UNIVERSITY *of the*
WESTERN CAPE

THE PREVALENCE OF DEPRESSION IN HIV POSITIVE INDIVIDUALS WHO ARE ON ANTI RETRO-VIRAL TREATMENT (ART) CONDUCTED AT A SELECTED PRIMARY HEALTH CARE (PHC) CLINIC IN KHAYELITSHA, CAPE TOWN

Noluvo Rode

Student Number: 2134398

UNIVERSITY *of the*
WESTERN CAPE

A thesis submitted in partial fulfilment of the requirements for the degree of
Masters in Nursing (Advanced Psychiatry), School of Nursing,
Faculty of Community and Health Sciences at the
University of the Western Cape.

Supervisor: Prof. Hester Julie

Date: November 2019

https://etd.uwc.ac.za/

ABSTRACT

Background

Depression is defined as a psychiatric condition, wherein a person experiences extreme sadness, social withdrawal, and expresses self-deprecating thoughts. Across the world, millions of people with Human Infectious Virus (HIV) suffer from depression each year. Depression is regarded as the most common disabling medical condition that affects both HIV-positive and HIV-negative individuals, globally. It is further reported that depression is the most common neuropsychiatric disturbance observed in HIV infected individuals. In South Africa, the prevalence of depression symptoms among Antiretroviral Therapy (ART) clients is reported to be 25.4%. However, depression among this group is often underdiagnosed and untreated in Primary Health Care settings. The need for routine screening is encouraged by studies confirming that depression and anxiety disorders accelerate the progression of HIV disease.

Methods

A quantitative descriptive research design was used. The study population included 1 440 males and females, aged eighteen years and over, who were HIV positive and received ART at the Clinic. A randomly selected sample of 372 respondents were recruited, but 110 had to be excluded because of eligibility issues; therefore, 262 respondents completed the Beck Depression Inventory (BDI) questionnaire. Mann-Whitney U test, Fisher's exact test and the Spearman Rank test were used to analyse the data, using GraphPad Prism software. Depression symptoms were evaluated, using BDI, and a score of -> 10 indicated depression.

Results

Of the 262 respondents, 52% had club membership, compared to 48%, who were only on ART. There were significantly more female respondents (44%) involved in Adherence Clubs, as opposed to their male counterparts (8%), a difference of 36% overall (p=0.016). In summary, the number of individuals, who were suffering from some form of depression, enrolled in ART Adherence Clubs was 8.4% of the total sample, compared to 10% of those who were not in ART adherence clubs. The overall prevalence of depression in this current study was 18.4 %, which was in line with other studies conducted in a South African context, and a similar setting. Clinical depression status represents the main outcome of interest in this research project. The model category was 0-10, which indicated that a significant majority, 69.5%, n= 182, of the

https://etd.uwc.ac.za/

enrolled respondents were classified as healthy, in terms of clinical depression status. Beck depression scores were consistent across gender. Depression seemed to be more severe in the 35-44 age category. Fisher's exact test confirmed the absence of any statistical difference between ART club membership and their depression status. Spearman rank correlation coefficient of -0.02 indicates a very low association between length of HIV seropositivity and Beck Depression score.

Conclusion

This is the first study reporting on the prevalence of depression, in relation to HIV infection, as well as ART treatment, and the associated adherence programme in Cape Town. Further research on a similar topic is recommended, using other instruments in the same geographic area.

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

KEY WORDS

Antiretroviral treatment (ART)

ART adherence club (AC)

Depression prevalence

HIV/AIDS

Khayelitsha

Primary Health Care (HC)

Walk-ins

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Treatment
ARTAC	Antiretroviral Treatment Adherent Counsellors
ART AC	ART Adherence Club
BDI	Beck Depression Inventory
HIV	Human Infection Virus
MHS	Mental Health Services
PHC	Primary Health Care
SA	South Africa
SSA	Sub-Saharan Africa
WHO	World Health Organization

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

DECLARATION

I, the undersigned, declare that, *Prevalence of depression on HIV Positive individuals who are on Anti retro-viral treatment (ART) conducted at selected Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town,* is my own work. It has not been submitted, previously, for any degree, or examination, at any other university, and that all the sources I have used, or quoted, have been indicated and acknowledged as complete references.

Student: Noluvo Rode

Date: November 2019

Signed: …….....

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

ACKNOWLEDGEMENTS

I would like to thank the following listed people and institutions:

Father Masango, Mme Anna, and hierarchical descendants in prophet of St Johns Faith Apostolic Church.

City Health of Cape Town for trusting and allowing me to conduct my research in one of the clinics in Khayelitsha.

My kids for their support during this journey of my career.

Prof H. Julie, my supervisor, for her enthusiasm, time, patience and guidance during this project.

Monica, my mentor/coach, who supported me and dedicated her time to me during this endeavour.

Nomtha Mandla, my line manager at work, for her support during this career.

Dr Gerald Maarman, for his support.

Dr Shameem Jaumdally, who supported and encouraged me to complete my project.

The research assistants, Boneka Bhoyana, Nandi, Buziwe, Ayabonga and Alakhe, who helped me to collect the data.

All clinic staff members, who assisted me to conduct the research project.

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

DEDICATION

This thesis is dedicated to my late parents, Father, Masango, and Mother, Anna Mesiphathi, who passed away in 2013, and 2014, respectively. May their souls continue to rest in peace. They will always be remembered.

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

TABLE OF CONTENTS

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

LIST OF TABLES

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

LIST OF FIGURES

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

CHAPTER ONE

BACKGROUND AND RATIONALE

1.1. Introduction

Generally, when people continuously feel sad and unhappy, for two weeks or more, the common interpretation of the condition is depression. Depression is a psychiatric condition, wherein a person experiences extreme sadness, social withdrawal, and expresses self-deprecating thoughts (Uys & Middleton, 2014). Across the world, millions of people with Human Infectious Virus (HIV) suffer from depression each year. The World Health Organization (WHO) reports that depression is the fourth most common disabling medical condition in both lower and higher income countries. This statistic is projected to increase by 2020 (WHO, 2005a). Many people experience depression; however, it is more common in people who are HIV positive, and on Antiretroviral Therapy (ART) (Van Coppenhagen & Duvenage, 2019).

When an individual is ill, diagnosis and treatment is first obtained at a Primary Health Care (PHC) clinic, where the majority of mental health disorder patients could be identified and managed, while the complex and severe cases are referred to either a day hospital, or psychiatric institution (Bauman, 2015). Very few clinics, at PHC level, provisionally cater for mental health care, in relation to depression, which plays a major role in the treatment, or handling of any patient's progress in South Africa (Pappin, Woeters, Booysen, & Lund, 2014). The WHO defines PHC as the essential health care that is accessible, practical, scientifically sound, and a socially acceptable model. It is, therefore, the first contact of care that is comprehensive and continuous (Jenston & Ustun, 1998). There are many factors, such as infrastructure and attitudes of health professionals, which make it difficult to detect depression in PHC. Additionally, psychiatric morbidity plays a major role, given that hidden ill-defined somatic conditions, may lead to undiagnosed, undertreated psychiatric ailments, placing an added burden on PHC services (Uys & Middleton, 2014).

South Africa has an established high prevalence of HIV, with a rapid rollout of ART (Petersen, Hancock, Bhana, & Govender, 2014). Several studies indicate that about 38-55% HIV-positive patients in Sub-Saharan Africa have been associated with depressive symptoms (Myer et al.,

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

2008; Nakimuli-Mpungu et al., 2012; Petersen et al., 2014; Akena et al., 2012). Literature suggests that depression is the most common illness that leads to poor adherence to antiretroviral treatment (ART) among people living with HIV/AIDS, with a confirmed rate of major depression varying from 0-47.8% (Bhatia & Munjal, 2014). Therefore, routine depression screening of all clients, using PHC services, is highly recommended (Akena et al., 2012).

In South Africa, studies have revealed that depression and anxiety disorders accelerate the progression of HIV infection to AIDS (Meintjies & Moorhouse, 2017). The prevalence of anxiety and depression symptoms among ART clients is reported to be 30.6% and 25.4%, respectively (Myer et al., 2008). However, this prevalence doubles, when individuals are on ART (Jeffrey, Ciesla, John, & Roberts, 2001). Consequently, HIV care and treatment services are important sites to identify and manage clients for mental disorders commonly found in resource-limited settings (Myer et al., 2008). Unfortunately, combining the treatments of HIV and mental illness is still a global challenge in public health settings (Pappin et al., 2014); therefore, this study focuses on the HIV positive patients, with clinical depressive symptoms, in the PHC setting, in this part of the Western Cape.

1.2. Antiretroviral Treatment (ART)

UNIVERSITY of the WESTERN CAPE

The purpose of ART is to suppress the viral replication, completely over a long-term, utilising a well-tolerated sustainable treatment, if taken consistently (Meintjes & Moorhouse, 2017). The outcomes of ART in individuals, who are HIV positive, leads to the suppression of the viral load for a sustained period. Ordinarily, $CD4^+$ lymphocyte count is restored to a healthy level, complemented by the re-establishment of pathogen-specific immune functions (Meintjes & Moorhouse, 2017). This actually reduces the risk of morbidity and mortality associated with HIV infection (Meintjes & Moorhouse, 2017). Although the restoration of the immune function to normal is still a grey area, evidence reveals that good adherence to ART leads to a near-normal life expectancy (Meintjies & Moorhouse, 2017). In simple terms, treatment adherence is defined as undertaking treatment as prescribed by health care providers, which includes ART (Schaecher, 2013).

https://etd.uwc.ac.za/

1.3. The rationale of the study

There is a growing concern regarding the association of depression and with HIV positive clients, who are on ART. The WHO states that, too little focus is placed on the substantial mental health burden associated with HIV/AIDS, and depression is not always considered a serious opportunistic disease of HIV/AIDS (Myer et al., 2008; Nakimuli-Mpungu et al., 2012; Melanie, Gemma-Claire, Nakimuli-Mpungu, & Chibanda, 2014). It is also recommended that in Sub-Saharan Africa, screening for depression and treatment should be among the most important priorities for HIV care services (Melanie et al., 2014). The Antiretroviral Treatment Guidelines of 2010 recommends that a psychosocial assessment or mental health screening should be done on the initial visit to promote adherence, (Van Coppenhagen & Duvenage, 2019). However, the current HIV care guidelines do not specify that PLWHIV on treatment should be screened for depression upon subsequent visits. This lack of screening for depression is a concern because the onset of depression and suicidal ideation is linked to the side effects of ART, specificallye Efavirenz (Van Coppenhagen & Duvenage, 2019).

1.4. Aim and objectives of the study

The aim of the study was to determine the prevalence of depression among HIV positive clients receiving ART at the clinic in Khayelitsha, Cape Town.

UNIVERSITY of the
WESTERN CAPE

The objectives of the study were to:

- Determine the prevalence of depression in HIV positive clients receiving ART.
- Compare the prevalence of depression between HIV positive clients attending the ART Adherence Club and those who are not attending the ART Adherence Club at the specific Clinic.
- Identify the relationship of demographic characteristics and their impact on HIV positive patients with depression.

1.5. Significance of the study

The findings of this current study could contribute towards an understanding of the challenges associated with depression in HIV positive clients, receiving ART. Since this current study is

https://etd.uwc.ac.za/

the first of its kind to be conducted at this clinic, it is anticipated to inform policy makers at the Department of Health in the Western Cape, to improve strategies.

1.6. Study setting

This current study was conducted at a clinic situated in Khayelitsha, a peri-urban township, on the outskirts of the Cape Flats, Cape Town (Figure 1.1). This is one of the first townships in South Africa to provide ART at PHC level in the public health sector in 1991 (South African National AIDS Council [SANAC], 2017). The health infrastructure for sub-district of Khayelitsha is managed by Provincial Government of the Western Cape (PGWC). Approximately one-third (31%) of all adults on ART in Cape Town Metropolitan area are treated in Khayelitsha (Médecins Sans Frontières, 2010). In the Khayelitsha Health District (KHD), ART is dispensed at nine PHC clinics. Clinic serves as the first contact point, and provides services for Sexually Transmitted Infection (STI), Basic Anti-Natal Care, Adult Curatives (chronic, HIV /ART) and Child Curatives (Canadian Nurses Association, 2000). Mental illness services are not rendered at clinic level.

1.7. Thesis Structure

The thesis structure is discussed in this part. Each chapter is described and subdivided into appropriate sections to help with the flow of ideas, and respect for the chronology of events in the production of the set of work. The thesis consists of five chapters.

Chapter 1 comprises the introduction to the concept of the study, the aims and objectives, rationale, significance, as well as the study area. The review of previous studies conducted, concerning the research project, follows in **Chapter 2**. The methods utilised to meet study aims and objectives of the study, including data collection and analysis are presented in **Chapter 3**. **Chapter 4** comprises the results from all the analysis conducted. **Chapter 5** involves a short discussion, and subsequently, the researcher identifies the limitations of the study, the key recommendations, as well as a short conclusion to this thesis.

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

Globally, the number of people living with HIV, concurrently on anti-retroviral therapy (ART), and suffering from depression, is escalating (Starace et al., 2002). According to Starace et al. (2002), the WHO endorsed the statement, reporting that there had been a significant decrease in the substantial mental health burden, associated with HIV/AIDS. Depression is one of the major mental health conditions, not classified as one of the serious opportunistic diseases, defining the AIDS stages (Myer et al., 2008; Melanie et al., 2014; Peterson et al., 2014). According to the Southern African HIV Clinicians Society [SAHCS), depression is defined as the psychiatric condition, in which a person experiences extreme sadness, social withdrawal, and expresses self-deprecating thoughts (Uys & Middleton, 2014). Usually, these symptoms may last for two weeks. Additionally, depression is defined as a heterogeneous disorder, with a highly variable course, and inconsistent response to treatment, without an established mechanism (Belmaker & Agam, 2008). The cost of depression is evident in a person who loses interest in almost everything in his/her life, and in severe cases, a person may commit suicide (Uys & Middleton, 2014). Consequently, understanding the impact of depression on an individual's personal behaviour is essential. This current study explores the relationship between depression and HIV positive patients on ART.

2.2. HIV/AIDS: Brief biology and global epidemiology

HIV is defined as Human Immunodeficiency Virus, and is the aetiological agent of Acquired Immunodeficiency Syndrome (AIDS). Once this virus enters a human body and prolifically infects the host, it reduces the number of CD4 T-cells (helper T-cells), resulting in a gradual and sustained depletion of the latter, if left untreated. As the CD4 cell-count is reduced, the person becomes immunocompromised and vulnerable to infections (James, 2001; Joint United Nations Programme on HIV/AIDS [UNAIDS] and World Health Organization [WHO], 2011; Okoye & Picker, 2014; HIV.gov. blog, 2017). HIV is transmitted through bodily fluids, such as blood, semen, pre-seminal fluids, rectal fluids, vaginal fluids and breast feeding. It is

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

suggested that mucosal membrane breach, general tissue trauma, or direct blood contact, significantly increases the risk of HIV transmission (Shaw & Hunter, 2012; Centers for Disease Control and Prevention [CDC], 2017; Marshal et al., 2018).

Since the onset of the epidemic, approximately 36.9 million people have been infected with HIV (Avert Global information and education on HIV and AIDS, 2018). Currently, approximately 36.7 million people are living with HIV, of whom, 25% are not aware of their HIV status; 1.8 million are children, which reflects a 0.8 % HIV prevalence among adults, globally (Avert Global information and education on HIV and AIDS, 2018). However, new HIV infections have continued to decline in 2017, globally (Avert Global information and education on HIV and AIDS, 2018). Modelled estimates reveal that incidental infections (all ages) declined from 3.4 million [2.6–4.4 million] in 1996, to 1.7 million [1.4–2.3 million] in 2017 (Sidibe, 2018). This decline is still slower than the required 2020 milestone of less-than 500 000 yearly new infections (Sidibe, 2018). Most people living with HIV/AIDS emanate from low- to middle-income countries (Avert Global information and education on HIV and AIDS, 2018), including Sub-Saharan Africa, which accounts for 25.5 million of the 36.7 million, globally (Simon, Ho, & Quarraisha, 2006; CDC, 2017; Avert Global information and education on HIV and AIDS, 2018).

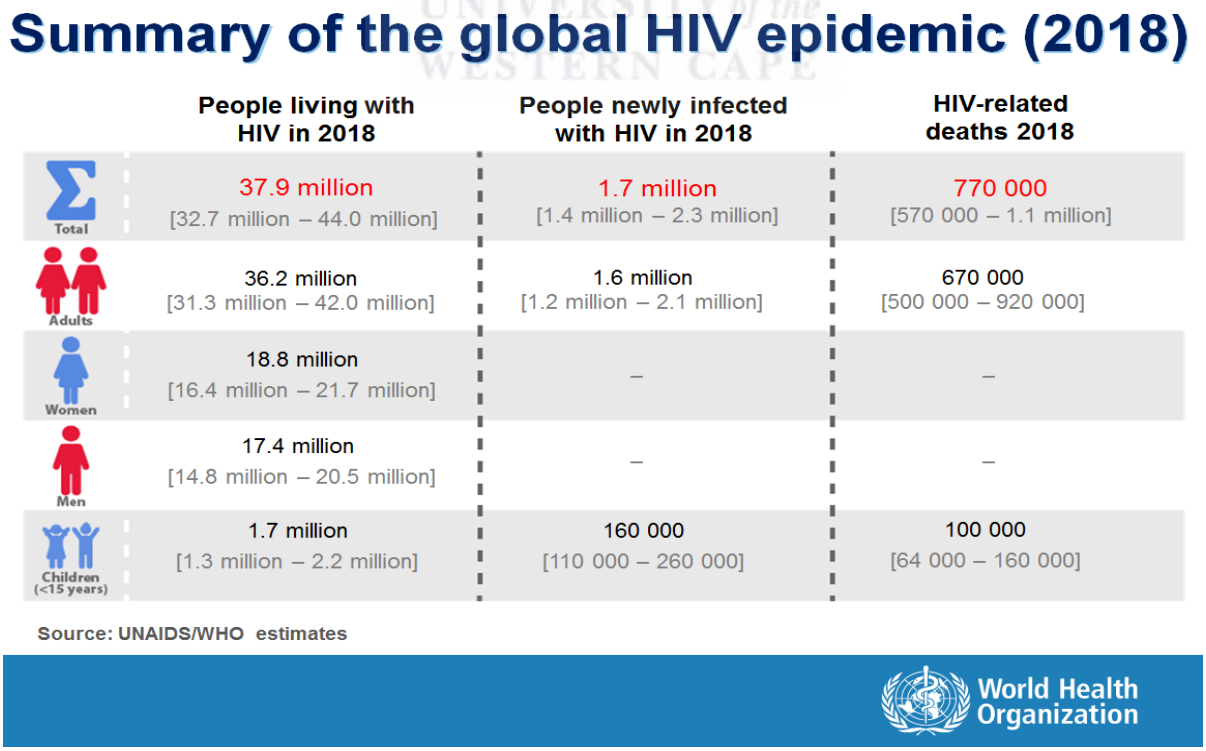


Figure 2.1: Global HIV epidemic at a glance

https://etd.uwc.ac.za/

(Avert Global information and education on HIV and AIDS, 2018)

Women continue to account for a disproportionate percentage of new HIV infections among adults (aged 15 and older) (Sidibe, 2018). In sub-Saharan Africa, they represented 59% of the 980 000 million [820 000–1 100 000] new adult HIV infections in 2017 (Avert Global information and education on HIV and AIDS, 2018). In other parts of the world, men accounted for 63% of the 650 000 [590 000– 750 000] new adult HIV infections in 2017 (European Center for Disease Prevention and Control [ECDC], 2017). Globally, there were almost 90 000 more new HIV infections among men than women in 2017 (Avert Global information and education on HIV and AIDS, 2018).

The global decline in deaths from AIDS-related illness has largely been driven by progress in sub-Saharan Africa, particularly Eastern and Southern Africa, which is home to 53% of the world's people living with HIV (Avert Global information and education on HIV and AIDS, 2018). AIDS-related mortality declined by 42% from 2010 to 2017 in eastern and southern Africa, reflecting the rapid increase of treatment in the region (Sidibe, 2018). The decline in Western and Central Africa (24% reduction) was more modest (Sidibe, 2018). Over the same period, steady declines in deaths also continued in Asia and the Pacific [39% reduction], Western and Central Europe, as well as North America [36% reduction], and the Caribbean [23% reduction] (Sidibe, 2018). In Latin America, where antiretroviral therapy coverage has been relatively high and AIDS-related mortality relatively low for many years, the decline in deaths over the past seven years was 12% (Sidibe, 2018). There has been no reduction in AIDS-related mortality in Eastern Europe and Central Asia since 2010, while deaths from AIDS-related illnesses have increased by 11% in the Middle East and North Africa (Sidibe, 2018). The decrease in mortality remain higher among women than among men (Sidibe, 2018). This gender gap is particularly notable in sub-Saharan Africa, where 56% of people living with HIV, are women (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2017b).

Epidemiological evidence suggests a steady and significant decline in the mortality rate of HIV infected individuals (Burgoyne & Tan, 2008; Babbie & Mouton, 2016; Beard, Feeley, & Rosen, 2009; UNAIDS, 2017b). Despite the higher disease burden among women, more men living with HIV are dying (Avert Global information and education on HIV and AIDS, 2018). In 2017, an estimated 300 000 [220 000–410 000] men in sub-Saharan Africa died of AIDS-related illnesses, compared to 270 000 [190 000–390 000] women (Avert Global information

https://etd.uwc.ac.za/

and education on HIV and AIDS, 2018). This implies a higher treatment coverage among women.

In 2017, an estimated 75% of men living with HIV (aged 15 years and over) in Eastern and Southern Africa knew their HIV status, compared to 83% of women living with HIV of the same age (Avert Global information and education on HIV and AIDS, 2018). Additionally, with AIDS-related mortality, the reduction in new HIV infections between 2010 and 2017 was strongest in sub-Saharan Africa, mainly driven by reductions in Eastern and Southern Africa [30% decline] (Avert Global information and education on HIV and AIDS, 2018). Important progress in decline was also observed in the Caribbean [18%], in Asia and the Pacific [14%], Western and Central Africa [8%], and Western and Central Europe, as well as North America [8%] (Sidibe, 2018). The tendency was essentially stable in Latin America [1% decline]. In the Middle East, North Africa, Eastern Europe and Central Asia, the annual number of new HIV infections has doubled in less than 20 years (Sidibe, 2018).

2.3. Regional burden of HIV/AIDS

At a regional level, Southern Africa still bears a disproportionate burden of the epidemic. Approximately, 7.7 million people, living with HIV, are in South Africa, which represents the largest number of infected individuals, in any one country worldwide (Avert Global information and education on HIV and AIDS, 2018). About 240 000 people were new cases of HIV seroconversion, and 71 000 AIDS related deaths were registered (Avert Global information and education on HIV and AIDS, 2018). Although HIV/AIDS is still a growing concern, numerous measures have been put in place to curb transmission, but a number of incidental cases remain (Shisana et al., 2012a; SANAC [Western Cape & KwaZulu-Natal], 2017; UNAIDS, 2017).

Despite the remarkable decrease in HIV/AIDS incidence, worldwide, some countries still face a significant challenge in curbing the HIV epidemics (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2014). These struggles vary from one country to another as some countries are faced with economic constraints. However, while the development of an efficacious vaccine, or cure for HIV, is still in the pipeline, its current relationship to onset and chronic establishment of depression in an infected individual on treatment, remains somewhat unclear. Therefore, this current study focuses on the extent of factors of depression in individuals living with HIV/AIDS in South Africa. The next section briefly reports on

https://etd.uwc.ac.za/

HIV/AIDS in heavily burdened countries Swaziland, Botswana, and Mozambique as well as an overview of other selected countries, regarding the relationship between HIV/AIDS and depression, in West and Central Africa, the Middle East, and North Africa. However, the main geography of focus in this current study is South Africa.

