enjoyment or pleasure	108 (28.1)	18 (27.7)	
Much enjoyment or pleasure	122 (31.7)	13 (13.8)	
Great enjoyment or pleasure	64 (16.6)	10 (15.4)	
How often do you have erection related or unrelated to sexual activity (male)/how often do you become sexually aroused? (female)			
Never	62 (16.1)	5 (7.7)	11.092 (0.026*)
Rarely	60 (15.6)	19 (29.2)	
Sometimes (more than once a month, up to twice a week)	90 (23.3)	19 (29.2)	
Often (more than twice a week)	88 (22.9)	10 (15.4)	
Everyday	85 (22.1)	12 (18.5)	
Do you get an erection easily? (male)/are you easily aroused? (female)			
Never	18 (4.7)	7 (10.8)	37.558 (<0.001***)
Rarely	29 (7.5)	18 (27.7)	
Sometimes (more than once a month, up to twice a week)	71 (18.4)	17 (26.2)	
Often (more than twice a week)	96 (24.9)	11 (16.9)	
Everyday	170 (44.2)	12 (18.5)	
Are you able to maintain an erection (male)/do you have adequate vaginal lubrication during sexual activity (female)?			
Never	17 (4.4)	7 (10.8)	21.537 (<0.001***)
Rarely	37 (9.6)	10 (15.4)	
Sometimes (more than once a month, up to twice a week)	61 (15.8)	19 (29.2)	
Often (more than twice a week)	111 (28.8)	19 (29.2)	
Everyday	159 (41.3)	10 (15.4)	
How often do you experience painful, prolonged erection? (male)/how often do you become aroused and then lose interest? (female)			

Contd...

**Table 4: Contd...**

Variables	Male frequency, <i>n</i> (%)/ mean (SD) ( <i>n</i> =385)	Female frequency, <i>n</i> (%)/ mean (SD) ( <i>n</i> =65)	Chi-square test/ <i>t</i> -test ( <i>P</i> )
Never	256 (66.5)	31 (47.7)	10.822 (0.029*)
Rarely	78 (20.3)	20 (30.8)	
Sometimes (more than once a month, up to twice a week)	23 (5.9)	9 (13.8)	
Often (more than twice a week)	21 (5.4)	4 (6.2)	
Everyday	7 (1.85)	1 (1.5)	
How often do you have an ejaculation? (male)/how often do you experience an orgasm? (female)			
Never	45 (11.7)	3 (4.65)	23.879 (<0.001***)
Rarely	46 (11.9)	21 (32.3)	
Sometimes (more than once a month, up to twice a week)	85 (22.1)	19 (29.2)	
Often (more than twice a week)	137 (35.6)	13 (20.0)	
Everyday	70 (18.2)	9 (13.8)	
Are you able to ejaculate when you want to? (male)/are you able to have orgasm when you want to?			
Never	27 (7.0)	17 (26.2)	57.228 (<0.001***)
Rarely	42 (10.9)	22 (33.8)	
Sometimes (more than once a month, up to twice a week)	81 (21.1)	12 (18.5)	
Often (more than twice a week)	139 (36.1)	7 (10.8)	
Everyday	95 (24.7)	7 (10.8)	
How much pleasure or enjoyment do you get from your orgasms?			
No enjoyment or pleasure	21 (5.5)	5 (7.7)	22.899 (<0.001***)
Little enjoyment or pleasure	36 (9.4)	18 (27.7)	
Some enjoyment or pleasure	86 (22.4)	16 (24.6)	
Much enjoyment or pleasure	142 (36.9)	11 (16.9)	
Great enjoyment or pleasure	100 (25.9)	15 (23.1)	
How often do you have painful orgasm?			
Never	281 (72.9)	9 (13.8)	87.946 (<0.001***)
Rarely	57 (14.8)	28 (43.1)	
Sometimes (more than once a month, up to twice a week)	27 (7.1)	17 (26.2)	
Often (more than twice a week)	11 (2.9)	8 (12.3)	
Everyday	7 (1.8)	3 (4.6)	
Mean score for the pleasure domain	3.2 (1.3)	3.3 (1.2)	0.788 (0.431)
Mean score for the desire (frequency) domain	6.1 (2.2)	6.8 (2.1)	2.423 (0.016*)
Mean score for the desire (interest) domain	10.0 (2.7)	8.6 (2.9)	3.970 (<0.001***)
Mean score for the arousal (excitement) domain	11.1 (3.1)	9.4 (3.2)	4.203 (<0.001***)
Mean score for the orgasm (completion) domain	10.7 (2.9)	8.7 (3.2)	5.010 (<0.001***)
Mean total CSFQ score	44.9 (9.5)	40.2 (11.8)	3.557 (<0.001***)

\**P*<0.05; \*\**P*<0.01; \*\*\**P*<0.001. SD=Standard deviation, CSFQ=Changes in Sexual Functioning Questionnaire

**Table 5: Correlation of sexual functioning with psychological morbidity**

Variables	Anxiety	Depression
<b>Females</b>		
Pleasure	-0.307 (<0.001***)	-0.341 (<0.001***)
Desire (frequency)	-0.130 (0.006**)	-0.114 (0.017*)
Desire (interest)	-0.147 (0.002**)	-0.149 (0.002**)
Arousal (excitement)	-0.174 (<0.001***)	-0.141 (0.004**)
Orgasm (completion)	-0.209 (<0.001***)	-0.166 (0.001**)
Total CSFQ score	-0.196 (<0.001***)	-0.167 (0.001**)
<b>Males</b>		
Pleasure	0.315 (<0.001***)	-0.345 (<0.001***)
Desire (frequency)	-0.215 (<0.001***)	-0.177 (<0.001***)
Desire (interest)	-0.109 (0.022*)	-0.077 (0.103)
Arousal (erection)	-0.155 (0.002**)	-0.133 (0.009**)
Orgasm (ejaculation)	-0.237 (<0.001***)	-0.214 (<0.001***)
Total CSFQ score	-0.230 (<0.001***)	-0.211 (<0.001***)

CSFQ=Changes in Sexual Functioning Questionnaire. \**P*<0.05; \*\**P*<0.01; \*\*\**P*<0.001

reported a positive impact on the relationships.<sup>[2]</sup> There are also reports of increase in domestic violence and worsening

of relationship between couple during the lockdown period.<sup>[14,15]</sup> Hence, considering this negative impact of lockdown, it can also be said that the improvement in relationship, as noted in the present study could have been influenced by sampling bias and those with actually relationship issues, possibly not participating in the survey.

However, the prevalence of depression and anxiety in the present study was lower than that reported in the previous survey from India, which was conducted about a month before the current survey.<sup>[2]</sup> This difference could be due to the use of a brief version of PHQ in the present study, which could have led to lower prevalence of psychiatric morbidity. Other possible reason could be the fact that, at the beginning of the pandemic, there was a significantly higher level of stress, which possibly reduced with passing time and hence led to a reduction in the prevalence of psychiatric morbidity. Accordingly, it can be said that lockdown has not led to only negative consequences for the general population but has also led to some of the positive consequences in

terms of improvement in the communication between the couple. Accordingly, while evaluating patients presenting with various psychological issues, it is important to enquire about both and negative aspects of lockdown, and making the patients aware about the positive aspects may help in dealing with patients who only talk about the negative consequences and the associated distress.

Findings of this survey must be interpreted in light of its limitations. The response rate was limited, and the survey was conducted by using the snowballing sampling technique. In view of this, the findings cannot be generalized to the entire country. The demographic profile of the study sample is not representative of the demographic profile of the nation; hence, the findings can not be generalized to the country. Further, the psychiatric morbidity ascertained in this survey was assessed by PHQ-4, and the same was not confirmed using any diagnostic interview by a psychiatrist. The Hindi version of the CSFQ has not yet been validated. It is possible that some of the participants would have given socially desirable answers. The survey was limited to those able to read either English and/or Hindi. The survey was also limited to those with a smart phone with internet connection or those with a valid e-mail address. In future, attempts must be made to overcome these limitations.

## CONCLUSION

To conclude, this survey shows that lockdown led to a reduction in the frequency of sexual intercourse and reduction in the frequency of intimacy in the form of fondling, caressing, touching, or kissing partner when not doing sexual intercourse. However, lockdown led to an improvement in overall relationship with the partners, communication with the partner, and reduction in the interpersonal conflicts. These findings overall imply that lockdown led to improvement in the communication between the couple but led to reduction in sexual intimacy. This suggests that possibly lockdown led to improvement in relationship. Accordingly, in future, there is a need to evaluate the role of stress in day-to-day life on the relationship between couple. Further, there is a need to evaluate the role of stress management techniques in couples facing relationship issues.

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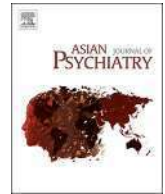
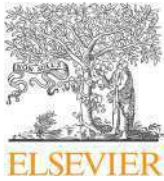
Nil.

## Conflicts of interest

There are no conflicts of interest.

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## Letter to the Editor

## Prevalence of anxiety and depression among the healthcare workers in Nepal during the COVID-19 pandemic



Sir,

Infectious disease outbreaks, such as COVID-19, take a tremendous toll on the general population encompassing various spheres of their life. It is also likely to impact the psychological health of people, including healthcare workers (HCWs) who are in the frontline caring for people with the infection (Tandon, 2020). The HCWs are facing pressure of working in resource-deprived settings and ever-growing patient load all over the world (Rana et al., 2020; Spoorthy et al., 2020). The psychological stress among the HCWs is attributed to prolonged work shift, uncertain pay, lack of Personal protective equipment (PPEs) and added fear of infection to self or family (Grover et al., 2020; Zhang et al., 2020). Most of the studies came from China. However, little information is available about the psychiatric morbidity among the HCWs from developing countries like Nepal. In this background, the aim of this study was to evaluate the prevalence of anxiety, and depression among the HCWs on duty. For this study, HCWs included, doctors, health assistants, auxiliary nurse-midwifery, nursing students posted in the wards, laboratory assistants, paramedics, staff nurses, sanitization workers, ward attendants, security guards and ambulance drivers who are directly or indirectly involved in the care of patients with COVID-19.

This was an online cross-sectional survey, carried out by using Survey Monkey platform. It was circulated between 11 May, 2020, to 10 June, 2020. The ethical approval for the study was obtained from the Ethics Review Board of Nepal Health Research Council (NHRC). The link was circulated through the messages on Whatsapp, Facebook and Messenger platform to the HCWs of 4 hospitals in Nepal; National Medical College, Birgunj; Chitwan Medical College, Bharatpur; P.T. Birtacity Hospital, Birtamod and Nisarga Hospital, Dhangadhi. There was no coercion on participants and were asked to ignore the message if they did not want to participate in the survey. Weekly reminders were sent to those not responding. Snowball technique was used.

The survey questionnaire included: Demographics and personal characteristics: A basic information sheet included the subject's age, gender, marital status, educational qualifications, type of family, history of any physical or psychiatric illness etc. Patient Health Questionnaire-9 (Kroenke and Spitzer, 2002): It is a depression module for common mental disorders. Generalized Anxiety Disorder Questionnaire-7 (GAD-7) (Spitzer et al., 2006): It is a 7-item questionnaire developed to screen patients for anxiety and rate the severity of anxiety. Each item is rated on a 4-point scale (0–3) on the symptoms in the previous two weeks. Perceived Stress Scale (PSS10) (Cohen et al., 1983): This is a 10-item questionnaire intended to measure distress based on anxiety and depressive symptoms experienced in the most recent 4 week period. 3. Data were analyzed using SPSS 20.0 version, and descriptive statistics were applied.

A total of 150 healthcare workers from four hospitals participated in the study. The mean age of the study participants was 29.5 (SD: 6.1)

years. There were more number of females (52.7 %) and majority of the participants were not quarantined until the time of participation in the study (94.7 %). Participants with postgraduate degrees (18.7 %) made up the largest group, followed by those with graduate degrees (33.3 %). About one-third were working as nursing staff (31.3 %), and this was followed by the faculty members (24.7 %). The most common place of work was the speciality OPD (16 %). The most common preexisting medical morbidities reported were hypertension (8.7 %), followed by chronic obstructive pulmonary disease (5.3 %), diabetes mellitus (3.3 %), substance use (2.7 %), chronic pain (2.7 %), stroke (1.3 %) and chronic heart disease (0.7 %). Around 5% had pre-existing psychiatric illness as well.

The mean GAD-7 score was 3.9 (range 0–20, SD 4.2). The overall prevalence of anxiety disorder was 37.3 %, with majority of the participants having mild anxiety. Mean PHQ-9 score was 3.9 (range 0–21, SD 4.2) and 8% of the participants had depression as per the given cut-off. Overall, 38 % of the participants, had at least one psychiatric illness (Table 1).

Present study suggests that 38 % of the HCWs on COVID-19 duty in Nepal are suffering anxiety and/or depression. A study from China suggests that about half (50.4 %) of the HCWs reported symptoms of depression, 44.6 % had symptoms of anxiety, 34 % had insomnia and 71.5 % reported distress (Lai et al., 2020). Another recent meta-analysis of studies, reported pooled prevalence of anxiety to be 23.2 % and that for depression to be 22.8 % (Pappa et al., 2020). Studies from different parts of the world have suggested prevalence of anxiety to range from 11.3%–50% (Zhu et al., 2020; Lai et al., 2020; Chew et al., 2020; Tan et al., 2020) and findings of the present study are within this reported range. This high level of anxiety among the HCWs in Nepal could be attributed to factors like deprivation of protective gears and resultant fear of getting infected. Previous studies have also linked mental morbidity in HCWs to inadequacy of PPEs and increase the risk of exposure to infection (Wu et al., 2020; Du et al., 2020; Liu et al., 2020).

In the present study, the prevalence of depression was 8%, which is much lower than that reported in some of the previous studies from different parts of the world (Lai et al., 2020) and the pooled prevalence reported in the meta-analysis (Pappa et al., 2020). The lower prevalence of depression possibly reflect the cross cultural variance in terms of exposure to adverse working conditions in countries like Nepal in routine clinical practice, when compared to many of the developed countries with well equipped health care facilities.

To conclude, this study highlighted that the HCWs who are an integral part of the fight against the Pandemic are suffering from psychiatric morbidity. Proactive measures should be taken by the government of Nepal to care for the psychological wellbeing of HCWs in order to control the impact of the Pandemic on the HCWs. These could be in the form of providing psychological support.

**Table 1**  
Perceived Stress, anxiety, depression and mental well-being during Lockdown and Comparison of these variables between HCWs and Non-HCWs.

Variables	Whole sample (N = 150) Mean(SD)/ Frequency (%)
Mean GAD-7 score	3.9 (4.2) Range: 0–20 Median: 3.0
<b>Severity of Anxiety</b>	
Normal (0–4)	94 (62.7 %)
Mild (5–9)	41 (27.3 %)
Moderate (10–14)	12 (8.0 %)
Moderate-Severe (15–19)	2(1.3 %)
Severe (≥15)	1 (0.7 %)
Mean PHQ-9 score	3.9 (4.2) Range : 0–21; Median:3.0
<b>Severity of depression</b>	
Minimal (0–4)	99 (66.0 %)
Mild (5–9)	39 (26.0 %)
Moderate (10–14)	8 (5.3 %)
Moderate severe (15–19)	1 (0.7 %)
Severe (≥20)	3 (2.0 %)
Overall prevalence	
% of responders reporting GAD score ≥ 5	51 (34.0 %)
% of responders reporting PHQ-9 score > 10	12 (10.0 %)
Number of participants has Anxiety disorder only	42 (28 %)
Number of participants has depressive disorder only	1 (0.7 %)
Number of participants has both Anxiety and depressive disorder	9 (6.0 %)

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#### Declaration of Competing Interest

None.

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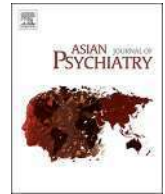
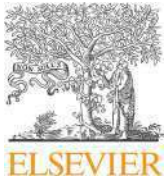
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## Letter to the Editor

## Prevalence of anxiety and depression among the healthcare workers in Nepal during the COVID-19 pandemic



Sir,

Infectious disease outbreaks, such as COVID-19, take a tremendous toll on the general population encompassing various spheres of their life. It is also likely to impact the psychological health of people, including healthcare workers (HCWs) who are in the frontline caring for people with the infection (Tandon, 2020). The HCWs are facing pressure of working in resource-deprived settings and ever-growing patient load all over the world (Rana et al., 2020; Spoorthy et al., 2020). The psychological stress among the HCWs is attributed to prolonged work shift, uncertain pay, lack of Personal protective equipment (PPEs) and added fear of infection to self or family (Grover et al., 2020; Zhang et al., 2020). Most of the studies came from China. However, little information is available about the psychiatric morbidity among the HCWs from developing countries like Nepal. In this background, the aim of this study was to evaluate the prevalence of anxiety, and depression among the HCWs on duty. For this study, HCWs included, doctors, health assistants, auxiliary nurse-midwifery, nursing students posted in the wards, laboratory assistants, paramedics, staff nurses, sanitization workers, ward attendants, security guards and ambulance drivers who are directly or indirectly involved in the care of patients with COVID-19.

This was an online cross-sectional survey, carried out by using Survey Monkey platform. It was circulated between 11 May, 2020, to 10 June, 2020. The ethical approval for the study was obtained from the Ethics Review Board of Nepal Health Research Council (NHRC). The link was circulated through the messages on Whatsapp, Facebook and Messenger platform to the HCWs of 4 hospitals in Nepal; National Medical College, Birgunj; Chitwan Medical College, Bharatpur; P.T. Birtacity Hospital, Birtamod and Nisarga Hospital, Dhangadhi. There was no coercion on participants and were asked to ignore the message if they did not want to participate in the survey. Weekly reminders were sent to those not responding. Snowball technique was used.

The survey questionnaire included: Demographics and personal characteristics: A basic information sheet included the subject's age, gender, marital status, educational qualifications, type of family, history of any physical or psychiatric illness etc. Patient Health Questionnaire-9 (Kroenke and Spitzer, 2002): It is a depression module for common mental disorders. Generalized Anxiety Disorder Questionnaire-7 (GAD-7) (Spitzer et al., 2006): It is a 7-item questionnaire developed to screen patients for anxiety and rate the severity of anxiety. Each item is rated on a 4-point scale (0–3) on the symptoms in the previous two weeks. Perceived Stress Scale (PSS10) (Cohen et al., 1983): This is a 10-item questionnaire intended to measure distress based on anxiety and depressive symptoms experienced in the most recent 4 week period. 3. Data were analyzed using SPSS 20.0 version, and descriptive statistics were applied.

A total of 150 healthcare workers from four hospitals participated in the study. The mean age of the study participants was 29.5 (SD: 6.1)

years. There were more number of females (52.7 %) and majority of the participants were not quarantined until the time of participation in the study (94.7 %). Participants with postgraduate degrees (18.7 %) made up the largest group, followed by those with graduate degrees (33.3 %). About one-third were working as nursing staff (31.3 %), and this was followed by the faculty members (24.7 %). The most common place of work was the speciality OPD (16 %). The most common preexisting medical morbidities reported were hypertension (8.7 %), followed by chronic obstructive pulmonary disease (5.3 %), diabetes mellitus (3.3 %), substance use (2.7 %), chronic pain (2.7 %), stroke (1.3 %) and chronic heart disease (0.7 %). Around 5% had pre-existing psychiatric illness as well.

The mean GAD-7 score was 3.9 (range 0–20, SD 4.2). The overall prevalence of anxiety disorder was 37.3 %, with majority of the participants having mild anxiety. Mean PHQ-9 score was 3.9 (range 0–21, SD 4.2) and 8% of the participants had depression as per the given cut-off. Overall, 38 % of the participants, had at least one psychiatric illness (Table 1).

Present study suggests that 38 % of the HCWs on COVID-19 duty in Nepal are suffering anxiety and/or depression. A study from China suggests that about half (50.4 %) of the HCWs reported symptoms of depression, 44.6 % had symptoms of anxiety, 34 % had insomnia and 71.5 % reported distress (Lai et al., 2020). Another recent meta-analysis of studies, reported pooled prevalence of anxiety to be 23.2 % and that for depression to be 22.8 % (Pappa et al., 2020). Studies from different parts of the world have suggested prevalence of anxiety to range from 11.3%–50% (Zhu et al., 2020; Lai et al., 2020; Chew et al., 2020; Tan et al., 2020) and findings of the present study are within this reported range. This high level of anxiety among the HCWs in Nepal could be attributed to factors like deprivation of protective gears and resultant fear of getting infected. Previous studies have also linked mental morbidity in HCWs to inadequacy of PPEs and increase the risk of exposure to infection (Wu et al., 2020; Du et al., 2020; Liu et al., 2020).

In the present study, the prevalence of depression was 8%, which is much lower than that reported in some of the previous studies from different parts of the world (Lai et al., 2020) and the pooled prevalence reported in the meta-analysis (Pappa et al., 2020). The lower prevalence of depression possibly reflect the cross cultural variance in terms of exposure to adverse working conditions in countries like Nepal in routine clinical practice, when compared to many of the developed countries with well equipped health care facilities.

To conclude, this study highlighted that the HCWs who are an integral part of the fight against the Pandemic are suffering from psychiatric morbidity. Proactive measures should be taken by the government of Nepal to care for the psychological wellbeing of HCWs in order to control the impact of the Pandemic on the HCWs. These could be in the form of providing psychological support.

**Table 1**  
Perceived Stress, anxiety, depression and mental well-being during Lockdown and Comparison of these variables between HCWs and Non-HCWs.

Variables	Whole sample (N = 150) Mean(SD)/ Frequency (%)
Mean GAD-7 score	3.9 (4.2) Range: 0–20 Median: 3.0
<b>Severity of Anxiety</b>	
Normal (0–4)	94 (62.7 %)
Mild (5–9)	41 (27.3 %)
Moderate (10–14)	12 (8.0 %)
Moderate-Severe (15–19)	2 (1.3 %)
Severe (≥15)	1 (0.7 %)
Mean PHQ-9 score	3.9 (4.2) Range : 0–21; Median:3.0
<b>Severity of depression</b>	
Minimal (0–4)	99 (66.0 %)
Mild (5–9)	39 (26.0 %)
Moderate (10–14)	8 (5.3 %)
Moderate severe (15–19)	1 (0.7 %)
Severe (≥20)	3 (2.0 %)
Overall prevalence	
% of responders reporting GAD score ≥ 5	51 (34.0 %)
% of responders reporting PHQ-9 score > 10	12 (10.0 %)
Number of participants has Anxiety disorder only	42 (28 %)
Number of participants has depressive disorder only	1 (0.7 %)
Number of participants has both Anxiety and depressive disorder	9 (6.0 %)

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#### Declaration of Competing Interest

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ACCELERATED RESEARCH

## Changes in sleep pattern and sleep quality during COVID-19 lockdown

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### ABSTRACT

**Introduction:** To mitigate the spread of the pandemic coronavirus infection (COVID-19), governments across the world have adopted “lockdowns” which have confined many individuals to their homes. This disrupts normal life routines, elements of which are important circadian cues. The pandemic is also associated with new stressors, altered roles, and uncertainties about health and economic security, which are also likely to affect sleep. The current study is an online survey of sleep experience, routines, physical activity, and symptoms of anxiety and depression, to study the alterations associated with the lockdown.

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**Materials and Methods:** The survey was conducted in early May 2020 using a questionnaire circulated through social media platforms. Questions related to demographic characteristics, current and previous sleep schedules, routine, and working patterns. Insomnia (Insomnia Severity Index - 4), Stress (Perceived Stress Scale - 4), anxiety and depressive symptoms (Patient Health Questionnaire - 4) and physical activity (International Physical Activities Questionnaire) were assessed using standardized instruments.

**Results:** A total of 958 valid responses were received. Compared to the prelockdown period, there was a shift to a later bedtime and waking time, with a reduction in night-time sleep and an increase in day-time napping. These effects were visible across occupational groups, but mostly affected working individuals except health professionals. Sleep quality deteriorated across groups. Reductions in sleep duration were associated with depressive symptoms.

**Conclusions:** The COVID-19 lockdown is associated with changes in sleep schedule and in the quantity and quality of night-time sleep. Although these changes are associated with elevated rates of emotional symptoms, it is unclear from these cross-sectional results, whether sleep deterioration produces psychological distress, or vice versa.

**Key words:** Coronavirus, COVID-19, home-confinement, lockdown, pandemic, sleep

## INTRODUCTION

The lockdown during the recent COVID-19 pandemic has resulted in a changed lifestyle for many of us.<sup>[1]</sup> These changes were mostly restrictive in terms of social interaction, creativity, opportunities, and positive relationships.<sup>[1]</sup> The restriction was also extended to physical activity, mobility, and availability of nutritional food.<sup>[1,2]</sup> In effect, these have disrupted chronobiological rhythms as these are influenced by not only the light but also other zeitgebers such as meal, social interaction, and physical activity.<sup>[1,3]</sup> Thus, a structured routine can help in improving sleep duration and quality through multiple intrinsic and extrinsic factors.

Most people are confined to their homes. This confinement is stressful in itself as individuals are sharing the limited space for a prolonged period with few close contacts. In addition, they experience a lack of novel stimuli, disruptions of routine activity, increased parenting responsibilities, especially for women, and altered productivity expectations for those engaged in professional duties from home.<sup>[3]</sup> In addition to the ever-present fear of contracting COVID-19 as it spreads across the country, uncertainty about jobs, economic situation, and the health and safety of loved ones. The pandemic has also been described as an information epidemic, as most people have constant access to news about negative consequences, much of it through electronic media and consequent increase in "screen time." In short, lockdown resulted in home confinement during prevailing anxiety and reduction of positive stimuli.<sup>[3]</sup> Stress, in general, but not always, has an inverse relationship with sleep. The effect of stress on sleep quality, timing, and duration is influenced by sleep reactivity.<sup>[4]</sup> Persons with high reactivity develop insomnia during stressful situations while those without do not. Thus, home-confinement resulting from lock-down increases the chances of disturbed sleep and insomnia through stress.

Initiation and maintenance of sleep-wake cycle are explained by two-process models, whereby circadian factors and homeostatic factors interact constantly to induce and

maintain sleep.<sup>[5]</sup> This model posits that owing to circadian factors, human have higher chances to fall asleep at night as we are designed to behave as a diurnal species by nature.<sup>[5]</sup> Sleep pressure represents the homeostatic factor, which is proportional to the time awake. In other words, longer the time awake, higher the sleep pressure, and higher the chances of falling asleep.<sup>[5]</sup> Being a diurnal species, human stay awake during the day and accumulate sleep pressure, which reaches maximum at night, where it interacts with circadian factors to induce sleep.<sup>[5]</sup> Confinement to home can disrupt circadian rhythms as well as homeostatic process (reduced sleep pressure) due to opportunities for extending sleep in the morning and taking naps during the day.

The present COVID-19 epidemic is a rare situation where a sizable population is confined to the home and are not compelled to follow a structured routine. Earlier studies that have assessed the effect of confinement on sleep have been done in astronauts preparing for Mars mission, incarcerated women, and seafarers.<sup>[6-8]</sup> However, the results of these studies cannot be extrapolated to home confinement during COVID-19 lockdown as the nature of confinement is different. First, data from the Mars mission simulation involved only six members of different nationalities, limited space for physical activity, active engagement in training, and prolonged confinement, i.e., 520 days.<sup>[6]</sup> Although the study among incarcerated women had a larger sample size, it cannot be extended to the general population as stressors, and sleep environments were different from those in home confinement.<sup>[7]</sup> The third study included seafarers who were on the ship and engaged in a normal routine. Besides that, the study population in these studies did not have responsibilities other than the profession related, had little opportunities for leisure activities and were not anticipating any threat to life. As discussed, these factors play a role in sleep quality and quantity.

Considering the paucity of literature, the present study was planned under the aegis of the Research, Education, and

Training sub-Committee of the Indian Psychiatric Society to assess the proportion of subjects with insomnia and poor sleep-quality during lockdown. In addition, we wanted to compare sleep patterns and changes in sleep duration after lockdown compared to the prelockdown period. Finally, we wanted to analyze the effect of occupation on insomnia, sleep quality, sleep duration, and sleep pattern after considering confounders that affect any of these sleep parameters.

## MATERIALS AND METHODS

This online survey using the Survey Monkey platform among the general population was done after obtaining approval from the ethics committee of the institute of the first author and the Indian Psychiatric Society. The survey tool was made available in four languages, i.e., English, Hindi, Odiya, and Bengali, with translations being carried out by the authors who were fluent in the language, and consultant psychiatrists (Hindi-, Odiya– SKP, Bengali– AB). The survey went online on April 28, 2020, and the last response was collected on May 10, 2020. All participants above the age of 18 years, regardless of gender, were invited by sending them a link through E-mail or groups on social media (e.g., WhatsApp) and their consent was taken. The participants who completed the survey were asked to forward the survey further if they felt so, to have a snowballing effect.

However, participants who had memory troubles, those taking sleeping pills, pregnant women, and individuals who have self-identified as having COVID-19 infection were excluded from the study. A semi-structured performa was developed to gather information about sociodemographic data, work responsibilities, sleep patterns, screen time, other medical comorbidities, and medication intake.

Sociodemographic data included age, gender, residence, occupation, educational qualifications, years of education, and marital status.

### Occupational responsibilities

Participants were asked if they were going outside the home for professional activity during lockdown; if yes, does their profession require changing shifts. Two items enquired about work from home and whether participants had to follow a structured time schedule for work from home or left to work as per convenience.

### Sleep pattern

They were asked to provide usual bedtime, time to fall asleep, usual wake time, mode of awakening in the morning (self/alarm/other), quality of sleep and daytime naps with duration, total time spent in sleep in a given day before and after lockdown. Although multiple subjective and objective measures are available to assess sleep patterns and sleep patterns longitudinally, for example, sleep diary and actigraphy, use of recall method for sleep pattern

has a moderate correlation with objective methods.<sup>9,10</sup> Moreover, methods of objective estimation of sleep pattern and duration amount for only 20% variation. Thus, the recall method can reliably be used to estimate the sleep pattern over short periods.

### Sleep quality

Sleep quality in this study was assessed based on the subjective report of nighttime sleep after waking up in the morning on a single item. It asked about their subjective feeling of nighttime sleep quality. Single item has been found to have a good correlation with a score of Pittsburgh Sleep Quality Index.<sup>11</sup>

### Screen time

Participants were asked about time spent on screen before and after lockdown each day in hours. Screens involved computers, laptops, smartphones, tablets, and television.

### Daily schedule

Participants responded to a question “whether you are following a structured routine after lock-down?” in either yes or no. This question was used to assess the effect of lockdown on the daily routine.

### Substance use

Participants were asked if they had used addictive substances such as tobacco, alcohol, cannabis, hypnotics, or any other substance during the past 6 months. They were also asked about changes in the pattern of substance use in the lockdown period.

### Other medical comorbidities

Participants were asked if they had any other medical morbidity such as systemic hypertension, diabetes mellitus, cardiac illness, chronic obstructive pulmonary disease, asthma, or any other medical disorders. In addition, they were asked to provide information regarding medications that they were taking.

### Diagnosis of insomnia

Insomnia was assessed using the Insomnia Severity Index (ISI).<sup>12,13</sup> It has seven items that enquire about nighttime sleep as well as daytime functioning and quality of sleep. Each item is scored on a five-point Likert scale with scores ranging between 0 and 28. Score > 14 denotes clinical insomnia.<sup>14</sup> As this instrument was available only in English and Hindi, only scores in these languages are analyzed.

### Mood

Depression and anxiety were diagnosed using four-item patient health questionnaire (PHQ-4).<sup>15</sup> PHQ-4 has been found to have two factors-depression and anxiety (84% variance). Increasing the PHQ-4 score correlates with the use of health-care resources, functional impairment,

and disability. It is an ultra-brief questionnaire to assess depression and anxiety.

#### *Perceived stress scale*

To assess the impact of prevailing conditions in emotions, four-item perceived stress scale-4 was used in this study.<sup>[16]</sup> It has been validated as a measure of perceived stress among various populations and its score moderately correlates with anxiety and depression scale. It has an internal consistency of 0.74.<sup>[16]</sup>

#### **International Physical Activity Questionnaire**

A brief version of the International Physical Activity Questionnaire (IPAQ) was used.<sup>[17]</sup> This instrument asks the subject to provide information on time spent on exercise in the last 7 days, as well as time spent each day on categories of vigorous physical activity, moderate physical activity, walking, and sitting. This instrument has been shown to generate comparable scores to the longer IPAQ, which has been validated extensively.