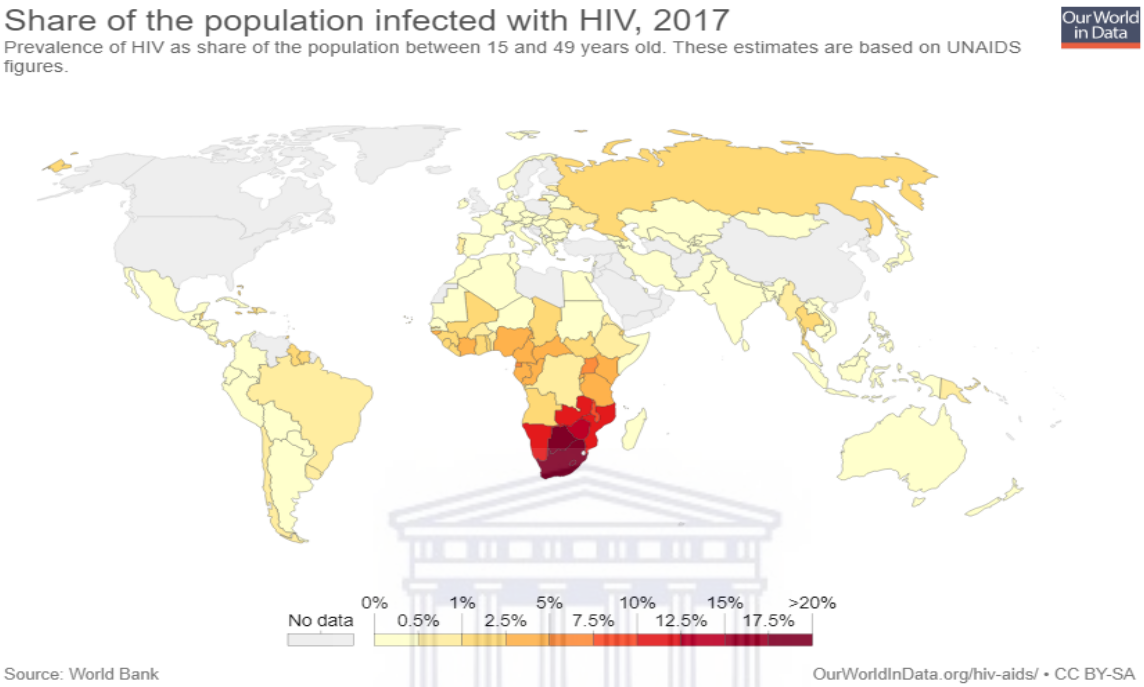
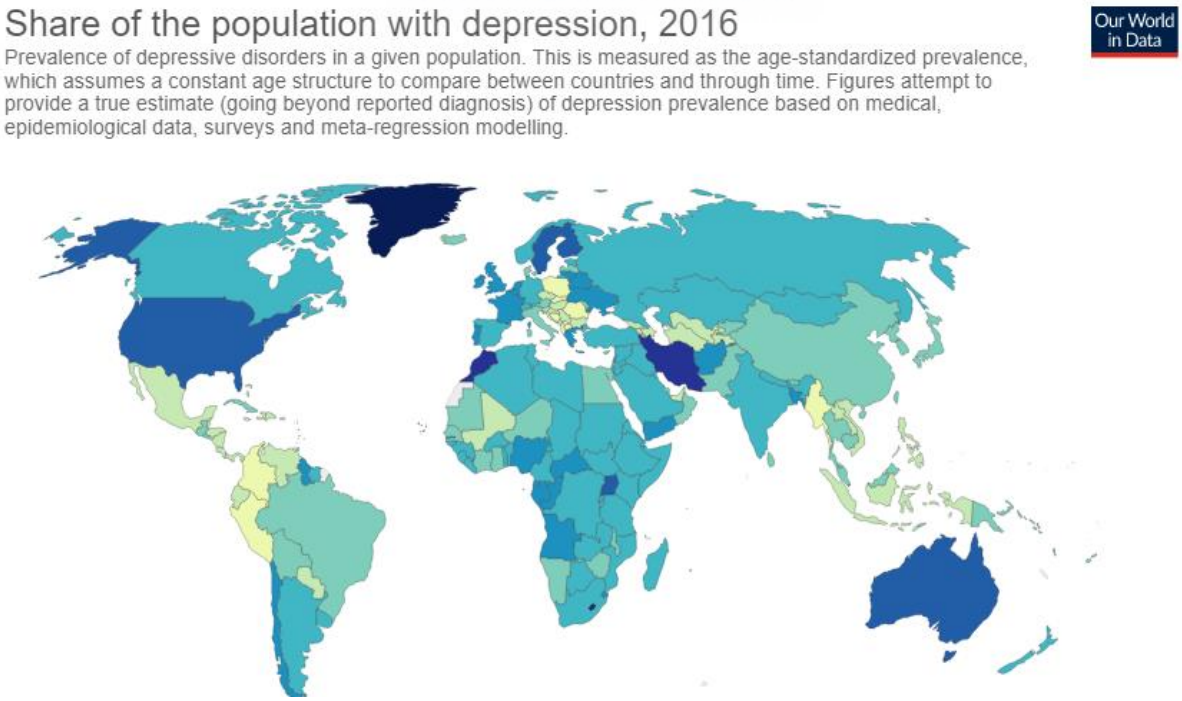


Figure 2.2: Global distribution of HIV prevalence (World Bank, 2018)



https://etd.uwc.ac.za/

Figure 2.3: Global distribution of depression (Sidibe, 2018)
(The darker the shade of blue, the higher the prevalence reported for the specific country)

2.4. Depression and HIV/AIDS

Depression appears to be one of the mental illnesses associated with, and precipitated by many life events and challenges. Under any circumstance, an individual could develop depression. The impact of depression varies from country to country, depending on the precipitated factors at play, highlighted by a differential in overall prevalence, ranging from 0% to almost 58% (Sidibe, 2018).

2.4.1. HIV/AIDS related depression in Swaziland

Swaziland is a small country with a matching small population in sub-Saharan Africa, but with a disproportionate burden of HIV prevalence, the highest in the world (UNAIDS, 2017). Although the global awareness of HIV/AIDS is huge, this country still has a high level of stigmatization and discrimination among people living with HIV/AIDS (Kingdom of Swaziland Ministry of Health, 2014; World Health Organization [WHO]. (2017); UNAIDS, 2017b). This has served as a hindrance to the accessing of HIV resources, including the testing and receipt of HIV care, and should be earmarked as a national priority. This effect is reflected in the average life expectancy in the country.

UNIVERSITY of the
WESTERN CAPE

Men, on average, are living to the age of fifty-seven, and women to the age of sixty-one (Kingdom of Swaziland Ministry of Health, 2014, United Nations Population Division [UNPD], 2015; UNAIDS, 2015). However, annual HIV incidence declined from 2.5% to 1.8% between the years 2011 to 2013 (Fettig, Swaminathan, Murrill, & Kaplan, 2014). Vertical transmission of HIV via mother-to-child, declined from 12% to 3%, between the years 2011 to 2012 (UNAIDS, 2015; 2017b).

In Swaziland, screening for depression is a strictly recommended package of care, which commences once an HIV positive patient is initiated onto ART, as well as in their second year of treatment with ART (Ntshakala, 2012; Kingdom of Swaziland, Ministry of Health and Social Welfare, 2009). This was because of the impact of one of the ART treatments, called *efavirenz,* which has a side effect of mental health disturbances, such as depression (Ntshakala, 2012). Some individuals develop suicidal tendencies, when they take *efavirenz* for the first time, according to the Kingdom of Swaziland, Ministry of Health

https://etd.uwc.ac.za/

(2010). When a person is diagnosed with HIV/AIDS, and commences ART, s/he experiences many challenges with quality of life, the most reported being depression, because of the inability to cope with the status, disease, or side effects of ART, such as low self-esteem, poor support system, among others (Ntshakala, 2012).

2.4.2. HIV/AIDS related depression in Botswana

The Republic of Botswana, a middle-income country, is among the countries, most affected by HIV/AIDS worldwide, with a HIV prevalence of 21.9%, which represents the third highest rate worldwide, following Lesotho and Swaziland (Republic of Botswana, Ministry of Health, 2014; Joint United Nations Programme on HIV/AIDS [UNAIDS], 2015; Avert Global information and education on HIV and AIDS, 2018). Although the country adopted excellent plans and approaches to curb the transmission of HIV, it still has enormous challenges, mainly because of the country's financial constraints to meet its objectives (UNAIDS, 2017b). The situation in the country deteriorated when the United States President's Emergency Plan for AIDS Relief (PEPFAR) decreased the allocated funds from $84 million in 2011, to $39 million in 2015 (Republic of Botswana, Ministry of Health, 2014; UNAIDS, 2015; PEPFAR, 2018; Sidibe, 2018). The prevalence of HIV/AIDS depression in the country (Audet, Burlison, & Moon, 2010), is estimated to be relatively high and includes both males and females, at 31.4% and 25.3%, respectively (Gupta et al., 2010). The depression level in people living with HIV/AID, and on ART, is approximately 8.2%, (Ndubuka et al., 2016).

2.4.3. HIV/AIDS related depression in Mozambique

Mozambique has the eighth highest HIV/AIDS prevalence globally (Audet, Burlison, & Moon, 2010; USAIDS, 2014; Frey, 2018). This country, reportedly, had approximately 1.8 million people living with HIV/AIDS in 2016, of which the yearly HIV incidence was 83 000, with 62 000 AIDS-related deaths; however, only about 54% to 63% of the people had access to antiretroviral treatment (Foreit et al., 2001; Republic of Mozambique, Council of Ministries, 2010). Approximately 13 000 children became newly infected cases, due to mother to child transmission of HIV (Avert Global information and education on HIV and AIDS, 2018). Prisoners contribute up to 24% of HIV prevalence in Mozambique; however, there is a stable strategic plan in place, to fast track the enrolment of more HIV/AIDS positive individuals on ART. This plan targets 81% of adults and 67% of children's registrations from 2015 to 2020 (UNAIDS, 2017b).

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

There is no official source of data in Mozambique, regarding the link of depression to HIV-positive individuals, who are on antiretroviral treatment, although there are a few studies on depression in the country (Micek et al., 2008; Pearson, et al. 2009; Micek, Gimbel-Sherr, Baptista, Matediane, & Montoya, 2009). Audet & Moon (2018) reported that 14% of females, who screened positive for depression, used the PHQ-8 screening instrument.

2.4.4. HIV/AIDS and related depression in South Africa

According to the data compiled for South Africa in 2018, there was about 7.7 million people living with HIV, 20.4% of whom were adults aged between 15 and 49, with 240 000 new cases of seroconversions, and 71 000 AIDS related deaths (Figure 2.4). With the greater rollout of ART, specifically, 62% of adults, and 63% of children, who were on antiretroviral treatment (Avert Global information and education on HIV and AIDS, 2018), there was a remarkable decrease in AIDS related death after 2010, with a 50% decline (from 140 000 to 71 000). Consequently, there was a marked decrease in HIV incidence, from 390 000 to 240 000 in the same period (Avert Global information and education on HIV and AIDS, 2018).

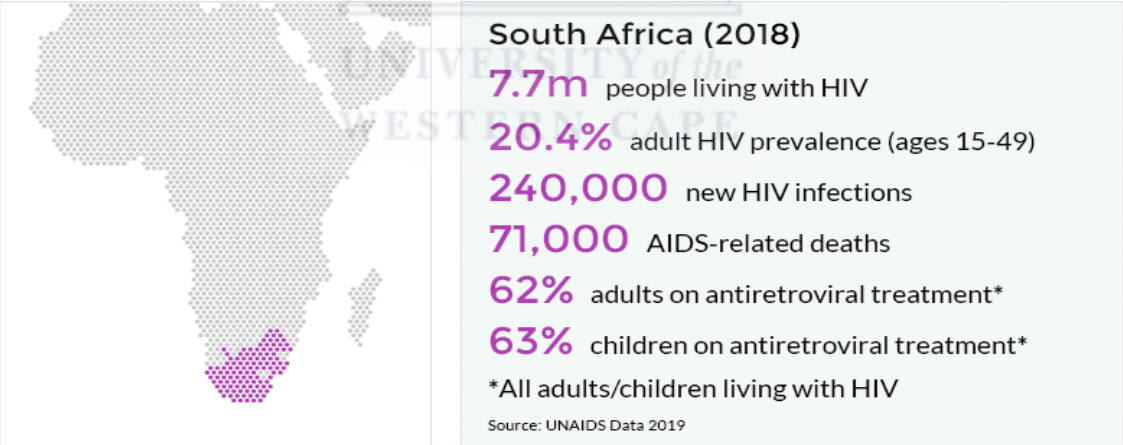


Figure 2.4: General HIV/AIDS statistics for South Africa (Avert, 2018)

South Africa, among the developing countries, has made the greatest effort to engage and reach the first 90% of the world efforts to combat HIV/AIDS (90-90-90) statement (Figure 2.5). Additionally, it aims to ensure that, by year 2020, about 90% of people living with HIV would know their HIV status, 90% of these people who know their status would be on HIV treatment (ART), and 90% of these people who are on ART would

https://etd.uwc.ac.za/

have their viral load supressed (UNAIDS, 2017c). In addition, the figure demonstrates that approximately 68% of the 90% of people, who know their HIV positive status in South Africa, are on treatment, and almost 87% of the people, who are on ART, have their viral load supressed.

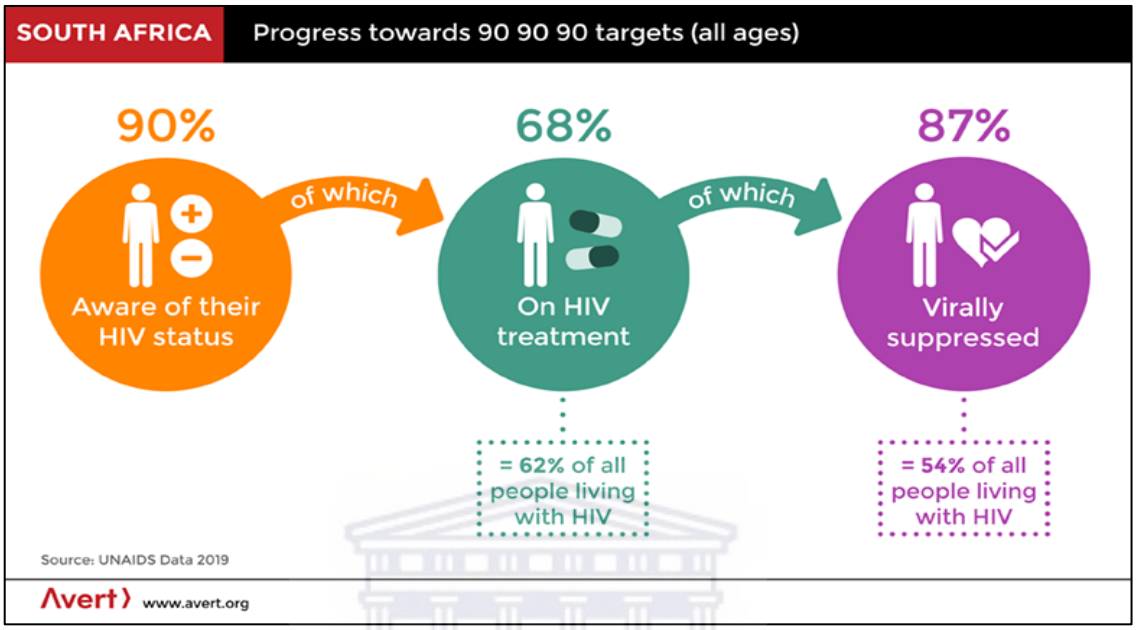


Figure 2.5: Progress towards 90-90-90 statement in South Africa (UNAIDS, 2017c)

This country has the largest ART programme, globally (Nel & Kagee, 2017). The gradual enrolment of South Africans in the ART programme is illustrated in Figure 2.6. Some measures and strategies employed to combat this epidemic were, implementing HIV prevention and prevention of mother-to-child transmission programmes, condom use and distribution, voluntary male medical circumcision, and pre-exposure prophylaxis.

https://etd.uwc.ac.za/

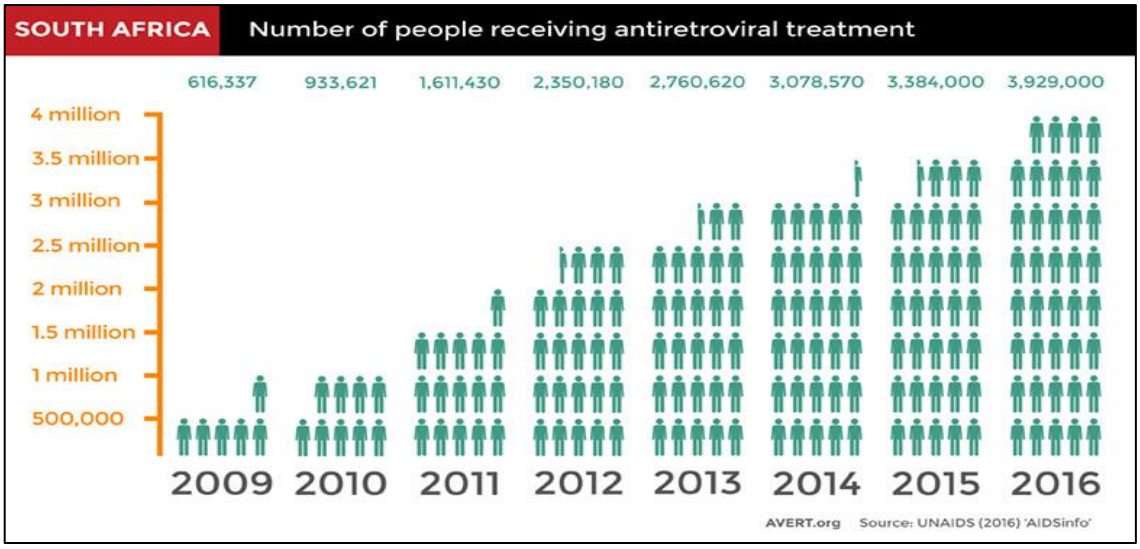


Figure 2.6: ART uptake in South Africa, 2009 – 2016 (UNAIDS, 2016)

2.5. Gender-based violence (GBV) and commercial sex workers

Gender-based violence occurs when someone is abused because of his/her gender, and is often related to a societal understanding of masculine and feminine behaviour (Artz, 2018). Consequently, a man might force himself on a woman, because he regards her as his possession, or rape other men (homosexual), to teach them a lesson about what real man do. In both instances, gender plays a major role, as the perpetrator considers both females and other males, inferior to himself [masculine mentality] (Republic of South Africa [RSA], Department of Education [DoE], 2001).

A sex worker, however, is defined as a female, male, or transgender adult, over the age of eighteen years, who sells consensual sexual services, in return for cash, or payment in kind, which could occur either formally, or informally; regularly, or occasionally. The laws in South Africa oppose this type of work, and regard it as a criminal offence, for example, the Sexual Offences Act (Republic of South Africa [RSA], Act No. 23 of 1957). The Criminal Law that deals with sexual offences and related matters, specifically, the Amendment Act (Republic of South Africa [RSA], Act No.32 of 2007), still prohibits this type of work (UNAIDS & WHO, 2011).

GBV also contributes to the transmission of HIV, for instance, through the coerced practice of unsafe sex, which later becomes the aetiology of depression in the victims. Given the enormity

https://etd.uwc.ac.za/

of the problem, a considerable improvement of the channels of communication that deal with GBV should be prioritised, especially among the most deprived segment of the population. These challenges often persist because the victims fear reprisals, social stigma, and ostracism from their families and communities (Brown 2000). Evidence revealed that, in a study conducted with 111 women, who had been abused by their partners, only 6% reported abuse (Artz, 2018); however, in a study conducted in schools, reported by ClETafrica, only 36% of rape victims reported their ordeal (RSA, DoE, 2001).

In South Africa, there is at least one woman killed by her partner, every six days (Centre for the study of violence and reconcillation [CSVR], 2016). In a study involving interviews with 24 pregnant women (average age 16.4 years) in Khayelitsha, 23 described assault as a regular feature of the sexual relationship (RSA, DoE, 2001; Artz, 2018). The breakdown of the incidents of GBV and sexual assaults in South Africa, are illustrated in Figure 2.7.
Evidence has revealed that violence against women is a global challenge; however, African countries are considered to have the highest rates of physical and sexual intimate partner's violence, as well as non-sexual violence (Beringer, Sieving, Ferguson, & Sharma, 2007; World Health Organization [WHO], 2017). This accounts for 45.6% of women, who had experienced one, or more incidents of violence in their lifetime, compared to the 35% for global incidents (Beringer et al., 2007).

UNIVERSITY of the
WESTERN CAPE

About 7-in-10 women, living in conflict settings, and in refugee populations, are exposed to GBV and sexual violence (RSA, DoE, 2001). Nearly 50% of women, exposed to GBV, are more likely to be living with HIV infections (Beringer et al., 2007). In sub-Saharan Africa, three-in-five new HIV cases are among 15-to-19-year-old girls (Avert Global information and education on HIV and AIDS, 2018). Women who had been physically, or sexually abused by their partners, or non-partners, report higher rates of mental health issues, which includes depression, as well as anxiety, higher alcohol use, and may experience less control in sexual decision making (Williams & Granich, 2017).

https://etd.uwc.ac.za/

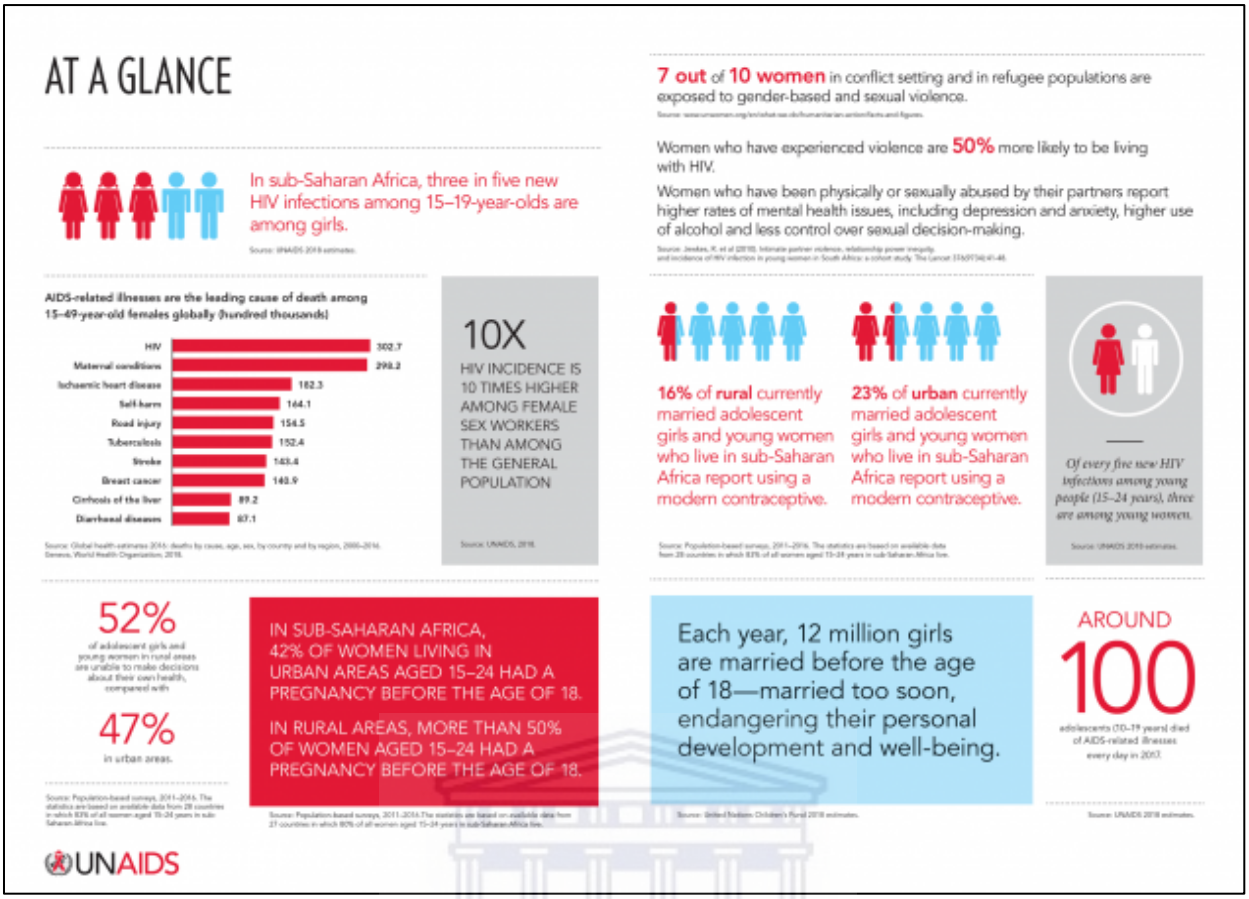


Figure 2.7: Gender-based violence and sexual assaults statistics in SA (UNAIDS, 2019)

2.6. Guidelines for HIV testing/screening in South Africa (SA)

Generally, in South Africa, a standard guideline has been set for anyone willing to undergo HIV testing (Republic of South Africa [RSA], Department of Health [DoH], 2016). A person reporting for HIV screening undergoes a two-stage test counselling [pre-and-post HIV test counselling] (RSA, DoH, 2016; UNAIDS & WHO, 2007). The HIV Counselling and Testing (HCT) Policy Guidelines are supported by a combination of legislation, as well as established, core ethical principles. These include the basic human rights of individuals and families, as protected in the Constitution of the Republic of South Africa (RSA, Act No. 108 of 1996, including the Bill of Rights), and the Batho Pele principles (Republic of South Africa [RSA], Department of Public Service and Administration [DPSA], 1997). Additionally, other items that provide guidance are the principles of the National Strategic Plan, the Operational Plan for Comprehensive HIV and AIDS Management, Treatment and Care Guidelines, and the Prevention of Mother to Child Transmission (PMTCT) Guidelines (RSA, DoH, 2016).

https://etd.uwc.ac.za/

Irrespective of the person's status, and their health condition, before undergoing HCT, there must be a tenable approach, which protects their human rights and displays respect for ethical principles, according to the National HIV Testing Services Policy (RSA, DoH, 2016). This was followed by the contribution from the Health Sector HIV Prevention strategy and guidelines 2013-2016, which focused on the amalgamation of HIV prevention strategies (RSA, DoH, 2016). Irrespective of all government efforts, individuals with HIV/AIDS are still suffering disproportionately from depression; therefore, an urgent need for counselling and testing principles has been established (Sidibe, 2018).

Generally, HCT services are confidential, and consequently, anything discussed between the client(s), or patient(s), as well as the HCT provider, may not be shared with any other person, except when the results are shared for the client's medical benefit, or are ordered by a court, or a lawyer. Service providers should take the responsibility of informing patients of their HIV results, according to the National HIV Testing Services Policy (RSA, DoH, 2016). HCT services must include accurate and sufficient client-centred counselling, which addresses the needs and risks of providing HIV testing to clients(s), or to patient(s), as well as an appropriate setting in which the services are being rendered. HCT services must adhere to National Quality Assurance Guidelines for testing, to confirm the provision of accurate and correct test results (RSA, DoH, 2016). It is the obligation of HCT programmes and providers to ensure that HCT clients and patients are linked to care, which includes prevention, care and treatment, as well as other clinical services, according to the National HIV Testing Services Policy (RSA, DoH, 2016). Although all the core principles are established, the consent of the individual is required.

UNIVERSITY of the
WESTERN CAPE

2.7. Informed consent

Informed consent is a process, in which sufficient information about HIV counselling and testing is provided to the individual, who subsequently, after fully understanding the process and its implications, is given the chance to decide on taking the test, or not (Zetola, Klausner,

https://etd.uwc.ac.za/

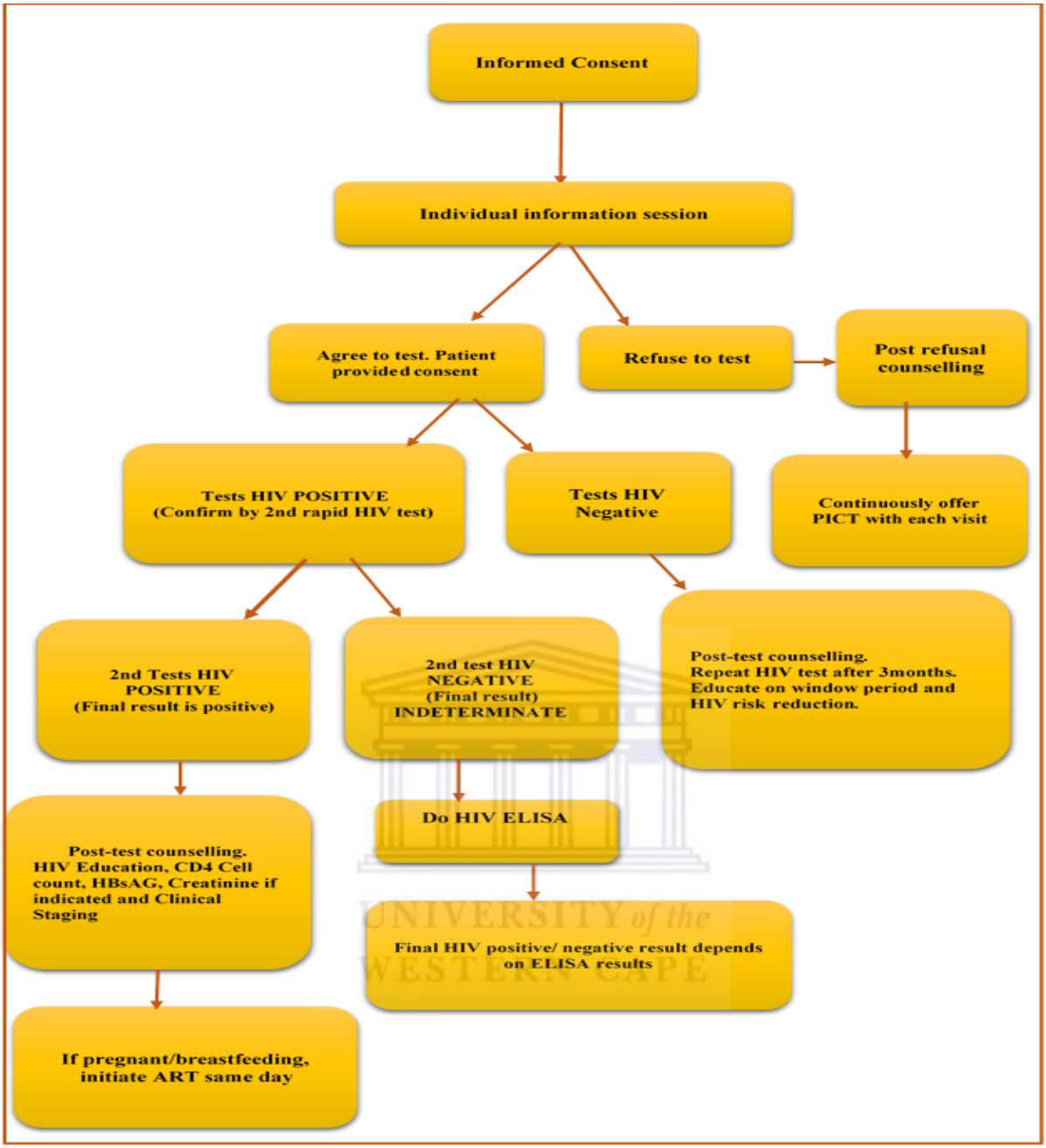


Figure 2.8: Flow chart of HCT for the HIV/AIDS test, modified after National HIV Counselling and Testing Policy Guidelines (RSA, DoH, 2015a)

Haller, Nassos, & Katz, 2007; Goldman, Kinnear, Chung, & Rothman, 2008; Frieden, 2008; Republic of South Africa [RSA], Department of Health [DoH], 2015a). Sharing information for informed consent must be conducted in the applicable official language of the individual, who needs to be tested. At times, consent could be verbal, but must be documented in the patient's record, as applicable in all health settings, according to the National HIV Counselling and Testing Policy Guidelines (RSA, DoH, 2015a). During HCT, clients(s) and patient(s) are first provided with information consent forms (Figure 2.8), so that they can provide

https://etd.uwc.ac.za/

unambiguous voluntary, informed agreement to receive services. Although HIV testing can be prescribed by a court of law, it must always be voluntary, and free of coercion. During the testing process, confidentiality, counselling, and the disclosure of the results, should be discussed, prior to presenting the rapid HIV test, which forms part of HIV pre-test counselling (RSA, DoH, 2015a). Accurate and correct test results should be provided to the patient at all times. If the patient is HIV positive after the first HIV test, a confirmatory test should be performed, and thereafter, care and treatment, applicable to their HIV positive results, should be provided (RSA, DoH, 2015a). However, if the patient is HIV negative, s/he should be linked to prevention awareness procedures, according to the National HIV Counselling and Testing Policy Guidelines (RSA, DoH, 2015a). Mostly, HIV tests occur in PHC.

2.8. Primary Health Care (PHC) in South Africa

The PHC approach in South Africa is both a strategy and a philosophy service, established and declared as such by Alma-Ata at the International conference of PHC, in September 1978 (Cueto, 2004; World Health Organization [WHO], 2008). This PHC service is rendered at primary health institutions, and serves as the first-contact service. It aims to deliver quality health care, and a caring environment, to every South African citizen, when a need is identified (Cueto, 2004). According to the Kumar and Preetha (2012), PHC is a holistic approach, which involves assessing the overall individual health and illness of the patient, including biological, psychological and social support. This approach is considered best practice in developing countries, regardless of the prevailing economic and political factors (World Health Organization [WHO], 2005b; United Nations Children's Fund [UNICEF], 2011; White, 2014).

In PHC, Mental Health Services (MHS) should also be rendered, according to Hollingsworth (1990), as this will provide a complete improvement of general health outcomes of all patients at primary health care level (Figure 2.9). Evidently, most often, mental disorders treated at PHC level, has better outcomes, compared with mental disorders treated at psychiatric hospitals (WHO, 2005b; Funk, 2007). It is evident that there are benefits offered by PHC services, for example, eliminating the stigma attached to mental illnesses, given that they are accessed by everyone who needs health care services, regardless of the diagnosis. Preferably, beside MHS at PHC, other co-morbid physical conditions, such as cancer, HIV/AIDS, diabetes and tuberculosis, are also attended to (World Health Organization [WHO], Department of Mental Health and Substance Abuse [MSD], 2014; Brundtland, 2001). Additionally, other services

https://etd.uwc.ac.za/

provided at PHC clinics include, growth monitoring, oral rehydration therapy, breastfeeding, immunization, family planning (birth spacing), female education, and food supplements (Kuhn, 1990). The main goal of this approach is to prevent health and nutrition problems (Cash, Keusch, & Lamstein, 1987). Furthermore, the integration of the MHS and the PHC (Figure 2.9) was confirmed to offer better treatment, as well as a consistent follow-up plan for the individuals with mental disorders. This was due to a greater acceptance of mental disorders by families and community members, through the application of the PHC programme.

Figure 2.9: Flow chart for Primary Health Care integration with Mental Health Care Services in 2007

PHC services at the clinics are not defined by the size of the facility, but by the skill level of working staff, or professional nurses, as well as the availability of doctors, or other specialists (Emmanulle & Hasina, 2012). These specialists could include a psychiatric team, an ophthalmologist, rehabilitation specialists, and environmental health officers. The PHC is of importance in rural areas where Community Health Care facilities, or hospitals, do not exist,

https://etd.uwc.ac.za/

or only at a distance, according to the National HIV Counselling and Testing Policy Guidelines (RSA, DoH, 2015). The PHC made it easier to render ART services to all communities, as many clinics had been built before the outbreak of the HIV epidemic. However, some of these clinics are failing to meet the accreditation standard. The Centres for Disease Control (CDC), in partnership with the National Department of Health (NDoH), are working together, to ensure that all the clinics are renovated to meet the accredited standards. Consequently, ensuring that there is enough space, as well as sufficient and appropriate equipment to render services to the communities, to include treatment of HIV/AIDS (Frieden & De Cock, 2012).

Clinic offers PHC in South Africa and is the first contact point, as well as service provider for the following: sexual transmitted infection (STI), basic anti-natal care, adult curatives (chronic, HIV/ART) and child curatives (Center for Health Systems Research and Development [CSHR&D], Department of Health [DoH], & Centers for Disease Control and Prevention [CDC], 2012). Mental illness services are not rendered directly at all the clinic levels in South Africa. However, the Department of Health (DoH), Provincial Government of the Western Cape (PGWC), and Mental Health PHC, have confirmed that planning and managing health care services needs to set some prerogatives, to incorporate prompt discovery, diagnosis, and treatment of mental illnesses (Cash et al., 1987; WHO, 2005b; White, 2014). Globally, set guidelines exist for HIV/AIDS care and treatment, irrespective of the country, referred to as the WHO guidelines.

UNIVERSITY of the
WESTERN CAPE

2.9. WHO Guidelines on HIV/AIDS Positive Care and Treatment

The WHO guidelines were introduced in 2008, and have been reviewed, constantly, since then, until 2016 (Meintjes & Moorhouse, 2017). This organization works with about one-hundred-and-ninety-four member states, across the six regions, and has more than one-hundred-and-fifty offices (United Nations [UN], 2015). To achieve better health for everyone, across various countries, is among its organizational aims. Its role is striving to combat communicable disease like influenza, HIV/AIDS, as well as non-communicable diseases, such as cancer and heart disease (World Health Organization [WHO], 1980). These guidelines were established for the global governance of health and disease, to establish core global functions, aiming to enforce the monitoring of international norms and standards, while co-ordinating multiple actors toward their goals (Ruger & Yach, 2009). These WHO guidelines are observed throughout ART services in PHC's in South Africa.

https://etd.uwc.ac.za/

Generally, since mental health sufferers are disadvantaged, which in turn leads to poor routine screening for individuals, this also affects those, who are on ART (World Health Organization. 2000). Therefore, routine screening practices for depression in HIV-positive clients on ART are limited worldwide, despite the high (30-48%) prevalence of depression in populations, globally (Akena et al., 2012). Meintjes and Moorhouse (2017) discuss the importance of ART, referring to it as a means of maximising the provision of services, and suspending resilience of the viral load to the individual. Additionally, it enhances the restoration and the preservation of immune functioning, while reducing all infections related to HIV and non-infectious morbidity (Meintjes & Moorhouse, 2017). Furthermore, ART improves life expectancy, and the quality of life, while also preventing onward HIV transmission, aimed at minimising the adverse effects of the treatment (Meintjes & Moorhouse, 2017). Therefore, standard measures need to be considered, if ART rollout is identified as a prevention strategy (Hayes, Sabapathy, & Fidler, 2011).

According to the WHO Guidelines, there are certain eligibility requirements from those who are expecting to receive HIV/AIDS Care and Treatment, which is also observed in ART services, when dealing with HIV/AIDS-positive patients.

UNIVERSITY of the
WESTERN CAPE

2.10. The eligibility criteria to commence ART

South Africa, like other countries, has a mandate to rollout ART according to the WHO guidelines, although it is known to have the highest number of people living with HIV, globally (Avert Global information and education on HIV and AIDS, 2018). Generally, the WHO guides all national and international policymakers to adhere to its guidelines should a need be identified. At the onset of the HIV epidemic outbreak, the WHO programmes were designed and guidelines implemented, based on direct, as well as indirect results of a global research study in the field of HIV/AIDS. This is illustrated in Table 2.1. Subsequently, due to the continuous review of research results, there is a new Guideline for ART programmes (RSA, DoH, 2016). This was designed and declared by the Minister of Health in South Africa as the policy on immediate commencement of ART, which all the provinces should adhere to (RSA, DoH, 2016). The following was published on 1 September 2016, in the public sector: A*ll HIV-positive individuals ranging from children to adolescents and adults, regardless of CD4 count, can be offered ART treatment, with priority being given to those with CD4 ≤350. All patients*

https://etd.uwc.ac.za/

in the Pre-ART and Wellness Programme need to be considered for UTT. Preparedness and enthusiasm to switch to ART should be assessed, but those who are not ready after assessment will remain in the Wellness Programme. However, continuous counselling on the importance of early treatment and booking of CD4 monitoring as per SA clinical guidelines, shall continue at every visit. A prerequisite starting point and the monitoring of CD4 count must still to be done, as it is a crucial factor in determining the need to start opportunistic infection prophylaxis at CD4 ≤200, identify eligibility for CrAg at CD4 ≤100, prioritization at CD4 ≤350 and fast tracking at CD4 ≤200 (RSA, DoH, 2016).

Table 2.1: Standard eligibility criteria to start ART in South Africa (WHO, 2015)

Eligibility to start ART a) CD4 count<350 cells/mm3 irrespective of WHO clinical stage; OR b) WHO stage three or four irrespective of CD4 count.
To those requiring fast tracking ART needs to be initiated within seven days once eligible; as follows: a) HIV positive women who are pregnant and breastfeeding; b) Patients with low CD4 count i.e. <200; c) Patients with stage four irrespective of CD4 count; d) Patients with HIV comorbidity with CD4 count <50.
Patients with CD4 count above 350 but not yet eligible for ART a) Transfer to a wellness program for regular follow-up and repeat CD4 count every six months; b) Advise on how to avoid HIV transmission to sexual partners and children; c) Provide counselling on nutrition and contraceptive, together with annual pap smear.

Standard national eligibility criteria needed to be followed, to start patients on lifelong ART, according to (World Health Organization [WHO], 2015; Republic of South Africa [RSA], Department of Health [DoH], 2013). Although these guidelines are well established from the research outcome, there is still no clear strategy regarding dealing with depression, in relation to HIV/AIDS positive patients.

https://etd.uwc.ac.za/

2.11. Depression

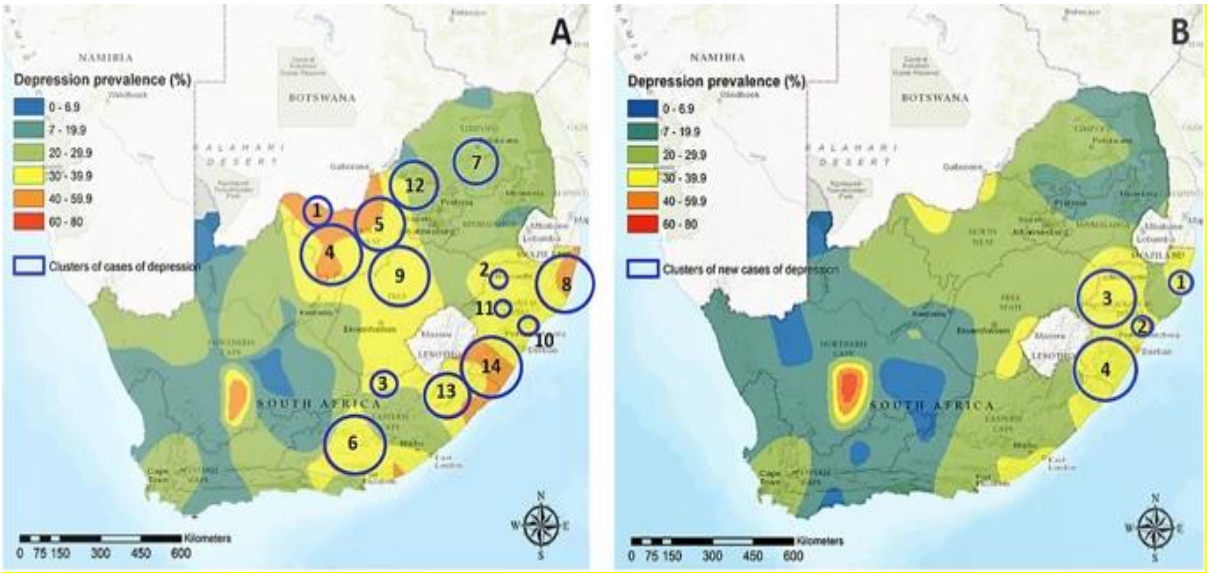


Figure 2.10: Prevalence of depression in South Africa (Avert, 2018)

2.11.1. Prevalence of depression among HIV positive individuals

Depression is regarded as the most common disabling medical condition that affects both HIV-positive and negative individuals, globally (WHO, 2000). WHO (2015) currently grades depression as the fourth most important disabling medical condition, which is predicted to be the second most common medical condition by 2020 (Akena et al, 2012). In addition, previous studies reveal that depression is the most common neuropsychiatric disturbance observed in HIV infected individuals, who are often underdiagnosed, and untreated in Primary Health Care settings (Jeffrey et al., 2001; Kumar, 2009; Waldrop-Valverde et al., 2010; Bangsberg, Senkungu, Ware, Emenyonu, & Weiser, 2010; Bhatia & Munjal, 2014). Approximately one-half to two-thirds of individuals with HIV-positive infection, suffer from depression (Myer et al., 2008; Bhatia & Munjal, 2014). In South Africa, the prevalence of anxiety and depression symptoms among ART clients is reported to be at 30.6% and 25.4%, respectively (Myer et al., 2008). In the USA, an estimation of 20-25% of individuals living with HIV/AIDS, suffered from depression and met significant diagnostic criteria of depression (Simoni et al., 2012).

2.11.2. Characteristics of depression in HIV positive individuals

Depression is mostly associated with a sad mood, sleep and appetite disturbances, low energy and social stigma (Myer et al., 2008; Uys & Middleton, 2014). In addition, it is

https://etd.uwc.ac.za/

associated with long-term physical discomfort, illness, stress, difficult life events, side effects of medications and effects of HIV on the brain, which may hasten the progress of the disease towards AIDS, and eventually death (Kumar, 2009; Bangsberg et al., 2010; Bhatia & Munjal, 2014). Given these characteristics, there are additional distinctive features associated with the prevalence of depression, which include challenges of coping with the diagnosis, the disease symptoms, bereavement, relationship crises, social rejection, co-existing poverty and the side effects of certain antiretroviral treatment (Abas, Ali, Nakimuli-Mpungu, & Chibanda, 2014). These characteristics could have a major impact on individuals with HIV/AIDS, and could become worse, should the individual be on ART (Kontomanolis, Michalopoulos, Kasdaris, & Fasoulakis, 2017).

2.11.3. Effects of depression on HIV positive individuals with ART

Depression is seen as a barrier to HIV/AIDS treatment, especially to those on ART. Previous studies confirm that an adherence of 95% and more is required, to prevent HIV/AID progression and premature death (Hoberg et al., 2008; O'Cleirigh & Safren, 2008). It is also confirmed that if an HIV-positive person is treated for depression, the likelihood of adherence to ART is more favourable, compared to those who are not treated (Kagee & Martin, 2010). The need for routine screening is encouraged by studies confirming that depression and anxiety disorders accelerate the progression of HIV disease (Myer et al., 2008; Kagee & Martin, 2010; Akena et al., 2012). Therefore, routine screening for depression in PHC settings is recommended for patients in South Africa.