#### **Statistical analysis**

Statistical analysis was performed using R v 3.6.2, with Standard Packages for the statistical analysis.<sup>[18]</sup> Before analysis, participants who had the same IP address were assessed for similarities in demographic characteristics, to exclude duplicates. Categorical responses to multiple-choice questions were summarized with frequency tables, and numerical responses (in relation to age, as well as total sleep time, screen time, and responses to IPAQ questions relating to types of exercise) were summarized using their mean and standard deviation. To study factors associated with changes in routine and sleep measures, these parameters were analyzed across subgroups with a net increase, reduction, or maintenance of sleep schedule. To do so, responses on current and previous bedtimes and waking times were used. These responses were collected on an ordinal scale of 1-hour intervals (between 4 AM and 8 AM for waking time, and between 10 PM and 12 AM for sleeping time). Differences in responses for the current and previous sleeping and waking times were used to identify individuals with later, earlier, and similar schedules. This was then used to recategorize individuals as those with an overall reduction in sleep times (those who had later sleeping times with the same or earlier waking times, or earlier waking times with the same sleep time), an increase in sleep time (an earlier sleeping time and later waking time, or either of these with no change in the other measure). Those individuals who maintained the same sleeping and waking times, or who had a similar direction of change in both were classified as having the same sleep time. Data on various parameters were analyzed across these three groups. The analysis was also conducted by changes in sleep quality between the prelockdown and lockdown periods, with four categories—those with preexisting poor quality sleep that persisted, those with good sleep quality in both

periods, and those whose sleep worsened or improved between these time points.

Data were also compared across groups of occupational categories, namely, health-care workers (doctors and nurses) who were expected to be continuing to work as previously, housewives (who were presumed to be working mostly at home even before the lockdown), and those who did not belong to either of these categories. Bonferroni correction was applied for multiple testing and based on the number of variables,  $P < 0.002$  was considered statistically significant.

#### **RESULTS**

A total of 1024 completed responses were received during the survey. Out of this, 60 responses were excluded for various reasons, for example, pregnancy, COVID-19 positivity, memory problems, taking sleeping pills and age of participants being  $< 18$  years. Nine hundred and thirty-eight participants were from IP addresses in India, with the remaining participants belonging to the USA ( $n = 7$ ), UK and UAE ( $n = 4$  each), Canada ( $n = 3$ ), Singapore ( $n = 2$ ), and one each from Australia, Germany, Kuwait, Oman, Qatar, and Saudi Arabia. The Indian respondents were spread across 25 states and from all regions of the country. Although most of the participants responded on all items, responses on some items were missing in some of the forms. However, after ensuring that all missing responses were not localized to some specific respondents, all 958 responses were included in the analysis. Due to missing values on the outcome measure, 958 individuals were included in the analysis on sleep duration, 935 for occupation groups, and 923 for sleep quality assessment.

The average age of participants in the study was 37.32 ( $\pm 13.09$ ) years. Two fifths (41.2%) group comprised women, 67% were married and living with their spouse. The rest were either unmarried or living alone. Three-fourth (75.9%) respondents were graduate and 35.9% were health-care workers. Nearly half (47%) of the subjects were working from home and 35.9% were going outside the home for work during lockdown. Nearly half (55%) participants were working as per their convenience while remaining were following daytime shift work. About 16.4% reported that they were engaged in changing shift-work. Nearly 9% were nicotine users, 10.8% were using alcohol and 1.1% reported use of cannabis. Nearly 14% reported that their substance use had reduced during lockdown, while 3.1% reported an increase.

Just over 10% of the group met the criteria for clinically significant insomnia according to ISI, 11.7% reported anxiety and 11.1% reported depression. Other medical disorders were also reported in the group with varying frequency, for example, hypertension (12.3%), 9.4%

diabetes mellitus, 7.2% hypothyroidism, 4.2% had asthma, 1.2% reported coronary artery disease, and chronic obstructive pulmonary disease, each. However, many subjects had more than one disorder.

A change has been noticed in sleep time and wake time after lockdown. Based on bedtime and wake time before and after home confinement, subjects were categorized into three groups-whose sleep duration at night has reduced (16.1%), increased (18.1%), and last, where it remained unchanged [Figure 1a]. These groups were comparable with regard to gender ( $P = 0.57$ ), education ( $P = 0.29$ ), physical activity, working outside

home ( $P = 0.17$ ), working from home ( $P = 0.13$ ), shift working after lockdown ( $P = 0.62$ ), screen time before ( $P = 0.90$ ) and after lockdown ( $P = 0.67$ ), waking up with alarm before ( $P = 0.08$ ), and after lockdown ( $P = 0.89$ ), use of alcohol ( $P = 0.28$ ), tobacco ( $P = 0.92$ ) or any other addictive substance ( $P = 0.38$ ). Other comparing variables are shown in Table 4. Change in sleep quality compared to pre-lockdown state among these groups is depicted in Figure 1b and c shows a comparison of perceived stress among these groups. Figure 1d depicts the change in sleep onset latency after lockdown compared to prelockdown period.

As seen in Table 1, About a quarter (23.4%) reported that sleep quality worsened, in 8.4% it improved and in others remained similar to prelockdown state (pre-lockdown good = 46.9%; prelockdown poor = 20.7%) ( $\chi^2 = 64.03$ ;  $P < 0.001$ ). These groups were comparable with regard to gender ( $P = 0.007$ ), education ( $P = 0.07$ ), occupation ( $P = 0.33$ ), daytime napping before ( $P = 0.23$ ) and after ( $P = 0.30$ ) lockdown. Similarly, working from home ( $P = 0.26$ ) or outside home ( $P = 0.91$ ), regularity of work from home ( $P = 0.10$ ), and shift work ( $P = 0.09$ ) were not different among groups. Physical activity was also comparable among these groups. Table 2 illustrates distribution of other factors in these groups.

Table 3 represents a comparison of demographic, sleep pattern, insomnia, mood, and physical activity among groups based on occupation-health-care workers, homemakers, and others. These groups were comparable with regard to education level ( $P = 0.31$ ), screen time before lock-down, sleep-onset latency before ( $P = 0.43$ ) and after ( $P = 0.93$ ) lockdown, sleep quality before ( $P = 0.43$ ) and after lockdown ( $P = 0.52$ ), and physical activity before and after lockdown.

**Table 1: Change in sleep schedule before and during lockdown (n=938)**

Sleep pattern	Before lockdown	During lockdown	Test statistic	P
Bedtime				
After 11 PM	451 (48.4)	610 (65.2)	52.98	<0.001
Before 11 PM	480 (51.6)	325 (34.8)		
Sleep onset latency				
<30 min	741 (79.4)	523 (56.6)	132.8	<0.001
>60 min	36 (3.8)	157 (16.99)		
30-60 min	156 (16.7)	244 (26.4)		
Waking time				
After 6 AM	686 (73.6)	748 (80.3)	11.55	0.001
Before 6 AM	246 (26.4)	183 (19.7)		
Mode of waking				
By myself	504 (54.0)	611 (65.7)	80.27	<0.001
Somebody wakes me up	54 (5.8)	113 (12.2)		
With alarm	375 (40.2)	206 (22.2)		
Daytime napping				
<60 min	290 (31.1)	354 (38.0)	129	<0.001
>60 min	86 (9.2)	237 (25)		
No naps	556 (59.7)	340 (37)		
Refreshed sleep on waking				
Nonrefreshed	276 (30)	416 (45)	44.88	<0.001
Refreshed	657 (70)	515 (55)		
Screen time (h)	3.77±2.752	5.522±3.271		

#Chi-square test; \*Mann-Whitney U-test

**Table 2: Comparison of variables associated with change in nighttime sleep after lockdown (n=935)**

Variable	Change in Nighttime sleep from pre-lockdown			Test statistic	P
	Reduced (n=151)	Same (n=614)	Increased (n=170)		
Age (years)	37.42±12.6	37.77±13.18	36.12±12.93	30.14	<0.001#
Occupation (%)					
Health-care worker	55 (36.42)	247 (40.22)	63 (37.05)	3.93	0.41
Home-maker	13 (8.60)	47 (7.65)	8 (4.70)		
Other	82 (54.30)	317 (51.62)	99 (58.23)		
Working outside the home after lockdown (%)	61 (40.39)	250 (40.71)	56 (32.94)	3.47	0.18
Sleep-onset latency <30 min before lockdown (%)	123 (81.45)	499 (81.27)	124 (72.94)	6.25	0.04
Sleep-onset latency <30 min after lockdown (%)	74 (49)	351 (57.16)	106 (62.35)	5.95	0.05
Refreshing sleep before lockdown (%)	111 (73.50)	444 (72.31)	105 (61.76)	8.01	0.01
Refreshing sleep after lockdown (%)	68 (45.03)	344 (56.02)	106 (62.35)	10.39	0.005
Daytime napping before lockdown (%)	56 (37.08)	257 (41.85)	66 (38.82)	1.49	0.48
Daytime napping after lockdown (%)	93 (61.58)	400 (65.14)	98 (57.64)	2.82	0.24
Anxiety reported (%)	19 (12.58)	75 (12.21)	13 (7.64)	2.97	0.23
Depression reported (%)	26 (17.21)	66 (10.74)	10 (5.88)	10.62	<0.001
Insomnia (%)	36 (9.92)	6 (8.82)	47 (10.17)	0.122	0.941

#Kruskall-Wallis test; Others were Chi-square tests

**Table 3: Factors influencing change in sleep quality after lockdown**

Variables	Deterioration in Sleep Quality (n=225)	Persistent Poor Quality (n=203)	Improved (n=80)	Good Sleep Persists (n=446)	Test value	P
Age (years)	34.86±12.07	35.03±12.43	32.36±11.84	40.61±13.33	57.47	<0.001*
Bedtime <11 PM before lockdown (%)	109 (48.4)	76 (37.4)	24 (30)	282 (63.2)	56.26	<0.001#
Bedtime <11 PM after lockdown (%)	39 (17.3)	47 (23.2)	31 (38.8)	215 (48.2)	78.72	<0.001#
Sleep onset latency <30 min before lockdown (%)	185 (82.2)	139 (68.5)	60 (75)	374 (83.9)	173.8	<0.001#
Sleep onset latency <30 min after lockdown (%)	57 (25.3)	90 (44.3)	54 (67.5)	338 (75.8)	23.36	<0.001#
Waketime <6 AM before lockdown (%)	52 (23.1)	37 (18.2)	15 (18.8)	147 (33)	21.13	<0.001#
Waketime <6 AM after lockdown (%)	38 (16.9)	28 (13.8)	9 (11.2)	113 (25.3)	18.47	<0.001#
Waking up by self before lockdown (%)	126 (56)	87 (42.9)	29 (36.2)	272 (61)	25.82	<0.001#
Waking up by self after lockdown (%)	130 (57.8)	113 (55.7)	62 (77.5)	316 (70.9)	29.84	<0.001#
Anxiety (%)	47 (20.9)	41 (20.2)	6 (7.5)	19 (4.3)	57.205	<0.001#
Depression (%)	48 (21.3)	36 (17.7)	6 (7.5)	16 (3.6)	59.438	<0.001#
Insomnia (%)	57 (26.8)	5 (1.2)	1 (1.33)	25 (3.66)	112.2	<0.001#

\*Kruskal-Wallis test for continuous variables, #X<sup>2</sup> goodness of fit for categorical variables

**Table 4: Comparison of sleep pattern depending upon occupation (n=923)**

Variable	Health care workers (n=379)	Homemaker (n=70)	Others (n=509)	Test value	P
Age (years)	35.69±11.43	43.07±11.1	37.77±14.23	168.42	<0.001*
Female gender (%)	175 (46.17)	70 (100)	148 (20.07)	136	<0.001#
Screen time after lockdown (h)	4.82±2.78	3.95±2.6	6.19±3.48	39.03	0.001#
Working outside the home after lockdown (%)	275 (72.55)	1 (1.4)	102 (20.03)	298.3	<0.001#
Shift work after lockdown (%)	121 (31.92)	2 (2.9)	32 (6.28)	115.4	<0.001#
Working from home after lockdown (%)	114 (30.07)	22 (31.42)	316 (62.08)	94.9	<0.001#
Bedtime before 11 PM before lockdown (%)	185 (48.81)	48 (68.57)	259 (50.88)	8.98	0.01#
Bedtime before 11 PM after lockdown (%)	139 (36.67)	25 (35.71)	170 (33.39)	1.05	0.59#
Wake time before 6 AM before lockdown (%)	92 (24.27)	24 (34.28)	136 (26.71)	3.05	0.21#
Wake time before 6 AM after lockdown (%)	80 (21.1)	14 (20)	94 (18.46)	0.95	0.21#
Waking up by self before lockdown (%)	165 (43.53)	37 (52.85)	315 (61.88)	28.28	<0.01#
Waking up by self after lockdown (%)	224 (59.10)	44 (62.85)	358 (70.33)	12.8	<0.01#
Day time napping before lockdown (%)	166 (43.79)	43 (61.42)	177 (34.77)	21.74	<0.001#
Daytime napping after lockdown (%)	242 (63.85)	42 (60)	321 (63.06)	0.41	0.81#
Anxiety (%)	30 (7.91)	7 (10)	76 (14.93)	10.3	0.01#
Depression (%)	31 (7.93)	13 (18.57)	63 (12.37)	7.97	0.02#
Insomnia (%)	20 (14.08)	13 (8.08)	50 (8.82)	4.141	0.1261#
Perceived severity	9.07±4.27	9.21±4.09	9.00±4.15	0.68	0.71#

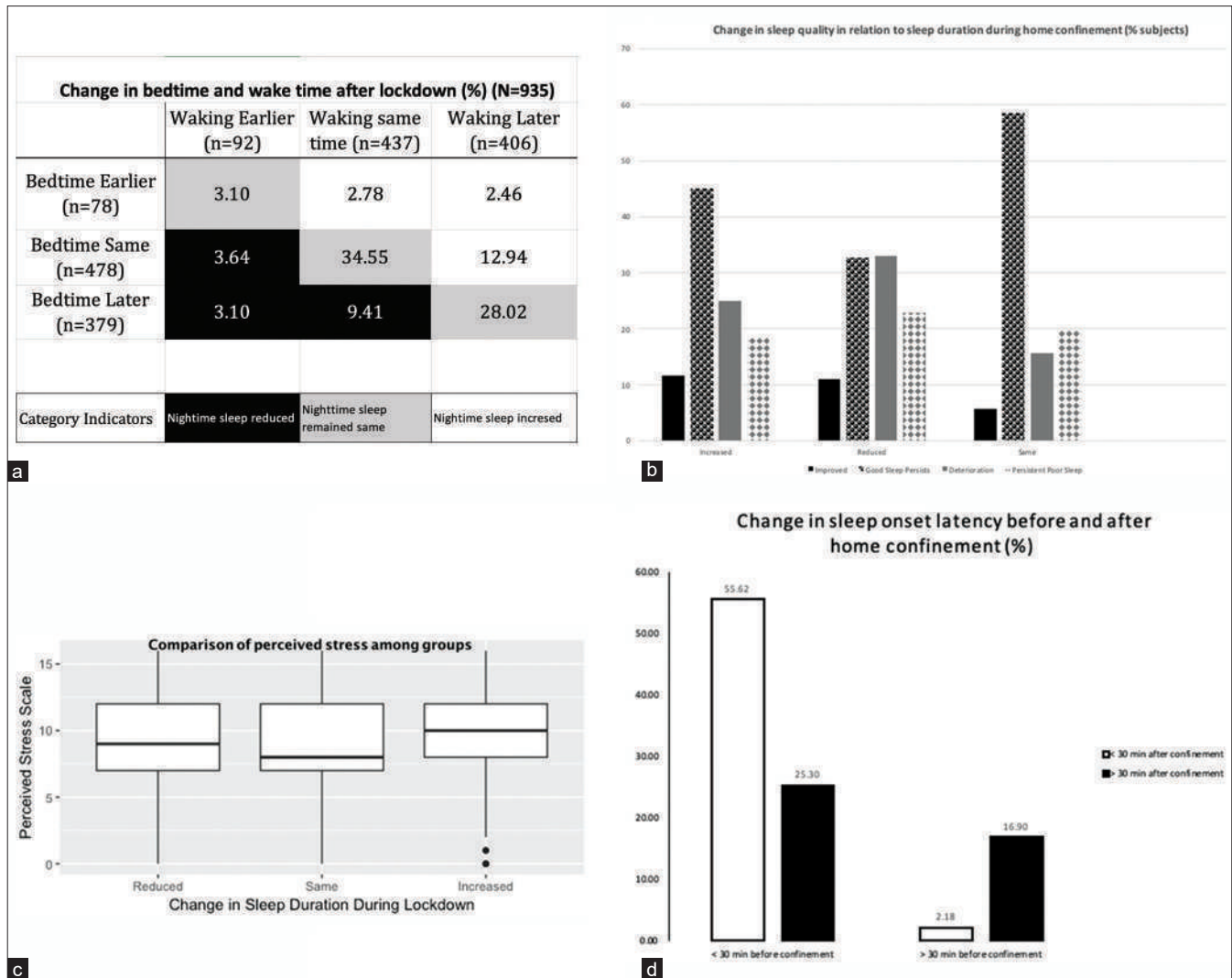
\*Kruskal-Wallis test for continuous variables, #X<sup>2</sup> goodness of fit for categorical variables

However, a greater number of subjects in “other occupations” group were following as-per-convenience work-routine compared to the other two (*P* = 0.01).

## DISCUSSION

This study showed that sleep pattern was influenced by lockdown. A shift to later bedtime, delayed sleep onset, reduction in nighttime sleep duration and increased daytime napping was observed. In addition, a significant number of participants reported worsening sleep quality. Although the proportion of insomnia in this sample was similar to population prevalence in the prelockdown period, the proportion of anxiety and the depressive symptom was higher than population estimates. Participants with the change in sleep duration were comparable with regard to most of the parameters except for age.

These findings contrast with those of a recent study from a Greek population, which reported that nearly 38% of participants had clinical insomnia after the COVID-19 outbreak.<sup>[19]</sup> However, proportion to clinical insomnia was lower during the present study compared to the Greek population and remained at the level of pre-COVID-19 period.<sup>[20]</sup> Voitsidis *et al.*<sup>[19]</sup> showed that insomnia in the Greek population was a function of loneliness, uncertainty, depression, and COVID-19-related worries with a major contribution from two factors-depression and uncertainty. Perception of uncertainty and depressive feelings are influenced by a number of factors, for example, age, religious beliefs, availability of family support, to name a few. The study population in this study was younger compared to that included in the present study.<sup>[19]</sup> Available literature suggests that resilience increases with age and is positively associated with spiritual beliefs and support of



**Figure 1:** (a-d) Sleep-related variables in subjects during home confinement during COVID-19

family.<sup>[19]</sup> Most of the subjects included in the present study were married and living with a spouse (though does not always translate in positive emotional support) that could have resulted in lesser perceived stress and insomnia. It is further strengthened by the finding that perceived stress was comparable among groups with reduced, increased and “no-change” in nighttime duration of sleep after lock-down [Figure 1c].

Lockdown also affected sleep patterns and screen time [Table 3]. Bedtime was delayed, sleep onset latency prolonged, and the proportion of daytime napping increased. A sizable number of subjects were confined to home in the present study, and home confinement is known to produce such effects due to disruption in circadian rhythm.<sup>[3]</sup> Daytime napping also reduces the sleep pressure, thus, delays the bedtime and prolongs sleep-onset latency.<sup>[5]</sup> Thus, circadian and homeostatic factors regulating sleep are mutually influential and interact to determine the timing and latency of sleep onset.<sup>[5]</sup> Moreover, delayed sleep also

reduces the amount of slow-wave sleep owing to circadian factors, and this may result in poor sleep quality, as was seen in the present study.<sup>[5]</sup> Other factors that could influence sleep patterns could be screen time, which increased after lock-down. Longer time on screen is associated with shorter sleep and lesser sleep efficiency.<sup>[21]</sup>

Owing to the shift of sleep pattern, reduced nighttime sleep compared to prelockdown sleep was observed in 16.1% and longer nighttime sleep in 18.1% [Table 4]. However, the reduction was related to delayed bedtime and prolongation to delayed waking up [Figure 1a]. Shorter sleep duration after lockdown was associated with an increased proportion of longer sleep onset latency and depression after lockdown. In addition, shorter nighttime sleep duration was associated with worsening of sleep quality after lockdown [Table 2]. Although not systematically assessed in the present study, shorter nighttime sleep duration could have resulted in sleep deprivation. This is further reiterated by the fact

that the proportion of poor-quality sleep and daytime napping has also increased in this group [Table 4]. Sleep deprivation is known to produce depressive symptoms, daytime fatigue, and daytime sleepiness.<sup>[22-24]</sup> Moreover, the optimal treatment of insomnia also improves depressive symptoms.<sup>[25-27]</sup> A dose-response relationship between the proportion of depression with the change in sleep-duration, sleep-quality, and comparable proportions of insomnia supports this notion [Tables 2 and 4]. However, in the present study, change in nighttime sleep duration was not affected by physical activity, occupation, working from home, or going outside home and perceived stress. These findings are contradictory to proposals in a recent paper that suggested plausible mechanisms of sleep changes during home confinement.<sup>[3]</sup> It was put forth that confinement may lead to increased stress owing to a multitude of factors, namely, available space, lack of social interaction, absence of work and reduction in physical activity, which ultimately culminates in sleep disruption.<sup>[3]</sup> This was not seen in the present study as nearly half of the study population was working from home after lockdown, and social interaction through social media could have been maintained to prelockdown state as depicted by the increment in screen-time after lock-down.

This study indicated that nearly a quarter of participants reported worsening of sleep quality after lockdown. In addition, nearly 21% of participants had poor sleep quality even before the lockdown.

Both proportions are greater than the fraction of poor sleep quality among the Indian population reported earlier.<sup>[28]</sup> A number of factors could explain the difference. First, an earlier Indian study was conducted in a limited geographical population using face to face interviews with a validated questionnaire.<sup>[28]</sup> On the other hand, the present study was a self-reported survey sent through social media and was dependent on recall-based response. Moreover, sleep quality was determined through a single item rather than using a structured questionnaire. Though single item has been found to have optimal concurrent validity to assess sleep quality, there is a possibility that persons with poor sleep quality have preferred to respond to survey over persons with good sleep quality.<sup>[11]</sup> Finally, the prevalence of poor sleep quality was greater than insomnia in the present study because both are different constructs. Considering that sleep quality may be affected by a number of other sleep disorders, besides insomnia, poor sleep quality has been removed from the diagnostic criteria of insomnia disorder.<sup>[29,30]</sup>

In the present study, groups based on occupation were comparable with regard to sleep quality and delayed in bed-time and wake time compared to prelockdown [Table 1]. Some of the home-makers responded that they were working from home during

lock-down, which could be attributed to part-time home-based professional activities in this group. Home-makers had a maximal shift in sleep-time and wake-time after lockdown. Although increment in the proportion of daytime napping was observed in health-care workers and other professionals, it was not seen in home-makers. Moreover, comparable shifting of sleep schedule and proportion of working after lockdown among three groups also challenge the possibility that work-load could result in stress and consequent sleep problems.<sup>[3]</sup> However, interaction among the place of work (from home and outside home) and mood (anxiety and depression) could have influenced sleep quality, which could not be examined in the present study. Health-care workers had the lowest proportions of anxiety and depression compared to the other two groups. This could have resulted from a better understanding of COVID-19 in this group compared to the other two groups.

This study had certain methodological limitations that are inherent to Internet-based surveys. First, all inclusion and exclusion criteria were assessed on the basis of self-report, and therefore some participants who were unaware of their status (e.g., for memory problems or pregnancy) may have been included. Second, cross-sectional collection of data has a recall bias, especially for patterns of sleep and activity assessed for the prelockdown period. Third, as already discussed, response bias could not be ruled out. Fourth, some data was missing in all variables, though the magnitude was limited to 1%–2% of the total number of subjects. As responses were solicited by requests across social media platforms by a snowballing strategy, the subjects recruited may belong to groups that belong to similar strata of society, besides being more likely to be known to each other. This is made evident by the large proportion of health-care workers amongst the respondents ( $n = 379$ ; 39.3%). Internet access, motivation to respond, and comfort with self-reporting emotional and behavioral symptoms, may all have influenced both participation rates, and the responses elicited. Moreover, stresses related to the lockdown are unlikely to be uniformly distributed in the community and are likely to affect those with limited material resources, more than the wealthy. Taken together, these factors affect the generalizability of the results. Fifth, although data is based on self-report on standardized assessment tools wherever available, these have mostly been short screening instruments rather than comprehensive evaluations, as these might limit participation. Finally, it is difficult to ascertain how many individuals received the survey link but did not participate, and thus a response rate could not be ascertained.

## CONCLUSIONS

This survey showed that COVID-19 lockdown was associated with poor sleep quality, shift in sleep cycle to delayed phase,

sleep-deprivation based on nighttime sleep, and depressive symptoms in a sizable number of population.

### Financial support and sponsorship

Nil.

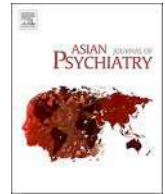
### Conflicts of interest

There are no conflicts of interest.

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## Letter to the Editor

## The psychological impact of COVID-19 pandemic and lockdown on the migrant workers: A cross-sectional survey



### 1. Introduction

COVID-19 pandemic and the resultant lockdown strategy has affected everyone (Tandon, 2020). However, the impact has been more prominent on the lives of the migrant workers/laborers. Lockdown brought the lives of migrant workers to a standstill, as neither have they had any work to do, nor were they able to travel back to their native places. This is compounded by the fact that some of them are not able to meet their daily requirements due to financial constraints. The very basic social distancing strategy could not be ensured in this population as they mostly reside in densely populated communities and rooms with minimal space per person.

The migrants are more prone to social, psychological, and emotional trauma in such situations, emanating from fear of neglect by the local community and concerns about their families' wellbeing and safety in their native places. Migrants belong to the most marginalized sections of the society who are dependent on daily wages for their living, and in times of such distress, need sympathy and understanding of the community (Hargreaves et al., 2019). Immediate concerns the migrant workers face relate to food, shelter, health care, fear of getting infected or spreading the infection, loss of wages, concerns about the family, anxiety, and fear (Singh, 2020). Sometimes, they also face harassment and adverse reactions to the local community.

Governments of India and state governments have been making efforts to address migrant laborers' issues by keeping them at shelter homes and providing them food. However, how much this is helping the migrants is not very well understood. Every day there are media reports of migrant workers travelling to their native places far off from their current location by walking or by cycling. Many have succumbed to death after reaching their destination or during their journey (Indian migrant workers during the COVID-19 pandemic, 2020; Staff, 2020). There are also reports of a tussle between the different governmental agencies, concerning making these migrants reach their native places. All these factors are leading to severe mental distress among migrant workers. Accordingly, it is essential to understand the psychological issues of this marginalized group of people. Accordingly, this study aims to evaluate the mental health issues among the migrant workers living in shelter houses, provided by the administration because of COVID-19 to assess the immediate and long term psychological impact of isolation.

### 2. Material and methodology

It was a cross-sectional study conducted in the Chandigarh, a Union Territory, in North India. The migrants' workers identified by the Government of India, who were living in the shelter house or government authorized buildings, were recruited. The verbal informed con-

sent was obtained before recruitment. To be included in the study, the participants were required to be aged > 18 years, of any gender, able to understand Hindi, were co-operative, medically stable, and provided the written informed consent. The ethical clearance was obtained from the Institute Ethics Committee. The data collection was done during the 5th week of lockdown with adherence to social distancing norms and other infection control measures.

They were assessed on the following instruments.

We used two brief screening instruments i.e. Patient Health Questionnaire-2 (PHQ-2) (Kroenke et al., 2003) and Generalized Anxiety Disorder- 2 (GAD-2) (Skapinakis, 2007) to assess depression and anxiety respectively. Both these scales have been used previously in many studies with adequate sensitivity to screen depression and anxiety (Hughes et al., 2018; Whooley et al., 1997). Perceived stress scale-4 (PSS-4) was used to assess perceived stress which has been reported to be the most useful and feasible in the situations where a short questionnaire is required such as telephonic interview (Lee, 2012). Additionally, a self-designed questionnaire was used to assess the emotional and behavioural response to the lockdown.

All the participants were administered these questionnaires by a trained Clinical Psychologist. The data collected were analyzed using SPSS 20.0 version, and descriptive statistics were applied.

### 3. Results

The study included 98 migrant laborers, all of whom were of males, with a mean age of 32.7 (SD: 10.1) years and the mean a number of years of education being 2.4 (SD: 1.7) years. The mean income of the participants before the lockdown was 8280 Indian rupees. Majority of the participants were married (69.4 %).

About three fourth of the participants (73.5 %) were found to be screen positive for depression on the PHQ-2 and about half of the participant (50 %) were found to be screen positive for anxiety on the GAD-2 (Table 2). On PSS-4, the mean score on the PSS was 7.1 (2.3).

About one-fifth of the participants screened positive for depression only. Nearly half (51 %) of participants screened positive for both anxiety and depression. Overall, about three-fourth (73.5 %) screened positive for at least one psychiatric morbidity (Table 1).

On the self-designed questionnaire, about two-thirds (63.3 %) of the participants reported the markedly increased in the loneliness. More than half of the participants said a significant increase in tension (58.2 %), frustration (58.2 %), low mood (55.1 %), irritability (51.0 %), and fear of death (51.0 %). The other more common responses were fear (41.8 %) and social isolation (31.6 %). There was a marked reduction in the social connectedness (48 %) and sleep (44.9 %) among the participants (Table 2).

**Table 1**  
Depression, Anxiety, and Stress among the participants.

Variables	Frequency (%)	Mean (SD)
<b>The Patient Health Questionnaire (PHQ)-2</b>		
During the past month, have you often been bothered by feeling down, depressed, or hopeless? -Yes	68 (69.4)	
During the past month, have you often been bothered by little interest or pleasure in doing things? -Yes	72 (73.5)	
Screen positive (> 1)	72 (73.5)	
<b>Mean PHQ-2 score</b>	1.4 (0.9)	
<b>Generalized Anxiety Disorder 2-item (GAD-2)</b>		
<b>Feeling nervous, anxious or on edge</b>		
Not at all	16 (16.3)	
Several days	32 (32.7)	1.4 (0.8)
More than half the days	43 (43.9)	
Nearly everyday	7 (7.1)	
<b>Not being able to stop or control worrying</b>		
Not at all	20 (20.4)	
Several days	33 (33.7)	1.3 (0.8)
More than half the days	42 (42.9)	
Nearly everyday	3 (3.1)	
<b>Anxiety</b>		
Presence ( $\geq 3$ )	50 (50.9)	
Absence ( $\leq 2$ )	48 (49.1)	
<b>Mean GAD-2 Score</b>	2.7 (1.6)	
<b>Number of people who screened positive for depression only</b>	22 (22.4)	
<b>Number of people who screened positive for both anxiety &amp; depression</b>	50 (51)	
<b>Number of people with at least one morbidity (either depression or anxiety)</b>	72 (73.5)	
<b>Perceived Stress Scale 4 (PSS-4)</b>		
<b>In the last month, how often have you felt that you were unable to control the important things in your life?</b>		
Never	14 (14.3)	
Almost never	16 (16.3)	1.9 (1.1)
Sometimes	26 (26.5)	
Fairly often	42 (42.9)	
Very often	—	
<b>In the last month, how often have you felt confident about your ability to handle your personal problems?</b>		
Never	15 (15.3)	
Almost never	53 (54.1)	1.3 (0.9)
Sometimes	21 (21.4)	
Fairly often	8 (8.2)	
Very often	1 (1.0)	
<b>In the last month, how often have you felt that things were going your way?</b>		
Never	16 (16.3)	
Almost never	28 (28.6)	1.4 (0.8)
Sometimes	50 (51.0)	
Fairly often	4 (4.1)	
Very often	—	
<b>In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?</b>		
Never	10 (10.2)	
Almost never	21 (21.4)	2.4 (1.5)
Sometimes	21 (21.4)	
Fairly often	7 (7.1)	
Very often	39 (39.8)	
<b>Mean PSS Total score</b>		7.1 (3.4)

#### 4. Discussion

In India, migrant laborers form a significant workforce in many parts of the country. Many of these people work on daily wages or a fixed salary, with no job security. Possibly the only recreation for these people is going back to their homes, whenever they are free from their work responsibility (Singh, 2020). They often stay away from their

homes for a considerable time (maybe several months or even years) and visit their native place only during festivals, marriages, or during harvest season. COVID-19 pandemic has brought them to a situation, where neither they have any work, nor are they able to travel to their native places. Accordingly, it is expected that the emergent situation will lead to a lot of stress and distress among the migrant laborers. Keeping this in mind, the present study, aimed to evaluate the mental health status of the migrants who have been kept in the shelter homes, after the imposition of lockdown, due to COVID-19 pandemic. The present study suggests that about three-fourth (73.5 %) of the participants screened positive for either depression or anxiety. All the migrants who screened positive for anxiety also screened positive for depression, suggesting high co-morbidity. Additionally, about one-fifth of the participants screened positive for only depression.

Additionally, on the self-designed questionnaire, a significant proportion of participants reported a marked increase in negative emotions and feelings such as loneliness, tension, frustration, low mood, irritability, fear, fear of death, and social isolation. These findings suggest that the lockdown and the ongoing pandemic have a significant negative impact on the mental health of the migrant laborers. Although the present study was based on use of screening instruments like PHQ-2 and GAD-2, but when we compare the findings of the present study with that reported in National Mental Health Survey (NMHS) (Murthy, 2017), which reported a community prevalence of mental morbidity to be 10.6 % for depression and anxiety, it can be said that screen positivity in the present study of about 7 times that of NMHS, suggests that there is definite worsening of the mental health status of the migrant labourers.