2.11.4. Prevalence of depression in HIV positive individuals who are on ART

Depression in HIV-positive individuals is described as affective disorders and anxiety, which are intertwined in most cases, as the most common mental illnesses found (Starace et al, 2002; Collins, Holman, Freeman, & Patel, 2006). Depression is also graded as the second most prevalent psychiatric disorder among HIV-positive individuals on ART, following substance abuse (Johnson et al., 2013). Most of the time, once an individual is diagnosed with HIV, depression becomes a co-morbid condition (Simoni et al., 2012). The prevalence of depression in HIV-positive individuals vary between 12% and 66% but is misdiagnosed in approximately 50-60% of individuals (Silveira et al., 2012).

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Depression in people, who live with HIV, is often overlooked in sub-Saharan Africa, compared with Western countries, even though it is two to three times more prevalent in this population, compared to the general population (Bernard, 2017). Even in South Africa, with PHC service, diagnosis of about one- to two-thirds of patients, experiencing depression, is missed by physicians (Bhatia & Munjal, 2014). Consequently, methods are needed to curb these epidemic challenges concerning the individual living with HIV/AIDS, who is on ART.

2.12. Antiretroviral Treatment Adherence Club Model

The ART club reduces the burden that stable patients place on health care facilities, thereby, increasing clinical human resources for new patients, and those who are clinically unstable to an extent that, they are at risk to fail the treatment (Wilkinson, 2013). Western Cape Government Department of Health adopted the ART Adherence Club in January 2011. It was regarded as support and care, to stabilise groups of patients to their treatment (Flamig, Decroo, Van den Borne, & Van de Pas, 2019).

2.12.1. Objectives of ART Adherence Club (AC)

The ART AC was regarded as an instrument to support sites, or clinics, to establish stable adherence to ART for patients. However, the overall objective was to reduce the load on clinical services, while maintaining and sustaining the quality of patient care. Additionally, the AC maintained good long-term adherence in patients on ART, through shorter clinic visits, and appropriate adherence support (MacGregor, McKenzie, Jacobs, & Ullauri, 2018).

2.12.2. Group composition and procedure

Membership: The AC comprises a group of no more than 30 people, who are proven compliant to ART.

Timing: The AC meet as a group every second month, each meeting lasting from one hour to one-and-a-half hours. Each clinic decides on the appropriate time for the AC, considering patients' work schedules.

Process: At each visit, club members are assessed for weight and screened for any other symptoms, like TB symptoms, late onset ART side effects, or lipodystrophy, pregnancy, and any other relative symptoms. Should any of the above symptoms be identified, the patient be attended to for secondary intervention.

https://etd.uwc.ac.za/

Team: There should be a designated club manager in each clinic, who will oversee all the responsibilities and activities required to run a successful AC, preferably a nurse. Each club should be assigned to a club facilitator, either a counsellor, or peer educator. This person would be responsible for running the club sessions, conducting AC support/education group, conducting symptoms screening, as well as referring patients to the Club manager (MacGregor et al, 2018).

2.12.3. The eligibility criteria of ART AC

Patients would qualify to join the ART AC, if they are adults, have been in the same HAART regimen for at least 12 months (regimen 1 or 2). In addition, their most recent two consecutive viral loads should be undetectable (the most recent taken in the past six months); and they should have no current TB, or medical condition, requiring regular clinical consultations (MacGregor et al., 2018).

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

In this chapter, the researcher presents an overview of the vital areas that need to be considered, when conducting a study. The researcher outlines the type of research, the rationale for selecting the methodology of this current study, as well as the strategy. In addition, the researcher defines and describes the target population, sampling, research instrument, administration and collection of the questionnaire, data analysis, validity, reliability, and ethical considerations.

3.2. Study Design and Methodology

3.2.1. Study Design

A research design is the process of finding solutions to set objectives in a systematic way. An appropriate design to solve problems is a prerequisite for a true solution to that problem (William, 2011). In this current study, descriptive design is used to provide an accurate and valid representation of the variables on Beck Depression Inventory research questions (Beck, Steer, & Brown, 1996), as well as biography of the respondents. In summary, descriptive research design focuses on incidence, relation and correlation between the variables.

3.2.2. Study Methodology

Quantitative research methodology is the selected method for this current study. The quantitative research method involves the analysis of numerical data aimed at clarifying, counting and constructing a statistical model (Cormack, 2006; Creswell, 2014). Generally, a quantitative approach is a known method, which involves quantifying data, to generalise results from a sample of the selected population. Another significant factor for utilising the quantitative method is the use of *how,* regardless of its "length or its quantity or its degree," as with the participant's responses, valuable information can be

https://etd.uwc.ac.za/

obtained (MacDonald & Headlam, 1986; Cormack, 2006). Finally, this method keeps the researcher as objective as possible, using precise measurements and analyses. In contrast, descriptive designs mostly depend on observation as a means of data collection. The aim is to examine the concepts, in order to establish the norms that can be predicted to reoccur, under the same circumstances. It involves the use of interviews, questionnaires, audio, sound, visual and smell recordings (Cormack, 2006; William, 2011). In the design of this current study, people are interviewed using questionnaires. All aspects of this current study are carefully designed into a set of questions, which met study objectives before data collection. Additionally, the design was developed into a tool, referred to as self-administered questionnaires (BDI). Finally, the objectives of this current study seek to measure and analyse targeted concepts, as recommended from previous studies (McLaughlin & Marascuilo, 1990; Cormack, 2006).

3.3. Study Setting

Khayelitsha is the first township in South Africa to provide ART to HIV-positive individuals, at PHC level public health in 1991 (Médecins Sans Frontières, 2010). There are nine other PHC clinics in the district, namely, Simunye, Nolungile, Ubuntu, Kuyasa, Matthew Goniwe, Mayenzeke, Michael Mapongwana, Khayelistha Community Health Clinic.

(Republic of South Africa [RSA], Western Cape Department of Health [WCDoH], 2005). In 2004, ARTs were integrated into the provincial Health Care Service programme (Republic of South Africa [RSA], Department of Health [DoH], 2015b). The health infrastructure for the sub-district of Khayelitsha is managed by the Provincial Government of the Western Cape (PGWC). Almost one-third (thirty-one percent) of all adults with HIV, who are on ARTs in Cape Town's Metropolitan area, are treated in Khayelitsha (Médecins Sans Frontières, 2010). PHC Clinic is the main setting for this current study. Although this clinic offers other services, besides HIV and ARTs, this current study will only focus on a certain population, described below.

3.4. Inclusion and exclusion criteria

The survey included both males and females, eighteen years and older, HIV-positive individuals on ART, who had consented to participate in this current study. However, those excluded were individuals, who refused consent outright, were bereaved within the previous three months, had thyroid and physical problems, and individuals who had a history of

https://etd.uwc.ac.za/

psychiatry. The bereaved appeared to have mimicked the symptoms of depression, because of grieving for loved ones (Shear, Simon, & Keshaviah, 2011). The study considers both depression and chronic physical diseases, such as asthma, arthritis, cardiovascular disease, diabetes, as well as HIV/AIDS that significantly interferes with life functions, including work productivity, and the loss of social functioning (Detweiler-Bedell, Friedman, & Leventhal, 2008). Hypothyroidism could mimic depressed symptoms, such as fatigue, insomnia, mood swings, weight loss, among others (Dayan & Panicker, 2013). However, even though this criterion was used for the eligibility purposes, for this current study, a specific sampling method needed to be employed to ensure that the investigation covered the entire population.

3.5. The Sample

Random sampling was applied, to avoid selection error, from the sample frame of N=1440, which comprised forty-eight ART Adherence Clubs, with an average of about thirty individuals per club. In addition to the known individuals attending the ART Adherence Clubs, walk-in individuals were attended to, after managing the club members.

3.5.1. The Sample Size

The sample size was determined from the population of HIV-positive clients, who attended the clinic. The sample was selected, using a descriptive cross-section design, and the simple random selection of primary sampling units. This was based on the 2001 South African Census Enumeration Areas (EAs), as well as Post-traumatic stress disorder [PTSD] sampling (Myer et al., 2008; Mark, Grimsrud, Stein, Williams, & Myer, 2009), from which all the respondents' demographic backgrounds, as well as health characteristics were determined for this current study.

A prevalence of forty percent depression was expected, and a sample size ranging from one hundred and fifteen (eight percent error) to two hundred and eighty-two (four percent error). Fifteen clubs were randomly selected for a sample of one hundred and fifteen, and a proportional number from the other clubs were randomly selected, to reach, at least, two hundred and twenty-five. The researcher and the statistics coach discussed and agreed to utilise a forty percent range for a prevalence of depression in this current study, after reviewing various statistics in this regard.

https://etd.uwc.ac.za/

3.6. Materials and Methods

3.6.1. Selection of the study respondents

Of the three hundred and seventy-two (372) respondents recruited in this current study, one hundred and ten (110) respondents were excluded due to the study eligibility criteria (inclusion/exclusion). These respondents were recruited from the clinic in Khayelitsha, Cape Town. Some were attending the ART Adherence Clubs, while others were patients with independent appointments, or walk-in individuals. Therefore, of the 262 respondents, 52% had club membership, compared to 48%, who were only on ART.

3.6.2. Data collection tool

The Beck Depression Inventory was used in this study for data collection. The instrument comprises two sections. Section 1 involved the collection of biographical data, from which the age relationship with weighted cross tabulation methods, could be determined, to estimate prevalence. Section 2 comprised the Beck Depression Inventory (BDI), scaled in two languages, Xhosa and English, with a self-report depression scale for research, in the general population being used (Beck, Steer, & Brown, 1996). The twenty-one question BDI scale has four self-rating response options (0-3). The cut-off scores for BDI are from 0-10, and indicate the ups-and-downs, which are considered normal; 11-16 indicate mild-mood disturbance; 17-20 indicate borderline clinical depression; 21-30 indicates moderate depression; 31-40 indicates severe depression and an over 40 score indicates extreme depression (Beck, Steer, & Brown, 1996). The instrument was chosen for data collection, as it had been proven reliable, clinically and scientifically, when used with this population (Joe, Woolley, Brown, Ghahramanlou-Holloway, & Beck, 2008). Therefore, the reliability and the validity of the instrument was checked.

3.7. Reliability and Validity

The Beck Depression Inventory (BDI) instrument has been proven as an effective, validated tool to investigate a meta-analysis study, which utilises psychometric properties, and included psychiatric and non-psychiatric patients (Tavakol & Dennick, 2011). Previous studies revealed that in the South African context, BDI validity testing was conducted on a sample of Xhosa speaking respondents, including students and patients, and the Psychometric properties of the

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

translated scales were comparable with those of the original English version (Steele, 2008). These measurements of internal validity were high, as those validation studies conducted in the United States of America (USA) revealed good item-scale correlation, and the Cronbach's Alpha for the total scale was 0.90 (Steele & Edwards, 2014). The results indicated that BDI was a reliable measurement for the symptoms of depression among persons living with HIV. The BDI factors structure is a globally recognised standard component with HIV-positive patients receiving ARTs (Lippa, 2010). Consequently, the factor structure of South Africans with HIV, receiving ARTs, is the same as samples from elsewhere in the world (Kagee, Nel, & Saal, 2012). Additionally, the BDI's factor structure has been determined among South African respondents, living with HIV and receiving ARTs, which indicate average to moderate levels of depression (Lippa, 2010).

Based on the general American Psychological Association standard statistics, the internal consistency of BDI was 0.86 mean coefficient alpha in psychiatric patients and 0.81 to non-psychiatric subjects (Wang & Gorenstein, 2013). The validity of BDI, with respect to clinical ratings, was 0.72 for psychiatric patients and non-psychiatric subjects, with a mean correlation of 0.60 (Beck, Steer, & Margery, 1988).

In this current study, Cronbach's Alpha was used to assess the internal consistency of the questionnaire, made up of multiple Likert type scales and items. The expected Cronbach's Alpha score for the reliability of a questionnaire is a score greater than 0.7 (Santos, 1999; Barrow, 2004; Tavakol & Dennick, 2011). Ultimately, the Cronbach's Alpha coefficient for this current study was a 0.8 score, which indicates that the questionnaire was reliable. Upon completion of the validation of the BDI instrument, data were collected.

3.8. Data Collection Process

The process started after ethics clearance was obtained from the relevant Ethics Committee of UWC and permission to conduct the study at the Clinic was granted by the Department of Health, City of Cape Town (Appendix 6). Information sessions about the study were conducted with the Facility Manager of the Clinic, firstly, and subsequently with the other staff members, including ART adherent counsellors and nurses, working in the HIV department, to clarify expectations, as part of an informed consent. Information letters (Appendix 1) and consent letters (Appendix 2 & 3), which described the study, and clearly stipulated that participation was voluntary, were distributed. The staff members were involved as each Adherence Club

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

was allocated a staff member as leader, when it was formed. Consequently, numbers were allocated to each staff member, who was involved with the ACs, and these numbers were placed in a hat, and drawn, randomly, to select 16 clubs, from which the participants for this current study would be recruited. The same process of random sampling was used for the walk-in individuals.

The study participants also received the information about the study procedures; however, it was conveyed via two research assistants, in their private rooms. Five research assistants, Boneka Bhoyana, Buziwe Pono, Nandi, Alakhe and Ayabonga Mdledle, were used in this current study; however, only two were actively involved in the study, at any stage. They were all experienced research assistants/recruiters/HIV counselors, currently employed at Stellenbosch University, and who, previously, had worked as Community Health Intervention Care Providers [CHIPS] for four years. Subsequently, those who were interested in participating, after reading the information sheet (Appendix 1), signed the consent form (Appendix 2 & 3). On the day of recruitment and enrolment, the researcher first held an information session with the clinic staff, to explain the procedure during the recruitment period, as well as what was expected from their side.

The researcher and two research assistants were available on site to answer any questions, while the respondents completed the questionnaire (Appendix 4). However, the researcher was not directly involved during the completion of the questionnaire by respondents, only the trained research assistants. Evidently, assisting the respondents during the completion of the questionnaires was significant, as it ensured that they understood the questions correctly (Akena et al., 2012). It has also been proven that poor education and/or illiteracy are challenges encountered while completing the questionnaire correctly, and successfully (Myer et al., 2008). Therefore, it is highly recommended that, for any survey to be conducted successfully, assistance should be available.

As some of the questions could have been of a sensitive nature to the respondents, depending on their previous experiences, the research assistants were available to comfort the respondents, should the need arise, and should the problem persist, a professional nurse was available to counsel them, for further intervention. The completed questionnaires (Appendix 4) were sealed in an envelope, and locked up, until it was time for data analysis.

https://etd.uwc.ac.za/

3.9. Data Analysis process

Fisher's exact test was used to confirm that the educational level was consistently similar across gender, and age. Fisher's exact test is a statistical significance test, used in the analysis of contingency tables. Even though it is meant for analyzing small sample sizes of data, evidently, it is useful to any sample size (Dias et al., 2014; McDonald, 2014). Box-and-whisker plots were applied to measure upper quartile, lower quartile and median quartile, for the duration of HIV infection in enrolled respondents. The Mann-Whitney U test was applied to compare the duration of HIV infection in enrolled male and female respondents. The Mann-Whitney U test is described as a test used to compare differences between two independent groups, when the dependent group is either ordinal or continuous, but not normally distributed (GraphPad Software, 2017). The Spearman rank test was applied to measure a correlation between the duration of HIV infection and treatment. A Spearman rank correlation is a technique used to summarize the strength and direction of a relationship between two variables (Khan, Kunz, Kleijnen, & Antes, 2003). Finally, a heat map was applied to illustrate the indication and extent in which Beck Depression Inventory scores vary across age groups. A heat map is described as a graphical representation of data, in which individual values contained in a matrix are presented as colors (DeBoer, 2015). The results and interpretation of results follow the next chapter

UNIVERSITY of the
WESTERN CAPE

Ethical Considerations

The process started after ethics clearance was obtained from the relevant Ethics Committee of UWC. Information letters and consent letters, which described the study, and clearly stipulated that participation was voluntary, were distributed. The staff members were involved as each Adherence Club was allocated a staff member as leader, when it was formed. Consequently, numbers were allocated to each staff member, who was involved with the ACs, and these numbers were placed in a hat, and drawn, randomly, to select 16 clubs, from which the participants for this current study would be recruited. The same process of random sampling was used for the walk-in individuals. The researcher and two research assistants were available on site to answer any questions, while the respondents completed the questionnaire. However, the researcher was not directly involved during the completion of the questionnaire by respondents, only the trained research assistants. Evidently, assisting the respondents during the completion of the questionnaires was significant, as it ensured that they understood the questions correctly (Akena et al., 2012). It has also been proven that poor education and/or

https://etd.uwc.ac.za/

illiteracy are challenges encountered while completing the questionnaire correctly, and successfully (Myer et al., 2008).

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

CHAPTER FOUR

RESULTS

4.1. Respondent selection

Respondents for this study were recruited from the Clinic in Khayelitsha, Cape Town. Following informed consent from potential respondents, a self-administered questionnaire designed to answer the questions raised in this current study was used to collect data, pertinent to the project. The first section captured the respondents' demographic data, relevant HIV related variable, with three questions included, to verify that the respondents met the inclusion criteria of this current study, namely, (1) no history of psychiatric illness, (2) no history of chronic physical disease (including thyroid disorder), and (3) no experience of bereavement in the past three months. Three-hundred-and-seventy-two (372) respondents were screened for inclusion in this current study, and of these, 262 were selected for the analytical phase. One-hundred-and-ten (110) respondents were excluded, as they responded positively to one of the three study exclusion criteria, or a combination thereof. A breakdown of the selection process is illustrated in Figure 4.1.

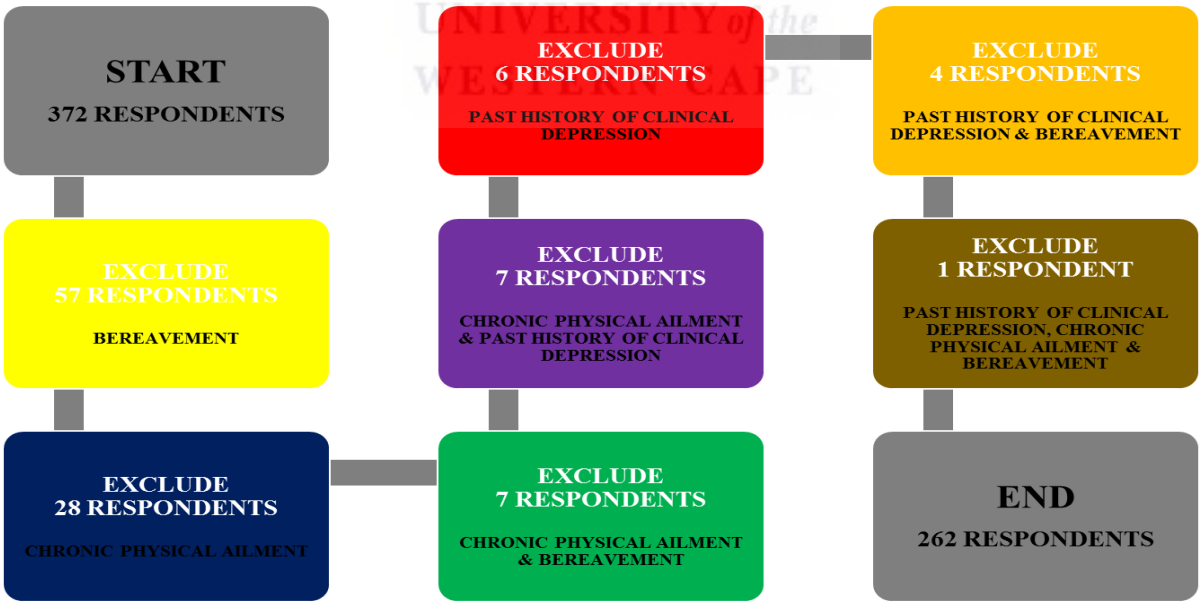


Figure 4.1: Respondents' selection process

One hundred and ten respondents were excluded to yield a final cohort of 262 respondents.

https://etd.uwc.ac.za/

4.2. Demographic characteristics of study respondents

To ensure that demographic factors did not influence the main outcomes of the study, descriptive statistical analysis was performed, using data collected for gender, age, and level of education, to understand underlying trends, patterns, and distribution. Race was not considered for this part of the analysis, as all respondents were identified as Black African.

4.2.1. Gender and age

The study consisted predominantly of female respondents (78.5%, n=206), of whom, three-quarter (59%, n=154) were in the 25-44 years age category (Figure 4.2.), reflective of the age-categorized prevalence nationwide. The men enrolled in the study were mostly older than their female counterparts, which translated into a disparity in HIV prevalence by sex, being more pronounced among young adults. The age category comprising the most female respondents was the 25–34 years (32.8%, n=86), while for their male counterparts the age category was the 35–44 years (9.2%, n=24). Only two respondents (0.8%, n=2) were 65 years or older.

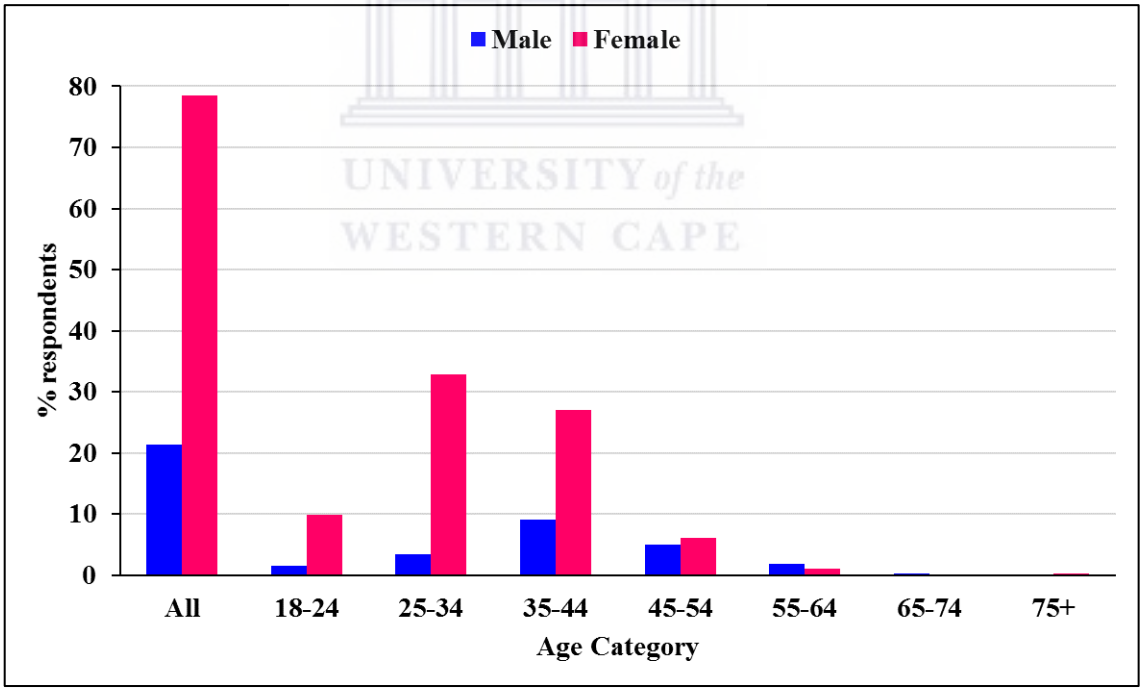


Figure 4.2: Gender and age distribution across study cohort

4.2.2. Education level across gender and age

The majority of the respondents (95.6 %, n=250) attained an educational level of at least Grade 9, as illustrated in Figure 4.3. The Fisher's exact test confirmed that educational

https://etd.uwc.ac.za/

level was consistently similar across gender and age, with no statistically significant differences (p=0.98 for gender, and p=0.91 for age).

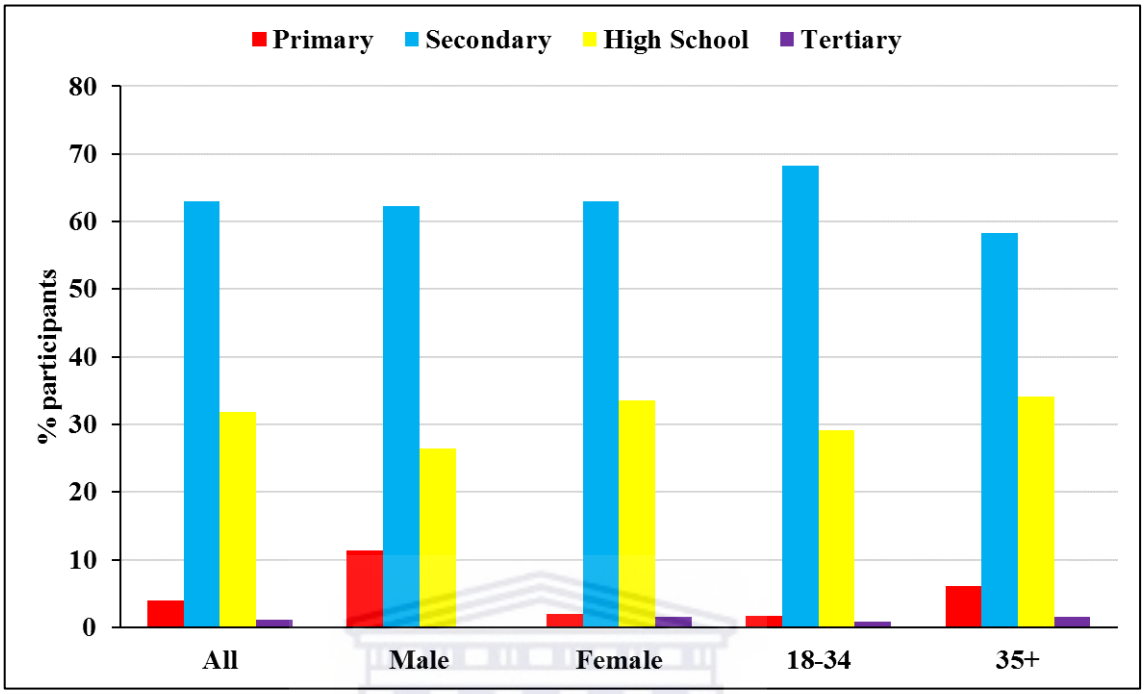


Figure 4.3: Distribution of education level attained across gender and age categories.

4.3. Duration of HIV infection and treatment

Biologically, both the length of HIV infection and duration of ART could potentially influence the cognitive capacity and general mental health of an HIV-infected individual (Velloza et al, 2017). Additionally, there are known differences for both variables across gender and age in many settings. Therefore, exploratory analysis was performed to investigate whether any discernible trends existed in this current study.

4.3.1. Duration of HIV infection

The overall median duration of infection across the cohort was 5.5 years. While a trend towards a higher median duration of infection (5.5 years) was observed in women (Figure 4.4), compared to their male counterparts (3.5 years), this, however, was not statistically significant at a 0.95 level of confidence (p=0.06). The cumulative duration of HIV infection in each group of individuals was depicted by box-and-whisker plots indicating the median (middle line), 25th (bottom line) and 75th percentiles (top line), and the range (whiskers) of the duration of the infection. Mann-Whitney U tests were applied to compare the duration in males and females.

https://etd.uwc.ac.za/

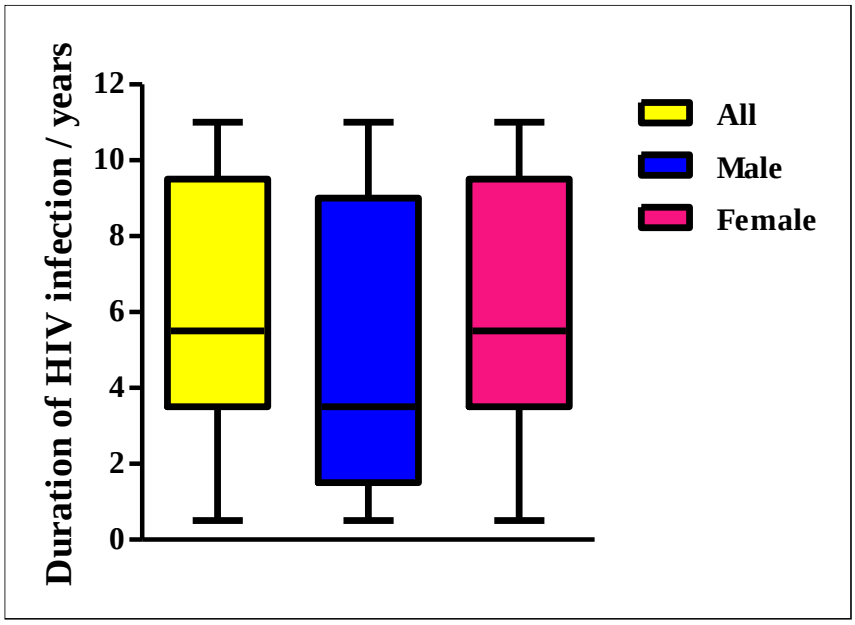


Figure 4.4: Duration of HIV infection in enrolled respondents

4.3.2. Duration of antiretroviral treatment

The overall median duration of treatment across the cohort was 3.5 years (Figure 4.5). There was no difference in duration of ART usage across gender (3.5 years).

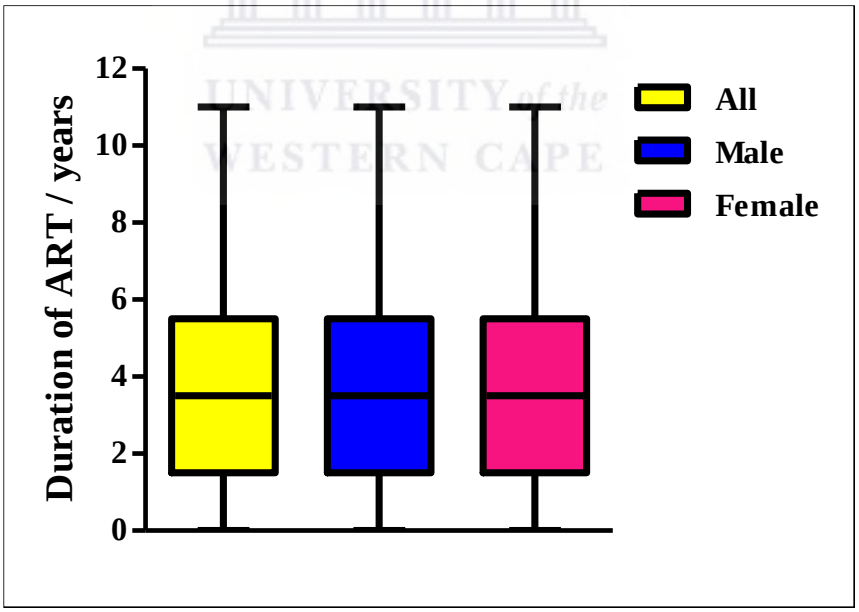


Figure 4.5: Duration of ART in enrolled respondents

The cumulative duration of ART in each group of individuals is depicted by box-and-whisker plots, indicating the median (middle line), 25th (bottom line) and 75th percentiles (top line), and the range (whiskers) of the duration of treatment. Mann-Whitney U tests were applied to compare duration in males and females.

https://etd.uwc.ac.za/

4.3.3. Association between duration of HIV infection and treatment

Matching duration of HIV infection and period of ART usage were correlated, using Spearman rank test. A significantly strong positive association (rho=0.61, p<0.0001; Figure 4.6) between duration of HIV infection and duration of ART could be indicative of respondents enrolled in this study, having initiated ART at a similar time in their HIV infection.

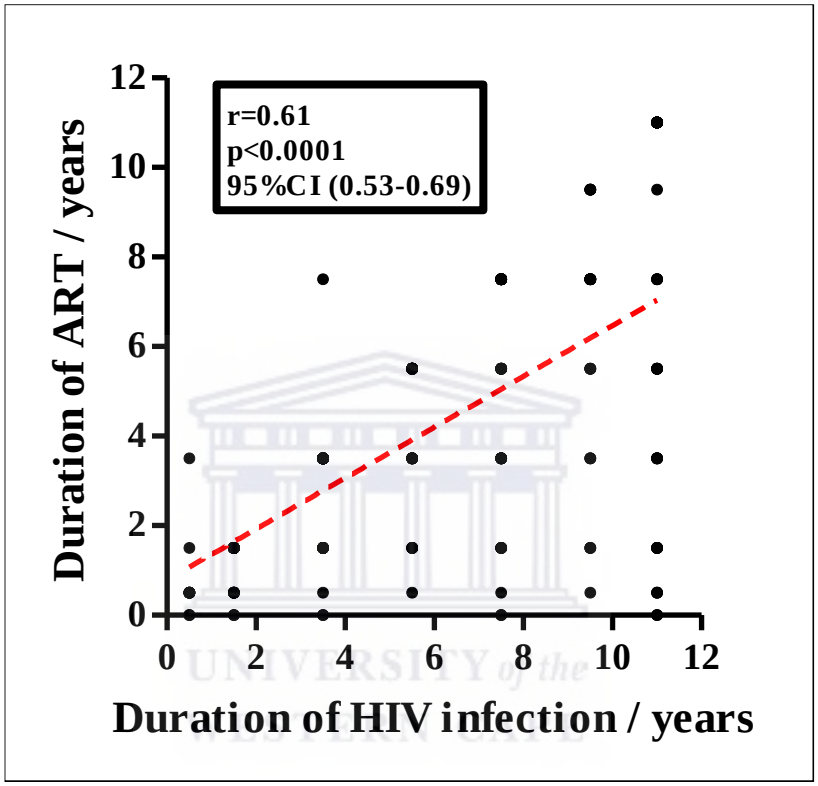


Figure 4.6: Association between length of HIV seropositivity and ART duration

Spearman rank correlation coefficient was applied to calculate the degree of association between the two variables. The steepness of the red dotted line (Figure 4.6) is indicative of a strong association, and the direction of the line infers a positive association.

4.4. ART club membership

The independent variable of interest in this current study was ART club membership. An almost similar proportion of respondents reported to be part of an ART club (52%), to those who did not (48%). Fisher's exact test confirmed that there were significantly more female respondents than males involved in ART clubs in this cohort (difference of 36% overall, p=0.016; Figure 4.7).

https://etd.uwc.ac.za/

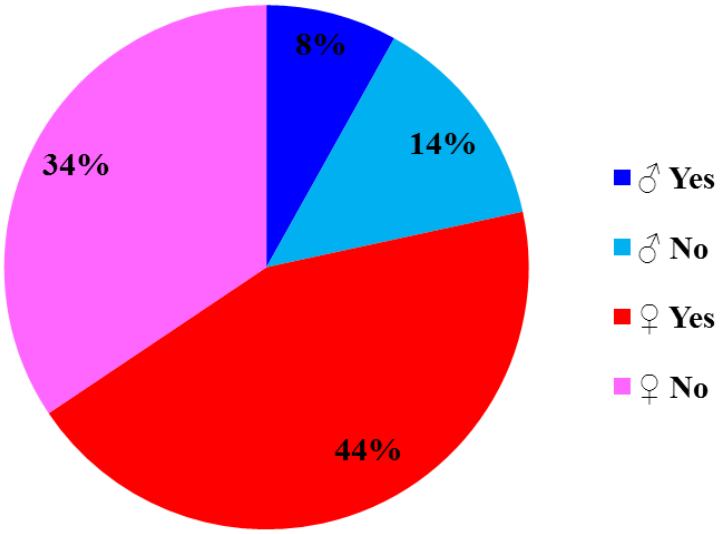


Figure 4.7: Breakdown of ART club membership across gender

The percentages for each group were calculated as a proportion of the total cohort. When stratified across gender, 56% of all women were involved in ACs, compared to 36% of all men.

4.5. Clinical depression

Clinical depression status represents the main outcome of interest in this current research project. The Beck Depression Inventory scoring was used to classify the psychological status of the enrolled respondents. This scoring system is outlined in Table 4.1 below, as well as the interpretation of the combined score for respondents. The score generated is the sum of the responses to the 21 questions, included to evaluate their clinical depression status. They had a choice of four responses for each question, translated to, and denoted by a quantitative value between, zero (0) and three (3), to allow for easier interpretation and data analysis.

Table 4.1: Beck Depression Inventory Index

Score	Clinical interpretation
0-10	These ups and downs are considered normal
11-16	Mild mood disturbances
17-20	Borderline clinical depression
21-30	Moderate Depression
31-40	Severe Depression
40<	Extreme Depression

https://etd.uwc.ac.za/

4.5.1. Impact of gender on Beck Depression Scoring

The model category was 0-10, indicative that a significant majority, 69.5% (n=182) of the total enrolled respondents were classified as healthy, in terms of clinical depression status (Figure 4.8). The Beck depression scores were consistent across gender.

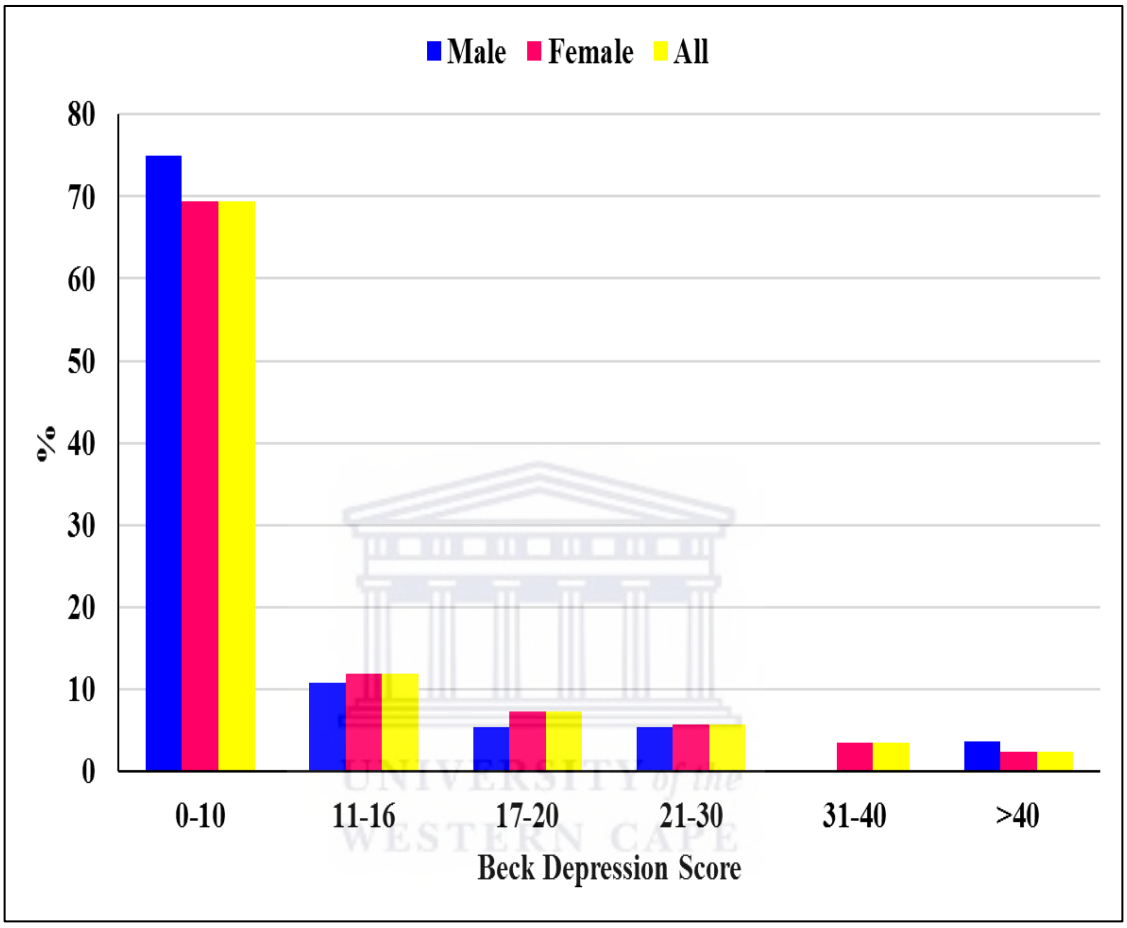


Figure 4.8: Impact of gender on Beck Depression Score

4.5.2. Impact of age on Beck Depression Scoring

The heat map (Figure 4.9) revealed that most of the respondents scored a healthy index across the Beck scale (0-10). Depression seemed to be more severe in the 35-44 age category. For the few respondents, aged 65 and above, all manifested a healthy score; however, the low number of respondents falling in the 55+ age group, implied that the interpretation of depression in this category, remains elusive in this current study. The heat map provides an indication of the disorder across age groups. The scale goes from

https://etd.uwc.ac.za/

blue (lowest prevalence) to yellow (highest prevalence), with intermediate prevalence taking different shades of green.

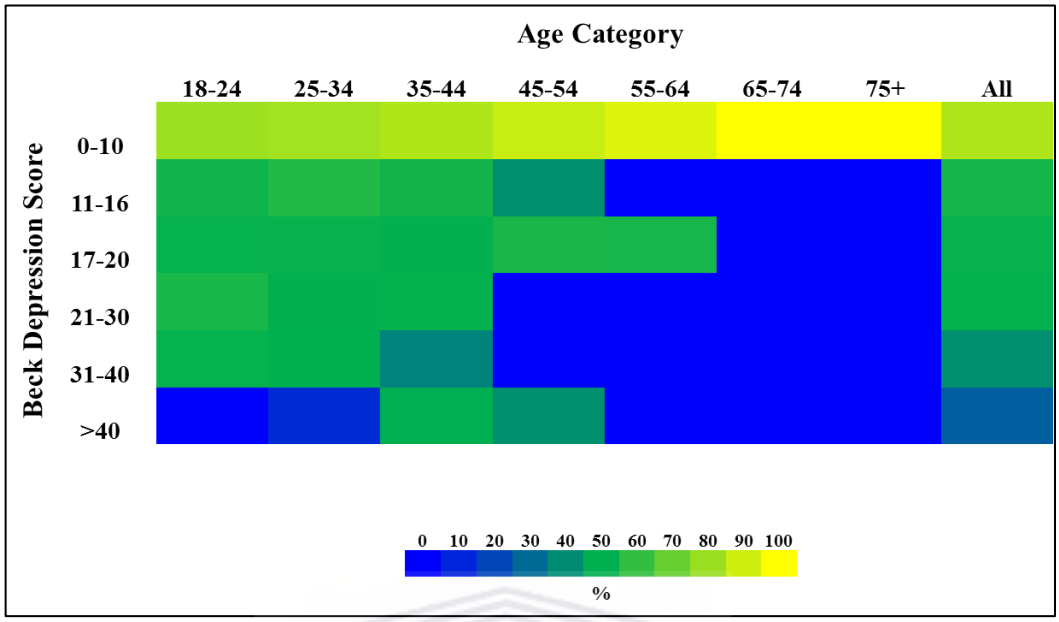


Figure 4.9: Impact of age on Beck Depression Score

4.5.3. Impact of ART club membership on Beck Depression Scoring

No significant differences in Beck Depression score were observed, when classifying respondents according to ART club membership. Regarding their depression status, Fisher's exact test confirmed the absence of any statistical difference between individual's adherent to a club, and those not belonging to one.

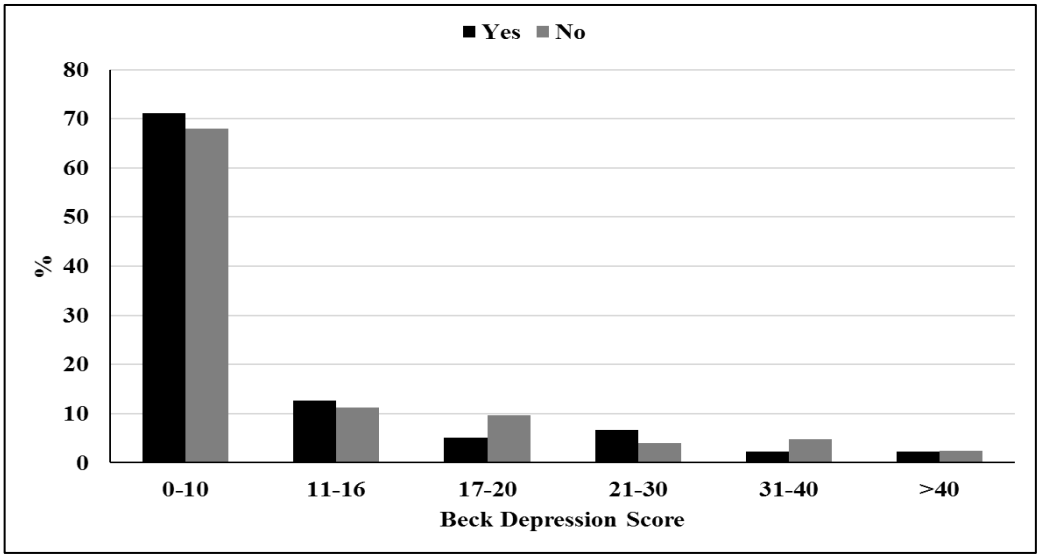


Figure 4.10: Impact of ART club membership on Beck Depression Score

https://etd.uwc.ac.za/

4.5.4. Association between duration of HIV infection on Beck Depression Index

No trend existed between the duration of HIV infection, and the psychological status of respondents. This was highlighted by a very low coefficient correlation of -0.02 (Figure 4.11.).

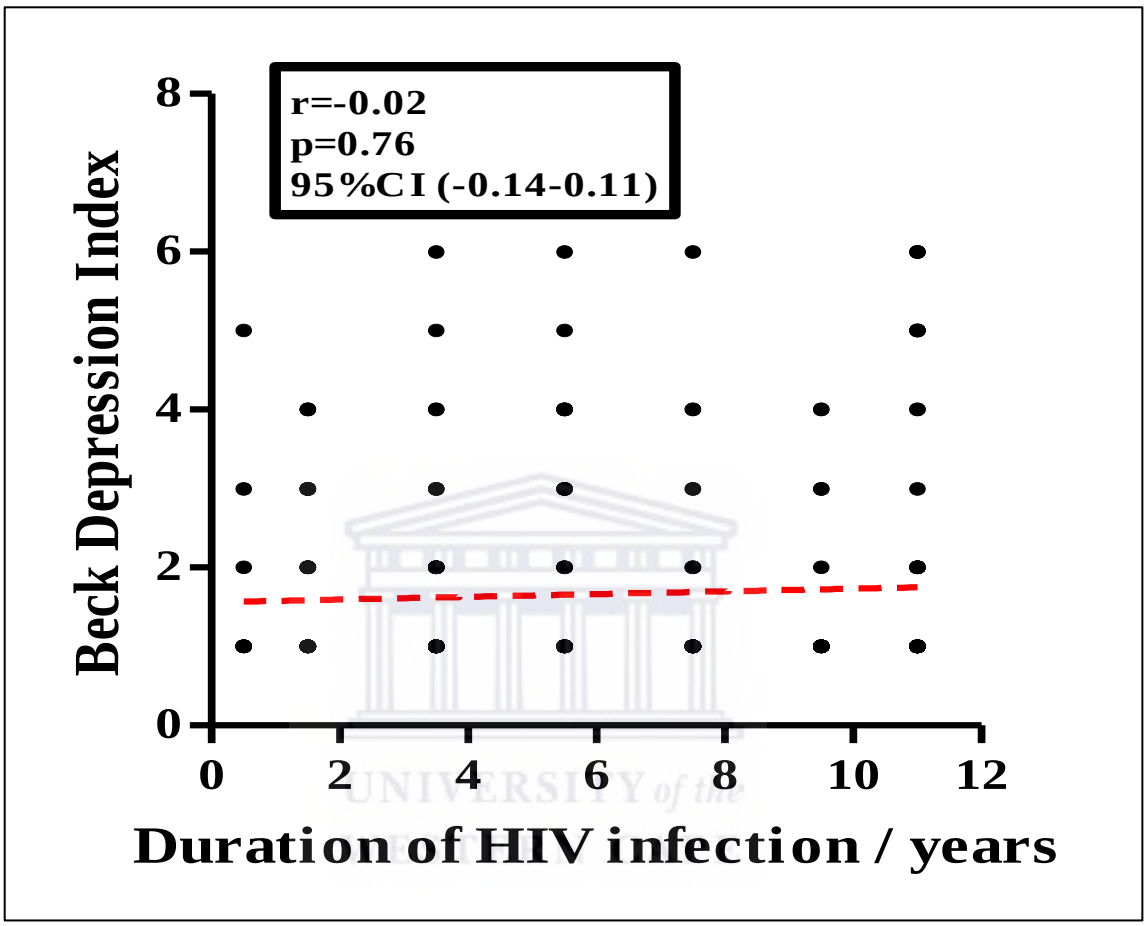


Figure 4.11: Association between length of HIV seropositivity and Beck Depression score.