Further, the findings are twice that seen in an online survey of the general population, done during this lockdown period (Grover et al., 2020). If we compare to the findings of the online survey done during the lockdown period, another important fact, which is evident from this study, is that a higher proportion of the participants screened positive for depression, rather than the anxiety. These differences possibly suggest different psychological reactions of people belonging to different socioeconomic strata. The online survey perhaps included people of middle and higher income who probably had a higher level of anxiety, that could be related to the ongoing pandemic per se. In contrast, in the present study, a significantly higher proportion of participants had both depression and anxiety. A higher prevalence of depression possibly suggests a difference in the kind of stress for people of different socioeconomic strata, even when they are faced with the same pandemic and the lockdown. This high-level negative impact on the mental health of migrant laborers can be understood from different perspectives. First, they have lost their livelihood, which leads to significant financial insecurity and stress about the future. Second, the high level of psychological distress could also be due to worries related to the health of self and significant others back home. The third reason could be because they are alone and possibly will not be able to support their family soon. These findings suggest that besides providing the logistic help such as food and shelter, the migrant laborers need to be screened in detail for the mental morbidity. Further, there is a need to develop a plan to provide them with psychological aid. This can be done, both at the individual level and by carrying out group-level interventions.

The present study has certain limitations. The present study was based on the use of brief screening instruments which although have low reliability and validity and the results needs to be interpreted keeping this fact in mind. However, we have used these scales so as to ease out the interview process and assessment in short time during the pandemic situation (to keep a short interview time). The use of a more detailed questionnaire and better scales with adequate validity/reliability could have yielded better information. The assessment was cross-sectional, and the specific ongoing stressors, coping mechanisms, etc. were not evaluated. Future studies must attempt to overcome these limitations. The other confounding factors, including a history of depression, substance use, or physical illness, were not taken.

**Table 2**  
Lockdown impact on feelings and behaviors.

Variables	No Change (%)	Slightly increased (%)	Markedly increased (%)	Slightly decreased (%)	Markedly decreased (%)	Can't say(%)
Low mood	22 (22.4)	20 (20.4)	54 (55.1)	—	—	2 (2.0)
Tension	17 (17.3)	24 (24.5)	57 (58.2)	—	—	—
Irritability	23 (23.5)	25 (25.5)	50 (51.0)	—	—	—
Frustration	17 (17.3)	19 (19.4)	57 (58.2)	3 (3.1)	—	2 (2.0)
Loneliness	7 (7.1)	19 (19.4)	62 (63.3)	9 (9.2)	1 (1.0)	—
Social connection	24 (24.5)	9 (9.2)	2 (2.0)	16 (16.3)	47 (48.0)	—
Social isolation	14 (14.3)	53 (54.1)	31 (31.6)	—	—	—
Fear	22 (22.4)	31 (31.6)	41 (41.8)	4 (4.1)	—	—
Death fear	22 (22.4)	17 (17.3)	50 (51.0)	5 (5.1)	4 (4.1)	—
Sleep	26 (26.5)	1 (1.0)	2 (2.0)	25 (25.5)	44 (44.9)	—
Appetite	26 (26.5)	8 (8.2)	2 (2.0)	19 (19.4)	—	43 (43.9)
Pain	35 (35.7)	13 (13.3)	5 (5.1)	2 (2.0)	—	43 (43.9)
Tiredness	32 (32.7)	62 (63.3)	2 (2.0)	—	2 (2.0)	—
Use of social media	36 (36.7)	4 (4.1)	6 (6.1)	39 (39.8)	—	13 (13.3)
Faith in god	28 (28.6)	47 (48.0)	12 (12.2)	7 (7.1)	—	4 (4.1)
Watching movies	36 (36.7)	47 (48.0)	12 (12.2)	7 (7.1)	—	4 (4.1)

To conclude, the present study suggests that the current COVID-19 pandemic is causing severe anxiety and depressive symptoms in migrants' workers. Therefore, it is equally important to focus on the mental health issues of this vulnerable population. These people's mental health needs must be made an urgent public health priority because social isolation or living in a shelter house can have a significant impact on their mental health.

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We have no financial disclosure to make.

#### Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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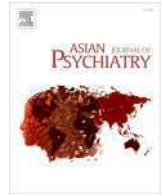
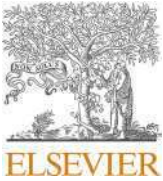
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## Relationship of substance dependence and time to RT-PCR negative status in patients with COVID-19 infection

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### ABSTRACT

**Background:** To date, no study has evaluated the association of alcohol dependence with the outcome of the COVID-19 infection.

**Aim:** The current study aimed to evaluate the association of substance dependence (alcohol and tobacco) with the outcome (i.e., time to have two consecutive negative test reports) of the COVID-19 infection.

**Results:** The mean age of the study participants (n = 95) was 37.2 yrs (SD-13.2). More than half of the participants were males. About one-fourth (N = 25; 26.3 %) were consuming various substances in a dependent pattern. Alcohol dependence was present in 21 participants (22.1 %), and Tobacco dependence was present in 10.5 % of participants. Even after using gender, age, and physical illness as covariates, patients with any kind of substance dependence had a significantly lower chance of having a negative report on RT-PCR on 14th day, 18th 23rd day.

**Conclusion:** Persons with substance dependence takes a longer time to test negative on RT-PCR, once diagnosed with COVID-19 infection. Mental health professionals involved in the care of patients with COVID-19 should accordingly prepare these patients for a possible longer hospital stay to reduce the distress associated with prolongation of hospital stay.

### 1. Introduction

Since the declaration of COVID-19 as a pandemic, the number of cases of COVID-19 increased rapidly across the globe in devastating numbers, and it resulted in numerous psychosocial problems (Tandon, 2020). With the emergence of data, there is some understanding of the prognostic factors associated with poor outcome and mortality. Some of the factors which are associated with a poor outcome include age more than 65 yrs, presence of hypertension (Pranata et al., 2020), chronic obstructive pulmonary disease (COPD) (Alqahtani et al., 2020), diabetes mellitus (Huang et al., 2020), abnormal blood parameters such as leukocytosis, neutrophilia, high troponin I levels, smoking, and presence of other physical illnesses (Hu et al., 2020).

Available data suggest that compared to non-smokers, smoker are at a high risk of developing COVID-19 and being smoker is also associated with higher risk of COVID-19 related mortality (Salah et al., 2020). Some data suggest that smoking is associated with poor outcome and

late recovery among patients with COVID-19 infection. In a recent systematic review, it was reported that smokers have 1.4 times higher risk of having severe symptoms of COVID-19 and 2.4 times higher risk of admission to ICU, need for mechanical ventilation, and die when compared to non-smokers (Vardavas and Nikitara, 2020). Systematic reviews suggest association of the severity of COVID-19 and smoking (Zhao et al., 2020; Izcovich et al., 2020).

It is also suggested that alcohol consumption is associated with higher risk (7–8 times higher risk) of developing respiratory infection and having higher severity of respiratory bacterial infections (Fernández-Solá et al., 1995; Happel and Nelson, 2005; MacGregor and Louria, 1997). Chronic alcohol consumption has also been linked to a higher risk of severe influenza virus infections by altering the immune response (Meyerholz et al., 2008). But to date, no study has evaluated the association of alcohol with the COVID-19 disease's severity, progression or outcome of the illness.

Although some studies have evaluated the association of smoking

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with the outcome of the COVID-19 (Vardavas and Nikitara, 2020), to date, no study has assessed the association of alcohol with outcome of the COVID-19. In this background, this study aimed to evaluate the association of substance dependence with the outcome [i.e., time to have 2 consecutive negative reverse transcriptase-polymerase chain reaction (RT-PCR) oro-pharyngeal test reports] of the COVID-19 infection.

## 2. Material and methodology

It was a retrospective study conducted at a tertiary care center. The institute ethics committee approved the study.

Data of patients admitted in the designated COVID-19 ward during the period of 1st April-15th May 2020 was extracted. The COVID ward is designated only for the patients who are found to be positive for COVID-19 infection on RT-PCR assay of oropharyngeal swab specimens. The diagnosis was based on the diagnosis of the interim guidelines of the World Health Organization (WHO, 2020). At the time of admission to the COVID ward, all the patients undergo detailed evaluation for the presence of various physical illnesses. They also underwent a comprehensive psychiatric evaluation by a qualified psychiatrist to assess for any kind of psychiatric morbidity, including substance dependence, according to the International Classification of Diseases, Tenth Revision (ICD-10) criteria, using a semi-structured interview. The psychiatric evaluation of patients was done by a consultant psychiatrist through video conferencing, by using a semi-structured interview, to evaluate the presence of any psychiatric diagnosis, psychiatry symptoms and substance use. If any patient was detected to be using the substance, they are evaluated for withdrawal symptoms and these are managed using appropriate pharmacological and non-pharmacological measures. Further the patients were regularly counselled/managed by the psychiatrist on a regular basis by the same psychiatrist through video conferencing. The psychiatrist's contact number was also provided to the patients so that they could contact the psychiatrist at the time of crisis. The information about the psychiatric history and physical comorbidity is also corroborated from the family members telephonically. During the hospital stay, patients were clinically monitored and managed symptomatically. On 14th day, a repeat RT-PCR test was done for asymptomatic patients, and if the RT-PCR report came out negative twice in a 24 h interval, these patients are considered to have recovered and are discharged from the hospital. Those patients who do not test negative on RT-PCR twice at 24 -h intervals undergo repeat RT-PCR tests every 4th day, i.e., on 18th day and 22nd day, and so on.

For this study, data of all the patients diagnosed with COVID-19 infection and those aged  $\geq 18$  years were extracted. During the study period, 98 patients aged  $\geq 18$  years were admitted to the COVID-19, of whom details of substance abuse were available for 95 patients. Three patients were directly admitted to the intensive care unit; hence they were not evaluated by the psychiatrist at the time of admission. They expired before further evaluation for substance dependence and psychiatric morbidity. All the 95 patients were clinically asymptomatic and stable at the baseline assessment. The socio-demographic information, such as age, sex, marital status, socioeconomic status, was extracted. Data of blood investigation including complete blood count, Liver function test, Renal function test, D-dimer, Chest x-ray PA view was also extracted. Physical morbidity details were also extracted from the treatment records.

In the present study, outcomes were evaluated in the form of time to RT-PCR negative status in addition to being symptom free from the COVID-19 infection.

## 3. Statistical analysis

Chi-square test or Fischer's exact test were used for categorical variables. For continuous variables, mean and standard deviation were calculated. Comparisons were made by using the Student *t*-test or Mann-Whitney test. Associations between various variables were studied by

using Pearson coefficient-correlation. All *p* values were two-sided, and *p* values of  $< 0.05$  were considered statistically significant.

## 4. Results

The mean age of the study participants ( $n = 95$ ) was 37.2 yrs (SD-13.2). More than half of the participants were male and from lower socioeconomic status. About three fourth were married.

About one-fourth ( $n = 25$ ; 26.3 %) were consuming substances in a dependent pattern, of whom 7 were taking more than 1 substance, and 18 were using only one substance (Table 1). Alcohol dependence was present in 21 participants (22.1 %). Tobacco dependence was present in 10.5 % of cases. The details of physical morbidity and abnormal level of parameters on investigations are depicted in Table 1.

On 14th Day, i.e. after 2 weeks of baseline assessment, about one third (35.8 %) of patients were found to be negative on RT-PCR. This percentage increased to 46.3 % and 49.5 % by day 18 and day 23rd, respectively.

When those with any substance dependence and those without substance dependence were compared, it was seen that a significantly lower proportion of the patients with substance dependence tested negative on RT-PCR on 14th day, 18th day, and 23rd day. Among the substance users, a significantly higher proportion of them were males. Hence, gender, age, and presence of physical illness were used as a covariate, but the statistical significance persisted for all the 3 assessments (Table 2).

When the same analysis was carried out by comparing those with alcohol dependence only ( $n = 21$ ) with those without any substance dependence ( $n = 70$ ), similar results were replicated and persisted even after controlling for gender. When a similar analysis was done for those with tobacco dependence ( $n = 10$ ) and those without any substance dependence ( $n = 70$ ), the same results were replicated. The presence of physical illness had no correlation with the reporting status of RT-PCR on any day.

## 5. Discussion

As per WHO, drinking alcohol, and smoking are associated with a

**Table 1**  
Sociodemographic and clinic profile.

Variables	Frequency (%)/ Mean (SD) (n = 95)
Age	37.2 (13.2); Range :18–67
Gender : Male /Female	57 (60.0 %)/38 (40.0 %)
Marital status : Married /Single	69 (72.6 %)/26 (27.4 %)
Socio-economic status	
Lower	48 (50.5 %)
Middle	37 (38.9 %)
Upper	10 (10.5 %)
Clinic profile of substance use	
Substance dependence and actively using before admission	
Present	25 (26.3 %)
Absent	70 (73.7 %)
More than 1 substances use - present	7 (7.4 %)
Alcohol dependence	21 (22.1 %)
Tobacco dependence	10 (10.5 %)
Physical morbidity	
Hypertension	9 (9.5 %)
Hypothyroidism	4 (4.2 %)
Diabetes mellitus	10 (10.5 %)
HIV/AIDS	1 (1.1 %)
One physical morbidity	18 (18.4 %)
More than >1 Physical illness	4 (4.2 %)
Abnormal Laboratory investigation	
Anemia	4 (4.2 %)
Abnormal D-Dimer	31 (32.6 %)
Thrombocytopenia	4 (4.2 %)

**Table 2**  
Comparison between substance users and non-substance.

Variables	Substance users (n = 25)	Non-substance users (n = 70)	Chi-square value(p-value)	ANCOVA <sup>#</sup>
Status of the patient on the 14 <sup>th</sup> day (COVID-19)				
Positive	22 (88.0 %)	39 (55.7 %)	8.356	F-4.436
Negative	3 (12.0 %)	31 (44.3 %)	(0.004**)	(0.014*)
Status of the patient on the 18 <sup>th</sup> day (COVID-19)				
Positive	19 (76.0 %)	32 (45.7 %)	6.795	F-3.580
Negative	6 (24.0 %)	38 (54.3 %)	(0.009**)	(0.032*)
Status of the patient on the 23 <sup>rd</sup> day (COVID-19)				
Positive	18 (72.0 %)	30 (40.0 %)	6.259	F-3.245
Negative	7 (28.0 %)	40 (60.0 %)	(0.012**)	(0.043*)

# Age was used as the covariate.

more complicated and dangerous progression of COVID-19 (World Health Organization, 2020). However, little is known about how the use of substances influences patients' testing status with COVID-19 infection. The present study shows that those who were using any substance, tobacco only, and alcohol only took a long time to test negative on RT-PCR compared to those who were not taking any substances. These findings provide evidence for the negative impact of substance dependence on COVID-19 status. These findings can have significant clinical implications in the form of educating the public about the risk of prolonged stay for these patients in the COVID wards.

These findings can have severe implications for people with pre-existing mental illnesses, who often have high substance dependence rates. Accordingly, mental health professionals need to emphasize this fact to their patients and prepare them for a relatively lengthy hospital stay, compared to patients who do not use any kind of substance. Further, the mental health professionals need to manage withdrawal from these substances in patients admitted to COVID wards. At present, it is difficult to say why these patients take a longer time to test negative. Future research must attempt to assess the same.

The present study has certain limitations, in the form of retrospective study design, small sample size, and inclusion of data of only less serious patients. We did not evaluate the exact amount of the substances used before being diagnosed with COVID-19 infection. The other confounding factors, like the duration of symptoms, were not taken into account because all the patients were asymptomatic at the time of testing and were tested because of the contact history. Further, the method of sample collection and sensitivity and specificity of RT-PCR should not be ignored while interpreting our study's findings.

To conclude, the present study suggests that patients with substance dependence take a longer time to test negative on RT-PCR, once diagnosed with COVID-19 infection. Mental health professionals involved in the care of patients with COVID-19 should accordingly prepare these patients for a possible longer hospital stay, as last-minute disclosure of prolongation of hospital stay can lead to significant distress to the

patients who are staying in isolation with an expectation of discharge by 2 weeks time.

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### Declaration of Competing Interest

All authors have no conflicts of interest to declare.


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# Telephonic survey and psychological aid for patients with somatic symptom disorders for the impact of lockdown and COVID-19 pandemic

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Chandrima Naskar, Sandeep Grover  and Aman Sharma

Patients with somatic symptom disorders often indulge in doctor shopping, excessive self-medication, abuse of prescribed medications and frequent request for investigations (Grover et al., 2013; Reid et al., 2001; Sharpe & Mayou, 2004). Lockdown due to COVID-19 has brought down the health care services to stand still. To the extent that outpatient services are closed to a large extent, the investigation facilities are closed, and the medication stores are sparsely opened. Accordingly, the lockdown situation has ruled out the fulfilment of the medical needs of patients with somatoform disorders. Further, the outbreak of COVID-19 has led to significant stress in people of all age groups. Experiencing overwhelming fear and anxiety about the disease or its consequences is supposed to be shared among populations worldwide (Grover et al., 2020).

The COVID-19 pandemic and the lockdown make people with somatoform disorders more vulnerable to experience distress. If we look at the needs of the patients with somatoform disorder and the absence of routine healthcare services, it can be expected that it can lead to significant distress among these patients. This study aimed to evaluate the psychosocial impact of lockdown on patients with somatoform disorders.

This was a telephonic survey, in which patients diagnosed with somatic symptom disorder as per the DSM-5 criteria, by using MINI-PLUS (Sheehan et al., 1998), as part of a previous project (Naskar et al., 2020) were contacted. A new submission was made to the Ethics Committee for contacting these patients for assessment and single-session intervention. These patients were aged  $\geq 18$  years, had symptoms for at least 1 year, and were educated up to at least Class 5th. Seventy-one (69%) patients participated in the telephonic interview agreed to participate. Patients provided verbal consent for being part of the study. The mean age of the study participants was 40.8 (*SD*: 9.54; range 21–60 years) with the mean number of years of education being 8.7 (*SD*: 4.3; range 5–18 years). More than half of the participants were males (57.7%). At the initial assessment on MINI-PLUS, small proportion patients ( $n = 9$ ) had an

additional psychiatric diagnosis in the form of mood disorder in the past ( $N = 4$ ), dysthymia ( $N = 2$ ) and panic disorder ( $N = 2$ ). In terms of the type of symptoms reported spontaneously on the telephonic interview, aches and pains (56.6%) were the most commonly reported symptoms, followed by weakness (26.4%), headache (16.9%), gastrointestinal symptoms (15.1%), sleep disturbances (15.1%) and anxiety (11.3%). When asked about the various other dimensions of life after the beginning of lockdown, about half of the participants reported worsening of anxiety (47.9%), about one-third reported worsening of sleep (33.8%), one-fourth reported worsening of the current level of functioning (29.6%) and about one-fifth reported worsening of mood (18.3%). More than one-third of the participants reported worsening of somatic symptoms since the lockdown (37.6%). In terms of the distress of not being able to visit a doctor, 40.8% said the same to be distressing. Small proportion reported consumption of over-the-counter medications (8.5%) and another small portion reported overdosing themselves with prescribed medications (8.5%). About one-eighth (12.7%) reported self-medicating themselves, and 15.5% reported resorting to faith healing since the beginning of lockdown, and 8.4% reported an increase in religious practices since the onset of lockdown. A small proportion (8.4%) said that lockdown has resulted in discontinuation of the medications.

These patients were provided single session psychological aid depending on their needs. The major principles that were followed in providing psychological assistance included reassurance, keeping themselves busy to stay distracted from the symptoms, continuing with the prescribed medications and maintaining a daily routine and sleep

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hygiene. The majority (83.1%) reported a sense of satisfaction in receiving the phone call and the psychological aid provided to them.

The present study shows that lockdown has resulted in a significant worsening of symptoms of patients with somatic symptom disorder. Further, the ongoing pandemic is generating significant distress for this group of patients. In the absence of formal outpatient services, providing telephonic consultation and reassurance to this group of patients can alleviate their anxiety and distress. This worsening of symptoms can also have significant impact on the social functioning of these patients, in terms of their interaction with family members.

If these measures are not done, resumption of services after the lockdown will result in overcrowding of the outpatient services by this group of patients and congest the services, hampering the care of people who are more physically sick and require more urgent attention. Hence, while planning the resumption of the services, these patients' needs must be kept in mind.

This group of patients should be contacted telephonically or through the Telepsychiatry services. They should be initially evaluated telephonically, and depending on the need must be provided psychological aid focusing on their anxiety, normalisation of their symptoms, reassurance and other relaxation measures. These can be reassuring to the patients and possibly may lead to reduction in the outpatient visits. However, if it felt that there are new emergent comorbid disorders, an outpatient visit must be arranged.

Our study is limited by the small sample size and absence of a control group. Additionally, the instrument used for assessment was not validated, and intervention was limited to a single session.

### Authors' Note

All authors attest they meet the ICMJE criteria for authorship.

### Contribution form

	CN	SG	AS
Concepts	✓	✓	✓
Design	✓	✓	✓
Definition of intellectual content	✓	✓	✓
Literature search	✓	✓	✓
Clinical studies	✓	✓	✓

(Continued)

	CN	SG	AS
Experimental studies	✓	✓	✓
Data acquisition	✓	✓	
Data analysis	✓	✓	
Statistical analysis	✓	✓	
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Guarantor		✓	

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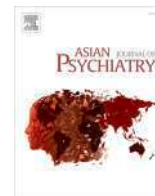
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## Letter to the Editor

## Psychological experience of patients admitted with SARS-CoV-2 infection



## ARTICLE INFO

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COVID-19  
Mental health  
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## 1. Introduction

SARS-CoV-2 or COVID-19 pandemic outbreak has been creating havoc and has imposed a sense of severe insecurity and panic like situation (Tandon, 2020a, 2020b). The mass media/telecommunications/newspaper/blogs have been updating the information about the rapid rise in cases leading to admission to the hospital, being kept in the isolation ward, requiring oxygen support, being admitted in intensive care units (ICUs), associated mortality and the fate of the dead bodies (packaging/filled up graveyards/crematorium). All this news has led to a significant fear, anxiety, uncertainty, and restlessness in the general public. In this background, when one is diagnosed with COVID-19 infection, the diagnosis brings, in a feeling of shock and disbelief, and a feeling of being on the death bed. Many a time, the diagnosis not only leads to admission into the hospital but also leads to a diagnosis of COVID-19 infection in other family members, family members being sent to quarantine and other contacts being traced to the person (Sahoo et al., 2020a).

Given the high infectivity and reported consequences of infections, including mortality, COVID-19 is known to have significant negative mental health outcomes, not only in those who are diagnosed with the infection and their family members but also in the general public (Wang et al., 2020; Zhao and Huang, 2020) and the front line health care workers (HCWs) (Kang et al., 2020; Lai et al., 2020; Rossi et al., 2020; Tan et al., 2020). Currently, there are viewpoints and perspectives of mental health professionals regarding the different emotional reactions/issues and possible psychiatric problems which may arise in people diagnosed with COVID infection (Grover et al., 2020; Yao et al., 2020). Due to the negative mental health consequences, it is suggested that a mental health professional should be part of the core team managing patients with COVID-19 infection (Grover et al., 2020).

Available literature from the previous epidemics of infectious diseases suggests the occurrence of post-traumatic stress disorder, depression, and anxiety disorders in patients admitted with SARS (2002) and Middle East Respiratory Syndrome (MERS, 2012) during the post-illness/recovery stage (Rogers et al., 2020). Further, emerging evidence also suggests the occurrence of delirium (confusion, agitation, altered consciousness) in patients admitted to ICUs with severe

COVID-19 infection (Chen et al., 2020; Helms et al., 2020) and neuropsychological deficits (dysexecutive syndrome) at discharge (Helms et al., 2020).

However, there is very limited literature on the psychological experience of patients with COVID-19 during their hospital stay. One study (n = 144) reported significant anxiety (34 %) and depression (28 %) at admission to isolation wards (Kong et al., 2020), the other (n = 26) study reported higher anxiety and depressive scores on HAM-A and HAM-D respectively after one week of hospitalization, which decreased after comprehensive psychological interventions (Yang et al., 2020). Another study (n = 57) found prevalence of depression to be around 30 % in newly recovered COVID-19 patients (Zhang et al., 2020). Further, a study with large sample (n = 714) of hospitalised but stable patients with COVID-19 reported post-traumatic stress symptoms in 96.2 % patients (Bo et al., 2020). However, these studies had not explored in detail the emotional reactions which the patients went through during the entire period of hospital stay till discharge.

We reported the narrative experiences of our patients during their hospital stay, who had significant distress when diagnosed with COVID-19 infection (Sahoo et al., 2020a, 2020b). These experiences of few patients prompted us to evaluate the experience of all the patients, admitted to the COVID-19 ward. In this background, the current study aimed to evaluate the emotional reactions/experiences which the patients go through, while admitted to the COVID-19 ward, at the time of discharge.

## 2. Methods

At our COVID-19 hospital setting, patients (age > 18 years) with confirmed COVID-19 infection [i.e. positive reverse transcriptase, polymerase chain reaction (RT-PCR) assay of nasal/oropharyngeal swabs], are admitted at designated COVID-19 set up. At the time of admission are evaluated in detail for the physical symptoms, including the presence of physical comorbidities and mental disorders. For assessment of mental disorders, all the patients were telephonically interviewed (using video-conferencing through Whatsapp video calling facility or voice calling) by qualified mental health professionals (who were part of the core COVID-19 management team of the hospital) at the baseline

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**Table 1**  
Demographic and clinical details of the study participants.

Variables	Frequency (%) / Mean (SD) (n = 50)
Age	36.94(12.33)
Gender : Male /Female	33 (66.0 %)/17 (34.0 %)
Marital status : Married /Single	37 (74.0 %)/13 (26.0 %)
Duration of hospital stay (in days)	18.26 (4.96)
<b>Co-morbid conditions</b>	
Alcohol dependence	6 (12.0 %)
Tobacco dependence	5 (10.0 %)
Hypertension	8 (16.0 %)
Hypothyroidism	1 (2.0 %)
Diabetes mellitus	7 (14.0 %)
Myocardial infarction	1 (2.0 %)
HIV/AIDS	1 (2.0 %)
More than >1 Physical illness	5 (10.0 %)
Number of patients with atleast one physical illness	13 (26.0 %)
<b>Abnormal Laboratory investigation</b>	
Anaemia	1 (2.0 %)
Abnormal D-Dimer	12 (24.0 %)
Thrombocytopenia	2 (4.0 %)
Required oxygen support (oxygen prongs) : Yes	5 (10.0 %)
Required admission to ICU : Yes	5 (10.0 %)

assessment, for any past history mental disorder or any ongoing mental distress, including substance use disorders. The information provided was also confirmed telephonically from the family members. Subsequently, the patients were followed up on a daily basis/ every alternate day to look after their mental health issues till they were considered for discharge (RT-PCR negative on two consecutive occasions, 24 h apart).

The Institute's Ethics committee approved the study. For this cross-sectional study, patients admitted (adult patients, aged >18 years, with confirmed COVID-19 infection) during the study period (23rd March to 5th May 2020), were approached on the day of discharge or one-day post-discharge telephonically (voice or video call) and informed about the nature and purpose of the study. The participants were informed that they had the right not to participate in the survey. Those who provided verbal consent to participate in the study were sent the study questionnaire through an online survey link (Survey Monkey® platform) on Whatsapp/ SMS, for completion.

The survey questionnaire consisted of patient health questionnaire-4 (PHQ-4) (Kroenke et al., 2009), and a self-designed questionnaire to rate their overall experience during the hospital stay, about the emotions/-feelings they went through during the entire stay and how they coped up during their hospital stay. PHQ-4 is a self-administered, ultra-brief screening instrument to screen for both depression and anxiety; it has 2 items each from PHQ-9 and Generalized Anxiety Questionnaire-7. Additional clinical data were retrieved from case notes of individual patients.

The data were analyzed using SPSS software, version 20.0. Descriptive statistics were applied. Pearson's correlation coefficient, Chi-square test, and independent *t*-test were used to finding the association between different variables.

As no specific questionnaire is available to assess the various dimensions of the experience of people admitted with COVID-19 infection, based on our initial experience with working with patients with COVID-19 and those in quarantine, we designed a questionnaire. The questionnaire covered the assessment of emotional reaction to the diagnosis, emotional experience during the stay in the hospital stay, fear of death at the time of diagnosis, reaction to the medical professionals, reaction to the environment of the ward, emotional experiences during the different stages of treatment, coping with the negative emotions, the value of interaction with others, change in perspective after surviving the COVID-19 infection, and anticipatory stigma. Rating for different aspects was kept flexible. Coping and Anticipatory stigma were rated on a 4 point numerical rating scales with a range of 0–4. The questionnaire

has not been validated.

### 3. Results

During the study period (23rd March to 5th May 2020), a total of 131 patients were admitted in our COVID designated center, 30 of patients were less than 18 years and 4 patients expired. A total of 97 patients were approached for the study and were sent the survey link, of which 50 patients completed the survey and comprised of the current study sample.

The study sample comprised of 50 patients with a mean age of 36.94 (SD-12.33; range- 21–67; Median: 32.5) years. Majority of the participants were male (n = 33; 66 %) and married (n = 37;74 %). The mean duration of hospital stay was 18.26 (SD- 4.96; range-14 to 38; median: 16) days. About one fourth (n = 13; 26 %) had at least one chronic physical illness. About two-fifth (n = 30; 40 %) had to stay alone in isolation rooms, and a half (50 %) of the participants stayed with another infected family member in the same room. One-tenth (10 %) required oxygen support through oxygen prongs and required ICU stay, of which 3 had brief ICU stay for the initial few days, and 2 had prolonged ICU stay (Table 1).

When asked about their initial emotional reaction to the information about their COVID positive status, a majority reported going through multiple negative emotional states, with the most common emotional states being that of shock (n = 36;72 %), along with feelings of sadness (n = 30;60 %), panic/anxiety (n = 34;68 %) and disbelief (n = 27; 54.0 %). When asked to rate the thoughts of "going to die", on hearing the news about the diagnosis of COVID-19, about one-sixth (n = 8; 16 %) rated it as 100 %, and about two-fifth (n = 20; 40 %) rated it as more than 50 %, with a mean score of 40.5 (SD: 36.3; median: 26). When asked about their reaction to seeing the health care professionals (HCWs) in personal protective equipment (PPEs), about half of them reported it to be like usual interaction with HCWs. In contrast, the other half reported that it felt like they were interacting with Aliens (24 %), astronauts/space scientists (14 %), or robots (22 %). However, the majority of the participants rated the behavior of HCWs to be better than usual times (Table 2).

When the participants were asked to rate their overall experience of staying in the COVID ward environment, taking the entire hospital stay into account, one third reported the experience as if staying in a prison/jail (34 %), as a bad dream (30 %), and a small proportion of them reported it as torture (16 %) and worse than jail (6%). However, others reported the hospital environment to be relaxing (40 %), pleasant (38 %), soothing (28 %), and homely (16 %). Those who stayed in ICU (n = 5), described the experience as painful. Overall, the majority of the patients described the experience as one of the bad phases of life (58 %) and the most horrible time of their life (20 %) (Table 2).

When enquired about the emotions/feelings during the major part of the hospital stay (having options of 'not at all', 'occasionally', 'for few days during the stay', 'for most days during the stay' and 'for almost all days during the stay'), ≥90 % of the patients reported of having anxiety (92 %), remaining worried (96 %) and feeling isolated (90 %) for most days during the stay or for almost all the days during the hospital stay. Other common negative emotional states experienced for most days during the hospital stay were anger (66 %), irritability (76 %), fear of death (64 %), feeling disconnected (86 %), and hopeless (70 %) (Table 3).

When asked about experience of different events and time frames during the hospital stay and close to discharge, things which were mostly evaluated negatively were disclosure of diagnosis and first 3 days of stay in the COVID ward. The things which were valued the most were going out of the COVID-19 ward, travelling back to home and reaching home (Table 4).