Spearman rank correlation coefficient was applied to quantify the degree of association between the two variables. A flat line denotes the absence of any association.

4.5.5. Association between duration of ART duration on Beck Depression Index

No trend existed between the duration of HIV treatment, and the psychological status of respondents. This was highlighted by a very low coefficient correlation of 0. (Figure 4.12.).

https://etd.uwc.ac.za/

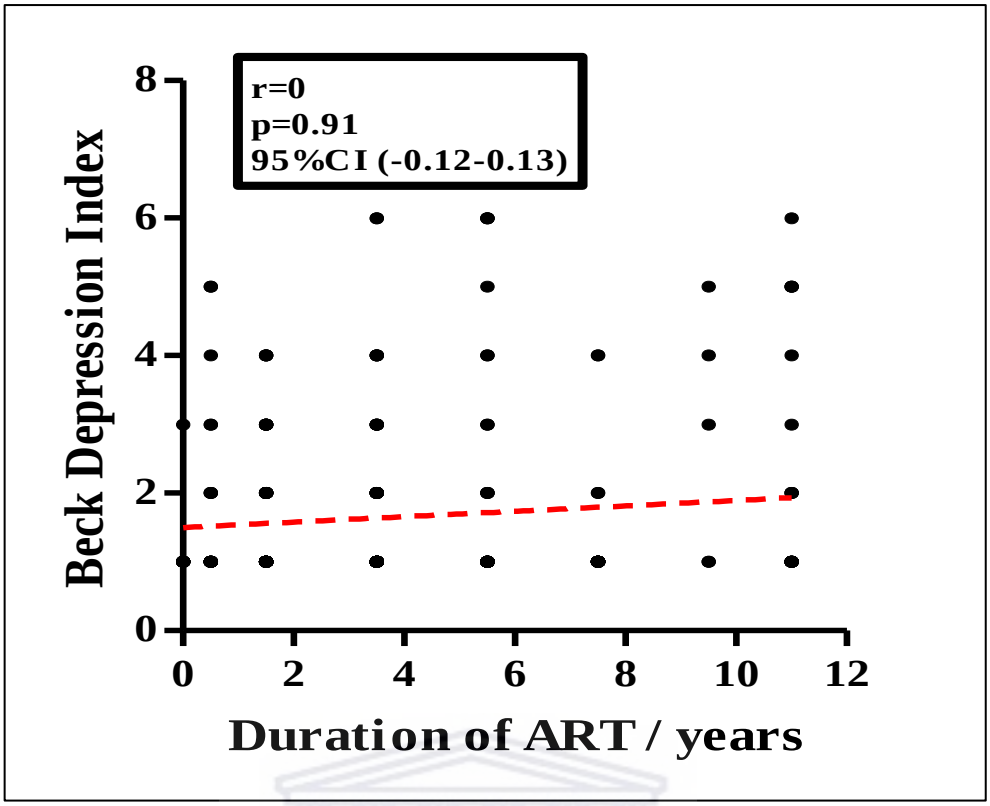


Figure 4.12: Association between length of HIV treatment and Beck Depression score

The Spearman rank correlation coefficient was applied to quantify the degree of association between the two variables. A flat line denotes the absence of any association.

UNIVERSITY of the
WESTERN CAPE

4.6. Prevalence of depression in HIV-positive individuals, who attend ART Adherence Clubs, and those who do not.

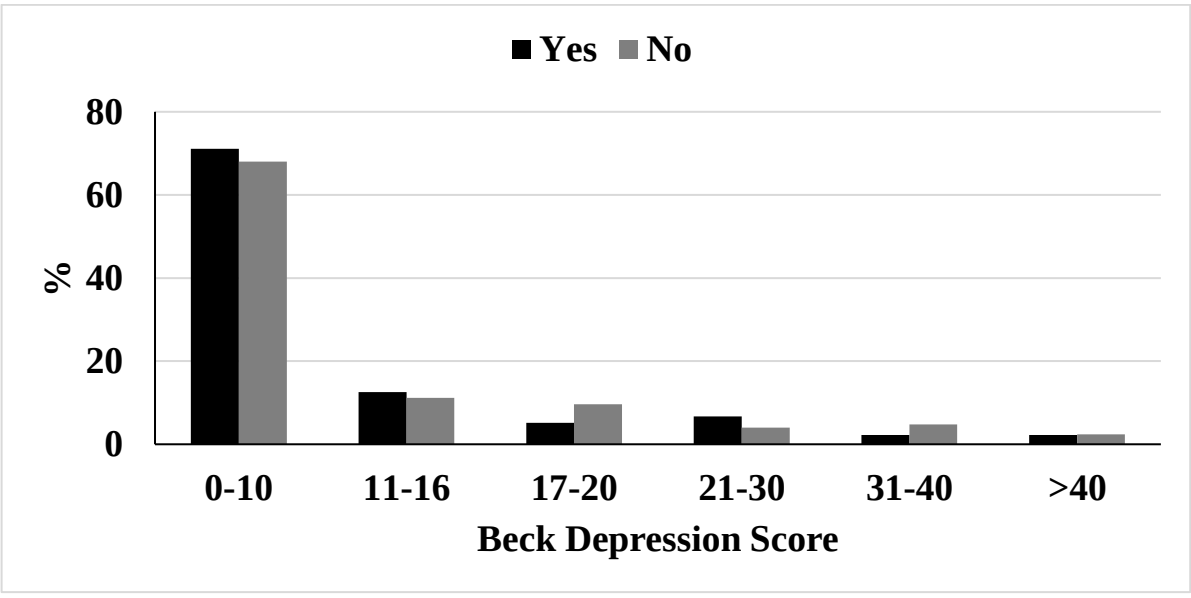


Figure 4.13: Impact of ART club membership on Beck Depression Score

https://etd.uwc.ac.za/

Epidemiologically, researchers randomly select the sample from the entire population they want to describe. Thereafter, a representative sample prevalence is computed in the following manner: *the number of individuals in the sample with the same characteristics of interest* is divided by *the total number of people in the sample* (Martinez-Mesa, Gonzalez-Chica, Duquia, Bonamigo, & Bastos, 2016). The percentage of clinical depression on each level of Beck Depression inventory score is illustrated in Figure 4.13. The Black blocks represent the percentage of people who are in ART Adherence clubs (Yes), and grey blocks represent the percentage of individuals who are not in clubs (No). According to the Beck Depression Inventory, a 17-20 score signifies *borderline clinical depression*, and the individuals in ART Adherence Clubs accounted for 5.2% of the total in the sub-group (n=6), while those individuals who were not in ART Adherence Clubs comprised 9.6% of the total (n=12). A Beck Depression Inventory score of 21-30 signifies *moderate depression* and individuals, who were in ART Adherence Clubs, accounted for 6.7% of the total (n=9), compared to 4% (n=5) who were not in ART Adherence Clubs. Additionally, a Beck Depression Inventory score of 31-40 indicates *severe depression*, with individuals in ART Adherence Clubs comprising 2.2% of the total (n=3), compared to 4.8% (n=6) of individuals who were not in ART Adherence Clubs. Ultimately, the Beck Depression Inventory score of >40 translates to *extreme depression*, with individuals in ART Adherence Clubs making up 2.2% of the total (n=3), compared to 2.4% (n=3) of those who were not in ART Adherence Clubs.

UNIVERSITY of the
WESTERN CAPE

In summary, the prevalence of depression in individuals involved in ART Adherence Clubs was 8.4% of the total sample, while individuals, who were not in ART adherence clubs, comprised 10% of the total sample. Therefore, 18.4% of the total sample were suffering from some form of depression, while the rest, 81.6%, were not be suffering from any form of depression. The next chapter focusses on the discussion of results.

https://etd.uwc.ac.za/

CHAPTER FIVE

DISCUSSION

5.1. Introduction

In this chapter, the researcher discusses the findings, based on the research methodology followed to achieve the main aim, and satisfy the three objectives for this current study. The aim of the study was to determine the prevalence of depression among HIV positive clients, receiving ART at the clinic in Khayelitsha, Cape Town. The purpose was to improve the understanding of the impact of depression among the HIV positive individuals, receiving ART, as well as possible ways of addressing this challenge in these clients.

Of the 372 individuals screened for this current study, a final subset of 262 were included for the analytical phase. One-hundred-and-telun (110) respondents were not included due to the established exclusion criteria, and/or a combination of factors. These included incomplete questionnaires, or any of the exclusion criteria, which formed part of the history of clinical depression, as well as bereavement, current physical ailments, and past psychiatric history.

UNIVERSITY of the
WESTERN CAPE

The gender and age of the study respondents were illustrated in Figure 4.2. The study predominantly included female respondents (78.5%, n=206), of whom three-quarter (59%, n=154) were in the 25-44 years age category (Figure 4.2), reflective of the age-categorized prevalence nationwide. The men who participated in this current study were generally older than their female counterparts, which translated into a disparity in HIV prevalence by sex, being more pronounced among young adults. The age category comprising the most female respondents was the 25-34 years (32.8%, n=86), while for their male counterparts, it was the 35-44 years category (9.2%, n=24). Only two respondents (0.8%, n=2) were 65 years or older.

Females were more dominant, as the clinic had approximately 48 ART Adherence Clubs, of which 45 were for females only, while the males conducted three clubs. The female ART Adherence Clubs had a limited number of 30 per club; however, the males had no limited number.

https://etd.uwc.ac.za/

The majority (95.6 %) of respondents in the current study attained an educational level of at least Grade 9. Therefore, the educational level was consistently similar across gender and age, with no statistical differences (p=0.98 for gender, and p=0.91 for age). Similarly, a research study with subjects self-identifying as African/Black individuals, across several regions in South Africa, for the Spatial Structure of depression study, the majority of respondents (93.3%) had completed, at least, a high school equivalent level of education (Cuadros, Tomita, Vandormael, Slotow, Burns, & Tanser, 2019). Additionally, literature suggests that, people with higher level of education, are less likely to report episodes of depression (Peyrot, Lee, & Penninx, 2015). Women are more likely to suffer from depression than their male counterparts are, and interestingly, women in Southern Africa, as well as Africa, experience more restricted access to education, attaining a lower level at exit, and facing significantly more hurdles to achieve a desired qualification (Normandeau, 2018). It is an established fact that lower educational attainment is linked to increased risk of developing depression (Peyrot, Lee, & Penninx, 2015). Very few respondents had any form of tertiary education in this current study.

The association between the duration of HIV infection and treatment duration was a strong and positive one, indicative that the respondents in this current study had initiated ART at a corresponding point in time, as their HIV infection. This observation, relevant to this current study, was made because most of the respondents were aware of their HIV seropositivity well before the change in treatment guidelines, and had to go through comparable channels, as well as await a similar time to initiate treatment for HIV. The WHO initiative policies to curb the HIV pandemic, which included the ART rollout to meet the 90-90-90 target, and the Universal Test and Treat policy implemented in 2016, initiated a drastic decline in the waiting time for initiation of treatment, once HIV seropositivity had been confirmed (UNAIDS, 2017c).

Few studies have reported that a significantly high prevalence of depression among people living with HIV/AIDS (PLWHA) exists, compared to their HIV negative counterparts (Algoodkar, Kidangazhiathmana, Rejani, & Shaji, 2017). Recently, more emphasis had been place on the prevalence of depression on individuals, who were HIV positive and on ART. These individuals are believed to be more vulnerable to psychological and/or psychiatric morbidities (Algoodkar et al., 2017), which could occur at rates of two to four times higher in HIV positive individuals (Duko, Geja, Zewude, & Mekonen, 2018a). Evidence revealed that, stress related psychiatric disorders very often remain undetected and untreated in HIV health care setting (Petersen & Lund, 2011). Based on this evidence, an approximately 10% to 40%

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

range on the prevalence of depression was reported in a study, conducted in India, with HIV seropositive individuals (Algoodkar et al., 2017).

5.2. Depression in HIV infected individuals on therapy

An experienced psychiatric nurse and trained research assistants carried out the research in an identified and selected clinic in Makhaza, Khayelitsha, Cape Town. The respondents of this current study had been HIV seropositive for varying durations; most had initiated ART at similar points in time after their infection, and had differing lengths of adherence with some form of ART AC. In this current study, the prevalence of depression in HIV positive individuals, who are on ART and receiving treatment at the Clinic in Makaza Khayelitsha, Cape Town, was revealed as clinically significant depressive symptoms of 30.1%. These results concur with the results of similar studies conducted in Brazil and India, 30% and 32% respectively, using a similar instrument, the Beck Depression Inventory (Wang & Gorenstein, 2013; Ferrari et al., 2013). Although the cutoff Beck Depression score was >10 for this current study, compared to the Brazil and Indian Cutoff Beck Depression Inventory scores of >12, there was not much discrepancy (Algoodkar et al., 2017).

In a study, conducted in a South African context, on anxiety, as well as depression, the results were 30.6% and 25.4%, respectively (Pappin et al., 2014). Similar studies were conducted, nationally and internationally, with a similar type of study population; however, evaluated by different instruments, yet revealing similar prevalence to what was reported in this current study. Studies conducted in Ghana, Nigeria, United States of America (USA), Canada and Western Europe reported similar ranges (30%-36%), while other investigations from China and Cameroon reported a higher prevalence range (45%-63%) (Campos, Guimaraes, & Remien, 2011; L'akoa, Noubiap, Fang, Ntone, & Kuaban, 2013; Eshetu et al., 2014; Tesfaw et al., 2016; Duko, Toma, Asnake, & Abraham, 2018b). The model age group, regarding clinically depressive symptoms, was the 35-44 years age category. The respondents of the 55+ years' age category represented a subset with no statistical difference, to allow any rigorous inferences made, regarding end-points of interest.

The female gender, particularly, appeared to be more associated with depression (10.4%) compared to their counterparts. Similar results were reported in India, where being of the female gender, was identified as a known risk factor for depression, as well as in the general

https://etd.uwc.ac.za/

population, regardless of the HIV-positive status (Bhatia & Munjal, 2014). It is evident that in an individual's culture, gender and dominance of somatic symptoms could hinder the detection of depression, especially when using a self-reported screening tool (Slaven & Cameron, 2017).

5.3. Impact of ART Club membership on depression

According to the ART Adherence Club guidelines, in order for patients to be enrolled in ART ACs, they should be older than eighteen years of age, with a viral load that is undetectable. In addition, they should have been on the same ART regimen for, at least, six months, with no current tuberculosis and clinic referrals, and should have signed an agreement to join the ART AC system (RSA, DoH, 2016). In this current study, regarding their depression status, Fisher's exact test confirmed no statistical difference between the respondents, who were enrolled in a club, and those who were not. A figure of 16.3% was attributed to respondents who were enrolled in ART Adherence Clubs, compared to 20.8% for those who were not. However, these results highlight some purposes of ART Adherence Club membership, to both the health care facility, as well as directly to the individuals who are enrolled in ART ACs. It allows the facility increased capacity to manage unstable patients on ART, effectively, as well as limit the opportunities of loss, to follow-up individuals. In addition, the patients enrolled in ART ACs feel more centred towards their disease progress, or in control, being able to discuss the uncertainties and challenges of their treatment with their peers, which results in increased compliance to ART (Flamig et al., 2019).

Some studies reveal that the diagnosis of HIV-positivity is one of the factors that could lead to depression, compounded by the enrolment in ART, which is also perceived to be a factor that could double the chances of developing clinically depressive symptoms, especially by virtue of ART regimen side effects (Algoodkar et al., 2017). Regarding the respondents, who were not enrolled in ART ACs, it could be that they did not comply (defaulted) to treatment for at least six consecutive months, had leaped between ART regimens, or had just started ART, and did not qualify to be enrolled in ART ACs. Therefore, since ART side effects could cause clinically depressive symptoms, especially if an individual is unstable on treatment, this group appears to have a 3.7% greater chance of developing clinically depressive symptoms, compared to their counterparts. These respondents collect their ART parcels from the clinic on monthly basis, and must wait in long queues every time they visit the clinic, which could be more stressful for them.

https://etd.uwc.ac.za/

These respondents are unlike those who are enrolled in ART ACs, and merely visit the clinic every third month to collect their ART parcels. Their visits only last an hour or less, as their packages are pre-packed before their arrival. As soon as they visit the clinic, they receive counselling, and are checked for any challenges they might have experienced. If nothing detrimental to their wellbeing is reported, they leave the clinic immediately after receiving their ART parcel (Hanrahan et al., 2019). This benefit eliminates stress for the patient, as well as the clinic staff.

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

CHAPTER SIX

CONCLUSION

Currently, there are approximately 36.7 million people living with HIV infection (Avert Global information and education on HIV and AIDS, 2018). Depression is currently described as the fourth leading cause of disability worldwide and anticipated to become the second leading cause of disability by 2020, with a lifetime prevalence estimated to be about 3 to 17% (Gebrezgiabher et al., 2019). The inconsistency of this current study's results, compared to other study findings, as discussed above, may be the influence of several factors, including the study population, the study periods, the difference on depression diagnostic instrument, as well as the size of the study sample. In spite of the ART effectiveness in maintaining patients' aviremic, a high prevalence rate of depression was still identified.

In this current study, there was no significant difference between the duration of HIV infection on respondents, and their response to depressive symptoms. Consequently, this finding challenges the Universal Test and Treat (UTT) policy, implemented in 2016, which states that, regardless of the CD4 cell count, immediately after an HIV-positive test result, the individual should commence treatment after few investigational lab tests (RSA, DoH, 2016). Additionally, the overall median duration of infection across the study was 5.5 years. A trend towards a higher median duration of infection (5.5 years) was observed in women, compared to their male counterparts (3.5 years); however, this was not statistically significant (p=0.06). In addition, the overall median duration of treatment across the cohort was 3.5 years, and there was no difference in the duration of ART usage across gender (3.5 years). In summary, a few studies recommend that HIV-positive patients, who are on ART, need to be screened for clinical depressive symptoms, each time they visit the clinic for their treatment (Schumacher et al., 2013; Wagner, Slaughter, & Ghosh-Dastidar, 2017).

6.1. Limitations

Some factors, such as checking up on the non-club adherence of defaulted respondents, were not included. The self-report questionnaire also affected the size of the study sample, as illustrated in Figure 4.1. Of the 372 who consented to participate in this current study, only 262

https://etd.uwc.ac.za/

ultimately participated. Because of incomplete questionnaires, one-hundred-and-ten (110) had to be excluded.

Another limitation, was not including a provision that, should any respondent experience clinically depressive symptoms, while answering the questionnaire, they would be referred for further investigation and treatment, immediately. Some respondents could not complete the questionnaire, as they were too emotional and tearful. They requested to stop completing the questionnaire, which they were allowed to do, as they had been advised by the researcher that they could withdraw at any stage of the research process, without penalty. Counselling was offered, although many were not keen to respond; not answering any questions or disclosing what was bothering them.

6.2. Recommendations

The impact of mental health problems to HIV-positive patients, especially depression and/or anxiety, is often underestimated, and exacerbated in resource-constrained settings. This may be due to the limited number of practitioners, who specialise in mental health care nursing (advance nursing diploma/degree), or the poor awareness among HIV-positive patients to disclose other well-being challenges, experienced while attending their schedule appointments with nurses to receive their ART packages (Ian et al., 2015; Charlsone, Baxter, Cheng, Shidhaye, & Whiteford, 2016).

UNIVERSITY of the
WESTERN CAPE

Therefore, it is recommended that the Department of Health in South Africa, create guidelines to screen and treat for depression, everyone commencing ART at Primary Health Care settings, followed by quarterly screening. In addition, the department must ensure a complement of friendly staff members, as there is a challenge with under-staffing in the health clinical settings. Ultimately, there is a strong need for the deployment of advanced psychiatric nurses in all the clinics that dispense ART to patients. Please note, the combination of the current study limitations and recommendations form the gap that need to be bridged by forthcoming studies in the same field of interest.

https://etd.uwc.ac.za/

REFERENCES

Abas, M., Ali, G. C., Nakimuli-Mpungu, E., & Chibanda, D. (2014). Depression in people living with HIV in Sub-Saharan Africa: Time to Act. *Journal of Tropical Medicine and International Health, 19*(12), 1392–1396. https://doi.org/10.1111/tmi.12382

Akena, D., Joska, J., Obuku, E. A., Amos, T., Musisi, S., & Stein, D. J. (2012a). Comparing the accuracy of brief versus long depression screening instrument which have been validated in low and middle income countries: A systematic Review. *BMC Psychiatry Journal, 12*, 187. https://doi.org/10.1186/1471 -244X-12-187

Algoodkar, S., Kidangazhiathmana, A., Rejani, P. P., & Shaji, K.S. (2017). Prevalence and Factors associated with Depression among Clinically stable People Living with HIV/AIDS on Antiretroviral Therapy. *Indian Journal of Psychological Medicine, 39*(6), 789–793. https://doi.org/10.4103/OJPSYM_364_17

Artz, L. (2018). *The prevalence of violence against women and children: What the data tells us about law and policy reform.* Faculty of Health Science. University of Cape Town. Retrieved from https://www.westerncape.gov.za/ assets/day_2_session_2_gbv_lillian_ artz.pdf

Audet, C. M., Burlison, J., & Moon, A. L. (2010). International Health and Human Rights: Social and Epidemiological Aspects of HIV/AIDS in Mozambique. *BMC Int Health Hum Rights Journal, 10*(10), 15. https://doi.org/10.1186/1472-698X-10-15

Audet, C. M., & Moon, T. D. (2018). Depression among female heads-of-household in rural Mozambique: A cross-sectional population-based survey. *Journal of Affective Disorders, 227*, 48–55. https://doi.org/10.1016/j.jad.2017.10.022.Epub 2017 Oct 12

Avert Global information and education on HIV and AIDS. (2018). *HIV and AIDS in South Africa.* Retrieved from https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/south-africa.

https://etd.uwc.ac.za/

Babbie, E. R., & Mouton, J. (2016). *The practice of social research* (14th ed.). Boston, MA., USA: Cengage Learning. ISBN: 1-305-44556-2.