When asked about the coping methods used during the hospital stay to adapt to the situation and negative emotions, about two-thirds of the participants reported remembering God (66 %), talking to friends and

**Table 2**  
Details of hospital stay and the initial reaction of patients after admission (n = 50).

Variables	Frequency (%) (n = 50)
<b>During the entire hospital stay, you stayed:</b>	
Alone in an isolation room	20 (40.0 %)
Isolation Room for most of the duration and required ICU stay for a few days	3 (6.0 %)
ICU for most of the duration and stayed for a few days in the isolation room	2 (4.0 %)
In isolation Room with infected family members in the same room	25 (50.0 %)
Initial emotional reactions when told about COVID positive status (multiple responses permitted)	
Shock	36 (72.0 %)
Disbelief	27(54.0 %)
Anger	9 (18.0 %)
Agitation	6 (12.0 %)
Sadness	30 (60.0 %)
Panic, anxiety	34 (68.0 %)
<b>Rate to what extent did you think that you are going to die when you came to know you are COVID positive (on a scale of 0–100)</b>	<b>40.5 (36.3)</b>
Number of patients rated it as 100 %	8 (16.0 %)
Number of patients rated $\geq$ 50	20 (40.0 %)
<b>Reaction/feeling when saw doctors and nurses in Personal Protective Equipment (multiple responses permitted)</b>	
Like usual interaction with Doctors, Nurses, and other Hospital Staff	25 (50.0 %)
Felt that I was with Aliens	12 (24.0 %)
Felt that I was with Astronauts, a space scientist	7 (14.0 %)
Felt that I was surrounded by Robots	11 (22.0 %)
<b>Rate the behavior of the members of treating team towards you when you were in the hospital</b>	
Same as before, i.e., like the doctors and nurses behaving with you earlier	11 (22.0 %)
Worse than before,, i.e., felt that they cared less	2 (4.0 %)
Better than before, i.e., the doctors and nurses showed extra care	37 (74.0 %)
<b>Variables</b>	<b>Frequency (%)</b>
<b>The overall experience of the environment of COVID-19 isolation ward (multiple responses permitted)</b>	
Soothing	14 (28.0 %)
Pleasant	19 (38.0 %)
Relaxing	20 (40.0 %)
Homely	8 (16.0 %)
Painful	11 (2.0 %)
Torture	8 (16.0 %)
Like staying in a Jail	17 (34.0 %)
Worse than a Jail	3 (6.0 %)
Bad Dream	15 (30.0 %)
<b>At least one unpleasant, no pleasant experience</b>	<b>26 (52.0 %)</b>
<b>At least one pleasant no unpleasant experience</b>	<b>20 (40.0 %)</b>
<b>Overall experience of environment of COVID-19 ICUs (n = 5) (multiple responses permitted)</b>	
Soothing/Pleasant /Relaxing	1 (20.0 %)
Painful	5 (100.0 %)
Torture	2 (40.0 %)
Like staying in a Jail	1 (20.0 %)
<b>When you look at your experience of the COVID ward stay, how do you fell about it?</b>	
It was one of the best phases of your life	1 (2.0 %)
Nor good, nor bad about the time spent there	10 (20.0 %)
It was one of the bad phases of your life	29 (58.0 %)
It was the most horrible time of my life	10 (20.0 %)

family members over the phone (64 %) and praying to God (62 %) helped them to a large extent. Listening to music (34 %) or to religious discourses (34 %) and watching movies (30 %) were also reported by one-third of the patients to be quite helpful during their stay to overcome negative emotional states. Coping strategies, such as sleeping, eating, shouting, were less frequently used and when used, helped minimally (Table 5).

Further, when asked to rate the experience, in terms of interaction with various people, interaction with various people, including HCWs, family members (in person or telephonically), mental health professionals, were valued by all the participants (Table 6).

When asked about change in perspective in life, after surviving the COVID-19 infection, almost all of the participants reported an increase in 'faith in God', 'faith in human relationships', 'respect for doctors and health professionals' and 'respect for police and security personnel'. About one-fourth reported a decrease in faith in 'power of money' (Table 7).

When enquired about anticipated stigma, overall, the level of anticipated stigma related to self and family was lower, compared to

that anticipated in the form of reaction of neighbors and society (Table 8). The mean PHQ-4 score of the participants at the time of assessment was 4.32 (SD-1.75), with 32% (n=16) screening positive for anxiety disorders and 20% (n=10%) screening positive for depression. Overall, 19 participants (38%) reported screened positive for either anxiety or depression or both (Table 9).

Age, gender, marital status, presence/absence of physical illness, a total duration of hospital stay were not found to have any significant association with anxiety, depression, or on total PHQ-4 score. Stigma score had negative correlation with PHQ-4 depression score and total PHQ-4 score had negative correlation with coping score (Table 10).

#### 4. Discussion

The present study aimed to evaluate the experiences of the patients with COVID-19 infection during their inpatient stay in COVID isolation wards and ICUs. Most of the patients were asymptomatic with respect to the physical symptoms of COVID-19 infection throughout their stay, and only 10 % (n = 5) required admission to ICU and required oxygenation.

**Table 3**  
Emotions/feelings during major part of COVID hospital stay.

Question 1: How would you describe your emotions during the major part of the stay in the COVID ward?				
Variables	Not at All Frequency (%)	For few days during the stay Frequency (%)	For most days during the stay Frequency (%)	For almost all days during the stay Frequency (%)
Sad	1 (2.0 %)	49 (98.0 %)	–	–
Anxiety	3 (6.0 %)	–	46 (92.0 %)	1 (2.0 %)
Anger	17 (34.0 %)	–	33 (66.0 %)	–
Irritability	12 (24.0 %)	–	38 (76.0 %)	–
Guilt	26 (52.0 %)	–	23 (46.0 %)	1 (2.0 %)
Numb	34 (68.0 %)	–	16 (32.0 %)	–
Worried	1 (2.0 %)	–	48 (96.0 %)	1 (2.0 %)
Fear of Unknown	6 (12.0 %)	44 (88.0 %)	–	–
Fear of Death	16 (32.0 %)	–	32 (64.0 %)	2 (4.0 %)
Fear of Condition Worsening	10 (20.0 %)	40 (80.0 %)	–	–
Happy	29 (58.0 %)	21 (42.0 %)	–	–
Soothing	23 (46.0 %)	27 (54.0 %)	–	–
Relaxing	19 (38.0 %)	–	30 (60.0 %)	1 (2.0 %)
Demoralized	30 (60.0 %)	–	20 (40.0 %)	–
Disconnected	7 (14.0 %)	–	43 (86.0 %)	–
Isolated	2 (4.0 %)	–	45 (90.0 %)	3 (6.0 %)
Hopeless	15 (30.0 %)	–	35 (70.0 %)	–
Helpless	20 (40.0 %)	12 (24.0 %)	18 (36.0 %)	–
Worthless	25 (50.0 %)	19 (38.0 %)	6 (12.0 %)	–

Our study suggests that most of the patients go through the initial emotional reactions of shock, disbelief, sadness, and panic/anxiety and a small proportion of the patient equates the diagnosis of COVID-19 infection with death. These emotional reactions can be understood from the prevailing information about the infection and typical grief reaction to any kind of loss, as described in the literature (ZISOOK and SHEAR, 2009). When there were few cases of COVID-19 infection in the country, media was reporting about high mortality rates associated with COVID-19 infection in Italy and the United States. Some of the anxiety could be due to the information being broadcasted in the mass media regarding the scenarios of the dead bodies being piled up for cremation and crisis for ventilator requirements across the country (“Deaths, Fear of Covid-19 Creating Anxiety, but There is Social Support”, 2020, p. 18). These possibly led to the emotional state among people, who were making efforts to escape the infection, and when they developed the same, it led to a state of grief and fear of death.

The predominant emotional state of patients for most days during the stay or for almost all the days during the hospital stay was that of anxiety (92 %), remaining worried (96 %), and feeling isolated (90 %). This high level of anxiety could be due to multiple reasons, such as staying alone, fear of death, feeling of not been cared for (they are hospitalized, but not given any active treatment; no family caregivers available), adjustment to a new environment, fear, and apprehension about health and

deterioration of physical health, inability to connect to family members, restricted physical movements, following the news update with respect to the COVID-19, worries related to the development of infection in family members and friends, fear of the unknown, fear of death, coming to know about the health status of other family members, seeing other patients being shifted to ICU, etc. Further, in India, people are comparative more social and like to interact with each other. Hence, staying isolated in a closed room could lead to significant anxiety. As there is limited data on the experiences of people with COVID-19 infection, it is difficult to compare our findings with that of the existing literature. Studies that have evaluated people in quarantine have reported similar types of emotional reactions and psychological problems (Brooks et al., 2020; Hawryluck et al., 2004). These findings suggest that there is a need to provide psychological interventions to people admitted in COVID-19 wards with minimal symptoms or those who are asymptomatic. Recently, there has been a change in policy, in that the patients with minimal symptoms or those who are asymptomatic with respect to physical symptoms of COVID-19 have been asked to stay back at home and remain isolated (Home isolation is now an option for COVID-19 patients who are pre-symptomatic or have very mild symptoms, 2020; Ministry of Health and Family Welfare, 2020). This can have its advantages and disadvantages. Psychologically, this can help the person in staying back at their home and also possibly feeling that, they

**Table 4**  
Experience of different events and time frames during the hospital stay.

Variables	Very Bad Frequency (%)	Bad Frequency (%)	Neither Bad nor Good Frequency (%)	Good Frequency (%)	Very Good Frequency (%)
Disclosure of COVID-19 positive Status	22 (44.0 %)	28 (56.0 %)	–	–	–
Disclosure that you may have to stay alone in the ward	–	21 (40.0 %)	25 (50.0 %)	4 (8.0 %)	–
First 3 days of the stay in COVID-19 ward	1 (2.0 %)	46 (92.0 %)	2 (4.0 %)	1 (2.0 %)	–
Day 4 to day 10 of the stay in the COVID-19 ward	–	25 (50.0 %)	21 (42.0 %)	4 (8.0 %)	–
Day 11–14 of the stay in the COVID-19 ward	–	21 (42.0 %)	11 (22.0 %)	13 (26.0 %)	5 (10.0 %)
Waiting for the COVID-19 report to be negative for the first time	–	13 (26.0 %)	6 (12.0 %)	22 (44.0 %)	9 (18.0 %)
Waiting for the COVID-19 report to be negative for the second time	–	12 (24.0 %)	6 (12.0 %)	10 (20.0 %)	22 (44.0 %)
Coming out of the COVID-19 ward	–	1 (2.0 %)	–	13 (26.0 %)	36 (72.0 %)
Traveling back home	–	–	2 (4.0 %)	10 (20.0 %)	38 (76.0 %)
Reaching Home	–	1 (2.0 %)	1 (2.0 %)	7 (14.0 %)	41(82.0 %)

**Table 5**  
Coping skills adapted by the patients.

Variables	Did not use Frequency (%) 0	Used and helped minimally Frequency (%) 1	Used and helped to a small extent Frequency (%) 2	Used and helped to a large extent Frequency (%) 3	Mean (SD)
Sleeping	20 (40.0 %)	23 (46.0 %)	–	7 (14.0 %)	0.74 (0.69)
Eating	40 (80.0 %)	9 (18.0 %)	–	1 (2.0 %)	0.22 (0.46)
Talking to friends and family members on phone	3 (6.0 %)	15 (30.0 %)	–	32 (64.0 %)	1.58 (0.60)
Surfing Internet	17 (34.0 %)	10 (20.0 %)	6 (12.0 %)	17 (34.0 %)	1.46 (1.28)
Watching movies	20 (40.0 %)	10 (20.0 %)	5 (10.0 %)	15 (30.0 %)	1.30 (1.28)
Listening to Music	14 (28.0 %)	9 (18.0 %)	10 (20.0 %)	17 (34.0 %)	1.60 (1.22)
Remembering God	1 (2.0 %)	4 (8.0 %)	12 (24.0 %)	33 (66.0 %)	2.54 (0.73)
Praying to God	1 (2.0 %)	7 (14.0 %)	11 (22.0 %)	31 (62.0 %)	2.44 (0.81)
Listening to religious songs	20 (40.0 %)	16 (32.0 %)	2 (4.0 %)	12 (24.0 %)	1.12 (1.18)
Listening to religious discourse	26 (52.0 %)	4 (8.0 %)	6 (12.0 %)	14 (28.0 %)	1.16 (1.33)
Watching religious programs	31 (62.0 %)	12 (24.0 %)	1 (2.0 %)	6 (12.0 %)	0.64 (1.00)
Planning for future	31 (62.0 %)	17 (34.0 %)	2 (4.0 %)	–	0.42 (0.57)
Rejoicing the free time	38 (76.0 %)	9 (18.0 %)	3 (6.0 %)	–	0.30 (0.58)
Shouting at people by calling them telephonically, whom you think, possibly infected you	45 (90.0 %)	5 (10.0 %)	–	–	0.10 (0.30)
Shouting at people mentally to vent out your negative emotions	38 (76.0 %)	8 (16.0 %)	4 (8.0 %)	–	0.32 (0.62)
Shouting at Health Care workers	46 (92.0 %)	4 (8.0 %)	–	–	0.08 (0.27)
Writing something	49 (98.0 %)	1 (2.0 %)	–	–	0.04 (0.28)
Drawing	48 (96.0 %)	1 (2.0 %)	1 (2.0 %)	–	0.06 (0.31)
Cleaning the place around	34 (68.0 %)	13 (26.0 %)	2 (4.0 %)	1 (2.0 %)	0.40 (0.67)
Exercising	33 (66.0 %)	9 (18.0 %)	4 (8.0 %)	4 (8.0 %)	0.58 (0.94)
Meditation	36 (72.0 %)	12 (24.0 %)	–	2 (8.0 %)	0.36 (0.69)
<b>Total coping score</b>	<b>17.46 (7.25)</b>				

**Table 6**  
Experience of interaction with people during the COVID hospital stay.

Variables	Worst thing ever happening around Frequency (%)	Worst thing happening around Frequency (%)	The best thing happening around Frequency (%)	Best thing ever happening around Frequency (%)
Interacting with doctors and nurses in the ward in person	0 (0%)	12 (24.0 %)	33 (66.0 %)	5 (10.0 %)
Interacting with family members, who were admitted with you	8 (16.0 %)	12 (24.0 %)	29 (58.0 %)	1 (2.0 %)
Being able to connect to Mental Health Professionals on the telephone or by video-conferencing	0 (0%)	2 (4.0 %)	34 (68.0 %)	14 (28.0 %)
Able to Talk to friends on telephone or by video-conferencing	2 (4.0 %)	20 (40.0 %)	23 (46.0 %)	5 (10.0 %)
Able to Talk to family members on the telephone or by video-conferencing	6 (12.0 %)	16 (32.0 %)	22 (44.0 %)	6 (12.0 %)

**Table 7**  
Changes in perspective towards life.

Variables	Increased Significantly Frequency (%)	Increased Slightly Frequency (%)	No Change Frequency (%)	Decreased Slightly Frequency (%)	Decreased Significantly Frequency (%)
Faith in God	24(48.0 %)	23 (46.0 %)	3 (6.0 %)	–	–
Faith in Power of Money	–	2 (4.0 %)	34 (68.0 %)	10 (20.0 %)	4 (8.0 %)
Faith in Human Relationships	29 (58.0 %)	15 (30.0 %)	6 (12.0 %)	–	–
Respect for Doctors & Health Professionals	35 (70.0 %)	14 (28.0 %)	1 (2.0 %)	–	–
Respect for Police and Security Personnel	9 (18.0 %)	20 (40.0 %)	13 (26.0 %)	8 (16.0 %)	–

are dealing with the minor flu-like an infection. Home isolation can also possibly help the person to be comfortable in their natural environment, with family members around them. However, in people, those who have anxious traits, home isolation can be very distressing, because if these people have a high level of somatosensory amplification or hypochondriasis, they would demand to be shifted to the hospital and frequent shifting from one place to the other can be taxing to the available resources and also increase the risk of others getting infected. Accordingly,

it can be said that psychological interventions must be provided to all the people with COVID-19 infection, irrespective of the place of isolation. The psychological interventions should follow the paradigm of grief work and include tenets of supportive psychotherapy.

Findings of the present study suggest that, over the period of hospital stay, the patients start to feel relaxed, and gradually their experience with the ward environment change. This could be attributed to the use of various adaptive coping strategies, perceived supportive behavior of the

**Table 8**  
Anticipatory perceived stigma prior to discharge from COVID-19 hospital (n = 50).

Variables	Never Frequency (%) 0	Sometimes Frequency (%) 1	Often Frequency (%) 2	Usually Frequency (%) 3
<b>Related to self</b>				
You were worried that others will come to know that you suffered from COVID-19	14 (28.0 %)	26 (52.0 %)	7 (14.0 %)	3 (6.0 %)
You were planning to hide, about your COVID-19 infection from others	26 (52.0 %)	17 (34.0 %)	6 (12.0 %)	1 (2.0 %)
You are feeling ashamed because you tested positive for COVID-19 infections	29 (58.0 %)	18 (36.0 %)	2 (4.0 %)	1 (2.0 %)
You were feeling embarrassed because you tested positive for COVID-19 infections	20 (40.0 %)	21 (42.0 %)	7 (14.0 %)	2 (4.0 %)
You were feeling that people would make you feel that, you were infected because of your fault	21 (42.0 %)	17 (34.0 %)	7 (14.0 %)	5 (10.0 %)
You anticipated that you will be hurt emotionally be people's reaction towards you, because of your COVID-19 positive status in the past	13 (26.0 %)	22 (44.0 %)	13(26.0 %)	2 (4.0 %)
You anticipated that others would think less of you as a person	19 (38.0 %)	22 (44.0 %)	8 (16.0 %)	1 (2.0 %)
You feel that others think less of you as a person	23 (46.0 %)	18 (36.0 %)	8 (16.0 %)	1 (2.0 %)
<b>Related to family</b>				
People in your family would be uncomfortable with you	37(74.0 %)	9 (18.0 %)	3(6.0 %)	1 (2.0 %)
People in your family would avoid you	40(80.0 %)	7 (14.0 %)	3 (6.0 %)	–
People in your family would be unkind to you	44 (88.0 %)	3 (6.0 %)	3 (6.0 %)	–
People in your family would be afraid of you, because of your COVID-19 positive status in the past	41 (82.0 %)	8 (16.0 %)	–	1 (2.0 %)
People in your family would avoid touching you, because of your COVID-19 positive status in the past	40 (80.0 %)	7 (14.0 %)	2 (4.0 %)	1 (2.0 %)
<b>Related to neighbors/ society</b>				
People in your neighborhood would be uncomfortable with you	8 (16.0 %)	23 (46.0 %)	11 (22.0 %)	8 (16.0 %)
People in your neighborhood would avoid you	11 (22.0 %)	20 (40.0 %)	10 (20.0 %)	9 (18.0 %)
People in your neighborhood would be unkind to you	15 (30.0 %)	18 (36.0 %)	13(26.0 %)	4 (8.0 %)
People in your neighborhood would be afraid of you, because of your COVID-19 positive status in the past	16 (32.0 %)	20 (40.0 %)	11 (22.0 %)	3 (6.0 %)
People in your neighborhood would avoid touching you, because of your COVID-19 positive status in the past	14(28.0 %)	15 (30.0 %)	16 (32.0 %)	5 (10.0 %)
Mean stigma score (self) (SD)	6.5 (4.25)			
Mean stigma score (family) (SD)	1.30 (1.71)			
Mean stigma score (neighborhood/society) (SD)	6.10 (3.94)			
Total stigma score (SD)	13.9 (7.72); Range : 0–28			

staff on duty and the perceived mental health support received from the mental health professionals. These findings suggest that mental health professionals involved in the care of patients with COVID-19 infection, should encourage the patients to use more adaptive coping strategies, and provide a supportive environment to the patients to adapt to the

**Table 9**  
Anxiety, depression during the hospital stay.

Variables	Whole sample (N = 50) Mean(SD)/ Frequency (%)
<b>PHQ-4 Scale</b>	
PHQ-4 Anxiety domain (2 items)	2.30 (1.18); Range: 0–5 Median:2.0
Anxiety : Present (cut off score≥3)	16 (32.0 %)
PHQ-4 Depression domain (2 items)	2.02 (0.86); Range: 0–4 Median:2.0
Depression : Present (Cut off ≥3)	10 (20.0 %)
Mean total PHQ-4 score	4.32 (1.75); Range : 1–9 ; Median:4.0
Severity of depression and anxiety as per PHQ-4	
Normal (0–2)	5 (10.0 %)
Mild (3–5)	32 (64.0 %)
Moderate (6–8)	11 (2.0 %)
Severe (9–12)	2 (4.0 %)
<b>Overall prevalence</b>	
% of patients reporting PHQ-4 anxiety score ≥3	16 (32.0 %)
% of patients reporting PHQ-4 depression score≥3	10 (20.0 %)
% of patients reporting only anxiety but no depression	9 (18.0 %)
% of patients reporting only depression but no anxiety	3 (6.0 %)
% of patients reporting both anxiety and depression	7 (14.0 %)
% of patients reporting anxiety either/or depression or both	19 (37.3 %)

new situation. Additionally, those mental health professionals, who are involved in the training of other staff, should focus on improving the communication skills of the staff, so that the patients could feel at ease, as has feel suggested by some of the authors (Grover et al., 2020). In terms of coping, the present study suggests that the majority of the patients reported following religious techniques (remembering God, praying God, listening to religious songs/discourses, etc.) to deal with the stress and found it to be useful. This finding can be understood from various perspectives. First, people in India usually follow one or the other religion (Ministry of Home Affairs, and Government of India, 2020), turn to God at the time of crisis (“Power of prayer, 2020), and possibly externalizing the responsibility to a higher power leads to a reduction in the anxiety and distress (Weber and Pargament, 2014). Accordingly, clinicians involved in managing people with COVID-19 infection should carefully evaluate the religious beliefs and practices of the persons, and if they find that the person has been successfully using positive religious coping in the past, they should be encouraged to use the same.

Another interesting finding of the present study is the change in the perspectives towards life after surviving COVID-19 infection. The increase in faith in God increased, which can be explained by religious beliefs. However, an important aspect of change of perspective increased in the faith in human relationships. This finding possibly reflects that prior to COVID-19, people did not value the importance of relationships, and they were fighting with each other from various materialistic things. However, when the humans have been faced with an enemy, which cannot be defeated by any currently available means, except for being able to support each other and cooperate with each other, people start valuing the importance of relationships (Editorial, 2020). These findings suggest that there is a need to evaluate this aspect in more detail in the future to understand the impact of the pandemic on the human psyche per se. However, there was not much impact with respect to the power of money, with only one-fourth of the participants reporting a reduction in the faith of the power of money. This could be due to the fact that a

**Table 10**  
Relationship between anxiety, depression with clinical variables.

	Age	Duration of stay	PHQ-4 anxiety	PHQ-4 depression	Total PHQ-4	Total Stigma score
Age	XX	0.149 (0.303)	0.021 (0.886)	0.032 (0.823)	0.030 (0.835)	-0.169 (0.214)
Duration of stay	XX	XX	0.046 (0.753)	-0.224 (0.118)	-0.080 (0.581)	0.091 (0.529)
PHQ-4 anxiety	XX	XX	XX	0.451 (0.001)***	0.897(<0.001)***	0.046 (0.752)
PHQ-4 depression	XX	XX	XX	XX	0.799 (<0.001)***	-0.279 (0.049)*
Total Stigma score	-0.169 (0.214)	0.091 (0.529)	0.046 (0.752)	-0.279 (0.049)*	-0.107 (0.458)	XX
Total Coping score	-0.138 (0.341)	0.277 (0.051)	-0.280 (0.049)*	-0.267 (0.061)	-0.321 (0.023)*	-0.034 (0.816)

significant proportion of our study sample came from low or low middle-income strata, who were already struggling with financial issues, prior to being diagnosed with COVID-19 infection.

Another aspect which this study tried to evaluate was the anticipatory stigma among the patients prior to discharge. Stigma has emerged as an important outcome of COVID-19 infection, because of discrimination faced by people in quarantine and after coming out of quarantine and few reports of discrimination have been reported by COVID-19 recovered patients (Times of India, 2020; Tribune News, 2020). Additionally, there are several reports of people considering the recovered patients as carriers of infection ("A guide to preventing and addressing social stigma associated with COVID-19, 2020"; Defeated virus, unable to dodge stigma, 2020). WHO has issued an advisory to people to break the social stigma and discriminatory behavior toward people from a certain ethnic background and those who have recovered from COVID-19 infection. The current study was first of its kind to explore the anticipatory stigma close to the discharge from the hospital and revealed that people have a high level of public/societal stigma in different aspects (people feeling uncomfortable, being unkind, avoiding to touch, avoiding and people being afraid of recovered patients), compared to self-stigma and apprehension of being stigmatized by their family members. This finding suggests that it is important to create awareness in the public about COVID-19 infection and how they should react to people who have recovered from COVID-19 infection.

Our finding suggests that, despite being provided psychological support, about two-fifth (38 %) of the people diagnosed with COVID-19 infection screen positive for anxiety disorder and/or depression close to their discharge. This suggests that overall, going through the experience of COVID-19 infection is very stressful, and despite providing psychological support, many patients go on to develop psychological morbidity. This finding suggests that there is a need to follow-up the patients with COVID-19 infection, even after discharge to evaluate them for ongoing psychiatric morbidity and manage the same adequately.

The present study has certain limitations, which must be kept in mind while interpreting the results. These include a small sample size, and the majority of the study participants being asymptomatic or minimally symptomatic for COVID-19 infection. We evaluated the experience of the patients, close to the discharge. In the real sense, this could be considered as retrospective evaluation. Further, these patients were provided psychological support during the hospital stay, which could have influenced the experience of the patients. Further, the experience could have also been evaluated by the treatment setting, per se. We did not evaluate for symptoms of post-traumatic stress disorder. Two-fifth of the participants screened positive for depression and anxiety, but this could be an underestimate, considering the fact that they were provided psychological support during the hospital stay.

To conclude, the present study suggests that going through the whole experience of COVID-19 infection, in the form of staying in isolation wards could be very stressful, even for patients who are minimally symptomatic or asymptomatic. Use of adaptive copings, such as remembering and praying to God, talking to family and friends, and interaction with mental health professionals, could help reduce the distress. Despite being provided psychological support, about two-fifths of the patients develop psychological morbidity.

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## Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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# Knowledge Overload versus Actual Practices: Knowledge and Awareness about COVID-19 Infection among Patients Attending the Emergency Services of a Tertiary Care Hospital during the COVID “Lockdown” Period

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## Abstract

**Background:** It is essential to assess the knowledge and awareness about COVID-19 infection among people utilizing the emergency health-care services. **Aim:** This study aimed to evaluate the knowledge and awareness about COVID-19 infection and the practices followed by the patients and their caregivers with respect to prevention of spread of COVID-19. **Methodology:** A cross-sectional exploratory study was conducted in the emergency outpatient services of a tertiary care center using a brief self-designed questionnaire. **Results:** More than half of the participants considered that touch and coming in contact with a person with cough/cold were the most common mode of spread of the infection, but many others had several misinformations regarding the exact mode of transmission. Three-fourth of the participants thought that wearing a mask is required to protect oneself from getting infected, while handwashing and social distancing as important precautionary measures were reported by only half and one-fourth of the participants respectively. Only half of the participants used masks during traveling to the hospital and one-third reported of sanitizing hands during travel and only half of the participants reported of having knowledge about using surgical masks and sanitizers in emergency premises, and only two-fifths thought social distancing to be a precautionary measure to follow in the emergency setting. **Conclusions:** The study findings highlight the need to improve awareness programs so as to improve the knowledge and practices of medically ill patients and their caregivers attending the emergency services.

**Keywords:** COVID-19, emergency, knowledge, practices

## INTRODUCTION

The COVID-19 outbreak since December 2019 and its subsequent transformation into a Pandemic had resulted in several challenges to humanity and the health-care system across the World. As per the recent World Health Organization (WHO) Statistics (as on April 18, 2020), COVID-19 has infected more than 22 lakh individuals in 213 countries with more than 1.5 lakh deaths worldwide.<sup>[1]</sup> The WHO and national authorities of every country have been using various strategies to tackle the COVID-19 infection and minimize the associated mortality. To tackle with the increasing spread of the infection across the country, in India, a nationwide “lockdown” was announced since the midnight of March 24, 2020.<sup>[2]</sup> Lockdown strategy implies prevention of free movements of the public in an area/locality. In this scenario, all educational institutions,

shopping arcades, factories, offices, local markets, transport vehicles, airports, railways, metros, buses, etc., are completely shut down except hospitals, police stations, emergency services such as fire station, petrol pumps, and grocery shops, etc. In addition to it, time and again since the beginning of

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COVID-19 cases in India, there has been promotion of various infection control measures such as frequent practice of hand hygiene measures, creating awareness about COVID-19 infection over mobile caller tunes/telecommunication/social media platforms/radio, social distancing, using masks while going out from home, precautions during coughing/sneezing and frequent monitoring of passengers by thermal scanners, etc.<sup>[3,4]</sup> However, it is not clear, how much this has percolated to the level of the general public and to what extent these strategies are being followed.

Due to lockdown, at many places, the outpatient services have been suspended and the medical services at many places are limited to emergency services. All these are understandable as part of the preventive measures. Due to this, overcrowding in the outpatient areas has stopped, and the risk of transmission has been minimized. People requiring medical help are being provided services through the telemedicine facilities, although these are still in its nascent phase in many parts of the country.<sup>[5]</sup>

Despite all these, a small subgroup of patients are still being brought to the emergency services, either for acute medical-surgical emergencies or for management of relapse of their ongoing chronic illnesses.<sup>[6,7]</sup> These people who are visiting the emergency services can be considered as a source of infection for the parts of hospital which are not being used for patients diagnosed with or suspected to have COVID-19 infection and at the same time can be considered as vulnerable to develop infection, if they do not follow the required precautions. Hence, it is important to understand their awareness with respect to various aspects of COVID-19 infection. Understanding their awareness and practices can help in evaluating the usefulness of the current awareness programs being circulated/shown in various telecommunication services/radio/social media platforms. This understanding will also possibly help in formulating further awareness programs, especially for the emergency setups in terms of distribution of pamphlets, having signboard, or providing information to people, etc., in the emergency setup to minimize the risk of transmission. In this background, this study aimed to evaluate the knowledge, awareness, and precautions being taken by the patients and their caregivers visiting the emergency services of the hospital, with regard to the COVID-19 infection. In addition, the study also evaluated the reasons for visiting the emergency medical outpatient services and the problems faced by them while approaching the emergency services.

## METHODOLOGY

It was a cross-sectional exploratory study conducted in the emergency outpatient services of a tertiary care center in North India. The study was approved by the ethics committee of the institute, and all the participants were recruited after obtaining written informed consent. The data was collected in the second week of April, 2020.

At our institute, all patients and caregivers undergo screening for COVID-19, before being provided services at the emergency.

The participants included patients (aged more than 18 years with any kind of medical illnesses visiting the emergency medical services) and their caregivers. The caregivers were also required to be aged more than 18 years of age. In addition, the patients were required to be medically stable enough to participate in the study.

The sociodemographic details in the form of age, gender, occupation, number of years of education, and distance from the hospital were recorded in a structured format. All the participants were assessed on a brief self-designed questionnaire which was specifically designed for the study to evaluate the knowledge about COVID-19 and the practices followed by the patients and their caregivers with respect to prevention of spread of COVID-19. The questionnaire covered the knowledge about mode of spread of COVID-19 infection, anxiety related to contracting infection and current precautions being taken to prevent contracting the infection, reasons for coming to hospital despite lockdown, problems faced during traveling, and precautions taken during traveling. The questionnaire took 8–10 min to administer. After the completion of the questionnaire, all the participants were explained about the mode of transmission of COVID-19 and the precautions to be followed. They were explained about the hygiene practices, the practice of social distancing, and the use of mask. The participants who expressed the desire for psychiatric help were also provided the same.

The data collected were analyzed using Statistical Package for Social Science (SPSS) 20.0 version (IBM Corp., Armonk, NY), and descriptive statistics was applied to derive the results.

## RESULTS

The mean age of the study sample was 42.1 years (standard deviation [SD] – 16.4), and the mean number of year of education was 3.9 years (SD – 5.5). About two-third of the participants were male (60%) and were married (70%). Majority of the participants were patients ( $n = 64$ ) and about one-third ( $n = 36$ ) were caregivers of the patients. Majority had traveled beyond 10 km distance, suggesting that they did not belong to the city of Chandigarh. About one-sixth (15.0%) of the participants were suffering from carcinoma/malignancy and other chronic illnesses [Table 1].

More than half of the participants considered that touch and coming in contact with a person with cough/cold were the most common mode of spread of COVID-19 infection. The other common modes of spread reported by the participants were droplets, coming in contact with patients/persons with COVID-19, and crowd [Table 2]. Besides these, many participants also had misinformation about mode of spread, most common such a reason was dirt.

Three-fourth of participants (75.0%) considered that wearing a mask was required to avoid contracting or avoiding coming in contact with patients with COVID-19 infection. Half of the participants considered washing hands as a protective method

to avoid contracting infection. The other commonly reported methods reported to avoid contracting the COVID-19 infection were staying back at home, using sanitizer, maintaining social distancing, and using gloves [Table 3].

When asked to rate their fear, with respect to developing the infection, the mean score on the Likert scale (0–10) of fear of getting infected with COVID-19 was 3.6 (SD: 3.1).

In terms of practice of precautions, about half (54%) of the study participants used masks while traveling. The sanitization was the second most common precaution, and this was followed by the use of gloves and maintaining social distancing [Table 4]. About one-third (32%) did not consult any local doctor, before traveling to the tertiary care center.

Further, in terms of practice, when asked about the practices for avoiding infection, while being in the emergency, majority of the participants ( $n = 91$ ) reported that they were using the precautions to avoid COVID-19 infections in emergency. The most commonly used precautions were using masks ( $n = 91\%$ ), followed by the use of sanitizers (51%), social distancing (40%), and the use of gloves (18%) [Table 5]. However, among those who were using the masks, more than two-third (70.3%) were using the same for more than 6 h, without changing or washing it.