Bangsberg, D. R., Senkungu, J., Ware, N. C., Emenyonu, N., & Weiser, S. D. (2010). Transportation costs impede sustained adherence and access to HAART in a n South-western Uganda: A Quality study. *AIDS and Behavior Journal, Springer Publishers, 14*(4), 778–784. https://doi.org/10.1007/s10461-009-9533-2

Barrow, G. M. (2004). *An analytic approach in identifying a latent structure to determine scoring criteria for a clinical diagnosis of traumatic grief* (Unpublished master's thesis). University of Pittsburgh, PA., USA. Retrieved from https://pdfs.semanticscholar.org/f67a/adae02430015aaf81af262e0ee2aa5e0a421.pdf?_ga=2.53267052.590116198.1575651841-2037190265.1575651841

Bauman, S. E. (2015). *Psychiatry and Primary Health Care: A practical guide for health care workers in Southern Africa.* Cape Town, Western Cape, South Africa: Juta.

Beard, J., Feeley, F., & Rosen, S. (2009). Economic and quality of life outcomes of antiretroviral therapy for HIV/AIDS in developing countries: A systematic literature review. *AIDS Care*, *21*(11), 1343–1356.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II.* San Antonio, TX., USA: Psychological Corporation. Retrieved from https://www.nctsn.org/ measures/beck-depression-inventory-second-edition.

Beck, A. T., Steer, R. A., & Margery, G. C. (1988). Psychometric Properties of the Beck Depression Inventory: 25 years of evaluation. *Clinical Psychology Review Journal, 8* (1), 77–100. https://doi.org/ 10.1016/0272-7352 (88) 90050-5

Belmaker, R. H., & Agam, G. (2008). Major Depressive Orders. *The new England Journal of medicine, 358*(1), 55–68. https://doi.org/10.1056/NEJMra073096

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Beringer, L. H., Sieving, R. E., Ferguson, J., & Sharma, V. (2007b). Global perspective on the sexual and productive health of adolescents, patterns, prevention and potential. *The Lancet, 369*(9568), 1220–1231. https://doi.org/10.1016/S0140-6736 (07)60367-5

Bernard, C. (2017). Prevalence and factors associated with depression in people living with HIV in sub-Saharan Africa: A systematic review and meta-analysis. *PMC journal, 12*(8), e0181960. https://doi.org/10.1371/journal.pone. 0181690

Bhatia, M. S., & Munjal, S. (2014). Prevalence of depression in people living with HIV/AIDS Undergoing ART and Factors Associated with it. *Journal of Clinical and Diagnostic Research, 8*(10), WC01–WC04. https://doi.org/10.7860/JCDR/2014/7725.4927

Brown, M. M. (2000, January 11). United Nations Development Programme. *The New York Times*, Pages 3-4. Retrieved from http://hdr.undp.org/sites/default/files/reports/261/hdr_2000_en.pdf

Brundtland, G. H. (2001). Mental Health: New understanding, New Hope. *JAMA Nove 21, 286*(19), 2391. https://doi.org/10.1001/jama.286.19.2391

Burgoyne, R. W., & Tan, D. H. S. (2008). Prolongation and Quality of life for HIV-infected adults treated with highly active antiretroviral therapy (HAART): a balancing act. *Journal of antimicrobial chemotherapy, 61*(3), 469–473.

Campos, L. N., Guimaraes, M. C., & Remien, R. H. (2011). Anxiety and depression symptoms as risk factors for nonadherence to antiretroviral therapy in Brazil. *AIDS Behav, 14*(2), 289–299. https://doi.org/10.1007/s10461-008-9435-8

Canadian Nurses Association. (2000). *Fact sheet: The Primary Health Care Approach. Canada's Health System.* Retrieved form https://www.cna-aiic.ca/-/media/cna/page-content/pdf-en/fs02_primary_ health_care_approach_june_2000_e.pdf?la=en&hash=C31F23CD20366955F267C04D737B32163F7D5623

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Cash, R. A., Keusch, G., & Lamstein, J. (1987). *Child Health and Survival: The UNICEFGOBI-FFF Program.* The Amazon books. Retrieved from http://unfao.koha-ptfs.eu/cgi-bin/koha/opac-search.pl?q =an:167590

Centers for Disease Control and Prevention (CDC). (2017). *HIV/AIDS care and treatment. Anti retroviral treatment and services: Prolonging and improving the quality of lives.* Pretoria, Gauteng, South Africa: Global Health South Africa. Retrieved from https://www.cdc.gov/globalhealth/countries/southafrica/what/hiv_aids_treatment.htm

Center for Health Systems Research and Development [CSHR&D], Department of Health [DoH], & Centers for Disease Control and Prevention [CDC]. (2012). *PHC delivery in the Khayelitsha Urban Renewal Site, Western Cape: Mapping gaps in the IMCI, Women's Health, TB, STI, HIV/AIDS and EDL programmes.* Retrieved from https://www.ufs.ac.za/docs/librariesprovider20/centre-for-health-systems-research-development-documents/documents/mapping-selected-phc-services-in-khayelitsha.pdf?sfvrsn=2

Centre for the study of violence and reconcillation [CSVR]. (2016). *Gender-based violence (GBV) in South Africa: A brief review*. Embassy of Finland. Pretoria. Retrieved from http://www.csvr.org.za /pdf/Gender%20Based%20Violence%20in%20South%20Africa%20-%20A%20Brief% 20Review.pdf

Charlsone, F. J., Baxter, A. J., Cheng, H. G., Shidhaye, R., & Whiteford, H. A. (2016). The burden of mental, neurological and substance use disorders in China and India: a systematic analysis of community representative epidemiological studies. *Lancet, 388*(10042), 376–389. https://doi.org/10.1016/S0140-6736(16)30590-6

Collins, P. Y., Holman, A. R., Freeman, M., & Patel, V. (2006). What is the relevance of mental health to HIV/AIDS care and treatment programs in developing countries? A systematic review. *PMC Journal, 20*(12), 1571–1582. https://doi.org/10.1097/01.aids. 0000238402. 70379.d4

Cormack, D. (2006). *The Research Process in Nursing*. Maldern, MA., USA: Blackwell Science.

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Creswell, J. W. (2014). *Research Design: International Student Edition. Qualitative, Quantitative and Mixed Methods Approaches.* Nebraska, USA: SAGE.

Cuadros, D. F., Tomita, A., Vandormael, A., Slotow, R., Burns, J. K., & Tanser, F. (2019). Spatial structure of depression in South Africa: A longitudinal panel survey of a nationality representative sample of households. *Scientific Reports, 9*, 979. https://doi.org/10.1038/ s41598-018-37791-1

Cueto, M. (2004). The origins of Primary Health Care and Selective Primary Health Care. *Am J Public Health, 22*(94), 1864–1874. https://doi.org/10.2105/ajph.94.11.1864

Dayan, C. M., & Panicker, V. (2013). Hypothyroidism and Depression. *Europian Thyroid Journal. Title, 2*(3), 168–179. https://doi.org/10.1159/000353777

DeBoer, M. (2015). Understanding the Heat Map. *Cartographic Perspectives Journal, 80*, 39–43. https://doi.org/10.14714/CP80.1314

Detweiler-Bedell, J. B., Friedman, M. A., & Laventhal, E. A. (2008). Integrating co-morbid depression and chronic physical disease management: Identifying and resolving failures in self-regulation. *Clinical Psychology Review*, 28(8), 1426–1446. https://doi.org/10.1016/j.cpr.2008. 09.002

Dias, J. R., Frietas, R., Amorin, R., Espiridialo, P., Xambre, L., & Ferraz, L. (2014). Do the benefits of male circumcision outweigh the risk: A critique of the proposed CDC guidelines. *Frontiers in pediatric Journal, 3*, 18. https://doi.org/10.3389/ fred.2015.00018.

Duko, B., Geja, E., Zewude, M., & Mekonen, S. (2018a). Prevalence and Associated factors of depression among patients with HIV/AIDS in Hawasa, Ethiopia, cross-sectional study. *Ann Gen Psychiatry Journal, 17*(1), 45. https://doi.org/10.1186/s12991-018-0215-1

Duko, B., Toma, A., Asnake, S., & Abraham, Y. (2018b). Depression, anxiety and their correlates among patients with HIV in South Ethiopia: An institution-based cross-sectional study. *Front Psychiatry Journal, 10*, 290. https://doi.org/10.3389/fpsyt.2019.00290.

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Emmanulle, D., & Hasina, S. (2012). *Staffing norms for Primary Health Care in the context of PHC Re-engineering report to the National Department of health.* Retrieved from http://www.mrc.ac.za/sites/default/files/files/2016-07-14/StaffingNorms.pdf

Eshetu, D. A., Woldeyohannes, S. M., Alemayehu, M., Techane, G. N., Tegegne, M. T., & Dagne, K. (2014). Prevalence of depression and associated factors among HIV/AIDS Patients attending ART Clinic at Debrebirhan referral hospital, North Showa, Amhara Region , Ethiopia. *Am J Commun Psychol, iMedPub Journal, 1*(1), 101–108. Retrieved from http://clinical-psychiatry.imedpub.com/prevalence-of-depression-and-associated-factors-among-hivaids-patients-attending-art-clinicat-debrebirhan-referral-hospitalnorth-showa-amhara-regionethiopia.pdf

European Centre for Disease Prevention and Control [ECDC]. (2017). *HIV/AIDS surveillance in Europe*. Stockholm, Sweden: ECDC.

Ferrari, A. J., Somerville, A. J., Baxter, A. J., Patten, S. B., Vos, T., & Whiteford, H. A. (2013). Global variation in the prevalence and incidence of major depressive disorder: a systemic review of the epidemiological literature. *Psychol Med Journal, 43*(3), 471–81. https://doi.org/10.1017/S0033291712001511

Fettig, J., Swaminathan, M., Murrill, C. S., & Kaplan, J. E. (2014). Global epidemiology of HIV. *Infectios Disease Clinic Journal, 28*(3), 323–337. 10.1016/ j.idc. 2014.05.001

Flamig, K., Decroo, T., Van den Borne, B., & Van de Pas, R. (2019). ART Adherence clubs in the Western Cape of South Africa: what does the sustainability framework tell us? A scoping literature review. *Journal of the international AIDS society, 22*(3), e25235. https://doi.org/10.1002/jia2.25235

Foreit, K. F., Barreto, A. T., Noya, P. A., & Nhatave, I. (2001). Population movements and the spread of HIV/AIDS in Mozambique. *Journal of Health and Human Services Administration, 24*(3), 279–294. PMID:14998285.

Frey, A. (2008). *Club of Mozambique. Mozambique, 30 April 2018*. Retrieved from https://clubofmozambique.com/newsletter/

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Frieden, T. R. (2008). New York City's diabetes reporting system helps patients and physicians. *AM J Public Health, 98*, 1543. Chapter 5. Retrieved from https://www.ncbi. nlm. nih.gov/pmc/ articles/PMC 2374815/

Frieden, T. R., & De Cock, K. M. (2012). The CDC's Centre for Global Health. *The Lancet Journal, 119*(2), 422–433. Retrieved from https://wwwnc.cdc.gov/eid/ content/25/11/pdfs/ v25-n11.pdf

Funk, M. (2007). *Mental Health Policy and Service Development Team, Department of Mental Health and Substance Abuse, Geneva, Switzerland: WHO*. Retrieved from https://apps. who.int/iris/bitstream/handle/10665/92504/9789241505666_eng.pdf;jsessionid=311AF43 19AAFF710F9AB216DD5CB7FF9?sequence=1

Gebrezgiabher, B. B., Abraha, T. H., Hailu, E., Siyum, H., Mebrahtu, B. G., Hintsa, S., & Angesom, T. (2019). *Depression among adult HIV/AIDS patients attending ART clinics at Aksum Town, Aksum, Ethiopia: A cross-sectional study. Depression Research and Treatment.* Research Article. Vol 2019, Article ID 3250431, 8 pages. https://doi.org/ 10.1155/2019/3250431

Goldman, J., Kinnear, S., Chung, J., & Rothman, D. J. (2008). New York City's initiatives on Diabetes and HIV/AIDS: Implications for patient care, public health and medical professionalism. *AM J Public Health, 98*(5), 807–13. https://doi.org/10.2105/AJPH.2007. 121152

GraphPad Software. (2017). *GraphPad Prism version 5.00 for Windows*. La Jolla, CA., USA. Retrieved from www.graphpad .com

Gupta, R., Dandu, M., Packel, L., Rutherford, G., Leiter, K., & Phaladze, N. (2010). Depression and HIV in Botswana: A population-based study on gender specific socio-economic and behavioral correlates. *PLOS Journal, 5*(12). https://doi.org/10.1371/journal.pone.0014252

Hanrahan, C. F., Schwartz, S. R., Mudavanhu, M., West, N. S., Mutunga, L., Keyser, V., & Bessett, J. (2019). The impact of community-versus clinic-based adherence clubs on loss from care and viral suppression for antiretroviral therapy patients: Findings from a

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

pragmatic randomised controlled trial in South Africa. *PLOS/MEDICINE*. https://doi.org/10.1371/ journal.pmed.1002808

Hayes, R., Sabapathy, K., & Fidler, S. (2011). Universal testing and treatment as an HIV prevention strategy: Research questions and methods. *PMC Journal, 9*(6), 429–45. https://doi.org/10.2174/157016211798038515

HIV.gov. blog. (2017). *Federal Response, PEPFAR & Global AIDS: Global HIV/AIDS Overview. The Global HIV/AIDS Epidemic.* Retrieved from https://www.hiv.gov/federal-response/pepfar-global-aids/global-hiv-aids-overview

Hollingsworth, E. J. (1990). Mental Health Services in England. *International Journal of Law and Psychiatry, 19*(3-4), 309–325. https://doi.org/10.1016/S0160-2527

Hoberg, M. A., Silverberg, M. J., Hurley, L.B., Towner, W. J., Bersoff-Matcha, S., Weinberg, W. G., & Antoniskis, D. (2008). Effects of Depression and selective serotonin reuptake inhibitor use on adherence to highly active antiretroviral therapy and on clinical outcomes in HIV-infected patients. *Journal of Acquir Immune Defic Synndr, 47*(3), 384–90. Pubmed Publishers. https://doi.org/10.1097/QAI.0b013e318160d53e.

Ian, E., Gwen, C. L., Soo, C. T., Melisa, C., Chun-Kai, H., & Eousu, K… et al. & Wing-Wai, W. (2015). The burden of HIV-associated neurocognitive disorder (HAND) in the Asia-Pacific region and recommendations for screening. *Asia J Psychiatr, 22*, 182–9.

James, T. (2001). *An Information Policy Hand-book for SouthAfrica: A knowledge base for decision-makers.* Ottawa, Canada: International Development Research Centre [IDRC].

Jeffrey, A., Ciesla, M. A., John, E., & Roberts, T. (2001). Meta-analysis of the relationship between HIV infection and risk for depressive disorders. *Journal of Am J Psychiatry, 158*(5), 725–730. https://doi.org/10.1176.appi.ajp.158.5.725

Jenston, R., & Ustun, T. B. (1998). *Preventing Mental Illness: Mental Health Promotion in Primary Care.* New York, NY., USA: Wiley.

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Joe, S., Woolley, M. E., Brown, G. K., Ghahramanlou-Holloway, M., & Beck, A. T. (2008). Psychometric properties of Beck Depression Inventory-II in low-income, African American suicide attempters. *HHS Public Access, 90*(5), 521–523. https://doi.org/ 10.1080/002 23890802248919

Johnson, G., Davies, N., Freeman, C., Joska, J., Pahad, S., Thom, R., …, Meintjies, G. (2013). Management of Mental health disorders in HIV-positive patients by Southern African HIV Clinicians Society. *Southern African Journal of HIV Medicine, 14*(4), 155–165. https://doi.org/10.7196/SAJHIVMED.995

Joint United Nations Programme on HIV/AIDS [UNAIDS] and World Health Organization [WHO]. (2007). *AIDS Epidemic Update.* Retrieved from http://data.unaids.org/pub/ epislides/2007/2007_epiupdate_en.pdf

Joint United Nations Programme on HIV/AIDS [UNAIDS] and World Health Organization [WHO]. (2011). *Technical guidance for Global Fund HIV proposals round 11* . Geneva, Switzerland: UNAIDS.

Joint United Nations Programme on HIV/AIDS [UNAIDS] (2014). *The Gap Report*. Retrieved from http://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/ 2014 /UNAIDS_Gap_report_en.pdf

Joint United Nations Programme on HIV/AIDS [UNAIDS] (2015). *Progress report on the public of Botswana.* Retrieved from https://www.unaids.org/sites/default/files/country/ documents/BWA_narrative_report_2015.pdf

Joint United Nations Programme on HIV/AIDS [UNAIDS]. (2017a). *Data book*. Retrieved from https://www.unaids.org/en/resources/documents/2017/2017_data_book

Joint United Nations Programme on HIV/AIDS [UNAIDS]. (2017b). *Global AIDS Monitoring 2018. Indicators for monitoring the 2016 United Nations Political Declaration on ending AIDS.* Geneva, Switzerland: UNAIDS.

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Joint United Nations Programme on HIV/AIDS [UNAIDS]. (2017c). *90-90-90 statement. 1 Jan 2017. An ambitious treatment target to help end the AIDS epidemic.* UNAIDS. Retrieved from https://www.unaids.org/en/resources/documents/2017/90-90-90

Kagee, A., & Martin, L. (2010). Symptoms of depression and anxiety among a sample of South African patients living with HIV. *Journal of AIDS Care, 22*(2), 159–165. https://doi.org/10.1080/09540120903111445.

Kagee, A., Nel, A., & Saal, W. (2012). Factor structure of the Beck Depression Inventory-ii among South Africans receiving antiretroviral therapy. *Journal of Psychological and Socio-medical Aspects of HIV/AIDS, 26*(2), 257–262. https://doi.org/10.1080/ 09540121. 2013 .802278

Khan, K. S., Kunz, R., Kleijnen, J., & Antes, G. (2003). *Case study 4: Reviewing evidence on test accuracy. Systematic review to support evidence-based medicine.* The Royal Society of Medicine, pp. 101–119. ISBN-13 978 1 853 157 943. Retrieved from https://pdfs. semanticscholar.org/64f1/ 6190d712fbb391827922140562d1 29497c05.pdf

Kingdom of Swaziland, Ministry of Health. (2010). *National comprehensive HIV package of care for adults and adolescents in Swaziland.* World Health Organization [WHO], MOH & ICAP. Retrieved from https://www.who.int/hiv/pub/guidelines/swaziland_art.pdf

Kingdom of Swaziland Ministry of Health and Social Welfare. (2009). *National Multi-Sectoral Strategy for HIV and AIDS 2009-2014.* Mbabane: Government of the Kingdom of Swaziland. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/ documents/legaldocument/wcms_174723.pdf.

Kingdom of Swaziland, Ministry of Health. (2014). *The Second National Health Sector Strategic Plan. 2014-2018. Towards attainment of Universal Health Coverage. Draft Zero, 29 August 2014.* Retrieved from http://www.nationalplanningcycles.org/sites/default/files/ planning_cycle_ repository/swaziland/swaziland_nhssp_ii_draft_zero_29_aug_2014.pdf

https://etd.uwc.ac.za/

Kontomanolis, E. N., Michalopoulos, S. G., Kasdaris, G., & Fasoulakis, Z. (2017). The social stigma of HIV-AIDS: Society's role. *Journal of HIV/AIDS-Research and Palliative Car, 9,* 111–118. http://dx.doi.org/10.2147/HIV.S129992

Kuhn, D. E. (1990). *Developmental perspectives on teaching and learning thinking skills.* Ebook, Chapter 2. Retrieved from https://psycnet.apa.org/record/1990-98441-000

Kumar, A. M. (2009). NeuroVirology. *Journal of NeuroVirology, 15*(3), 257–274. http://dx.doi.org/10.1080/13550280902973952.

Kumar, S., & Preetha, G. S. (2012). Health Promotion: An effective tool for global health. *Indian Journal of Community Med, 37*(1), 5–12. http://dx.doi.org/10.4103/0970-0218.94009

L'akoa, R. M., Noubiap, J. J., Fang, Y., Ntone, F. E., & Kuaban, C. (2013). Prevalence and correlates of depression symptoms in HIV-positive patients: a cross-sectional study among newly diaagnosed patients in Yaounde, Cameroon. *BMC Psychiatry Journal, 13,* 228. http://dx.doi.org/10.1186/1471-244X-13-228

Leserman, J., Jackson, E.D. & Petito, J.M. (1999). Progression to AIDS: the effects of stress, depressive symptoms, and social support. PsychoMed Journal, 61, 397-406.

Lippa, G. (2010). Validation of Beck Depression Inventory II in HIV-positive patients. *Journal of Psychology in Africa, 59*(4), 374–379. PubMed PMID: 21355511.

MacDonald, S., & Headlam, N. (1986). *Research methods handbook. Introductory guide to research methods for social research.* Wuhan, China: Scientific Research Publishing. Retrieved from https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=1661082

MacGregor, H., McKenzie, A., Jacobs, T., & Ullauri, A. (2018). Scaling up ART adherence clubs in the public sector health system in the Western Cape, South Africa: a study of the institutionalisation of a pilot innovation. *Globalization and health, 14*(1), 40. http://dx.doi.org/10.1186/s12992-018-0351-z

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

Mark, T., Grimsrud, J. A., Stein, D. J., Williams, D. R., & Myer, L. (2009). The epidemiology of major depression in South Africa: Results from the South African stress and health study. *South African Medical Journal, 99*(5.2), 368–373. PMID: 19588800.

Marshall, B. D. L., Goedel, W. C., King, M. R. F., Singleton, A., Durham, D. P., Chan, P. A., Townsend, J. P., & Galvani, A. P. (2018). Potential Effectiveness of long-acting injectables. *Journal of PLOS, 5*(9), e498–e505. http://dx.doi.org/10.1016/S2352-3018 (18)30097-3

Martinez-Mesa, J., Gonzalez-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: how to select participants in my research study? *An Bras Dermatol Journal, 91*(3), 326–330. http://dx.doi.org/10.1590/abd1806-4841.20165254.

McDonald, J. H. (2014). *Handbook of Biological Statistics*. Baltimore, Maryland, USA: Sparkie House Publishing.

McLaughlin, F. E., & Marascuilo, L. A. (1990). *Advanced Nursing and Health Care Research: Quantification Approaches*. Philadelphia, PA., USA: W.B Saunders.

Médecins Sans Frontières. (2010). *Khayelitsha Annual Activity Report: 2008-2009. Providing HIV/TB Care at Primary Health Care Level*. Cape Town, Western Cape, South Africa. Médecins Sans Frontières.