## DISCUSSION

COVID-19 pandemic is a harsh reality, and it is requiring the most stringent protocol to be followed such as complete shutdown in many areas declared as “hotspots” and sealing off of a particular locality, strict restrictions on free movements of the public, and many others.<sup>[8]</sup> The WHO and the National Health Authority of India (Ministry of Health and Family Welfare) are trying every possible effort to reduce the number of cases, i.e., reducing the chances of spread of the extremely contagious infection. Although every information related to the

**Table 1: Sociodemographic profile**

Variables	Frequency (%)/ mean (SD)
Age (years), range	42.1 (16.4), 18-82
Sex	
Male	60 (60)
Female	40 (40)
Education (years)	3.9 (5.5)
Marital status	
Currently single	30 (30)
Married	70 (70)
Occupation	
Semi-professional	4 (4.0)
Shop owner/farmer	21 (21.0)
Skilled worker	5 (5.0)
Semi-skilled worker	13 (13.0)
Unskilled	6 (6.0)
Unemployed	51 (51.0)
Distance from the hospital (km), range (median)	52.9 (58.5), 1-300 (40.0)
Proportion of participants who traveled >10 km	71 (71)
Proportion of patients outside Chandigarh	69 (69.0)
Physical illness (primary diagnosis) of the patients	
Carcinoma/malignancy	15 (15.0)
Chronic physical illness/disorder	15 (15.0)
Myocardial infarction	8 (8.0)
Seizure disorder	6 (6.0)
Chronic respiratory disorder	6 (6.0)
Worsening of psychiatric illness	2 (2.0)
Organophosphorus poisoning	2 (2.0)
Caregivers	36 (36.0)

SD: Standard deviation

**Table 2: Modes/methods of spreading COVID-19**

Variables	Frequency (%) / mean (SD)
Touch	58 (58.0)
Contact with a person with cough/cold	53 (53.0)
Droplets	19 (19.0)
Contact with a patient/person with COVID-19	15 (15.0)
Dirt	11 (11.0)
Crowd	5 (5.0)
Sharing articles or belongings of patients	6 (6.0)
Sunlight	1 (1.0)
Airborne/aerosol	5 (5.0)
Surface (metal/earth/clothes)	3 (3.0)
Getting out of home	1 (1.0)
Meeting foreigners	1 (1.0)
Number of people with responses as >1 correct responses of mode of transmission of COVID-19	59 (59.0)
Number of people who could identify all the correct modes of transmission (droplets, coming in contact with a person with COVID-19 infection, and touching the surfaces which can droplets)	0

SD: Standard deviation

**Table 3: Precautions required to avoid contracting COVID-19 infections**

Variables	Frequency (%) / mean (SD)
Using masks	75 (75.0)
Using handwash/washing hands again and again	50 (50.0)
Staying at home	47 (47.0)
Sanitize the hands	30 (30.0)
Social distancing	26 (26.0)
Use of gloves	14 (14.0)
Bathing frequently	12 (12.0)
No handshake “Do Namaste”	9 (9.0)
Maintain hygiene	8 (8.0)
Stay away from other patients	6 (6.0)
Cover mouth while sneezing	1 (1.0)
Use PPE	1 (1.0)
Not sharing the food	1 (1.0)
Use ayurvedic oil	1 (1.0)
I will not get infection	1 (1.0)
Number of people with responses as >1 way of avoiding the transmission	75 (75.0)
Number of people who could identify report at least 5 ways to avoid transmission	8 (8.0)
On a scale of 0-10, how much scared are you of contracting COVID-19 infection	3.6 (3.1)

PPE: Personal protective equipment, SD: Standard deviation

**Table 4: Precautions taken to avoid COVID-19 while traveling**

Variables	Frequency (%) / mean (SD)
Masks	54 (54.0)
Sanitize	34 (34.0)
Gloves	13 (13.0)
Social distancing	8 (8.0)
Number of people with responses as >1 way of avoiding the transmission	35 (35.0)
Number of people who followed all the above 4 practices while traveling	3 (3.0)
Others	
Do not touch the vehicle	4 (4.0)
Call ambulance	1 (1.0)
Vehicle should be cleaned	1 (1.0)
Do not stop in way	1 (1.0)

SD: Standard deviation

mode of transmission and the general precautions to follow to limit spread of infection as well as to protect self from getting infection (hand hygiene, social distancing, avoid unnecessary traveling out of home, etc.) are being transmitted by several means (telecommunication/radio/newspapers/mobile caller tunes/television advertisements by film celebrities in the form of dialogs, short documentaries, songs/animated stories for educating children/COVID related comics for children, etc.), yet there is every probability that a section of the public may not be aware of the exact modes of transmission of the virus and thereby may not be following adequate precautions to prevent themselves from getting infection. However, little is known about the practice being followed, especially in high risk areas.

The current study evaluated the knowledge and awareness of patients and their caregivers who were attending the emergency services of a tertiary care hospital in a city of North India during the “lockdown” period. Ideally, it is expected that this section of people should be more aware and educated about

the modes of transmission of COVID-19 as they were stepping out of their homes despite strict lockdown protocol due to emergency medical issues to the hospitals, many of which are in the COVID-19 containment and treatment zones.

The study findings revealed that majority of the patients and caregivers had low education and most of them were unemployed or unskilled workers. The mean distance from the hospital was 52 km, ranging from 1 to 300 km, and about 71% of the hospital attendees were outsiders. Further, about one-third of them did not seek consultation from their local doctors before traveling so far to the city. This reflects that despite the available awareness programs being run by the health ministry a section of the public belonging with low educational background and low socioeconomic status (unemployed, low literacy, and poor income) did not practice the advisory to seek local consultation before traveling outside their locality even for emergency medical conditions. Therefore, this section of the public should be made aware about when to and when not to travel by the

**Table 5: Precautions taken in emergency to avoid COVID-19 infections**

Variables	Frequency (%)/ mean (SD)
Precaution taken	
Yes	91 (91.0)
No	9 (9.0)
Type of mask	
Surgical mask	51 (51.0)
Cloth mask	34 (34.0)
Covered with cloth (handkerchief/dupatta/towels)	6 (6.0)
Sanitizers	51 (51.0)
Social distancing	40 (40.0)
Gloves	18 (18.0)
Use of same mask for more than 6 h	
Yes	64 (70.3)
No	27 (29.7)
Awareness about how to remove the mask	0

SD: Standard deviation

**Table 6: Some of the recommendations/suggestions for creating awareness and improving knowledge during traveling and in emergency rooms for the medically ill patients and their caregivers****During traveling**

Playing recorded messages about infection control measures in the ambulance/vehicle

Placards, pamphlets on myth busters of COVID-19 from verified source (WHO)

Ambulance driver can educate the passengers on simple infection control measures

Ensure social distancing during travel - avoid overcrowding of the vehicle

Sanitizers to be used during travel - need to keep available inside vehicle

Display boards/signages at frequent places during traveling

**At emergency**

Display boards on infection control measures at entrance and inside emergency rooms

Educating about safety measures before entering emergency

Volunteers can educate the patients and caregivers about infection control measures

Ensuring use of surgical masks by patients and caregivers at emergency throughout their stay

Maintain social distancing at emergency

Using sanitizers at frequent intervals during emergency stay

Avoid touching of any articles/railings at emergency

WHO: World Health Organization

local health authorities in a more simpler way as many of them may not be having access to the telecommunication and internet services.

The medical conditions requiring an emergency hospital visit were mostly malignancy and exacerbation of previous chronic physical illness. This had been highlighted in various newspapers that immediate lockdown has resulted

in widespread chaos and has created a major hurdle for those with chronic and severe medical illnesses such as malignancies and HIV/AIDS.<sup>[7,9]</sup> These findings suggest that there is a need to allay the fear and anxiety of the patients with chronic medical illnesses and adequate planning to treat the severely medical ill persons during the COVID-19 pandemic at the local level. In this regard, designated hospitals/centers specifically treating chronic medical illness (cancer/HIV) in the local areas or nearest possible hospital could be considered for medical help to avoid these vulnerable patients of getting infected by COVID-19 by attending general hospitals catering to COVID cases. Moreover, the nearest possible hospital health-care workers (doctors and nursing staff) can contact parent health-care facilities through teleconsultation facilities and start/guide treatment and avoid unnecessary travel of the medically ill patients.<sup>[10]</sup>

When the knowledge about spread of COVID-19 infection was assessed among the patients and caregivers, it was found that although two-thirds of the participants were able to identify more than one correct modes of transmission of COVID-19, yet there were participants who lacked sufficient information about the modes of transmission and reported reasons of transmission such as exposure to dirt. There are several myths and rumors attached to the spread of COVID-19 infection (such as temperature can affect transmission rate, taking a hot bath can prevent infection, drinking alcohol can cure COVID-19, nonvegetarian food consumption can lead to infection, holding breath for 10 s acts as a test for COVID-19, garlic boosts immunity, blood donation can result in COVID-19 transmission, and many others).<sup>[11]</sup> Despite all the public awareness measures being taken by the government, these findings suggest that there is mismatch between the public's viewpoint of spread of the infection and health department's viewpoint. Therefore, the local health authorities should be given responsibilities to do periodic public awareness programs in the community level following all the principles of social distancing for the benefit of the public.

Similarly, when assessed about precautions required to avoid contracting COVID-19 infection, three-fourth of the participants were found to be well aware of correct infection control and protective measures to avoid disease transmission. However, only 8% of the participants were aware of at least 5 correct ways of disease prevention. Majority of the participants reported using masks to avoid contracting infection, yet the more well evidence-based precautions of frequent washing hands (50%), staying at home (47%), sanitizing hands (30%), and social distancing (26%) were followed less than expected. It has been seen that the general public is more keen on using masks as a means to protect themselves from getting infected, whereas maintaining hand hygiene, maintaining social distancing and covering face while sneezing/coughing were given less importance. Moreover, there is a huge rush to buy and stockpile masks which creates further chaos in the public. In this regard, the WHO had mentioned advisory on

the use of masks<sup>[12]</sup> and Indian Health Ministry had provided methods of making own masks at home,<sup>[13]</sup> yet all these has to be more popularized and followed in public awareness programs. Another, fact, which emerged from the study was the fact that, although, majority were using the mask as a protective gear, but were using the same mask for more than 6 h continuously, which may not be actually effective in protecting a person from infection in the vicinity, especially in a hospital setting. This inappropriate use may give a false sense of security, which can be dangerous in hospital setting.

The study findings also reflect a small proportion of participants believed in using indigenous methods such as using ayurvedic oil, and some believed that they would not get infection. This further reflects the prevailing rumors/myths about the treatment of COVID-19 such as drinking cow's urine and taking turmeric powder<sup>[14]</sup> as well as complete denial in some groups of population about the vulnerability to get infected such as younger age is not affected and those doing daily exercise have better immunity and cannot be infected.<sup>[15]</sup> The anxiety reported about contracting COVID-19 infection was low, which is possibly a reflection of poor awareness of the participants too.

Regarding precautions taken during traveling to hospital, majority mentioned the use of masks and sanitization of hands, but very few participants reported maintaining social distancing while traveling. This could further reflect that principles of social distancing are not yet well understood by the lay public and more adherence to this precaution needs to be propagated and followed. This reflects the need to increase awareness in the public, with respect to precautions to be taken traveling, especially in ambulance. Simple measures such as playing recorded messages of infection control measures in the ambulance/vehicle, having placards, pamphlets, myth busters of COVID-19, and display boards can benefit the medically ill people while traveling in ambulance and in the hospital setting. Further, the ambulance driver can be a resource person who can be trained to provide basic information about infection control measures to the passengers which can be practiced in low resource settings like ours. Having display boards about modes of transmission of COVID-19, and precautions to be followed at regular intervals on the roads as signages and in the entrance of the hospital/emergency rooms/hospital corridors can be considered. Volunteers in the emergency setting can educate the persons about COVID-19 upon reaching the emergency. This can prove to be beneficial in improving the knowledge and awareness of the public attending hospitals [Table 6].

Further, as emergency setting can be potential source of COVID-19 infection and usually immunocompromised patients are being attended due to exacerbation of preexisting medical conditions, more stringent precautions needs to be followed with respect to the use of surgical masks and social distancing. In the present study, only half of the study participants were aware of using surgical masks, but these were not used appropriately. Further, using sanitizers and maintaining social distancing were also reported by only half

and two-fifths of the study participants, which is again an alarming. In this regard, brief awareness sessions need to be taken in the emergency premises by infection control staff to educate the patients and caregivers to maintain basic infection control measures to protect themselves.

### Limitations

The study had some limitations as evidenced by its small sample size and majority of the participants belonging to the low socioeconomic strata; hence, the findings cannot be generalized to all the socioeconomic strata. Further, no standard questionnaire was used to assess knowledge. However, a simple questionnaire used showed several crucial findings and pitfalls in the awareness and knowledge of the study participants attending the emergency services during lockdown period.

### CONCLUSIONS AND IMPLICATIONS OF THE STUDY

Currently, it is utmost important to educate the public in every possible way to reduce the spread of infection, and one such activity should include educating the medically ill patients and their caregivers on when to travel to hospitals, preferably visit the local facility before traveling to a far off hospital and precautions to be taken during travel and while in emergency setting [Table 6]. This can protect the medically ill patients at large from getting infected. Further, simple suggestions or recommendations [Table 6] can prove to be quite beneficial in improving the awareness and knowledge of the hospital attendees. The current study revealed that about 70% of the participants traveled from outside the city, 32% of the participants did not consult a local physician before attending the emergency, many had misinformation about modes of transmission of the infection, three-fourth thought that wearing a mask that is required to protect oneself from getting infected, while handwashing and social distancing as important precautionary measures were reported by half and one-fourth participants, only half of the participants used masks during traveling and one-third reported of sanitizing hands during travel and only half of the participants reported of having knowledge about using surgical masks and sanitizers in the emergency setting, and only two-fifths thought social distancing to be a precautionary measure to follow in the emergency setting. The study findings highlight the potential loopholes and measures to improve awareness programs so as to improve knowledge and practices of medically ill patients and their caregivers attending emergency services of a tertiary care center in North India.

In the upcoming days of "unlockdown" phase when gradually all the previously restricted activities and movements will resume back, then it is expected that the number of patients attending the emergency services and routine hospital services will increase exponentially owing to the extended phase of lockdown during which many needy patients might not have been able to avail the health-care services. Further, there will also be an increase in the number of patients presenting with

trauma to the emergency trauma services too. As the infection rate is increasing at a faster rate in India, it is expected that many of these patients might be infected before attending the emergency and many can get infected during their emergency ward stay. Therefore, it is utmost important to create awareness among the patients and caregivers regarding infection control practices as well as to carry out infection control drills in the emergency service areas to identify pitfalls and loopholes so that infection spread can be controlled at the earliest. The government and health authorities should make standard operating procedures of referral of patients from one area to another to control the patient flow into different hospitals. In these aspects, the current study findings can be regarded as crucial to develop necessary strategies in the emergencies to educate the patient population attending the emergency service areas of the hospitals which can be regarded as a potential source of infection.

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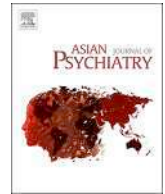
### Conflicts of interest

There are no conflicts of interest.

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## Letter to the Editor

## Demystifying the myths about COVID-19 infection and its societal importance



## 1. Introduction

Myth is commonly considered as a folklore genre consisting of narratives/stories that play a fundamental role in human beings' everyday lives. These are often endorsed by leaders/rulers/religious preachers and explain to a great extent the functioning of a society and shape the beliefs of people. There is a potential role of cultural and religious beliefs/traditions/customs/rituals, which add a flavor to the public's mindset in a particular region/country and influence the propagation or acceptance of a myth (Morales, 2013). Myths related to various infections have been prevalent from time to time, and it takes a long battle to demystify the existing myths by providing a realistic evidence-based approach. In recent times, some of the common infections, which are have been associated with myths, include Leprosy, Tuberculosis, and Flu (CDC, 2018; Haldimand-Norfolk Health and Social Sciences, 2018; World Health Organisation, 2019). In recent times, the World is facing COVID-19 infection, which has created havoc in the entire World and has affected all aspects of human lives. With the exponential rise in the number of confirmed cases and deaths per day across the World, the health care system has been affected the most. With no potential medication or vaccine developed (to date) against the virus, it is expected that the morbidity and mortality associated with COVID-19 infection is going to increase in the near future.

Despite creating awareness and providing adequate information to the general public through telecommunication (radio, television advertisements, public health messages by prominent celebrities and national leaders) and distributing pamphlets/signboards at public places about infection control measures and mode of spread of the infection, still, there are a large number of myths associated with the spread and cure/treatment of COVID-19 infection in the society. These myths are traveling from one person to the other, through social media platforms. These myths can be very dangerous, as these can lead to over-complacency and lead to a reduction in actually needed practices, or following some of these myths can lead to other health hazards. In this regard, the various health authorities [World Health Organization (WHO), Centre for Disease Control and Prevention (CDC), Ministry of Health and Family Welfare, India etc.] have listed some of the prevailing myths to increase awareness about the infection and have provided factual information about COVID-19 in their websites (Boston, 2020; CDC, 2020; Ministry of Health and Family Welfare, 2020; Myth busters n.d., 2020). Additionally, some of the claims made by other 'pathies' in terms of improvement or boosting of immunity against COVID-19 infection, are being challenged (Boston, 2020; Ministry of AYUSH, 2020). All these had led to further confusion in the mind of the common man.

While the healthcare systems are unable to find a solution/cure to the COVID-19 infection, various facts have emerged, which have low validity and are gradually turning into potential myths related to COVID-19 (Boston, 2020; Carbone et al., 2020; Myth busters n.d.,

2020). We need to understand that, when we consider something as useful or efficacious in managing or preventing a health condition, the intervention, should undergo a well-designed, adequately powered double-blind randomized controlled trial (DB-RCT). Further, as per the levels of evidence even a cohort or case-control study or any degree of evidence based on case series/case reports or expert opinions can be considered to be a trial to render an intervention to be propagated as justifiable or for the need to be tested (Burns et al., 2011; "CEBM- The Centre for Evidence Based Medicine," 2020; Sackett, 1989). Till the time any intervention has been unequivocally proved to be efficacious by any of the above-mentioned types of studies, the same should not be claimed as efficacious. In this background, if we look at the various claims made for improving the immunity and resultant prevention of COVID-19, many of these have not been subjected to the rigorous evaluation. Hence, all such claims can be questioned. However, if these are propagated as efficacious or useful, these will also boarder on to be labeled as myths.

Currently, prevailing myths related to COVID-19 infection can be categorized into those related to the spread of infection, source of spread of infection, preventive measures, and cure. Some of the commonly prevalent myths related to COVID-19 infection are listed in Table 1.

The myths listed in the table have been discussed so as to disseminate knowledge and information with regard to COVID-19 (Tandon, 2020) as these are being circulated on various social media platforms and can be regarded as a potential source of anxiety related to COVID-19. These myths related to spreading/transmission of COVID-19 have been bothering the public to think twice before using newspapers/vegetables etc. and many are avoiding non-vegetarian foods with the fear of being infected. Further, many have hoarded or stockpiled antibiotics, essential oils, Vitamin C tablets, masks, sanitizers, etc. to protect themselves from running out of stock of these commodities. These myths can also lead to a false sense of security of being immune to the infection and resultant exposure to high-risk situations.

Harboring such myths can be detrimental to society as all these create a hue and cry and chaos among the people. People need to understand that spreading such information can be punishable. In this regard, the Cyber Police/Cyber cell has been active ("WhatsApp Admin Warned For Fake Coronavirus Post, 2020) and have traced all those persons circulating wrong messages and tried to demystify many myths through telecommunication awareness programs (DelhiMarch 20., I.G.N., March 20, 2020). There have been instances of persons being heavily fined or being arrested when found to be spreading false claims of treating/curing COVID-19 (Bhandari, 2020a).

If we compare the myths related to COVID-19 with myths related to leprosy, tuberculosis and Flu, there are some commonalities about the major themes of myths, i.e., the myths mainly prevail around the causation, disease transmission, and cure. However, the COVID-19 infection has emerged very recently and affected almost all the countries

**Table 1**  
Myths related to COVID-19 infection (Compiled from various sources: WHO website, newspaper articles).

Serial no	Myths	Assumptions based on the myth	Truth/reality evidence	Remarks/message needs to be delivered to public
<b>Related to the prevention of COVID-19 infection</b>				
1	Eating garlic, turmeric, and/or lemon (and other foods commonly used as home remedies for flu and the common cold) can help prevent Covid-19 infection.	Garlic and turmeric have antimicrobial properties. Vitamin C is an essential vitamin that can support immune function.	No evidence in the form of a DB RCT from the current outbreak that garlic or lemon (or vitamin c rich foods) can protect someone from getting COVID-19 infection	Most of the Indians use garlic, turmeric, and lemon in their daily foods. No additional benefit is ensured if taken in excess amounts. The government and Ayush advisory mention these to be useful to improve immunity, not as preventive strategies.
2	Regularly rinsing with salt water or saline can help prevent COVID-19 infection.	The virus dies in salty water.	No evidence that regularly gargling has protected people from COVID-19 infection.	While this strategy may help soothe a sore throat due to any flu-like infection, however, this practice will not prevent anybody from developing COVID-19 infection if exposed to the same.
3	Drinking warm water and getting enough sunlight are effective in preventing COVID-19.	Heat or warm fluids kill the virus.	No evidence that the nCoV-SARS virus can be killed at higher temperatures.	Drinking warm water and getting enough sunlight may have other health benefits. Sunlight is good to get Vitamin D, which has a role in modulating the innate and adaptive immune responses. But too much exposure to sunlight may also lead to sunburn.
4	Taking a hot bath can prevent COVID-19 disease.	Heat kills the virus.	Taking a hot bath will not prevent you from contracting COVID-19.	Taking a hot bath with extremely hot water can be harmful, as it can cause burns to the body.
5	The COVID-19 infection cannot be transmitted in areas with hot and humid climates.	Heat kills the virus.	The COVID-19 virus can be transmitted in all areas, including areas with hot and humid weather.	Only infection control measures and adequate hand hygiene can prevent the infection
6	Hand dryers are effective in killing the novel coronavirus.	Heat kills the virus	No evidence	Only infection control measures and adequate hand hygiene can prevent the infection
7	Spraying alcohol or chlorine all over your body can kill the COVID-19 virus.	Since alcohol is used in sanitizers and chlorine is used in hypochlorite solutions, it can be used to kill the virus from the body by applying it all over.	Spraying alcohol or chlorine all over your body will not kill viruses that have already entered the body.	Spraying such substances can be harmful to clothes or mucous membranes (i.e., eyes, mouth). Both are used to disinfect surfaces, but they need to be used in appropriate proportion/quantities under appropriate recommendations
8	Sniffing/inhaling alcohol can protect from developing the COVID-19 infection.	Alcohol can kill any virus which has entered the respiratory tract.	No evidence for the protective effect of alcohol inhalation against COVID-19 infection	No evidence for the protective effect of alcohol inhalation against COVID-19 infection
9	Vaccines against pneumonia can protect you against the COVID-19 infection.	Vaccines against pneumonia, such as pneumococcal vaccine and Haemophilus influenza Type B vaccine, do not protect against the novel coronavirus.	Vaccines against pneumonia, such as pneumococcal vaccine and Haemophilus influenza Type B vaccine, do not protect against the novel coronavirus.	Researchers across the world are trying to develop a vaccine against COVID-19.
10	Wearing a mask or N95 mask can only prevent the transmission of COVID-19.	Masks protect from inhaling the virus-laden air	There is evidence that masks can prevent an asymptomatic patient of COVID-19 from spreading the virus.	Only masks won't help, but proper and adequate infection control measures, social distancing, appropriate use of masks, and hand hygiene is the best possible solution to prevent getting infected.
11	Drinking alcohol can cure COVID-19.	Alcohol is present in alcohol sanitizers which kills the virus, therefore consuming alcohol can cure/prevent getting the infection.	No evidence to suggest that alcohol intake can protect from getting infected. In fact, alcohol use and subsequent intoxication can affect the social distancing norms, impair hand hygiene, and other infection control measures, and pose an imminent risk of contracting the infection.	Alcohol intake should be reduced or avoided to follow the infection control measures and social distancing
12	Using cow dung and cow's urine can cure the virus.	Cow's urine is the most sacred thing on Earth, and it can purify one's body from all types of infection.	No evidence	No evidence to suggest that of cow's urine in the treatment or prevention of COVID-19.
13	Religious chants can protect from the virus/ Clapping hands creates vibrations that destroy the coronavirus	Clapping hands creates sound waves, and the sound produced is sensed through the vibrations of our eardrums, which then creates oscillations in the fluid in our inner ear and increases our ability to fight with the virus.	No evidence regarding this. The vibration created by chanting would not even be sensed by something as small as a virus.	Chanting and religious discourses with clapping hands can be an effective coping skill to combat stress and anxiety related to COVID-19. It boosts up the mood and calms the mind.
<b>COVID-19 Infection Transmission</b>				
1	The new coronavirus can be transmitted through mosquito bite.	-	No evidence that mosquitoes can transmit the COVID-19 infection.	No need to worry about the relationship between mosquito bites and developing the COVID-19 infection.
2	Pets at home can spread the COVID-19 virus.	Animals spread the COVID-19 as it was detected in the China meat market.	At present, there is no evidence that pets can transmit the COVID-19 infection.	No need to worry about the disease being transmitted by pets

(continued on next page)

**Table 1** (continued)

Serial no	Myths	Assumptions based on the myth	Truth/reality evidence	Remarks/message needs to be delivered to public
3	Non-vegetarian food (meat/eggs/fish/chicken) consumption can lead to infection	Meat consumption had spread the COVID-19 as it was detected in the China meat market.	No evidence to suggest that the COVID-19 can be transmitted by eating properly cooked non-vegetarian foods	No need to worry. People can safely consume all types of properly cooked non-vegetarian products
4	Donating blood can result in acquiring COVID-19 infection.	Donating blood can reduce the immune system, and one gets more vulnerable to contract the infection.	No evidence that COVID-19 can be transmitted by blood donation	COVID-19 period should not be a barrier to blood donation. Any healthy person can donate blood.
5	You would be at risk if someone infected in housing complex/neighborhood	The virus spreads in the entire air, and all around the infected person can be infected.	The real fact is that one cannot get infected if he/she maintains a two-meter distance from the infected patient, wears a mask, and avoids touching contaminated things. Practicing adequate hand hygiene and infection control measures can prevent from getting infected.	The public should be empathetic towards the patients with COVID-19 or people suspected of having COVID-19 and under home isolation/ quarantine. Maintaining adequate distance and infection control measures can help them in reducing the risk of getting infected.
6	Ordering or buying products shipped from overseas will make a person sick.	Fomite transmission	As per the WHO, the likelihood of becoming infected with COVID-19 from a commercial package is low since it has likely traveled over several days and had been exposed to different temperatures and conditions during transit.	The potential risk of getting infected from overseas products is minimal /negligible.
7	Newspapers, milk packets, and vegetables can transmit the infection.	Virus remains on newspapers and milk packets for a long time	No evidence of newspapers being potential carriers of COVID-19 had been proved. There is no risk of contracting the illness through newspapers or any packages, and no current data/research suggests that the virus can survive on paper for long hours. Following the hand hygiene measures, while touching the milk packet, may be sufficient to avoid the development of COVID-19 infection.	No need to panic and avoid buying newspapers/milk products/vegetables. Practice hand hygiene measures to prevent from getting infected.
8	COVID-19 infection can be transmitted from the mother to the child/fetus during the process of birth/delivery or pregnancy	Pregnant females are at the highest risk of transmitting the infection to baby/fetus during pregnancy or during childbirth.	To date, there is no data (as per WHO), to the effect that a pregnant female with COVID-19 can pass the virus to her fetus or baby during pregnancy or process of childbirth. The active virus has not yet been found in samples of amniotic fluid.	The public needs to be reassured that pregnancy and childbirth are safe, and the same precautions are to be taken by pregnant women as the general population.
9	Pregnant women with suspected or confirmed COVID-19 need to give birth by cesarean section (CS) only.	Virus can spread through normal vaginal delivery.	The WHO clearly advises that CS should only be performed when medically indicated/ justified. The mode of birth should be individualized and based on a woman's preferences alongside obstetric indications.	CS should not be asked unless indicated by the treating obstetrician.
10	If pregnancy occurs, there is a high risk of miscarriage, abortion, or congenital malformations due to COVID-19.	Pregnancy is risky during COVID times.	There is currently no evidence to support that acquiring COVID-19 predisposes to a heightened risk of miscarriage. There is also no reported evidence to suggest that the virus will cause any problem with fetal development. Although some reports of preterm delivery and neonatal pneumonia have been reported, however currently the adverse pregnancy outcomes in few reports cannot be attributed to COVID-19 only.	No need to worry if one gets pregnant during COVID-19 pandemic.
11	COVID-19 infection can be transmitted through breast milk to the newborn/breastfeeding.	Breast milk can carry the virus to the baby.	Till date (as per WHO), the virus has not been detected in the breast milk of any mother with confirmed or suspected COVID-19 infection. Researchers are continuing to test breast milk from COVID-19 mothers.	It is very unlikely that breastfeeding can spread the virus. Breast milk in all settings improves survival and provides lifelong advantages to newborns. Following delivery, the WHO recommends that the baby needs to be provided with skin-to-skin care, including kangaroo care with adequate respiratory hygiene and hand hygiene measures and breastfeeding the baby.
12	All health care workers (HCWs) are a potential source of COVID-19 infection.	HCWs are exposed to patients with COVID-19 infection.	HCWs are regarded as the front line warriors for tackling with COVID-19 infection. They are well-equipped with personal protective equipments (PPEs), which protect them against contracting COVID-19 infection.	There is an urgent need to create awareness in the general public that HCWs take all safety measures to protect themselves from getting infected.
13	Someone without symptoms cannot spread the infection.	Respiratory symptoms are mandatory to be present to spread the virus.	Most of the patients are asymptomatic and can spread the disease, so adequate social distancing and hand hygiene	There is no need to worry or to panic when they come near any HCWs.

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Table 1 (continued)

Serial no	Myths	Assumptions based on the myth	Truth/reality evidence	Remarks/message needs to be delivered to public
14	All those who been quarantined because of travel history had developed the COVID-19 infection.	Foreigners or Indians who had recently returned from abroad had spread the COVID-19 infection.	About 90 % of the patients with confirmed COVID -19 infection are asymptomatic and hence are potential carriers of virus. The COVID-19 infection gradually spread across the World since its outbreak in China to almost all countries. However, it is not true that anyone who has a positive travel history to abroad is harboring COVID-19 infection.	Quarantine means under observation. Therefore, those who had returned from abroad are kept under quarantine to check for any development of symptoms to detect for COVID-19. This does not mean that they are already infected with COVID-19. The public should be made aware that those recovered do not carry the virus potential for infection and must be accepted back in the community with due respect.
15	Someone who has recovered from COVID-19 infection can still spread the infection.	Once a COVID-19 patient always a patient, i.e., a patient carries the virus even if recovered.	Once recovered or tested negative as per WHO (RT-PCR) viral testing, the person is declared recovered i.e., he/she is immune to the infection and has developed immunity or antibodies against the COVID-19 and therefore, they are absolutely safe, and they cannot transmit the infection.	Sexual intercourse with a steady partner with no contact history does not pose any risk of infection. However, sexual intercourse with unknown people should be avoided as their COVID-19 status cannot be confirmed
16	Unprotected sexual intercourse can lead to spreading of COVID-19 infection.	Sexual intercourse can spread the virus.	Unprotected sexual intercourse with a steady partner with no contact history who is not known to be infected with COVID-19 poses no risk of transmission of COVID-19. To date, the virus had been detected in only a few cases in the seminal fluid of infected persons.	WHO advises people of all ages to take all adequate steps to protect themselves from the virus (good hand hygiene and good respiratory hygiene)
<b>COVID-19 infection-related myths</b>				
1	COVID-19 affects only older people.	More deaths reported in elderly worldwide	The new coronavirus can infect people of all ages. Older people and people with pre-existing medical conditions (such as asthma, diabetes, and cardiovascular diseases) are more vulnerable to acquiring infection due to poor immunity.	
2.	People who get the coronavirus/COVID-19 will die.	Nature is trying to revive, and COVID-19 is Nature's or God's way to reduce population.	About 80 – 90% of persons infected with COVID-19 are asymptomatic or have milder flu symptoms, and the death rate is below 2%.	Not to panic or get afraid if you are infected with COVID-19. In most of instances, it will be a milder form of flu-like illness. The HCWs will take appropriate measures if the condition worsens (which is seen in 8 – 10% cases), mostly in those with pre-existing chronic medical illnesses.
3.	The Indian Immune system is better than the West, and thus, Indians will survive Covid-19 infection better.	Indians have a good diet and more robust and hard-working so COVID-19 can't affect us.	No such comparative data on the immune system of Indians Vs. West is available.	Need to consider that people of all ages, of all races and ethnicity, are equally prone to contract the COVID-19 infection
4.	COVID-19 can be treated by colloidal silver, vitamins, teas, and essential oils.	These materials have anti-bactericidal and anti-viral properties.	No evidence for any special role for colloidal silver, vitamins, teas, and essential oils in dealing with COVID-19.	Not to follow/believe any such procedures or unless approved by the National and International Health authorities.
5.	Having had malaria makes one immune.	Chloroquine or Hydroxy Chloroquine is being used to treat COVID-19, which is an anti-malarial drug.	No evidence yet in this regard. If this was true, then considering India to be the Malaria capital of the World should have low case load, which is untrue.	People should take adequate measures to remain protected from getting infected by malaria as well as COVID-19.
6.	Anti-bacterial drugs are effective for therapy of COVID-19	-	COVID-19 is a viral infection; therefore anti-bacterial agents are not effective for treating COVID-19 but are useful for treating secondary bacterial infections.	No need to stock/ pile antibiotics and always use antibiotics rationally and only when advised by a medical practitioner.
<b>Miscellaneous</b>				
1.	Hand sanitizers are better than soap and water.	Alcohol-based sanitizers are the most potent disinfectants.	Hand hygiene measures by either alcohol sanitizers or soap and water are equally effective in protecting one from getting infected.	No need to buy hand sanitizers or hoard sanitizers. Simple soap and water is an equally effective strategy that can be followed.
2.	Thermal scanners can detect COVID-19	-	Thermal scanners can only detect fever, which is one of the usual symptoms of COVID-19, but a person infected with COVID-19 may take 2–10 days after infection to develop fever.	Not 100 % effective screening method.
3.	If the public water supply is contaminated with COVID-19, the entire community will be infected.	-	No evidence that the virus can spread through the water supply. In fact, the treatment in water facilities/ having a good shower can protect from getting infected.	No need to believe in this myth.

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Table 1 (continued)

Serial no	Myths	Assumptions based on the myth	Truth/reality evidence	Remarks/message needs to be delivered to public
4.	Those immunized with BCG are more likely not to get COVID-19 infection	BCG vaccine improves immunity against all infections.	There is no evidence that the BCG vaccine protects people against infection with COVID-19. WHO to date has not recommended BCG vaccination for prevention of COVID-19, few trials are underway though.	BCG Vaccination prevents severe forms of Tuberculosis. In the absence of evidence regarding any efficacy of BCG in COVID-19, people should refrain from believing the BCG vaccine is protective against COVID-19. It can lead to a false sense of security and hence should not be believed unless proved.
5.	No vaccine can be developed against COVID-19 infection.	God has sent COVID-19 as a declaration suggesting the end of the human race.	Researchers are actively engaged in developing a vaccine against COVID-19. However, clinical trials on a vaccine for COVID-19 may take a long time (months) to reach definite results.	The public needs to keep patience and to wait until any news about the vaccine is published by trustworthy websites/news or declared by the WHO. Refrain from believing on any random news about the vaccine being discovered

DB RCT – Double blind Randomised controlled trial.

of the World in a short span of time. Accordingly, the myths related to its spread, transmission are much more. This is complicated because there is social media's availability to almost everyone in the World. Hence, these myths spread very fast and extensively across the globe. Further, lack of any potential medicine/cure/vaccine has also led to the emergence of multiple claims about the various aspects of COVID-19 infection.

Some of the facts that are not yet clear, but there is some evidence to support the same. Accordingly, these facts cannot be labeled as myths. Emerging evidence suggests that there could be the faeco-oral transmission of COVID-19 infection or SARS-nCoV-2. Recent studies indicate that prolonged viral shedding in feces is seen in symptomatic patients with COVID-19 as well as in those recovered from COVID-19 (more so in children) (Wu et al., 2020; Xu et al., 2020; Yeo et al., 2020). Therefore, as the research evidence is growing at a faster rate about different aspects of COVID-19, we need to be aware of the potential facts about the illness and not to believe in any facts which have no authentic evidence or not claimed by any International Health body (like WHO).

## 2. Interaction between myths related to COVID-19 and public stigma

The very nature of the myth is that it gets publicized widely in a very short time, and people tend to follow a myth without questioning its authenticity or evidence for/against a myth. Moreover, during a pandemic, crowd psychology plays a major driving force in believing and practicing a ritual/procedure to find a solution. Certain acts/beliefs can enhance public stigma related to COVID-19. Both myths and public stigma get combined, shaping society's behavior toward disease and those infected by the same. Many myths related to the spread of infection are compounded with the stigma associated with patients recovered from COVID-19 infection and the health care workers (HCWs), working in COVID-19 wards/hospitals. These are leading to a social boycott of people such as debarring HCWs to stay in the same housing society (Bhandari, 2020b; COVID-19: Doctors, beaten and harassed plan, 2020), asking them to stay away from the public, avoiding interaction with the persons recovered from COVID-19 infection or those suspected of having COVID-19 infection, etc.

Therefore, a proper and planned awareness program taking into account all the stakeholders is the need of the hour, which can help change society's outlook from following the unhealthy/un-acceptable norms/myths to acceptable/healthy evidence-based norms.

The Government and the media have a significant role in dealing with the prevailing and emerging myths related to COVID-19 infection. One of the main responsibilities of the Government and the health care authorities is to deal with the widely prevalent and rapidly spreading new misconceptions/myths related to COVID-19. If these are not curtailed, then these can be very detrimental. Leaders/health officials should look at the evidence before endorsing anything related to spreading, prevention and treatment of COVID-19 infection, and leaders/health officials should look at the evidence, rather than blindly supporting the same. Additionally, if something is found to be of use, for example, some of the things, which are claimed to improve the immunity, and then the leaders/health officials should clearly state that the evidence of generic nature, rather than specific for COVID-19 and the strategy has not been evaluated specifically for COVID-19.

Further, they should say that these strategies are not a substitute for the proven hand hygiene measures, use of masks, and maintaining physical distancing. More awareness activities and messages should be delivered through all possible means (Telecommunication/advertisements /distributing pamphlets/ holding public webinars etc.) to counter the emerging myths. Additionally, strict legal action needs to be taken against people spreading fake news/making false claims during the pandemic. More and more stringent action and punishments must be declared by the Judiciary system to control the spread of

myths/fake claims. The mainstream media should also be very cautious in presenting the different information about the COVID-19 infection. Media, in its enthusiasm, should not try to discuss the studies evaluating the scientific evidence for various issues related to COVID-19 infection, until and unless these have some public message and have been proved unequivocally.

The public should be made aware that they should always follow authentic websites such as WHO website, CDC website or Ministry of Health and Family Welfare website of India (mohfw.in) to gain knowledge and stay updated regarding COVID-19. The public should be made aware of questioning the authenticity or level of evidence of a publicized treatment or strategy being circulated or advocated by any person or group of persons before believing any fact blindly. Further, awareness should be raised to follow the evidence-based preventive measures such as hand hygiene, social distancing, and infection control measures to safeguard against getting infected.

### 3. Conclusions

Myths have been widely prevalent about various diseases since time immemorial. Myths have a cultural influence and can have a varying degree of impact over the society. Many myths have been related to other infections (Leprosy, Tuberculosis, Flu/Influenza), but with time and evidence-based approaches, these have proved to be wrong. The current COVID-19 pandemic and its uncertainty had given rise to various myths. Some of these myths are leading to widespread stigma in society. Additionally, these myths have the potential of making people over-complacent and resultantly more at risk of developing the infection.

All these myths are having a widespread impact on public viewpoint and disease transmission. Therefore, possible and prompt steps should be taken by appropriate authorities to demystify the myths in due time. Considering the current status of COVID-19 infection to be so dynamic, people should evaluate things properly, before considering them to be useful.

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We have no financial disclosure to make.

### Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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ARTICLE



## Beliefs related to sexual intimacy, pregnancy and breastfeeding in the public during COVID-19 era: a web-based survey from India

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### ABSTRACT

**Aim:** To evaluate the beliefs held by the public regarding sexual health, pregnancy, and breastfeeding during COVID-19 era.

**Methods:** It was an online cross-sectional survey conducted through the Survey Monkey® platform and after proper ethical approval a self-designed questionnaire was circulated by the snowballing sampling technique through the Whatsapp platform.

**Results:** 1636 people responded to the survey questionnaire. 63% of the participants mentioned that kissing could spread nCoV-SARS. Unprotected sexual intercourse with the spouse can cause infection spread, was reported by about one-third (35.9%). Nearly one-fifth (22%) thought that unprotected sexual intercourse with unknown partners/persons could not spread the infection. About half (49.7%) of the participants reported COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy and one-fifth (21.3%) of the participants reported going ahead with the Cesarean section if the mother is suspected of having or is confirmed to have COVID-19 infection. About one-fifth feared for risk of birth defects and abortion in case the mother is infected with COVID-19. 28% of the participants reported COVID-19 infection can be transmitted to newborn by breastfeeding.

**Conclusions:** The present study suggests that a significant proportion of people have misinformation about sexual intimacy, pregnancy, and breastfeeding in the ongoing pandemic which needs to be addressed.

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### Introduction

The nCoV-SARS or COVID-19 infection has led to an unprecedented impact on people's day-to-day functioning. Along with the various uncertainties hovering about its transmission, control, and treatment, several myths and misconceptions have also cropped up in society [1,2]. Most of these are based on unknown facts that are being circulated in social media, and people tend to accept these to be true. To overcome all these myths, many awareness audios and videos are being circulated through telecommunication means (radio, television advertisements, public health messages by prominent celebrities and national leaders). Many organizations, including the World Health Organization (WHO) has also come up with many posters/educative materials, which are available on the websites of various health authorities [World Health Organization (WHO), Center for Disease Control and

Prevention (CDC), Ministry of Health and Family Welfare (MoHFW), India]. Further, adequate information in terms of prevention and health promotion regarding COVID-19 transmission is the need of the hour.

Among the many prevailing beliefs related to COVID-19 infection, few are related to sexual intimacy, pregnancy, and breastfeeding. Many viewpoints have been speculated about the spread of nCoV-SARS through sexual practices, during childbirth/labor, mother to fetus vertical transmission, and breastfeeding [3–5]. Although, WHO has tried to clarify various facts related to these topics (i.e. sexual intimacy, childbirth, pregnancy and breastfeeding), yet these have not reached all the people in the community. As per WHO, sexual intercourse with suspected infected individuals can cause the spread of infection, and there is a high likelihood that sexual intimacy with unknown

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 Supplemental data for this article can be accessed [here](#).

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**Table 1.** Evidence of the facts questioned regarding sexual intimacy, pregnancy and childbirth related to COVID-19 (as of June 2020).

Serial no	Survey question related to sexual intimacy, pregnancy and childbirth during COVID-19	Evidence so far (as of June 2020)
1.	COVID-19 infection can be transmitted through kissing.	<ul style="list-style-type: none"> <li>• COVID-19 can spread through kissing with any suspected individual having signs and symptoms suggestive of COVID-19.</li> <li>• Such activity should be avoided with persons having unknown COVID-19 status [20,21].</li> </ul>
2.	COVID-19 infection can be transmitted through unprotected sexual intercourse with spouse.	<ul style="list-style-type: none"> <li>• COVID-19 can spread through sexual intercourse with any suspected individual having signs and symptoms suggestive of COVID-19 as it involves contact with body [20,21].</li> <li>• Sexual activity with spouse who is residing with the person and has no signs and symptoms of COVID-19 is unlikely to cause COVID-19 transmission and hence this should not be avoided [22].</li> <li>• Sexual activity with partner who is also quarantined together is of no risk unless both or any one of the partner had been exposed outside the home [22].</li> </ul>
3.	Unprotected sexual intercourse with unknown persons can lead to spread of COVID-19 infection	<ul style="list-style-type: none"> <li>• As the COVID-19 status of any unknown person is not known therefore, any form of sexual activity with unknown persons needs to be avoided [20].</li> <li>• However, till date, there is no definite evidence of COVID-19 being detected in seminal fluid or vaginal secretions [23,24].</li> </ul>
4.	COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy	<ul style="list-style-type: none"> <li>• Till date, there is no data (as per WHO), on the fact that a pregnant female with COVID-19 can pass the virus to her fetus or baby during pregnancy or process of child birth [25,26].</li> <li>• The active virus has not yet been found in samples of amniotic fluid [27].</li> </ul>
5.	Pregnant women with suspected or confirmed COVID-19 need to give birth by cesarean section (CS) only.	<ul style="list-style-type: none"> <li>• WHO clearly advises that CS should only be performed when medically indicated/ justified [26].</li> <li>• The mode of birth should be individualized and based on a woman's preferences alongside obstetric indications.</li> </ul>
6.	If pregnancy occurs then there is high risk of miscarriage or abortion	<ul style="list-style-type: none"> <li>• There is currently no evidence to support that acquiring COVID-19 predisposes to a heightened risk of miscarriage [26].</li> <li>• Although some reports of preterm delivery and neonatal pneumonia has been reported, however currently the adverse pregnancy outcomes in few reports cannot be attributed to COVID-19 only [28].</li> </ul>
7.	If pregnancy occurs then there is high risk of congenital malformations/birth defects due to COVID-19.	<ul style="list-style-type: none"> <li>• There is no reported evidence to suggest that the virus will cause any problem with the fetal development [26,29].</li> </ul>
8.	COVID-19 infection can be transmitted through the breast milk to the new born/ breastfeeding.	<ul style="list-style-type: none"> <li>• Till date (as per WHO), the virus has not been detected in the breast milk of any mother with confirmed or suspected COVID-19 infection [14,30].</li> <li>• Researchers are continuing to test breast milk from mothers with COVID-19 infection.</li> </ul>

persons can lead to infection. Kissing and touching need to be avoided too, but sexual intimacy with spouse ( unsuspected COVID-19) should not be avoided due to the fear of getting infected. With regard to delivery of pregnant women with suspected or confirmed COVID-19 infection, WHO and many experts across the world have suggested that normal vaginal delivery should be conducted in all practical cases and Cesarean section (CS) can be conducted only in cases with appropriate indications for Cesarean section [6,7].

The knowledge and understanding about COVID-19 and issues related to sexual intimacy, pregnancy and breastfeeding is evolving and the current understanding of these issues is given in Table 1. These issues pertain to day to day functioning of people in general and having incorrect beliefs about these facts can influence the relationship issues, help seeking and taking care of the newborn. Hence, there is a need to

disseminate correct information about these facts to people in the society.

Considering the importance of sexual health, pregnancy, and breastfeeding are important and pertinent issues, in this paper we present the data related to these specific areas, derived from a larger study aimed at evaluating the beliefs held and practices related to COVID-19 in the society. Additionally, we aimed to find out if there exists any differences between different groups of participants [such as males versus females, females in their reproductive age group versus females of non-reproductive age group, health care workers (HCWs) versus non-HCWs].

### Methodology

It was an online cross-sectional descriptive survey, in which quantitative data was collected through the Survey Monkey® platform. For this, a survey link was



generated, which was circulated by using the Whatsapp®, both individually and through the Whatsapp groups. A non-probability snowball sampling technique was used, and people completing the survey were urged to forward the same to their contacts. The participation was completely voluntary, and the probable participants had the option of not participating in the survey. Similarly, those filling the survey were under no compulsion to forward the same to others. The survey invitation clearly stated that the participants have the right not to participate in the survey, and participation in the survey would imply providing informed consent. The survey link stated clearly that those not willing to participate can ignore the message. The participants were also assured about the maintenance of strict confidentiality and anonymity.

The study was approved by the Institute's Ethics Committee.

The survey questionnaire was self-designed based on the public's common myths/beliefs and based on the list of myths mentioned in various websites (WHO, CDC, MoHFW). The survey questionnaire was made available in English, Hindi, and Odia language. For each question, the participants were given 4 options, i.e. "Yes," "No," "Can't Say," and "Don't Know," of which one was to be selected. The two options - "can't say" and "don't know" were used in addition to usual 'yes' and 'no' responses. While "can't Say" denotes that the individual is not sure of his knowledge about the particular topic though has some idea or has heard about it from some sources, "don't know" meant the individual has no idea at all about the topic asked i.e. had never heard of it or had any knowledge about the topic. These options were used so as to further clarify to what level the various beliefs were held by the people i.e. either they know it "Yes - They know it and believe in the fact"; "No" - they do not believe in the fact, "can't say" - unsure of the fact and "don't know" - completely ignorant about the fact.

Descriptive statistics were applied and the data collected were analyzed using SPSS 20.0 version.

Chi-square test was used to compare between different sub-groups of the participants.

## Results

Close to seventeen hundred ( $n = 1695$ ) people participated in the survey, of which 1636 responses were found to be complete for all questions and were analyzed. The mean age of the participants was 34.55 (SD-11.96) years, and two-thirds of the participants

were males ( $n = 1092$ ; 66.7%). Half of the participants were married and were living with their spouse ( $n = 824$ ; 50.4%). Among the female participants, the majority were in the reproductive age group (16-44 years) ( $n = 472$ ; 86.7%). About one-third of the participants were educated up to graduation (32.1%), and about one-fifth were HCWs. Most ( $n = 92.1\%$ ) of the participants were residing in urban areas (cities/towns), suggesting good access to information technology resources (Supplementary Table 1).

As evident from Table 1, 63% of the participants mentioned that kissing could spread the nCoV-SARS. Similarly, when asked if unprotected sexual intercourse with the spouse can cause infection spread, while two-fifths (41.1%) denied the same, about one-third (35.9%) reported that it could spread and the rest were unsure or did not have any information about the same. Nearly one-fifth (22%) thought that unprotected sexual intercourse with unknown partners/persons could not spread the infection, and another one-fifth (20.5%) were either unsure or did not have any idea about it. Significant gender differences were noted on the questions about sexual intercourse with females having poor knowledge in these aspects (spouse -  $p = 0.001$ ; unknown persons-  $p = 0.025$ ) (Table 2). Further, non-HCWs had significantly less knowledge about the spread of infection through kissing ( $p < 0.001$ ) and more often held the belief that unprotected sexual intercourse with spouse can lead to spread of infection ( $p = 0.002$ ) and that unprotected sexual intercourse with unknown persons cannot spread the infection ( $p = 0.003$ ) (Table 4).

When asked explicitly if COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy, about half (49.7%) of the participants reported it to be "yes" (Table 2). Further, it was seen that females in the reproductive age group (16-44 years) more often (52.5%) reported it as 'yes' (Table 3). When compared to non-HCWs, a significantly higher proportion of HCWs held this belief ( $p < 0.001$ ) (Table 4).

In the present survey, about one-fifth (21.3%) of the participants reported to go ahead with the CS if the mother is suspected of having or is confirmed to have COVID-19 infection (Table 2). When males and females were compared, a significantly higher proportion of males ( $p = 0.043$ ) endorsed the for this belief "Pregnant women with suspected or confirmed COVID-19 infection need to give birth by CS only" (Table 2). When the HCWs and non-HCWs were compared, a significantly higher proportion of non-HCWs

**Table 2.** Differences in the knowledge and beliefs on questions related to sexual intimacy, pregnancy, delivery, and breastfeeding with regard to gender.

Variable	Whole sample <i>n</i> = 1636 Frequency (%)	Males <i>n</i> = 1092 Frequency (%)	Females <i>n</i> = 544 Frequency (%)	Chi-square test value ( <i>p</i> Value)
<b>Kissing</b>				
Yes	1034 (63.2)	708 (64.8)	326 (59.9)	6.435 (0.092)
No	341 (20.8)	226 (20.7)	115 (21.1)	
Can't say	181 (11.1)	112 (10.3)	69 (12.7)	
Don't know	80 (4.9)	46 (4.2)	34 (6.3)	
<b>Unprotected sexual intercourse with spouse</b>				
Yes	587 (35.9)	408 (37.4)	179 (32.9)	16.188 (0.001)***
No	672 (41.1)	464 (42.5)	208 (38.2)	
Can't Say	253 (15.5)	151 (13.8)	102 (18.8)	
Don't Know	124 (7.6)	69 (6.3)	55 (10.1)	
<b>Unprotected sexual intercourse with unknown persons</b>				
Yes	934 (57.1)	639 (58.5)	295 (54.2)	9.340 (0.025)*
No	366 (22.4)	252 (23.1)	114 (21.0)	
Can't Say	206 (12.6)	125 (11.4)	81 (14.9)	
Don't Know	130 (7.9)	76 (7.0)	54 (9.9)	
<b>COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy</b>				
Yes	813 (49.7)	538 (49.3)	275 (50.6)	1.140 (0.767)
No	343 (21.0)	236 (21.6)	107 (19.7)	
Can't Say	276 (16.9)	180 (16.5)	96 (17.6)	
Don't Know	204 (12.5)	138 (12.6)	66 (12.1)	
<b>Pregnant women with suspected or confirmed COVID-19 infection need to give birth by CS only</b>				
Yes	349 (21.3)	254 (23.3)	95 (17.5)	8.139 (0.043)*
No	612 (37.4)	392 (35.9)	220 (40.4)	
Can't Say	372 (22.7)	249 (22.8)	123 (22.6)	
Don't Know	303 (18.5)	197 (18.0)	106 (19.5)	
<b>If pregnancy occurs in a women with COVID-19 infection then there is high risk of miscarriage or abortion</b>				
Yes	351 (21.5)	261 (23.9)	90 (16.5)	12.735 (0.005)**
No	544 (33.3)	359 (32.9)	185 (34.0)	
Can't Say	428 (26.2)	269 (24.6)	159 (29.2)	
Don't Know	313 (19.1)	203 (18.6)	110 (20.2)	
<b>If pregnancy occurs in a women with COVID-19 infection then there is high risk of birth defects/ congenital malformations due to COVID-19</b>				
Yes	346 (21.1)	246 (22.5)	100 (18.4)	3.784 (0.286)
No	545 (33.3)	356 (32.6)	189 (34.7)	
Can't Say	439 (26.8)	288 (26.4)	151 (27.8)	
Don't Know	306 (18.7)	202 (18.5)	104 (19.1)	
<b>COVID-19 infection can be transmitted through the breast milk to the new born/breastfeeding</b>				
Yes	465 (28.4)	326 (29.9)	139 (25.6)	7.865 (0.049)*
No	481 (29.4)	325 (29.8)	156 (28.7)	
Can't Say	415 (25.4)	255 (23.4)	160 (29.4)	
Don't Know	275 (16.8)	186 (17.0)	89 (16.4)	

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

(*p* < 0.001) were unsure or did not know about it (Table 4).

Similarly, when asked about if there is a high risk of miscarriage or abortion and birth defects/congenital malformations in case the mother is infected with COVID-19 during the pregnancy, about one-fifth (21.55% and 21.1% respectively) of participants agreed with the belief for high risk of miscarriage/abortion and birth defects with COVID-19 infection (Table 2). When the male and female participants were compared, males more often held the belief regarding the risk of miscarriage/abortion (*p* = 0.005) (Table 2). Moreover, when HCWs and non-HCWs were compared, significantly lower (*p* < 0.001) proportion of non-HCWs reported 'no'. Further, significantly more participants belonging to non-HCWs professions (*p* < 0.001)

reported a high risk of birth defects in newborns due to COVID-19 (Table 4).

When asked about the transmission of COVID-19 infection through breast milk to the newborn/breastfeeding, 28% reported 'yes', another one-fourth were unsure, and 16% did not know about it. When males and females were compared, a significantly higher proportion of females had poor knowledge regarding this fact (*p* = 0.049) (Table 2), and more females in the reproductive age group believed that breastfeeding could spread infection to newborns (though not statistically significant) (Table 3). When HCWs and non-HCWs were compared (Table 4), a significantly higher proportion of non-HCWs (*p* < 0.001) believed that mothers with COVID-19 infection could transmit the virus to their child through breast milk.

**Table 3.** Differences in the knowledge and beliefs on questions related to sexual intimacy, pregnancy, delivery, and breastfeeding with regard to reproductive age group of females.

Variable	Whole sample n = 1636 Frequency (%)	Reproductive age group of females (16-44 years) n = 472 Frequency (%)	Non-Reproductive age group of females n = 72 Frequency (%)	Chi-square test value (p Value)
Kissing				
Yes	1034 (63.2)	288 (61.0)	38 (52.8)	3.986 (0.263)
No	341 (20.8)	99 (21.0)	16 (22.2)	
Can't Say	181 (11.1)	59 (12.5)	10 (13.9)	
Don't Know	80 (4.9)	26 (5.5)	8 (11.1)	
Unprotected sexual intercourse with spouse				
Yes				2.532 (0.470)
No	587 (35.9)	159 (33.7)	20 (27.8)	
Can't Say	672 (41.1)	175 (37.1)	33 (45.8)	
Don't Know	253 (15.5)	91 (19.3)	11 (15.3)	
Don't Know	124 (7.6)	47 (10.0)	8 (11.1)	
Unprotected sexual intercourse with unknown persons				
Yes	934 (57.1)	266 (56.4)	29 (40.3)	7.136 (0.068)
No	366 (22.4)	93 (19.7)	21 (29.2)	
Can't Say	206 (12.6)	69 (14.6)	12 (16.7)	
Don't Know	130 (7.9)	44 (9.3)	10 (13.9)	
COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy				
Yes	813 (49.7)	248 (52.5)	27 (37.5)	11.22 (0.011)*
No	343 (21.0)	89 (18.9)	18 (25.0)	
Can't Say	276 (16.9)	75 (15.9)	21 (29.2%)	
Don't Know	204 (12.5)	60 (12.7)	6 (8.3)	
Pregnant women with suspected or confirmed COVID-19 infection need to give birth by Cesarean section (CS) only				
Yes	349 (21.3)	85 (18.0)	10 (13.9)	2.341 (0.505)
No	612 (37.4)	186 (39.4)	34 (47.2)	
Can't Say	372 (22.7)	106 (22.5)	17 (23.6)	
Don't Know	303 (18.5)	95 (20.1)	11 (15.3)	
If pregnancy occurs in a women with COVID-19 infection then there is high risk of miscarriage or abortion				
Yes	351 (21.5)	74 (15.7)	16 (22.2)	2.152 (0.541)
No	544 (33.3)	163 (34.5)	22 (30.6)	
Can't Say	428 (26.2)	140 (29.7)	19 (26.4)	
Don't Know	313 (19.1)	95 (20.1)	15 (20.8)	
If pregnancy occurs in a women with COVID-19 infection then there is high risk of birth defects/ congenital malformations due to COVID-19				
Yes	346 (21.1)	91 (19.3)	9 (12.5)	2.256 (0.521)
No	545 (33.3)	161 (34.1)	28 (38.9)	
Can't Say	439 (26.8)	129 (27.3)	22 (30.6)	
Don't Know	306 (18.7)	91 (19.3)	13 (18.1)	
COVID-19 infection can be transmitted through the breast milk to the new born/breastfeeding				
Yes	465 (28.4)	123 (26.1)	16 (22.2)	2.277 (0.517)
No	481 (29.4)	130 (27.5)	26 (36.1)	
Can't Say	415 (25.4)	141 (29.9)	19 (26.4)	
Don't Know	275 (16.8)	78 (16.5)	11 (15.3)	

\* $p < 0.05$ .

## Discussion

As the COVID-19 pandemic is unfolding and it is difficult to predict as to how long it is going to continue, there is a need to provide proper and scientific evidence-based information to curb the prevailing unrealistic beliefs/myths related to COVID-19 infection. In this regard, the current study findings are interesting and can be regarded as an eye-opener to the public health authorities about the public's actual beliefs. With regard to sexual intimacy (kissing and sexual intercourse), the WHO and other health authorities have warned about the risk of the spread of infection if such acts are performed with individuals suspected to have COVID-19 infection. The present study demonstrates that a substantial proportion of people have an irrational fear about the spread of infection due to

sexual intercourse with spouse (not COVID-19 suspect) and misconceptions about no risk when engaged with unknown persons. Fear of conceiving and avoidance to conceive have been reported by a recent Italian study conducted during the COVID-19 pandemic [8].

Most of the pregnant women have been grappling with fear and uncertainty with the risk of transmission of infection to their unborn fetus, which needs to be recognized and clarified by the treating obstetricians. While there is no evidence of intrauterine transmission/vertical transmission of COVID-19 from existing literature [6,9,10], misconceptions related to the vertical transmission still exist in the general population, which needs to be addressed. The present survey findings highlight that a significant proportion of respondents, especially females of the reproductive age group, hold this belief and fear, which needs to be focused.

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**Table 4.** Differences in the knowledge and beliefs on questions related to sexual intimacy, pregnancy, delivery, and breastfeed-ing among health care workers (HCWs) and non-HCWs.

Variable	Whole sample n = 1636 Frequency (%)	HCWs n = 322 Frequency (%)	Non-HCWs n = 1314 Frequency (%)	Chi-square test value (p Value)
<b>Kissing</b>				
Yes	1034 (63.2)	242 (75.2)	792 (60.3)	32.87 (<0.001)***
No	341 (20.8)	59 (18.3)	282 (21.5)	
Can't Say	181 (11.1)	16 (5.0)	165 (12.6)	
Don't Know	80 (4.9)	5 (1.6)	75 (5.7)	
<b>Unprotected sexual intercourse with spouse</b>				
Yes				15.24 (0.002)**
No	587 (35.9)	104 (32.3)	483 (36.8)	
Can't Say	672 (41.1)	161 (50.0)	511 (38.9)	
Don't Know	253 (15.5)	42 (13.0)	211 (16.1)	
<b>Unprotected sexual intercourse with unknown persons</b>				
Yes	934 (57.1)	190 (59.0)	744 (56.6)	13.88 (0.003)**
No	366 (22.4)	88 (27.3)	278 (21.2)	
Can't Say	206 (12.6)	27 (8.4)	179 (13.6)	
Don't Know	130 (7.9)	17 (5.3)	113 (8.6)	
<b>COVID-19 infection can be transmitted from mother to the child/fetus during the process of birth or during pregnancy</b>				
Yes	813 (49.7)	171 (53.1)	642 (48.9)	24.898 (<0.001)***
No	343 (21.0)	89 (27.6)	254 (19.3)	
Can't Say	276 (16.9)	41 (12.7)	235 (17.9)	
Don't Know	204 (12.5)	21 (6.5)	183 (13.9)	
<b>Pregnant women with suspected or confirmed COVID-19 infection need to give birth by Cesarean section (CS) only</b>				
Yes	349 (21.3)	73 (22.7)	276 (21.0)	50.76 (<0.001)***
No	612 (37.4)	166 (51.6)	446 (33.9)	
Can't Say	372 (22.7)	58 (18.0)	314 (23.9)	
Don't Know	303 (18.5)	25 (7.8)	278 (21.2)	
<b>If pregnancy occurs in a women with COVID-19 infection then there is high risk of miscarriage or abortion</b>				
Yes	351 (21.5)	65 (20.2)	286 (21.8)	33.21 (<0.001)***
No	544 (33.3)	140 (43.5)	404 (30.7)	
Can't Say	428 (26.2)	87 (27.0)	341 (26.0)	
Don't Know	313 (19.1)	30 (9.3)	283 (21.5)	
<b>If pregnancy occurs in a women with COVID-19 infection then there is high risk of birth defects/ congenital malformations due to COVID-19</b>				
Yes	346 (21.1)	60 (18.6)	286 (21.8)	32.49 (<0.001)***
No	545 (33.3)	143 (44.4)	402 (30.6)	
Can't Say	439 (26.8)	87 (27.0)	352 (26.8)	
Don't Know	306 (18.7)	32 (9.9)	274 (20.9)	
<b>COVID-19 infection can be transmitted through the breast milk to the new born/breastfeeding</b>				
Yes	465 (28.4)	79 (24.5)	386 (29.4)	46.72 (<0.001)***
No	481 (29.4)	142 (44.1)	339 (25.8)	
Can't Say	415 (25.4)	71 (22.0)	344 (26.2)	
Don't Know	275 (16.8)	30 (9.3)	245 (18.6)	

\*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

The survey findings further highlight that proper dissemination of knowledge is needed on issues related to childbirth during this COVID-19 era. Most of the studies have reported excellent outcomes in all pregnant patients with COVID-19 with vaginal birth [10,11]. Still, one-fifths of the survey responders vouched for CS only, and two-fifths were unsure or unaware. These findings suggest the need for proper counseling of pregnant females and their spouses to build confidence about normal vaginal delivery during the ongoing pandemic.

About one-fifth of the participants gave an affirmative response in favor of the high risk of miscarriage/abortion and possible birth defects/congenital malformations in pregnancy. Only a few cases of stillbirth and neonatal death have been reported in a limited number of studies on pregnant COVID-19 patients [7,10,12]; such speculations and beliefs need

to be corrected with adequate and evidence-based information. Further, pregnant females need to be counseled regarding the potential role of the psychological distress of COVID-19 and its effect on the fetus [13].

Although information related to breastfeeding during COVID-19 is available on the websites of almost all health authorities (WHO, CDC, MoHFW) [2,14–17] and also various pediatric neonatology guidelines [18,19] have suggested the beneficial effects of breastfeeding, how to breastfeed a newborn by an infected mother (with proper hand hygiene and with masks), yet the findings of the present study suggest that more awareness programs needs to be done as it seems all these information have not adequately understood or accepted by public.

Having a limited sample size, being responded by people having a smart phone with Whatsapp platform

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being used for circulation of the survey among mostly urban residing individuals, use of a self-designed questionnaire are some of the limitations of the current study. However, the study is first of its kind to evaluate the prevailing beliefs of the public regarding some of the pertinent issues related to sexual intimacy, pregnancy, and breastfeeding, which need to be addressed to create more awareness in these topics. Disseminating evidence-based knowledge and creating more awareness is the need of the hour. In addition to focusing on awareness programs based on the usual infection control safety measures like hand hygiene, social distancing, universal masking etc., the beliefs pertaining to sexual intimacy, pregnancy and childbirth can be focused too and awareness programs in the form of educational videos and pamphlets, Television, social media, newspaper advertisements and articles need to be circulated with established facts on these topics and information must be updated from time to time with the evolving evidence. A possible potential strategy could be disseminating currently available knowledge on these topics in simple understandable language (in local languages) by the local health authorities or by health workers/social workers working in COVID-19 awareness programs can benefit people from different socio-economic strata/rural-urban areas.

To conclude, the present study suggests that a significant proportion of people have misinformation about sexual intimacy, pregnancy, and breastfeeding in the ongoing pandemic. Keeping this in mind, there is a need to escalate the awareness program in this regard.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Letter to the Editor

## Is it time to consider an income guarantee for the period that patients with COVID-19 spend in isolation: an Indian perspective



The lockdown due to the COVID-19 pandemic in India has entered its third phase.<sup>1</sup> It is now increasingly obvious that the SARS-CoV-2 is likely to persist in the foreseeable future. In addition, numbers of patients with COVID-19 have been increasing steadily.<sup>2</sup> At present, the policy of the Government of India with regards to COVID-19 has been to admit patients in specially created isolation facilities until they test negative or recently to be confined to home-based isolation if asymptomatic or mildly symptomatic.<sup>3</sup> This is done to break the chain of transmission and prevent further infections in the community. Already it is seen that outbreaks in dense, congested areas and localities with impoverished populations are difficult to contrail and contain. A major reason for this could be failure of recognition of mildly symptomatic patients who continue to infect other people and the inability to sustain the requirements of social distancing.

So far, the policy of the lockdown has been associated with increasing economic stress especially for the poor and marginalized sections of the society because of the near stoppage of economic activity. As the lockdown is gradually easing, many individuals and families that were dependent on daily incomes are already economically stressed. In addition, if an already economically stressed individual is admitted in an isolation ward or advised isolation at home, it would mean further loss of any possibility of earning especially because family members would also in all probability require quarantine. In many poor households, most people including sometimes children are earning members and being in isolation or quarantine can translate into a financial burden that many households may not be able to sustain, this notwithstanding supplies of food which may at times be erratic. Most patients are usually mildly symptomatic or asymptomatic and may feel physically fit enough to be able to work. It will be obvious that most patients are in isolation (either at home or hospital) for the good of society (by cooperating in breaking the chain of infection) and not necessarily for their own health. In such a scenario, it is likely that there would be increasing events of non-cooperation with isolation at home or in hospitals as exemplified by insistence on being discharged, or denial of illness, claims of wrongful test results, etc.<sup>4,5</sup> It is also likely that the frequency of these, yet sporadic incidents, will increase with time as they become more well known. It is probable that people will try to conceal mild symptoms to prevent being isolated and their families quarantined purely to avoid financial loss in addition to the stigma it entails. As others rush to take limited employment opportunities, there is indeed truly little

incentive for a mostly well patient with COVID-19 who finds himself in isolation to cooperate with this lengthy process.

What is required is to reframe the narrative that it is enough that a patient with COVID-19 is admitted, is being looked after, and his/her immediate healthcare needs are being fulfilled as is the case at present. It is probably time to recognize that a patient (and family by extension) in isolation is doing a service to society and there needs to be a consideration toward financial compensation for time spent in isolation beyond immediate health care and food security (as is the current practice). This can be taken as a form of social responsibility. Different sponsors can be approached for this purpose if needed. This should be combined with appeals to altruism in people who need to be isolated. This will enable greater cooperation with the process of isolation and effectiveness of the measure. Financial compensation may also reduce the stigma associated with COVID-19.

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## Case reports/Case series

1. Dua D, Laxmi R, Mehra A, Sahoo S, Grover S. Acute stress reaction related to use of personal protective equipment in health-care workers. *Indian J Psychiatry*. 2020;62:599-600.
2. Ghosh A, Sharma K, Mahintamani T, Pandiyan S, Roub FE, Grover S. Multiple suicide attempts in an individual with opioid dependence: Unintended harm of lockdown during the COVID-19 outbreak? *Indian J Psychiatry*. 2020;62:604-6.
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## Acute stress reaction related to use of personal protective equipment in health-care workers

Sir,

Use of personal protective equipment (PPE) for the first time can be a very suffocating experience, to the extent that it can lead to panic attacks and make the health-care workers (HCWs) dysfunctional. In this report, we present the description of a 40-year-old HCW, who developed a fear of donning PPE, leading to significant dysfunction.

A 40-year-old nurse presented to emergency services with severe anxiety. She was trained in donning and doffing and did not experience any difficulty at the time of training. On the 1<sup>st</sup> day of her duty, within minutes of donning her suit, she became uncomfortable, and she experienced a panic attack. She immediately removed her PPE and while doing so was gasping for air. She returned to her usual self in the next half an hour but was not able to do the duty further on that day. On that night, she had difficulty in sleeping and remained preoccupied with the thought of wearing the PPE and was afraid that she may not be able to breathe. She went to work on the subsequent days, was able to don the hazmat suit, but avoided the face shield. Throughout the duty hours, she experienced discomfort and just kept on thinking about when her duty is going to end. After two more days of experiencing similar symptoms, she proceeded on leave. While on leave, she continued to have anxiety when left alone, in dark and closed places. Additionally, she had sleep disturbance, apprehension of going back to COVID-19 ward again. After 4–5 days of leave, she came to know that she was again posted in COVID intensive care unit; this led to significant worsening of symptoms and emergency visit. There was no history of any depressive

symptoms, while being evaluated in the emergency. On mental status examination, she was found to be anxious and stated that, although she was scared of contracting the virus to some extent, but her primary concern was the distress associated with wearing the PPE. Based on the available information, a diagnosis of Acute Stress Reaction (as per the International classification of diseases, tenth revision) was considered. She was advised clonazepam and taught relaxation exercise with which she perceived some improvement.

During the ongoing COVID-19 pandemic, HCWs can have anxiety related to fear of contracting the infection, spreading the infection to their family members and others in the vicinity, stigma, fear of death, long duty hours, encountering frequent deaths while on duties, staying away from family members, staying in quarantine, and interpersonal issues at the workplace, etc.<sup>[1-3]</sup> However, in the wake of these anxiety provoking situations, wearing the PPE for long hours, can be another source of an anxiety, as was seen in the index HCW. Accordingly during training for donning and doffing, the HCWs should be prepared about the duration for which they have to be in the PPE, with and without face shields. The training should also incorporate relaxation techniques, so that in the time of crisis, the HCWs can practice the same, to keep themselves calm and safe.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and

other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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## **Multiple suicide attempts in an individual with opioid dependence: Unintended harm of lockdown during the COVID-19 outbreak?**

Sir,

Coronavirus disease-19 (COVID-19) was declared a pandemic by the WHO on March 11, 2020.<sup>[1]</sup> To contain the spread, a nationwide lockdown was enforced in India on 24 March. Since the lockdown, there is a suspension of routine outpatient care and restricted movement, limiting access to psychiatric treatment. The revised telemedicine practice guideline approved online prescription of psychotropics (including benzodiazepines).<sup>[2]</sup> However, the guideline does not permit online prescription of buprenorphine or methadone, which are controlled substances in India. Therefore, individuals on opioid agonist treatment are likely to be disproportionately affected.

Here, we reported multiple suicide attempts in an individual on buprenorphine-naloxone-based agonist treatment, in the absence of any other psychiatric comorbidity.

A 26-year-old male with heroin and tobacco dependence was on treatment from our addiction psychiatry clinic since October 2019. He had impulsive and dissocial traits. He was started on buprenorphine-based agonist treatment in November 2019. For the initial 2 months, he was not adherent to treatment. Since February 2020, his dose of buprenorphine-naloxone was increased (from 4 mg to 6 mg), leading to better control of craving and improved adherence. On March 18<sup>th</sup> follow-up, his abstinence was confirmed by negative urine screen for morphine. As per our treatment protocol, he was prescribed take-away buprenorphine for a week. However, the nationwide lockdown, starting from March 24<sup>th</sup> led to immediate suspension of public conveyance, sealing of state borders and suspension of his daily income, due to which he was unable to attend for follow-up on next scheduled date. Unable to procure buprenorphine from any other sources he suffered from intense craving and withdrawal. On the 3<sup>rd</sup> day, while experiencing unbearable pain, he found a

bottle of Phenyl (a disinfectant; composed of-carbolic acid, cresol, homologues of phenol, and pine oil). He drank a mouthful of it with an “intent to die,” to get rid of the suffering. However, he could not drink more due to local irritation and nausea. He was taken to the nearest health centre, was provided supportive care, and discharged within a few hours. Next day, he procured heroin from a known drug-peddler. He started injecting heroin but restricted availability and the high price forced him to abstain intermittently. He experienced guilt for restarting heroin. During those forced abstinences, to relieve withdrawal-related pain and insomnia, he managed ten tablets of 0.5 mg alprazolam from a health care worker. Next day, he consumed all ten tablets together with “intent to kill” himself. However, he revealed the same to his family and was brought to the emergency of our hospital. On examination, he was found to be sedated; responded to verbal commands. His vitals were within normal limits. However, his pupils were dilated. He was kept under overnight observation and was seen in the addiction psychiatry clinic on the next day. He expressed remorse for the attempts to kill himself and said “unbearable” withdrawal pain and inability to procure medication were motivations behind those attempts. Reinduction was done with buprenorphine-naloxone(BNX). He was told about the risk of co-administering BNX and benzodiazepines. His mother was asked to supervise treatment and one week’s takeaway dose was dispensed.

Substance use disorders (SUD) increases the odds of suicide ideation, attempt, and completed suicide. The findings hold across substances, including opioids.<sup>[3]</sup> Worryingly, people with opioid use disorders are eleven times more likely to die of suicide and odds of mortality is higher among patients within 2 weeks of discontinuation or those who are irregular on opioid-agonist treatment.<sup>[4,5]</sup> Behavioral impulsivity is known to increase risk of impulsive suicide attempts in SUD.<sup>[6]</sup> The presented case had some of these high-risk factors. However, the proximal and most important precipitating factor was COVID pandemic and consequent lockdown-both are purported to heighten the risk of suicide by decreased access to mental health treatment, economic hardships, social isolation, and provoking anxiety.<sup>[7]</sup> At least the first two factors contributed significantly in this case. Although the opioid substitution clinic has been functional, limited information in the public domain and multiple barriers to access treatment resulted in forced discontinuation of agonist treatment. The policy of no provision of opioid agonist through teleconsultation has added to his misery.

Although he could not procure buprenorphine, heroin and alprazolam were still available.

Hence, in our opinion, this case exemplifies an unprecedented adverse consequence of lockdown. This is a learning lesson for countries lacking a public health-oriented opioid agonist treatment policy or those who are yet to change their existing policy to adapt to the new need arisen out of the pandemic.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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There are no conflicts of interest.

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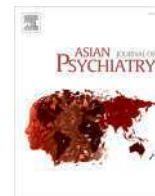
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## Letter to the Editor



## Stigma related to COVID-19 infection: Are the Health Care Workers stigmatizing their own colleagues?

### 1. Introduction

Stigma is understood as a process of negative discrimination against people with certain physical, behavioral or social attributes (Goffman, 1963). In the context of health, stigma is described as labeling, stereotyping, and discriminating against people because of a particular disease or illness. Epidemics and pandemics of various infectious diseases have almost always given rise to the stigma against the sufferers (Barrett and Brown, 2008). The ongoing COVID-19 pandemic is probably the first instance when the stigma against healthcare workers (HCWs) is being discussed at length and has been reported from the many places in the world (Bagchi, 2020; "Stop the coronavirus stigma now," 2020).

Stigma can force people to hide the illness to avoid discrimination and prevent them from choosing healthy behaviors. During the ongoing COVID-19 Pandemic, stigma has been mostly discussed in the context of general population discriminating HCWs and those with the infection (Bagchi, 2020; Ng, 2020; Singh and Subedi, 2020) and stigmatizing behaviors towards specific communities (Chinese/Asian) (Kahambing and Edilo, 2020; Rzymyski and Nowicki, 2020). However, stigma has not been discussed in the context of one HCW discriminating against the other. Here we describe 2 cases of stigma and discrimination faced by the HCWs in the hand of other HCWs. The first case describes a grim instance where a HCW was stigmatized (because of opting to undergo a COVID-19 RT-PCR test) by her colleagues despite being tested negative for COVID infection. The extent of stigma was so severe that it ultimately led to severe psychological distress and psychiatric consultation. The second case describes the experience of another HCW, working with patients with COVID-19.

### 2. Case description-1

A 35 year old female HCW presented to the psychiatric services with severe psychological distress. On evaluation, she was found to have symptoms amounting to Adjustment Disorder. Her medical history revealed that she was suffering from hypothyroidism. Further exploration of the history revealed that about 3 weeks prior to presentation, she developed symptoms of fatigue, aches and pain. Although she had not come in contact with any known high-risk contact for COVID-19, she decided to get herself tested for COVID-19. Just prior to getting herself tested, she informed her supervisors about her going for the testing. However, immediately, after getting herself tested, she started receiving messages and phone calls from the colleagues about the rumors of her being tested positive. Everyone at her workplace was informed that she is positive for COVID-19. She felt very bad and helpless about the same. Next day her COVID-19 test came out to be negative, but she had to undergo a quarantine/self-isolation for 2 weeks as per the protocol.

Throughout these 2 weeks she would hear about the rumors of her being COVID-19 positive and people blaming her for carrying the infection to the workplace. Due to this, she started remaining distressed, would often break into tears, had difficulty in falling asleep and maintaining asleep, her appetite reduced, was not able to concentrate on her work, would feel helpless, would be worried about the reaction of others in the future. During the self-isolation, she found that other HCWs living close to her accommodation, who were earlier friendly with her had started to avoid her, would walk in the corridor in such a way, as if trying to avoid physical contact with her. This would make her more distressed; make her feel an outcast and being ridiculed at. After the completion of the self-isolation, when she went to meet her supervisor to discuss her ongoing work, she was ridiculed and shouted at, was blamed for entering the premises with high-grade fever and putting everyone else at risk of infection. She was asked to leave the workplace, not to come to the workplace and to seek supervision electronically. This led to further worsening of her psychological distress and she developed ideas of self-harm. This also led to a further reduction in her sleep. This was when she was referred to the crisis helpline services and was seen by the psychiatry services. She was managed with supportive psychotherapy and low dose clonazepam. Additionally, efforts were made to address the issues she was facing at the workplace by liaising with the concerned colleagues. Over the period of next 2 weeks her symptoms reduced and the benzodiazepines were tapered off and the supportive psychotherapy sessions were continued.

### 3. Case-2

A 28 year old female HCW was evaluated as part of the routine mental health screening after the duty in the COVID-19 ward. When asked about the experience of doing duty in the COVID-19 area, she broke down and discussed her experience about how she was ill treated by her colleagues who were directly not in contact with the COVID-19 patients. According to her, when she finished her COVID-19 duty and approached the colleagues for some work, she was again and again reminded of working with patients with COVID-19 in a derogatory tone, was asked to maintain a distance, was asked not to come in person to discuss the relevant issues, rather, should use electronic modes of communication. All this made her feel humiliated. She felt that doing duties in the COVID-19 ward was not of any worth, if she had to face such stigma and discrimination. No specific psychiatric diagnosis was considered for her. She was managed with supportive psychotherapy.

### 4. Discussion

Stigma has emerged as an important social issue associated with



COVID-19 infection (Bagcchi, 2020; Ng, 2020) and had changed the social perspectives of human life (Tandon, 2020). World Health Organization and Ministry of Health and Family Welfare, Government of India and many other organizations, have released guides to address stigma associated with COVID (Ministry of Health and Family Welfare and Government of India, 2020; World Health Organization, 2020). These information guides in general advise that people should not stigmatize people undergoing quarantine, those with travel history, those who are diagnosed with COVID-19, and those who have recovered from the COVID-19 infection. However, it is still rampantly prevalent.

In general stigma has been reported from the perspective of general population and the HCWs are considered to be at the receiving end. There are reports of HCWs being not allowed to enter their rented accommodations, being not given house on rent, not allowed to use public transport and hence have to use bicycles and being attacked while on duty (Bagcchi, 2020). There are also reports from India of HCWs being denied a dignified funeral (Lobo, 2020). The stigma associated with COVID-19 is attributed to the fear of being getting infected in the general population (Sahoo et al., 2020). However, little is known about the stigma expressed by one group of HCWs towards others.

These cases beg the question whether there is more stigma than that meets the eye. Healthcare professionals are expected to be empowered with the facts and not give in to the fear related to the pandemic. However, the panic created by the huge infectivity of the virus as well as the social implications of being infected seemingly can grip even the HCWs. These cases highlights the fact that even the HCWs are behaving the way, as others in the general population, who are less knowledgeable about the mode of transmission.

HCWs are at a greater risk of exposure and may face several work-related dilemmas on a day to day basis leading to increased stress or anxiety. As the number of cases are increasing in India, the risk of HCWs coming in contact with high risk contact, needing to undergo testing and being tested positive is going to increase. In such a scenario, it is important that all the HCWs need to understand that undergoing testing for COVID-19 should not be equated with the COVID-19 positive status and people should avoid stigmatizing their own colleagues. Further, if any of the colleagues is positive for COVID-19, they should be supported in this hour of crisis in all possible ways. In terms of dissemination of information, the training programs which are focusing on the HCWs, should target to disseminate appropriate information about mode of transmission, type of contacts (high risk, low risk, secondary contact), the importance of testing negative, etc, to the HCWs so that they don't end up discriminating and stigmatizing their own colleagues (Grover et al., 2020).

#### Informed consent

Informed consent was taken from the subjects described in this manuscript for publication.

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We have no financial disclosure to make.

#### Declaration of Competing Interest

The authors report no declarations of interest.

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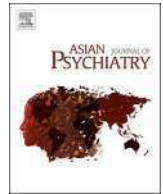
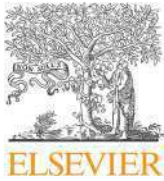
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Letter to the Editor

## A crisis for elderly with mental disorders: Relapse of symptoms due to heightened anxiety due to COVID-19



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### 1. Introduction

The COVID-19 pandemic is now a reality. It is affecting people across the globe. Emerging data suggest that it is associated with relatively higher mortality among elderly, with rates varying from 3.6 % to 14.8 % for the elderly population. This fact has also been highlighted in the media and in general elderly are advised to take more precautions. All this is leading to a scare among the elderly, about the eminent death. Many elderly are dependent on others for their day to day activities and the required social distancing has made them feel more isolated, especially those who are not very technology driven. The global recommendation for the older population is isolation from society, staying at home for “a very long time” (BBC, 2020). Social isolation is a “serious public health concern” and is known to be increase the risk of adverse mental health outcomes (Gerst-Emerson and Jayawardhana, 2015). Available data suggest that social disconnectedness puts the older people at a greater risk of depression and anxiety (Santini et al., 2020; Kavoor, 2020; Rajkumar, 2020).

The other factors which can impact the mental health include media coverage and environmental factors etc. The media coverage of COVID-19 is contributing to the already heightened anxiety. Some of the media reports have implied that life of the older ones is not as important as, the younger one (Haffower, 2020). In fact, some of the media reports suggest that during the current COVID-19 crisis, because of the overwhelming patient load, especially those requiring ventilators, usually, elderly are not given the ventilators and are allowed to die. This has led to a significant scare among the elderly through the globe.

Elderly with mental illnesses, who are already prone for depression and anxiety, are at much higher risk of relapse due to this emerging scene. Further, elderly, those who have poor social support and are living alone are finding themselves helpless in the current scenario. Older people also have a feeling of insecurity like the feeling of being unsafe in the neighbourhood, non availability of essential groceries or eatables at home, financial insecurities, few close relationships, lack of resources to support socializing or attending activities, leading to both boredom and inactivity etc. (Cohen-mansfield et al., 2016). Fear of unknown and uncertainty over the daily living, contracting the virus or

worry about spreading the infection to other family members and non availability of ongoing medications etc. are contributing further to the heightened anxiety among the elderly.

In this report, we present 2 elderly patients, who presented to the emergency services with relapse of depressive disorder, which was associated with fear of contracting COVID-19 and having no one to care for during the time of infection

#### 1.1. Case-1

72 years old man, was diagnosed with recurrent depressive disorder since 20 years; hypertension and diabetes mellitus since last 5 years and was maintaining well on Escitalopram 15 mg/day, Telmisartan 40 mg/day and Metformin 500 mg BD. He presented to emergency with symptom of 3 weeks duration, characterized by extreme anxiety, restless, fidgety, sleep disturbances and worries that every family member including he will die due to COVID-19 infection. These symptoms increased further after the lockdown. Symptoms would worsen on following the news channels, especially seeing the images of hospitals and pictures of sick people; and reading news about COVID-19. Started remaining preoccupied with the thoughts of COVID-19, distanced himself from others, would pressurize family members to buy masks and started hoarding them. He would consider himself vulnerable for infection and resultant death. Despite being reassured by family members that they are taking precautions and he is safe, he would not feel reassured. He would not allow any family member to go out of the house with the fear that he/she might get infected, bring infection to home, and he will get infected by the same, and ultimately die. Over the period of next 2 weeks developed syndromal depression, which led to emergency visit. His mental status examination revealed that he had excessive worry of getting infected with COVID-19, spreading the infection to others and hence would be blamed by the society, had ideas of worthlessness, catastrophe, and helplessness. Additionally he had sadness of mood. His routine investigations and physical examination did not reveal any abnormality. Tab. Escitalopram was increased to 20 mg/day along with prescription of Tab clonazepam 0.25 mg thrice a day. Supportive psychotherapy sessions were started and he is being

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followed up. Over the period of next 1 week he started showing improvement in symptoms.

### 1.2. Case 2

60 years female, living alone, diagnosed with recurrent depressive disorder for 7 years, and hypertension since last 6 years back, who was maintaining well on Tab. Amlodipine 10 mg/day and Tab. Telmisartan 40 mg/day presented to emergency with worsening of depressive symptoms. Exploration of history revealed that she has been living alone and was maintaining well without any antidepressants. However, after the outbreak of COVID-19 infection, she started following the news of COVID-19, and started remaining worried about contracting COVID-19 infection. As she was living alone, started remaining worried that there is no one to take care of her, if she develops COVID. In view of apprehension of developing COVID-19 infection, initially, her self-care increased, she started washing clothes repeatedly, bathing frequently and frequently changing bed sheets. She would do so, as she would feel that these are contaminated and she would get infected with COVID-19 infection. Gradually, over the next 3 weeks, her anxiety related to COVID-19 infection increased, and she developed depressive symptoms in the form of sadness of mood, anhedonia, fatigue, sleep disturbances, decreased appetite, self absorbed behavior, poor interaction, fearfulness, and delusion of persecution. She was brought to emergency in view of depressive and psychotic symptoms. She was diagnosed with recurrent depressive disorder, current episode severe depression with psychotic symptoms. She was started on Tab escitalopram 10 mg/day and Tab olanzapine 5 mg/day and is being followed up regularly.

## 2. Discussion

Both the cases described here suggest that COVID-19 Pandemic and its social consequences are going to be a big challenge for the elderly, especially, those who are already suffering from mental disorders. Both the cases, availability of excessive information about COVID-19 in the media, especially about the consequences of the infection for the elderly led to development of initial anxiety. As the anxiety symptoms, increased, both the patients, who were otherwise maintaining well, developed relapse of symptoms. Other factors, which possibly contributed to relapse of symptoms in the second case, was the fact that the person was staying alone. This person was maintaining well, prior to the lockdown; however, lockdown possibly led to marked social isolation, which increased her sense of vulnerability.

These cases suggest that there is an urgent need to develop psychosocial interventions, to address the need of these vulnerable elderly. In the wake of the current health crisis, meaningful telephone conversation, can ensure mental, physical and social health needs of older people. Online or telephonic cognitive behavior therapy, supportive sessions could be delivered to decrease the loneliness, fear of illness and

improvement of well being (Käll et al., 2020).

Although, the initial data suggest that elderly are possibly more vulnerable to death, especially those with various physical morbidity, but projecting this information time and again in the lay media, may be actually counter productive for elderly who are already doing well. Accordingly, there is a need for the media, to be more sensitive to the needs of the elderly and promote preventive strategies, but under the garb of promoting prevention, they should not create a scare of the elderly. People active on Social media should avoid words like “#BoomerRemover” “older are not important as younger one” “vulnerable group” etc (Haffower, 2020). As in the index cases, both of the patients were preoccupied with the same thought that they are vulnerable to get the infections and will die to the COVID-19.

The holistic approach through social organizations, healthcare providers, media and charities can minimize the negative impact of the COVID-19 on the elderly.

### Financial disclosure

None.

### Declaration of Competing Interest

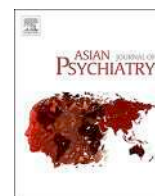
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## Letter to the Editor

## Why involvement of mental health professionals and screening for past mental illness is important in persons with COVID-19 infection: A case report



Coronavirus Disease 2019 (COVID-19/ SARS-nCoV), is a Public Health Emergency of International Concern (PHEIC) (World Health Organization, 2020). The clinical picture of COVID-19 infection can vary from being asymptomatic to having severe acute respiratory symptoms, leading to admission into an Intensive Care Unit (ICU). The exact mortality rates are debatable and have varied from country to country, but because of the fear of mortality and need for ICU care, there is a lot of fear and panic in the general population. Persons found positive for the infection are usually confined to the hospitals to prevent further spread of infection and also to attend to the worsening of the physical health status.

Since the emergence of COVID-19 pandemic, peoples have shown an increase in the psychological issues in the form of anxiety and depression (Grover et al., 2020a; Tandon, 2020a, 2020b). The stress due to COVID-19 is leading to excessive fear, worry, depressive symptoms and panic attacks. Furthermore, the diagnosis of COVID-19, leading to isolation, lockdown or quarantine can precipitate existing psychiatry morbidity, especially depression, anxiety disorder or suicidal tendencies (Sahoo et al., 2020; Wang et al., 2020). Another concern for people is fear of death (“Deaths, Fear of Covid-19 Creating Anxiety, but There is Social Support,” 2020).

A diagnosis of COVID-19 infection is often equated with death and generates severe anxiety (Grover et al., 2020b; Sahoo et al., 2020). In the absence of a proper evaluation of mental health status by the mental health professionals (MHPs), anxiety, amounting to panic attacks in persons admitted to COVID-19 ward, can initiate a panic reaction among the health care workers. The Panic attack can be perceived by the physicians as a worsening of physical health status, leading to shifting the patient to the ICU and other life support measures in an attempt to save their life. Hence, MHPs must be involved in the care of patients with COVID-19 infection. In this report, we present a COVID-19 patient, who developed panic attack during the initial few days of admission, which was interpreted as an exacerbation/worsening of the symptoms of the COVID-19, but timely intervention by the MHPs averted the shifting of the patient to the ICU.

A 26 yrs old female, was admitted to the COVID ward, after being found positive for the infection. At the time of admission, she was asymptomatic, and her physical parameters were stable and within normal limits. The blood investigation, including complete blood count, renal function test, liver function test and chest x-ray posterior-anterior view did not reveal any abnormality. The patient had a history of contact with an individual infected with COVID-19. At the time of admission, initial mental health screening revealed that she was concerned about her family members, friends and person with whom she had come in contact with after coming in contact with the infected person. She was also apprehensive of her physical health worsening soon. She was reassured, and supportive sessions were taken. She was informed that most people remain asymptomatic or develop mild

symptoms. Only a small proportion of patients, who have the vulnerability, require ICU support. As she was young and had no comorbidities, it is improbable for her to develop very serious illness. She was further reassured that she is being closely monitored. She was also advised to keep herself busy and follow an activity schedule to keep herself distracted from the physical health concerns. During the first 3 days, her anxiety persisted at the same level, and the supportive sessions were continued. On the 4th day, suddenly she started having palpitation, shortness of breath, chest discomfort, followed by hyperventilation. She laid down on the floor. On examination, her oxygen saturation was found to be 85 % in room air, and the temperature was found to be 99.4 °F tachycardia and tachypnoea. The treating team shifted the patient to an IICU, considering it as worsening of her physical health status due to COVID-19 infection. However, before any intervention could be started, she requested that she should be allowed to talk to the MHP. She was communicative, and when an MHP interviewed her, she reported of severe anxiety, was asked to practice deep breathing, and within 10–15 min, her oxygen saturation improved to 99 % in room air and other physical symptoms subsided. She was shifted back to the recovery room.

After this incidence, she disclosed that she had an episode of depression about 3 years back and was treated with Tab. sertraline 100 mg/day for 6–8 months. She had 4–5 episode of a panic attack (similar symptoms as in the index episode) in last 2 yrs back, would always be apprehensive of having episodes in future and would take Tab. clonazepam 0.25 mg sos basis. Following this, she was started on Tab. sertraline 50 mg/day and Tab. clonazepam 0.25 mg on SOS basis. She had no features of Agoraphobia. Based on this, diagnosis of Panic disorder without Agoraphobia with a diagnosis of Severe Depression without psychotic symptoms, currently in clinical remission (as per the ICD-10 diagnostic criteria) was made. During her further stay in the COVID ward, supportive sessions were continued, she was asked to continue with breathing exercises and the activity schedule.

The present case brings forth 2 important issues among patients admitted to COVID-19 ward. First, how psychological symptoms, such as the panic attack, can mimic, worsening of physical health status and lead to a panic mode reaction among the physicians. This reaction of the physicians is justified to save the life of the patient. In this case, if the patient would not have taken the initiative to discuss her anxiety with the MHPs, most likely she would have been intubated and put on supportive measures, considering the marked drop in oxygen saturation. Second, this case demonstrates the importance of the involvement of MHPs in the COVID-19 ward. Although, during the initial evaluation, possibly due to stigma, the patient did not disclose about her previous history of mental disorder, later came up with the same, at the time of the crisis. This case also provides a lesson that, the MHPs, while carrying out the initial evaluation of patients admitted for COVID-19 should, thoroughly review the past psychiatric history, rather than

focusing only on the current symptoms. This case demonstrates how the involvement of MHPs, not only saved the patient from more intensive treatment but also saved the scarcely available ICU resources.

#### Financial disclosure

We have no financial disclosure to make.

#### Declaration of Competing Interest

None.

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# COVID-19 as a “Nightmare” for Persons with Obsessive-Compulsive Disorder: A Case Report from India

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## Abstract

The impact of coronavirus disease 2019 (COVID-19) on patients with psychiatric illnesses has also been worrisome for psychiatrists. Most of the mental health organizations have mentioned that of all the psychiatric disorders, COVID-19 could worsen the symptoms of people with preexisting obsessive-compulsive disorder (OCD). Fear of contamination with germs is one of the most common intrusive obsessive thoughts with subsequent ritualistic and compulsive handwashing in patients with OCD. The current guidelines and the only safety strategy employed for infection control is frequent hand hygiene. In this regard, there is every possibility that those with preexisting OCD can have worsening of symptomatology, or many individuals can develop new-onset obsessive-compulsive symptoms that need to be addressed and appropriately evaluated. We report an individual with OCD on treatment who relapsed following the outbreak of the COVID-19 pandemic. This case would help to raise awareness among mental health professionals to have a different approach to patients with OCD during the ongoing pandemic.

**Keywords:** Anxiety, coronavirus disease 2019, obsessive-compulsive disorder

## INTRODUCTION

The current outbreak of coronavirus disease 2019 (COVID-19) since December 2019 had created havoc in the health-care setups of almost all the countries and has resulted in mass deaths worldwide.<sup>[1]</sup> The rates of infection and mortality are highest in persons with comorbid physical illnesses and in the elderly.<sup>[1]</sup> However, its impact on patients with psychiatric illnesses has also been worrisome for psychiatrists. Most of the mental health organizations have mentioned that of all the psychiatric disorders, COVID-19 could worsen the symptoms of people with preexisting obsessive-compulsive disorder (OCD).

Fear of contamination with germs is one of the most common intrusive obsessive thoughts with subsequent ritualistic and compulsive handwashing in patients with OCD. The basic safety precaution, which is being advocated as a means to control infection, is proper and frequent handwashing. The educational information in all forms is propagating that COVID-19 infection spreads by touching fomites (door handles, toilet taps, any inanimate objects, etc.) of suspected/COVID-19 individuals. It is predicted that such an act could lead to worsening to the usual preexisting patterns

of ritualistic and compulsive handwashing in individuals with OCD. Further, the doubts of being contaminated with germs of COVID-19 could very well increase because of it being highlighted again and again in most of the news/social media platforms/websites related to COVID-19. While all these instructions are very understood from preventive health perspectives to tackle COVID-19 infection, yet these can lead to a relapse of previously controlled symptoms in patients with OCD. Various websites' posts/blogs have mentioned the COVID-19 pandemic to be the worst nightmare or a “hell-” like experience for those with OCD.<sup>[2]</sup>

More recently, the International College of Obsessive-Compulsive (OC) Spectrum Disorders and the Obsessive-Compulsive and Related Disorders Research Network of the European College

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of Neuropsychopharmacology had drafted management perspectives for patients with OCD for practitioners related to telemedicine approach, risk assessment for suicide, worsening of the condition, providing psychoeducation with balanced information about COVID-19 to patients and caregivers, etc.<sup>[3]</sup> All these further demonstrate the importance of managing patients with OCD during the ongoing pandemic, which is expected to stay for months all over the world.

In this report, we present an individual with OCD on treatment who relapsed following the outbreak of the COVID-19 pandemic.

## CASE REPORT

A 28-year-old male was diagnosed with OCD 5 years before the presentation and was maintaining well on capsule fluoxetine 60 mg/day. Previously, he had obsessive doubts of contamination with compulsive handwashing rituals and repeated checking behavior (door latches, knobs, taps, etc.) from which he had significantly improved. However, after the outbreak of the COVID-19 pandemic, and subsequent to listening (television) and reading (social media platforms and newspapers) about all the hand hygiene measures, route of infection, and potential sources of COVID-19 infection, gradually, he began to remain more and more anxious. Within a few days, his anxiety increased markedly, and all his OC symptoms in the form of washing hands and checking things increased. Due to increase in symptoms, he was not able to function at his workplace because it involved touching things and handing over papers to colleagues and receiving the same. Within 1 week of relapse of symptoms, he was completely dysfunctional at home and at workplace and he stopped going to his work. At home, he started to engage in frequent washing of hands and would spend around 7–8 h in cleaning, face washing, and bathing to overcome repeated intrusive thoughts/doubts about contacting infection. He would not allow anyone to come near him because of fear of getting infected. Gradually, he started to remain sad and developed syndromal depression, amounting to moderate depression without somatic symptoms. Due to marked psychosocial dysfunction, he was brought to the emergency services, where he was counseled, and the dosage of capsule fluoxetine was increased to 80 mg/day. He was also psychoeducated about how to control his excessive washing behavior, without risking the spread of infection. Further, he was taught relaxation exercises, and supportive psychotherapy sessions were started telephonically. This led to a significant decrease in his anxiety symptoms.

## DISCUSSION

As evident from the case description, the COVID-19 infection precipitated a relapse in a well-controlled person with OCD on medications. Therefore, it is of utmost importance to address the issues pertaining to the relapse of OC symptoms in patients with OCD during this COVID-19 outbreak. Some of the mental health organizations, including

the International OCD Foundation, had laid down some basic tips for managing anxiety and OC symptoms during the COVID-19 pandemic.<sup>[4]</sup> Some of the useful tips are controlling exposure to news; following recommended advice in a controlled fashion (i.e., learn to resist the compulsion to wash hands and clean every surface one has touched); staying connected with family, friends, and near ones (i.e., practice social distancing not emotional distancing); setting a routine to be self-occupied; and trying to be compassionate to oneself.<sup>[5]</sup>

Few points to distinguish between OC-related contamination doubts and subsequent handwashing rituals vis-à-vis 'doing hand hygiene and other infection control measures in relation to health guidelines are (1) to identify the degree of preoccupation with contamination or time spent in performing handwashing/cleaning rituals, (2) to explore for the thoughts related to ritualistic washing behaviors, that is, to establish if there is any connection between COVID-19-related infection control measures and current washing and avoidance behaviors, and lastly (3) to explore for insight of the person, that is, how much concerned the individual is regarding his/her changed behavior or if the individual is able to identify that he/she is doing washing rituals or practicing avoidance behavior in excess.

While the anxiety leading to OC symptoms in patients with OCD may not be inevitable, these tips/advice can help cope with OCD's stress related to OCD during the COVID-19 crisis. Further, the fear of getting COVID-19 infection among the general public is an invisible threat that cannot be avoided. Therefore, fears and anxiety of patients with OCD must be addressed and in the wake of the absence of regular outpatient services, they must be managed with the help of the technology/telemedicine/telepsychiatry consultations. Mental health professionals might have to remain prepared to see symptom exacerbations in previously diagnosed patients with OCD as well as new-onset OC symptoms in routine consultations during the ongoing pandemic. They might have to develop their own skills to do different types of cognitive-behavioral therapies in patients with OCD.<sup>[3]</sup>

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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# Lived Experiences of COVID-19 Intensive Care Unit Survivors

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The COVID-19 pandemic can be considered one of the worst ‘nightmares’ of the century for both the general public as well as the health care workers (HCWs). Every day the world is seeing an increase in the death tally, despite all possible steps such as lockdown and other infection control measures.<sup>1</sup> Even though about 80% of COVID-19 cases remain asymptomatic or have minimal upper respiratory symptoms, about 5% become seriously ill, requiring admission to the intensive care units (ICUs) and mechanical ventilation.<sup>2</sup>

Being admitted in an ICU setting has been considered a traumatic event, and the existing literature suggests that ICU survivors suffer from several psychological/mental health problems, the most common ones being post-traumatic stress disorder (PTSD), depression, anxiety disorders, and cognitive impairment.<sup>3,4</sup> A diagnosis of COVID-19 infection, by it-

self, leads to significant anxiety and distress in the individual<sup>5</sup>, which may be amplified by being admitted to an ICU.<sup>6</sup> This may be attributed to reports of mortality related to COVID-19 infection.<sup>7,8</sup> These detailed descriptions often induce more anxiety in the minds of the COVID-19 sufferer battling for life in the ICUs.

A few blogs and newspaper articles mention the long-term disability and prolonged recovery in COVID ICU survivors,<sup>9,10</sup> and some news reports are also available.<sup>11</sup> In this context, we discuss the lived experiences of three persons who were admitted to the ICU with COVID-19, all of whom had given verbal consent for publishing the same.

## Narrative Experience-1: “Will I Be Able to Survive, Will I Be Able to See my Family Again?”

A 52-year-old lady, diagnosed with COVID-19, who had uncontrolled dia-

betes mellitus, was initially admitted in our COVID isolation ward and developed shortness of breath within hours of admission, with a drop in her oxygen saturation,<sup>12</sup> for which she had to be shifted to the COVID ICU. In the ICU, she was stabilized with nasal prongs and did not require ventilator support. However, she was found to be extremely anxious, was sweating despite maintaining normal oxygen saturation, and would appear worried. She was not able to sleep properly and would frequently ask “Will I be able to survive? Will I be able to meet my family again?” She would ask the HCWs to inform her if she was going to die soon, so that she can have a last-minute conversation with her husband, and would often become tearful. She would be comforted and reassured by the HCWs, which would make her feel relaxed for a few minutes. However, this would immediately be followed by re-emergence

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of the symptoms she had prior to being reassured. She remained in the ICU for five days in the same state. After that, she was shifted out of the ICU, following which her anxiety reduced, but she continued to have sleep disturbances and, therefore, was referred to the psychiatric services for telephonic consultation.

On probing deeper during the consultation, she revealed that after she came to know about the diagnosis of COVID-19, she developed severe anxiety and, after a few hours, had shortness of breath. Thereafter, she was admitted to the ICU owing to the oxygen saturation dropping to 93%. She reported that as she had seen in the news and read in the newspapers that having shortness of breath and being supported on oxygen were some of the signs of severe COVID-19, and after she had to be shifted to ICU, she started having recurrent thoughts that she was going to die. She further described that she had thoughts of being intubated, catheterized, tracheotomized, and so on, which were based on her knowledge about what usually happens with patients admitted to ICU, which led to further increase in the anxiety, shortness of breath, feeling of choking, and sense of being close to death. Whenever the HCWs would approach her, it would lead to a further increase in the anxiety and the apprehension of being intubated. Further, she reported that whenever she was approached for any kind of blood investigation, she would feel that she was very close to dying. After coming out of the ICU, she continued to have these memories and, resultantly, continued to remain anxious and, thus, was not able to sleep. Based on these, a possibility of acute stress reaction was considered.

Supportive sessions were started by a psychiatrist, with eight years of experience, on a daily basis for 15–20 minutes. Additionally, she was asked to maintain a schedule, keep herself active in the room, maintain sleep hygiene, communicate with her family members using audio and video calls, and follow her religious practices. Over the next 3–4 days, her anxiety came down, and her preoccupation with the experience of ICU reduced. During this period, her son, who was also diagnosed with COVID-19, was shifted close to her room, which led to

further reduction in her anxiety. At the time of writing this report, she was currently waiting for her COVID-19 status to be declared negative so that she can be discharged. In the meanwhile, the psychological interventions have been planned to be continued. No psychopharmacological agents were started.

#### **Narrative Experience 2: “Happy that I Am with My Wife in ICU, We Will Die Together”**

A 58-year-old man, who was diagnosed with diabetes mellitus and had morbid obesity, was shifted from the isolation ward to the COVID ICU upon a drop in oxygen saturation below 92%. His wife was admitted to COVID ICU three days prior. He improved with oxygen support and conservative management and was again shifted back to the isolation ward after three days of ICU stay.

In his routine telephonic psychiatric evaluation, he reported that earlier he was anxious when his wife was shifted to the ICU and would worry if he would ever be able to see her again; this would lead to frequent night time awakenings. Later, when he was informed that he too would be shifted to the ICU, he had mixed feelings. He experienced rise in anxiety with respect to what is going to happen next, what will the doctors do with him—will they insert various tubings in his nose and mouth, etc., yet somewhere he felt relieved too, as shifting to the ICU was giving him an opportunity to have a glimpse of his wife: “I was happy that I am going to meet my wife; I will die with my wife with whom I have spent my entire life. Would pray to God for death before my wife, so that I don’t have to see her dying in ICU (on the bed next to mine) and at the same time would thank God for sending me near my wife at this critical point of life, which I had never imagined.” He further reported having thoughts that the ICU bed was his death bed. He would get thoughts about whether they both would be cremated with respect by their family members or not. These thoughts were based on his knowledge from the media reports of the piling of dead bodies of COVID patients in European countries, due to the inability of the family members to join the death rituals.<sup>13</sup> However, after com-

ing out of the ICU and knowing about the improvement in his wife’s condition in the ICU, he reported that he was quite hopeful of recovery and was less worried. At the time of writing this report, both the partners were stable physically and were waiting for their discharge. No specific psychiatric diagnosis could be ascertained based on the current nosological system. The plan ahead is to follow up with both of them for the emergence of any mental health morbidity and address their mental distress.

#### **Narrative Experience 3: “I Am Not Afraid of My Death, but What Will Happen to My Children and Wife After Me?”**

A 40-year-old male, diagnosed with diabetes mellitus, was admitted to COVID ICU upon a drop in his oxygen saturation to 90%. His eight-year-old daughter and 62-year-old mother were also admitted with him in the isolation ward. After six days of stabilization with oxygen and conservative management, he was shifted back to the isolation ward.

On routine telephonic mental health screening, he described that when he was shifted to the ICU, he started getting recurring thoughts that “my future is doomed; I may die or may get paralyzed; I may be bedridden for my entire life.” He further reported that he was not afraid of dying but was worried about his family—would get recurring thoughts related to the future of his family and see images of his children and wife crying whenever he would try to sleep. He would be worried about their situation and future after his death. All of this would lead to severe anxiety. He would try to cope with his anxiety and worries by chanting the name of God, which would help him to ward off these negative thoughts. He would recollect the various investments and insurance policies he had made and wonder if he would be able to tell about them to his wife before his death. He would frequently ask the HCWs if he would survive or not. He would ask to be allowed to make a last call to his wife, to give her the details of his investments. The treating team would reassure him. He reported having many sleepless nights in ICU but, later on, he was hopeful of recovery, and upon being shifted

back to ward, he was relaxed. However, he reported that he would never be able to forget those few days in the ICU and was quite thankful to the entire team of HCWs.

No specific psychiatric diagnosis could be ascertained based on the current nosological system. He had been discharged after being tested negative for COVID-19 after a hospital stay of 18 days and is being followed-up.

## Discussion

These three narratives of lived experiences of the COVID-19 ICU survivors depict the mental agony they went through upon being admitted to the ICU. A few studies that explored the experiences of ICU survivors (non-COVID/general ICU patients) reported being bedridden, pain, general discomfort, daily needle punctures, family worries, fear of death, and uncertainty about the future as some of the common stressful experiences.<sup>14</sup> Some studies have also documented delusional memories (mostly related to delirium).<sup>15</sup>

However, when we compare the experiences documented in this report, it is evident that the experiences of COVID-19 ICU survivors had predominant themes of fear of being intubated, dying alone, or being away from family; concern whether they will be given respect after their death or not; feeling insecure about their families if they die; wish for a death prior to their near ones (admitted in the same ICU) and; worrying about the family. The different new experiences (other than those usually reported) could be because of the hype of information about high mortality rates of COVID-19, which induces a significant fear in the mind of people diagnosed with the disease and gets further exacerbated when they are shifted to the ICU. Further, none of the patients had an earlier experience of being admitted in an ICU setup, which could have possibly increased their anxiety in the background of COVID-19-related anxiety.

Further, in ICUs, generally, caregivers are allowed to meet the patient from a few minutes to a few hours a day, but in the case of COVID ICUs, considering the risk of infection, family members are not allowed to visit. This further adds to the

fear and mental trauma of the COVID ICU patients. Fortunately, none of the above three patients required mechanical ventilation and they recovered quickly. Therefore, these lived experiences may not be generalized to all COVID ICU survivors.

These cases suggest that there is a pressing need to evaluate all the COVID survivors for the psychological consequence of their hospital stay. Another fact, apparent from the description of the first case, is that, possibly, the patient have had a panic attack, which was considered as the reason for the worsening of her physical health status resulting in ICU admission. Hence, all patients admitted to the COVID ward and ICU should be routinely screened by mental health professionals, telephonically or by video calling, for any emerging mental health issues. These must be addressed on priority in order to prevent apparent worsening of the clinical condition.

Although we assessed these patients very early during their recovery from the COVID-19, it can still be said that the narrative provided by the patients was retrospective and could have some amount of recall bias.

This case series of narrative experiences highlights the importance of evaluating the experiences of COVID ICU survivors, which may be different from those of general ICU survivors in terms of themes and lived experiences. The current ICU management recommendations of COVID-19 should also include psychological support, which is equally important for the individuals admitted into ICUs.<sup>12</sup>

Based on the findings, it can be suggested that all the patients admitted to the COVID ward should be counselled about the possible outcomes, with a special focus on providing information about the fact that shifting to ICU does not necessarily mean death. The decision to shift to ICU is based on their physical parameters. Further, they should be informed that all the patients shifted to ICU are not necessarily intubated. These can help in allaying the anxiety, as COVID-19 is associated with a fear of death.

### Declaration of Conflicting Interests

The authors declare that there are no conflicts of interests regarding this study.

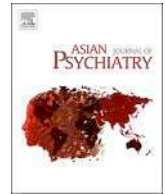
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## Letter to the Editor

## Self-harm and COVID-19 Pandemic: An emerging concern – A report of 2 cases from India



## 1. Introduction

COVID-19 outbreak ever since its onset and subsequent global spread had created several challenges for the general public and the health care workers across the World. COVID-19 pandemic is projected to lead to a significant degree of mental health crisis across the globe and therefore, the World Health Organization (WHO) had published brief messages/notes related to mental health and psychological considerations during COVID-19 outbreak and had highlighted the importance of psychological first aid (World Health Organisation, 2020).

The growing concern of the general public regarding the spread of infection from suspected COVID-19 positive individuals has created a panic mode in the community. While this will help in limiting the growing number of cases of COVID-19, this has also led to significant fear and anxiety related to spread of infection in the general public. Excessive fear and apprehension of spread of infection can lead to acute stress, anxiety, and subsyndromal to syndromal level of depression in vulnerable individuals. The National centre for Suicide Research and Prevention of Mental Ill-health (NASP) is already attempting to increase awareness about the potential increase in suicide and self-harm behavior as a result of the societal impact of the ongoing pandemic ("The Corona Virus," n.d.). Possible potential risk factors such as prolonged periods of social isolation, fear of unemployment, economic loss due to lockdown, death of family members and significant others etc. have been proposed to precipitate self-harm behaviors during this pandemic crisis ("The Corona Virus," n.d.) There have been reports of suicide due to excessive fear of contracting COVID-19 from India as early as 12<sup>th</sup> February, 2020, even when the infection was not spread across the country (Goyal et al., 2020). Further, there have been isolated reports in the newspapers/bulletin of suicide due to alcohol ban during the lockdown period from different parts of India (M.K., 2020; Pathak, 2020). Here we present two different presentations of self-harm attempts related to apprehension of developing COVID-19, who presented to our emergency medical services.

## 2. Case Description: 1

A 52 year old man, who was premorbidly well adjusted with no past and family history of mental illness presented to emergency with a gunshot injury. Exploration of history revealed that patient was doing well 3 weeks back, when he went to a social gathering, where he came in contact and interacted with one of his friend, who had recently returned from abroad. After 3-4 days, patient came to know that his friend had been diagnosed as COVID-19 positive. After learning this, he started worrying, that he might also have been infected and started remaining distressed and preoccupied with the thought of being infected with COVID-19. He was contact-traced by the healthcare

authorities of his locality and was asked to be stay in self-isolation. He was asked to inform the health care workers if he develops any symptoms suggestive of COVID-19 infection (which was well-explained to him). He immediately isolated himself, because of fear of spreading the infection to his family members. Over the period next 2 weeks, while in isolation, gradually he developed depressive symptoms in the form of sadness of mood, anhedonia, lethargy, decreased appetite and decreased sleep. He kept on following the news of COVID-19 and learnt that it is leading to painful death. He would remain extremely anxious and would be preoccupied with the thought that he is going to die soon, became hopeless and considered himself to be worthless. He transferred all his property to his family members. After about 10-12 days of onset of the depressive symptoms, he started to have suicidal ideations more often and finally he shot himself with his gun in upper part of his left abdomen thinking that he is going to anyway die due to the COVID-19 infection. He shot himself to avoid painful death due to infection. There was no history of any cough, expectoration, running nose, fever and other depressive symptoms during this time. He was immediately brought to the trauma services of our hospital, operated (had only entry gunshot wound) and medically stabilized. Later he developed delirium due to medico-surgical complications and which was managed with Tab melatonin. He improved with melatonin over the next 24 hours was medically stabilized. A diagnosis of severe depression without psychotic symptoms was considered after clearing of delirium. Later he was planned for starting an antidepressant and supportive psychotherapeutic measures were started and continued.

## 3. Case Description: 2

A 40 years old male, was brought to emergency after a suicide attempt by hanging. Exploration of history revealed that around 1<sup>st</sup> week of March 2020, on one occasion while on his routine morning walk he was asked to take a photograph by a foreign couple. Later, patient came to know about the mode of transmission of COVID-19 infection. As a result, he started to remain distressed and worried that he could have contracted the infection from the foreigners. Following this over the period of next 2 weeks, despite having no respiratory symptoms, he started to remain sad, excessively worried about his health, and would express near his family members that he is going to die soon. He self-isolated himself from rest of his family members, would refuse food, stopped talking to his family members, developed somatic/bodily symptoms in the form of dryness of throat, pain abdomen, fatigue and attribute these symptoms to corona virus/COVID-19 infection. He kept on following the news about COVID-19, initially, learnt that it is associated with high mortality and the death is painful. Later, he started avoiding watching the news, because of increase in anxiety on listening about COVID-19 infection. He was not able to concentrate on his work.

Because of fear of developing severe COVID-19 infection, he started to get thoughts that it is better to die by some means rather than waiting for the progression of COVID-19 infection and having a painful death. After about 2 weeks of onset of fear of developing COVID-19 infection, he attempted suicide by hanging himself with a rope. Within minutes of the attempt, he was found by the family members and was rescued, brought to emergency. He was medically stabilized. He was diagnosed with Adjustment Disorder Versus Severe Depressive Episode without psychotic symptoms. He was started on Cap fluoxetine 20 mg/day, which was increased to 40 mg/day after 1 week, along with low dose benzodiazepines (Clonazepam). He was also started on supportive psychotherapy. Within a week of starting of antidepressants and psychotherapeutic interventions he started to show improvement in his symptoms.

#### 4. Discussion

These cases highlight the fact that how information overload can lead to increase in psychological distress among normal people too. One of the case developed severe anxiety and depression, after learning that the person with whom he came in contact with, was found to be COVID-19 positive and the second case developed anxiety and depressive symptoms, due to apprehension of possible infection, after coming in contact with people with travel history. While the first case had a direct contact with a COVID-19 positive case, the second subject had merely met a foreign couple. In both the cases, the depression and anxiety were fueled by the information overload in the media, with respect to COVID-19. Media reports have been highlighting the possible painful deaths and significant higher mortality with COVID-19 infection. Both the scenarios, depict that both the suicidal attempts could have been prevented, if proper awareness about the infection is done, by providing the necessary information about spread of infection, rather than talking about mortality rates and type of death.

The media (social media platforms, newspapers, radio/telecommunication services) on one hand are providing adequate information about safety measures to control the infection, but on the other hand, excessive description of COVID-19 related news in all social media platforms/ telecommunication platforms is creating a sense of panic among the vulnerable individuals. Therefore, there is a need for the media houses to judiciously transmit the information about the infection, to avoid scare and panic in people. However, this in no way means that they should not increase the awareness about the infection.

Mental health professions should also advice people for judicious and cautious use of social media/telecommunication services. Further, in all patients coming to the medical-surgical or psychiatric setting with self-harm, anxiety and fear related to COVID-19 must be routinely enquired.

#### Declaration of Competing Interest

None.

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## COVID-19 pandemic-related anxiety in teenagers

Sir,

The COVID-19 outbreak since December 2019 and its subsequent transformation into a pandemic had affected persons from every age group, and children and adolescents are not immune to it.<sup>[1]</sup> Although the mortality rate and severity of COVID-19 are relatively low in young people, all the infection control measures and preventive strategies are equally important to this special population of “teenagers” like all other age groups. Moreover, teenagers and children are considered to be hidden carriers of COVID-19 in recent Chinese studies conducted on COVID-19 close contacts.<sup>[2]</sup> Therefore, more precautions have to be taken by this special population.

As the COVID-19 infection speeded to spread to >200 countries in <3 months of its outbreak, the World Health Organization (WHO) and the National authorities across the world had taken several multiple steps for containment of the spread of infection. Some of these strategies include the closure of schools, colleges and other educational institutions, shopping malls, promotion of hand hygiene, and social distancing. Some of the countries, including India, have adapted “lockdown” across the country to contain the spread of infection. While these measures are of the utmost necessity to tackle the spread of infection, these measures have created a sense of “panic” in the general public.<sup>[3,4]</sup> Further, several messages/videos are being circulated in the social media platforms regarding several modes of transmission of COVID-19 infection. Further, the news agencies/newspapers/some real-time COVID-19 tracker websites repeatedly provide real-time updates about the number of cases infected and died due to COVID-19.<sup>[5]</sup>

Teenagers and children are special groups of the population who have different “psyche.” More specifically, the adolescents/teenagers tend to experience emotions more intensely. Having teenagers confined to their homes with 24/7 parental attention/supervision can create a great degree of irritation as they are not used to such situations. Moreover, teenagers find it quite difficult to practice social distancing. Children and adolescents are finding it quite difficult to make sense of what’s happening in the world, and they have their inherent suggestibility to follow the rumors/myths being forwarded in social media platforms related to COVID-19 transmission/ precautions measures.<sup>[6]</sup> All these can also lead to excessive worrying, fear, and anxiety about contracting the infection and can create a sense of panic among teenagers. In this regard, various health organizations/institutes have laid down tips/advice to manage stress and anxiety in children and adolescents.<sup>[6-8]</sup> In this report, we present an 18-year-old girl who presented with severe symptoms of anxiety- related to COVID-19 infection and highlight the issues related to teenagers in COVID-19 Pandemic.

An 18-year-old-female, from the urban background with no past or family history of mental illness presented to emergency services with symptoms of anxiety for 1 week. Exploration of history revealed that after the Nationwide “lockdown” was declared since March 24, 2020, she was confined to her home, would mostly be hooked up to the news channels about COVID-19 updates throughout the day. She would be following up various news channels and videos in the social media platforms about how the lives of people have been affected in different Western countries and in China, how the infected persons were dying and family members were unable to help their infected relatives/near

ones, how the health-care workers were getting affected, etc. Over the period of 4–5 days of this routine, she started remaining worried that everyone on the Earth is going to get infected and die. These worries were associated with autonomic symptoms of anxiety such as palpitations, feeling restlessness, and dryness of the mouth. After 4–5 days, started to avoid the news and social media, but if she would accidentally hear anything about COVID-19 infection, her anxiety would increase further, which was now associated with intense palpitations, breathlessness, sweating, tremors, tingling sensations in the body, nausea, and feeling of impending doom. These episodes would be followed by intense crying spells. The frequency of these episodes would be 3–4 times/day, and she had to be calmed down by family members. Resultantly, she was not able to sleep, her appetite decreased, and she would mostly remain worried about her own health and that of family members. She was brought to our emergency, after one such episode. She was diagnosed with anxiety disorder (not otherwise specified) and managed with tablet clonazepam 0.5 mg and with supportive psychotherapy sessions. She was psychoeducated regarding anxiety leading to the autonomic symptoms and was taught relaxation exercises. She was followed up on telephonically and with these interventions, she showed improvement in her symptoms over the next few days.

This case description of the 18-year-old adolescent female highlights the impact of the COVID-19 crisis over this special group of population. It further explains how the excessive use of social media and telecommunication materials can affect the mental well-being of teenagers and can lead to excessive worry and subsequent severe anxiety symptoms. Various websites/health institutes/child and adolescent psychiatric societies/UNICEF and the WHO in their websites have focused on several techniques/tips to be taken care of while dealing with teenagers during this COVID-19 pandemic.<sup>[9,10]</sup> Some of which are making them aware of the current situation about COVID-19, giving proper information about how to protect themselves, promoting hand hygiene and social distancing, preparing a daily routine of their activities, limiting exposure to social media and news channels, and validating their disappointment about missing their schools/colleges/sports/ birthday parties, etc., encouraging healthy habits, promoting remote/online schooling/classes.<sup>[11,12]</sup> More specifically, the Centre for Disease Control and Prevention had advised the parents and caregivers should be available to listen to the concerns of their teenagers and children and reassure them, avoiding language that might blame others and lead to stigma, paying attention to what the children and teenagers see or hear on television/radio or online, and providing minimal but accurate and genuine information.<sup>[12]</sup> Further, it has been seen that anxious parents are more likely to make their children and teenagers more anxious. Therefore, parents and caregivers should try to manage their own anxiety

related to COVID-19 and encourage distraction to tackle with their kids anxiety. More specific awareness programs focusing on this subgroup of the population are essential to decrease the prevailing anxiety among teenagers and children.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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There are no conflicts of interest.

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## Alcohol-related self-harm due to COVID-19 pandemic: Might be an emerging crisis in the near future: A case report

Sir,

COVID-19 was declared as pandemic on March 11, 2020, by the World Health Organization, and all countries had been subjected to high alert due to its rising infection rate and mortality rate. Considering the risk of rapid spread, which can overwhelm the health-care services, most of the countries entered into a “Lockdown” mode which basically means preventing public from moving from one area to the other, mostly practiced to protect people in a locality/area.

Complete lockdown further means that persons should stay where they are currently and no entry/exit movements would be allowed further. This strategy had been adopted as an emergency measure to tackle the growing number of cases in the community along with the principles of social distancing. In this scenario, only essential services such as hospitals, police stations, fire stations, petrol pumps, and grocery stores are allowed to be opened for limited time of the day with scheduled visits by the public. This “Lockdown” strategy was adopted by India on March 25, 2020, when the Prime Minister of India declared “Lockdown” mode in the whole country starting from the midnight of March 25, 2020, for the next 21 days with assurance that the basic needs of the general public will be taken care of.<sup>[1]</sup>

With potential benefits to the public to curb or tackle the COVID-19 pandemic in India, the “Lockdown” might prove to be a beneficial strategy; however, there can be many negative psychological consequences of sudden lockdown. Apart from having range of possible psychological issues such as anger, frustration, depressive symptoms, anxiety symptoms, irritability, insomnia, fear/apprehension, having a prevailing sense of being imprisoned in one’s own house or “being in-house arrest,” etc., the lockdown has created a major crisis for people with substance dependence. As the liquor shops and local breweries were shut down by the government, it has led to the lack of availability of alcohol to many of the persons dependent on the same. Many patients are experiencing withdrawal symptoms. Similar problems are also expected to occur in subjects dependent on other illegal drugs such as heroin, cocaine, and cannabis. Some of the newspaper reports from the Western countries suggest rise in relapses and problems with drug recovery. (“Coronavirus is causing a rise in drug and alcohol relapses,” n.d.; “How the coronavirus is hurting drug and alcohol recovery,” n.d.). In this case report, we present the case of a 60-year-old male who presented to our emergency services with a suicide

attempt due to alcohol-related withdrawal subsequent to “lockdown.”

A 60-year-old farmer was brought to emergency after attempting suicide by hanging himself. He had no past history of any other psychiatric disorder or any family history of mental illness. Exploration of history revealed that he had been taking alcohol for the past 40 years, with a dependence pattern for the past 20 years, characterized by craving, tolerance, and withdrawal symptoms. Prior to presentation, he was taking about 700 ml of Indian-made foreign liquor per day. In addition, he was also smoking 12 cigarettes per day, since the early 20’s in a dependent pattern characterized by craving, tolerance, and withdrawal symptoms. He was consuming alcohol and tobacco in his usual pattern, till the lockdown was declared (i.e., March 25, 2020) in view of the COVID-19 pandemic. He could manage his alcohol intake for 1 week, but later ran out of the stock. Due to the lack of availability of alcohol, developed withdrawal symptoms in the form sleep disturbances, anxiety, sweating, restlessness, tremors, and decreased appetite. After 2–3 days, became abusive and started to verbally and physically abuse the family members. He also went out of the house to procure alcohol, but could not get the same. He started to remain irritable and would voice that how would he spend the remaining days and would keep on thinking when the “lockdown” will end. He was unable to relax and sleep at night. In view of lack of availability of alcohol and unable to tolerate the withdrawal symptoms after 3 days of last intake of alcohol, he tried to hang himself from the ceiling fan. Later was found by the family members and rescued.

After medical stabilization and management of withdrawal symptoms in the emergency, upon suicide assessment, the patient described that he hanged himself, because he thought that he is going to die anyway, either because of COVID-19/corona virus infection or due to severe withdrawal symptoms. Considering the act of hanging to be a less painful death, he hanged himself. On mental state examination, he was oriented to time, place, and person and had no gross impairment in cognitive symptoms. A diagnosis of alcohol-dependence syndrome currently in withdrawal, Tobacco Dependence Syndrome, currently using substance (active dependence), along with acute stress reaction and intentional self-harm was considered. Alcohol withdrawal was managed adequately with benzodiazepines along with the supplementation of thiamine. Brief intervention was done, and he was followed up telephonically.

COVID-19 pandemic and subsequent lockdown has created an unprecedented crisis worldwide. Lockdown is an essential step for the prevention of spread of infection from the health-care point of view. As every possible strategy can have any pitfall, similarly, the lockdown strategy has few pitfalls too. One such pitfall of the immediate lockdown strategy is the development of withdrawal symptoms in patients with substance dependence. Substance more particularly alcohol has not been included under “essential services” category to be made available during “lockdown” period in many countries and the same is the case with India.<sup>[2]</sup>

While this essential services list can be debated upon from psychiatrists’ point of view, it has many beneficial effects too. There can be stock piling and black marketing of liquor, increase in antisocial activities during lockdown under intoxication and possibility of increase in violence too. Further, there can be increase in the rates of alcohol use to overcome boredom and anxiety-related symptoms due to COVID-19 pandemic or some individuals may take substances/alcohol to overcome feelings of hopelessness. (“Tough Problems—Substance Abuse in the Time of Coronavirus,” n.d.). In this regard, alcohol not being included under the essential services list is justifiable.

However, if one visualizes from a broader humanitarian point of view, then the plight of sufferings and severe withdrawal symptoms which can lead to delirium tremens cannot be neglected. Therefore, several issues needs to be weighed upon and opinions of potential stake holders should be taken into view in the execution of lockdown strategy. Moreover, persons with substance use disorders (smoking, opioid users, methamphetamine users, and cannabis users) are at increased risk of COVID-19 and its serious consequences for multiple physiological and socioenvironmental reasons.<sup>[3]</sup>

In this regard, our case report illustrates the plight of an elderly subject dependent on alcohol for the past 20 years who due to abrupt stoppage of alcohol intake due to “lockdown” and subsequent development of severe withdrawal symptoms led to a lethal suicide attempt. So far, there has been newspaper reports of seven patients committing suicide from Kerala<sup>[4]</sup> and one each from Telangana (“As COVID-19 turns Telangana dry, alcoholic commits suicide- The New Indian Express,” 2020)<sup>[5]</sup> and Karnataka,<sup>[6]</sup> due to lack of availability of alcohol due to lockdown. As evident from a recent metaanalysis ( $n = 31$  studies; 420,732 participants), there is a strong association between alcohol use/dependence and development of suicidal

ideations (odds ratio: 1.86), suicide attempts (odds ratio: 3.13), and completed suicide (odds ratio: 2.59).<sup>[7]</sup> Therefore, there is sufficient evidence to suggest that alcohol dependence is a potential predictor of suicide and this can be an imminent health hazard to the mental health of people dependent on the same. Our case report highlights this very aspect of effect of lockdown on persons with problematic alcohol use disorders and similar issues might be occurring in persons with other types of substance use disorders too, which requires humanitarian approach.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

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