Meintjes, G., & Moorhouse, M. (2017). Guideline: Adult antiretroviral therapy guidelines. *Southern African Journal of HIV Medicine, 18*(1), ISSN: (Online) 2078-6751, (Print) 1608-9693. Open Access: http://www.sajhivmed.org.za

Melanie, A., Gemma-Claire, A., Nakimuli-Mpungu, E., & Chibanda, D. (2014). Depression in people living with HIV in Sub-Saharan Africa: Time to Act. *Journal of Tropical Medicine and International Health, Vol 19*(12), 1392–1396. https://doi.org./10.1111/tmi.12382

Micek, M. A., Baptista, A., Ferro, J., Melo, A., Gimber-Sherr, K., … Gimber-Sherr-S. (2008). *Evaluating the flow of adults in public HIV care system in Mozambique: Identifying*

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

obstacles to care. Oral presentation. Mexico: 17th International AIDS Conference held on 5 August 2008. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784145/

Micek, M. A., Gimbel-Sherr, K., Baptista, A. J., Matediane, E., & Montoya, P. (2009). Loss to follow-up of Adults in Public Care system in Mozambiques: Identifying obstacles to treatment. *Journal of Acquired Immune Deficiency Syndrome, 52*(3), 397–405. https://doi.org./10.1097/ QAI.0b03e3181ab73e2

Myer, L., Smit, J., Le Roux, L., Parker, S. J., Stein, D. J., & Seedat, S. (2008). Common mental disorders among HIV-infected individuals in South Africa: Prevalence, predictors, and validation of brief psychiatric rating scales. *AIDS Patient Care and STDs, 22*(2), 147–158 https://doi.org./10.1089 /apc.2007.0102

Nakimuli-Mpungu, E., Bass, J. K., Alexandre, P., Mills, E. J., Musisi, S., Ram, M., & Nachega, J. B. (2012). Depression, Alcohol use and adherence to antiretroviral therapy in sub-Saharan Africa: a systematic review. *Journal of Aids Behaviour, 16*(8), 2101–2118. https://doi.org./10.1007/s10461-011-0087-8

Ndubuka, N. O., Lim, H. J., Van de Wal, D. M., & Ehlers, J. E. (2016). Health related quality of life of antiretroviral defaulters in Botswana. *HIV Medicine Journal, 17*(1), a475. https://doi.org/10.4102/sajhivmed.v17i1.475

Nel, A., & Kagee, A. (2017). The relationship between depression, anxiety and medication adherence among patients receiving antiretroviral treatment in South Africa. *AIDS Care, 25*(8), 948–955. http://dx.doi.org/10.1080/09540121.2012.748867

Normandeau, S. (2018). *Combating depression: Education has a role.* Paris, France: Organisation for Economic Co-operation and Development [OECD]. Retrieved from https://medium.com/@OECD/combating-depression-education-has-a-role-bff50055a5d4

Ntshakala, T. T. (2012). *Quality of life of people living with HIV and AIDS in Swaziland, who are on antiretroviral therapy* (Unpublished doctoral thesis). University of South Africa. Cape Town, Western Cape, South Africa.

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

O'Cleirigh, C., & Safren, S. (2008). Optimizing the effects of stress management interevntion in HIV. *American Psychological Association Journal, 27*(3), 297–301. https://doi.org./ 10.1037/ a0012607.

Okoye, A. A., & Picker, L. J. (2014). CD4+ T cell depletes in HIV infection: mechanism of immunological failure. *PMC Journal, 254*(1), 54–64. https://doi.org/10.1111/imr.12066 US

Pappin, M., Woeters, E., Booysen, F. R., & Lund, C. (2014). Public sector antiretroviral treatment program in South Africa. *Journal of Psychological and Socio-medical Aspects of HIV/AIDS, Vol 27*(4), 458–465. https://doi.org/10.1080/09540121.2014.969674

Pearson, C. R., Micek, M. A., Pfeiffer, J., Montoya, P., Matediane, E., … Jonase, T. (2009). One year after ART initiation: psychological factors associated with stigma among HIV-positive Mozambicans. *AIDS and Behavoural journal,* 13, 1189. https://doi.org/s10461-009-9596-0

Petersen, I., Hancock, H. J., Bhana, A., & Govender, K. (2014). A group-based counselling intervention for depression comorbid with HIV/AIDS using a task shifting approach in South Africa:A randomised controlled pilot study. *Journal of Affective Disorders, 158,* 78–80. https://doi.org./10.1016/j.jad.2014.02.013.Epub 2014 Feb 11

Petersen, I., & Lund, C. (2011). Mental Health service delivery in South Africa from 2000 to 2010, one step forward, one step back. *The South African Medical Journal, 101*(10), 751–757. http://www.samj.org.za/index.php/samj/article/view/4841/3584

Peyrot, W. J., Lee, S. H., & Penninx, B. W. J. H. (2015). The association between lower educational attainment and depression owing to shared genetic effects. Results in ~ 25 000 subjects. *Molecular Psychiatry Journal, 20*, 735–743. https://doi.org./10.1038/ mp.2015.50

President's Emergency Plan for AIDS Relief [PEPFAR]. (2018). *PEPFAR strategy for accelerating HIV/AIDS Epidemic Control: 2017-2018.* Retrieved from https://www.state.gov/pepfar/

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Republic of Botswana, Ministry of Health. (2014). *Botswana Integrated Disease Surveillance and Response. Monthly report of notifiable disease*. Retrieved from https://www.moh.gov.bw/Publications/Reports/JUNE%20MONTHLY%20REPORT%202017.pdf

Republic of Mozambique, Council of Ministries. (2010). *National Strategic HIV and AIDS Response Plan 2010-2014.* Retrieved from http://www.nationalplanningcycles.org/sites/default/files/country_docs/Mozambique/national_strategic_hiv_and_aids_response_plan_2010-2014.pdf

Republic of South Africa [RSA]. (2007). *Criminal Law (Sexual offences and related matters). Amendment Act,* Act No.32 of 2007. Pretoria, South Africa: Government Printers.

Republic of South Africa [RSA]. Department of Education [DoE]. (2001). *Opening our eyes: Addressing gender-based violence in South African schools: A manual of educators.* Published by the Canada-South Africa Education Management Programme. South Africa. ISBN 07-7-170564 Retrieved from https://hivhealthclearinghouse.unesco.org/library/documents/opening-our-eyes-addressing-gender-violence-south-african-schools-module-educators

Republic of South Africa [RSA], Department of Health. (2013). *The South African antiretroviral treatment guidelines. 24 March 2013.* Retrieved from https://sahivsoc.org/Files/2013%20ART%20Treatment%20Guidelines%20Final%2025%20March%202013%20corrected.pdf

Republic of South Africa [RSA], Department of Health [DoH]. (2015a). *National HIV Counselling and Testing policy guidelines.* Retrieved from http://www.nicd.ac.za/assets/files/ HCT-Guidelines-2015.pdf

Republic of South Africa [RSA], Department of Health [DoH]. (2015b). *Strategic Plan: 2015-2020. A long and healthy life for all South Africans.* Retrieved from file:///C:/Users/01464455/Downloads/strategicplan2015 %20(2).pdf

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Republic of South Africa [RSA], Department of Health [DoH]. (2016). *National HIV Testing Services, Policy: A long and healthy life for all South Africans.* Retrieved from https://sahivsoc.org/Files/HTS%20Policy%2028% 20July%20final%20copy.pdf

Republic of South Africa [RSA], Department of Public Service and Administration. (1997). *BATHO PELE - "People First": White Paper on transforming public service delivery.* Retrieved from http://www.dpsa.gov.za/dpsa2g/documents/acts&regulations/frameworks/white-papers/transform.pdf

Republic of South Africa [RSA]. (1957). *Sexual Offences Act, Act No. 23 of 1957*. Pretoria, South Africa: Government Printers.

Republic of South Africa [RSA], Western Cape Department of Health [WCDoH]. (2005). *Comprehensive HIV Service Development at Primary Care Clinics: The experience from Khayelitsha, Activity report.* Cape Town, Western Cape, South Africa: Published by Western Cape Department of Health.

Ruger, J. P., & Yach, D. (2009). *The global role of the World Health Organization. Glob. Health Gov. Journal, 2*(2), 1–11. PMID: 24729827

Santos, J. A. (1999). Cronbach's Alpha: A tool for assessing the reliability of scales. *Journal of extension, 37*(2), 1–5.

Schaecher, K.L. (2013). The importance of treatment adherence in HIV. *Am J Manag Care, 19*(12 supp), S231–S237. https://www.ncb i.nlm.nih.gov/pubmed/24495293

Schumacher, J. E., McCullumsmith, C., Mugavero, M. J., Ingle-Pang, P. E., Rapel, J. L., Willig, J. H… et al. & Saag, M. S. (2013). Routine depression screening in an HIV Clinic cohort identifies patients with complex psychiatric co-morbidities who show significant response to treatment. *AIDS Behav Journal, 17*(8), 2781–2791. https://doi.org./10.1007/s10461-012-0342-7

Shaw, G. M., & Hunter, E. (2012). HIV Transmission. *Cold Spring Harbour Perspective in Medicine, 2*(11), pii–a006965. https://doi.org./10.1101/cshperspect.a006965

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

Shear, M. K., Simon, N., & Keshaviah, A. (2011). Complicated grief and related bereavement Issues for DSM-5. *Depress Anxiety, 28*(2), 103–117.

Shisana, O., Rehle, T., Simbayi, L. C., Zuma, K., Zungu, N., Labadarios, D., & Onoya, D. Bhattacherjee, A. (2012a). *Social Science Research: Principles, Methods, and Practices.* University of South Florida. Scholar Commons.

Shisana, O., Rehle, T., Simbayi, L. C., Zuma, K., Zungu, N., Labadarios, D., & Onoya, D. (2012b). *South Africa National HIV Prevalence, Incidence and Behaviour Survey. Strategic Plan for the fiscal years 2014/5-2018/19 and Annual Performance Plan 2014/15.* Human Sciences Research Council [HSRC]. Retrieved from http://www.hsrc.ac.za/ en/research-outputs/ view/6871

Sidibe, M. (2018). *UNAIDS DATA: State of the epidemic at glance. Reduction in AIDS related deaths that puts the 2020 milestone within the reach.* Geneva, Switzerland: UNAIDS. Retrieved from https://www.unaids.org/sites/default/files/media_asset/unaids-data-2018 _en.pdf

Silveira, M. P., Guttier, M. C., Pinheiro, C. A., Pereiza, T. V., Cruzeiro, A. L., & Moreira, L. B. (2012). Depression symptoms in HIV- infected patients treated with highly active antiretroviral therapy. *Journal of Braz J Psychiatry, 34*(2), 162–167. https://doi.org./ 10.1590/s1516-44462012000200008

Simon, V., Ho, D. D., & Quarraisha, A. K. (2006). HIV/AIDS epidemiology, pathogenesis, prevention and treatment. *The Lancet, 368*(9534), 489–504

Simoni, J. M., Safren, S., Manhart, L. E., Lyda, K., Grossman, C. I., Rao, D., & Mimiaga, M. J. *(*2012). Challenges in addressing Depression in HIV Research: Assessment, Cultural Context, and Methods. *AIDS Behaviour journal. HHS Public Access, 15*(2), 376–388. https://doi.org./10.1007/s10461-010-9836-3

Slaven, F., & Cameron, D. (2017). HIV and depression: A scoping review of the South African literature. *Research Article (University of Pretoria, Family Medicine), 12*(2), 21–38. https://doi.org./10.251 59/1812-6371/2791

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

South African Depressive and Anxiety Group (SADAG). Accessed online on 13/11/2019.

South African National AIDS Council [SANAC]. (2017). *Annual Progress Report - 2015/16*. Retrieved from https://sanac.org.za/provincial-progress-reports/

Starace, F., Ammasari, A., Trotta, M. P., Murri, R., De Longis, P., Izzo, C., et al. (2002). Depression is a risk factor for suboptional adherence to highly active antiretroviral therapy. *Journal of Acquired immune deficiency syndrome, 31*(3), S136–139. https://doi.org/10.1079/00126334-200212153-00010

Steele, G. (2008). Development and Validation of the Xhosa translation of the Beck Inventories: 2. Item analysis, internal consistency and factor analysis. J*ournal of Psychology in South Africa, 18*(2), 217–226.

Steele, G. I., & Edwards, D. A. (2014). Development and validation of the Xhosa translation of the Beck Inventories: 2 item analysis internal consistency and factor analysis. *Journal of Psychology in Africa, 18*(2), 217–226. https://doi.org/10.1080/14330237.2008.10820189

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's Alpha. *International journal of medical education, 2*, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Tesfaw, G., Ayano, G., Awoke, T., Assefa, D., Bhirhanu, Z., Miheretie, G., & Abebe, G. (2016). Prevalence and correlates of depression and anxiety among patients with HIV on-follow up at Alert Hospital, Addis Ababa, Ethiopia. *BMC Psychiatry Journal, 16*, 368. https://doi.org/10.1186/s12888-016-1037-9

UNAIDS, (2019) estimates. https://www.unaids.org/sites/default/files/women_girls_hiv_sub_saharan_africa_en.pdf

United Nations [UN]. (2015). *70th Anniversary*. New York, NY., USA. Retrieved from https://www.un.org/un70/en/

United Nations Children's Fund [UNICEF]. (2011). *Rehydration Project. UNICEF's GOBI-FFF Programs*. Retrieved from http://rehydrate.org/facts/gobi-fff.htm

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

United Nations Population Division [UNPD]. (2015). The National Emergency Response Council to HIV and AIDS [NERCHA] - 2009-2014. *The gender and human rights analysis of the national multisectoral strategic HIV and AIDS framework. Increasing the male participation in HIV Programme implementation for a balanced and equitable response.* Retrieved from https://www.undp.org/content/dam/swaziland/docs/ publications/UNDP_SZ_HIV_AIDS_National_Multisectoral_Strategic_Hiv_and_Aids_Framework.pdf

Uys, L., & Middleton, L. (2014). *Mental Health Nursing: A South African Perspective.* Cape Town, Western Cape, South Africa: Juta.

Van Coppenhagen, B. & Duvenage, H.S. (2019). Prevalence of depression in people living with HIV and AIDS at the Kalafong Provincial Tertiary Hospital Antiretroviral Clinic. S Afr J Psychiat Journal, 25(10). https://doi.org/10.4102/sajpsychiatry.v2510.1175

Velloza, J., Celum, C., Heberer, J., Ngure, K., Irungu, E., Mugo, N., …, Heffron, R. (2017). Depression and ART initiation among HIV serodiscordant couples in Kenya and Uganda. *AIDS Behav Journal, 21*(8), 2509–2518. https://doi.org/10.1007/s10461-017-1829-z

Wagner, G. J., Slaughter, M., & Ghosh-Dastidar, B. (2017). Depression at treatment initiation, predicts HIV antiretroviral adherence in Uganda. *J int Assoc Provid AIDS Care Journal, 16*(1), 91–97. https://doi.org/10.1177/2325957416677121

Waldrop-Valverde, D., Osborn, C. Y., Rodriguezi, A., Rothman, R. L., Kumar, M., & Jones, D. L. (2010). Numeracy Skills Explain Racial Differences in HIV Medication Management. *AIDS and Behavior Journal, Springer Publisher, 14*(4), 799–806. https://doi.org/10.1007/s10461-009-9604-4

Wang, Y. P., & Gorenstein, C. (2013). Assessment of depression in medical patients: A systematic review of the utility of the Beck Depression Inventory-II. *PMC Journal, 68*(9), 1274–1287. https://doi.org/10.6061/clinics/2013 (09)15

Wells, K.B., Norquist, G., Benjamin, B., Rogers, W., Kahn, K. & Brook, R. (1994). Quality of antidepressant medications prescribes at discharge to depressed elderly patients in general

https://etd.uwc.ac.za/

medical hospitals before and after prodpective payment system. Medline journal, 16 (1), 4-15. https://doi.org/10.1016/0163-8343(94)90081-7

White, F. (2015). Primary Health Care and Public Health: Foundations of Universal Health Systems. *Journal of Medical Principles and Practice, 24*(2), 103–116. https://doi.org/ 10.1159/000370197

William, N. (2011). *Research Methods: The basics.* London and New York: Routledge Taylor & Francis Group.

Williams, B. G., & Granich, R. (2017). Ending AIDS: myth or reality? *Lancet Journal, 390*(10092), 357. https://doi.org/10.1016/S0140-6736(17)31832-9

Wilkinson, L. S. (2013). *ART Adherence clubs: Along-term retention stratergy for clinically stable patients receiving antiretroviral therapy.* Khayelitsha, Cape Town, Western Cape, South Africa: Medecins Sans Frontieres.

World Bank. (2018). *Prevalence of HIV, (total % of population ages 15-49).* Retrieved from https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS

World Health Organization [WHO]. (1980). *Better Health for Everyone, Everwhere.* Geneva, Switzerland: WHO.

World Health Organization [WHO]. (2000). *Nations for Mental Health, Mental Health and work: Impact, Issues and good practices.* Geneva, Switzerland: WHO Library Cataloguing-in-Publication Data. ISBN 9241590378 ISSN 1726-1155 (NLM Classification: WA495.

World Health Organization [WHO]. (2005a). *Mental Health Policy, plans and programmes: WHO mental health policy and service guidance package-module 1. E-books. Chapter Four.* Geneva, Switzerland: WHORetrieved from https://www.who.int/mental_health/ policy/essentialpackage1/en/

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

World Health Organization [WHO]. (2005b). *World Health Report 2005. Chapter 5: Choosing interventions to reduce specific risks.* Geneva, Switzerland: WHO Press. Retrieved from http://who.int/whr/2002/chapter5/en/index5.htm.

World Health Organization [WHO]. (2008). *Bulletin of the World Health Organization. (October 2008). Consensus during the Cold War: Back to Alma-Ata.* Retrieved from http://www.who.int/bulletin/volumes/86/12/08-021208/en/index.htm.

World Health Organization [WHO], Department of Mental Health and Substance Abuse [MSD]. (2014). *Mental Health Atlas Project. Mental Health Policy, Planning and Programme.* WHO Library Cataloguing-in-Publication Data. Geneva, Switzerland. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/178879/9789241565011_eng.pdf?sequence=1

World Health Organization [WHO]. (2015). *Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV*. Geneva, Switzerland: World Health Organization. ISBN 9789241509565 NLM Classification: WC 503.2

World Health Organization [WHO]. (2017). *WHO Country Cooperation Strategy 2008-2013: Swaziland.* AFRO Library Cataloguing-in-Publication Data. Retrieved from https://www.afro.who.int/sites/default/files/2017-05/ccs_swaziland_2008_2013.pdf

Zetola, N. M., Klausner, J. D., Haller, B., Nassos, P., & Katz, M. H. (2007). Association between rates of HIV testing and elimination of written consents in San Francisco. *JAMA 297*(10), 1061–2. https://doi.org/10.1001/jama.297.10.1061

UNIVERSITY of the WESTERN CAPE
https://etd.uwc.ac.za/

APPENDICES

APPENDIX 1: Information sheet

https://etd.uwc.ac.za/

APPENDIX-1

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2749Fax: 27 21-959 1385
E-mail: 2134398@myuwc.ac.za

INFORMATION SHEET

Project Title: Prevalence of depression among HIV positive clients receiving anti retro-viral treatment (ART) at a Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town

What is this study about?
This is a research project being conducted by Noluvo Rode (2134398) at the University of the Western Cape. We are inviting you to participate in this research project because you have valuable information to contribute to the study. The purpose of this research project is to determine the presence of depression among clients who are receiving ART in this Clinic.

What will I be asked to do if I agree to participate?
You will be asked to complete a questionnaire distributed by the researcher. The questionnaire will be completed while you are waiting for your turn to receive your treatment and will take 20-30 minutes to complete.

Would my participation in this study be kept confidential?
The researcher undertakes to protect your identity and the nature of your contribution. To ensure your anonymity, the questionnaire does not require you to enter any personal details.
To ensure your confidentiality, all questionnaires will be kept confidential and locked in cabinet, and only the researcher will only have access to.
If we write a report or article about this research project, your identity will be protected.

What are the risks of this research?
There may be some risks from participating in this research study. Risks associated with participating in the study will be minimal and should any discomfort be experienced, support and counselling will be available and provided to you. After data has been analysed, you will be contacted by Clinic Nursing Staff for referral should you have depressive symptoms, needing care.

What are the benefits of this research?
This research is not designed to help you personally, but the results may help the researcher to learn more about the number of people who may be depressed when receiving ART.

https://etd.uwc.ac.za/

We hope that, in the future, other people might benefit from this study through improved understanding of depression and HIV infection.
Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify. Participation in the research is not a course requirement.

What if I have questions?
This research is being conducted by *Mrs Noluvo Rode from the School of Nursing* at the University of the Western Cape. If you have any questions about the research study itself, please contact *Mrs Noluvo Rode at*:
School of Nursing
University of the Western Cape
Private Bag X17
Bellville 7535
Tel.: 0786839806
Email: 2134398@myuwc.ac.za

Or the study supervisor:

Prof H Julie
School of Nursing
University of the Western Cape
Private Bag X17
Bellville 7535
Tel: 021 959 2749
Email: hjulie@uwc.ac.za

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof J Chipps
Head of Department: School of Nursing
University of the Western Cape
Private Bag X17
Bellville 7535
Jchipps@uwc.ac.za

Prof A Rhoda
Acting Dean of the Faculty of Community and Health Sciences
University of the Western Cape
Private Bag X17
Bellville 7535
chs-deansoffice@uwc.ac.za

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

APPENDIX 2: Consent form

This research has been approved by the University of the Western Cape's Research Ethics Committee. (REFERENCE NUMBER: *to be inserted on receipt thereof from the applicable Research Ethics Committee*)

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2749 Fax: 27 21-959 1385
E-mail: 2134398@myuwc.ac.za

CONSENT FORM

Title of Research Project: Prevalence of depression among HIV positive clients receiving anti retro-viral treatment (ART) at Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town.

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name……..

Participant's signature……..

Date……

https://etd.uwc.ac.za/

APPENDIX 3: Consent to audio and transcription form

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2749 Fax: 27 21-959 1385

E-mail: 2134398@myuwc.ac.za

Consent to Audio recording and transcription

Title of Research Project: Prevalence of depression among HIV positive clients receiving anti retro-viral treatment (ART) at Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town.

This study involves the audio recording of the interview with the researcher. Neither the name of the participant or any other identifying information will be associated with the audio recording or the transcript. Only research team will be able to listen or view recordings after all data have been collected.

The tapes will be transcribed by the researcher and after two to three years erased once the transcriptions are checked for accuracy. Transcripts of the interview may be reproduced in whole or in part for and can be used in presentation or written products that result from this study. Finally, no any identifying information to the participant such as the voice or picture will be used in presentations or in written products resulting from the study.

By signing this form, I am allowing the researcher to audio tape me as part of this research. I also understand that this consent for recording is effective until three years and on or before this time, the tape will be destroyed.

Participant's name……...

Participant's signature…….

Date……..…

https://etd.uwc.ac.za/

APPENDIX 4: Questionnaire

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2679 Fax: 27 21-959 2271
E-mail: 2134398@myuwc.ac.za

Instrument

This questionnaire is divided into **two** sections. Section **1** and section **2.** Please read each question attentively and answer as requested. If there is something that you do not understand, please feel free to ask the researcher.

Before you start answering the questionnaire, please ensure that you have read and signed the consent form to partake on the study.

Section 1:

1. Participant Folder Number
2. Date
3. Gender — Male | Female
4. Age in years
5. Race — Black | Coloured | Indian | White | Other
6. Write down the highest standard you passed:
7. How many years have you know your HIV positive status?
8. How many years have you been on ART (Antiretroviral treatment)?
9. How many years have you been attending ART club?

Yes | No

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

1. Do you have a history of psychiatric illnesses?

2. Do you have a history of chronic physical disease?	Yes	No
3. Did you print your name, sign and have copy of your consent form?	Yes	No
4. Have you bereaved in past three months?	Yes	No
5. Do you have a history of thyroid disease?	Yes	No

Section 2:

Igama loMguli (i folda namba) _____
Umhla_____

Inombolo yoMguli _____

ULUHLU LOCINZELELO LUKA-BECK

Kulo xwebhu lwemibuzo kukho amaqela eengxelo. Nceda funda iqela lengxelo ngalinye ngononophelo. Uze emva koko ukhethe ingxelo ibenye kwiqela ngalinye, echaza ngcono indlela ubuvakalelwa ngayo KWIVEKI EPHELILEYO, KUQUKA NANAMHLANJE. Rhangqela inombolo esecaleni kwengxelo oyikhethileyo. Ukuba kukho ingxelo eziliqela ekukhangeleka ngathi zifumaneka ngokulinganayo, rhangqela ingxelo nganye kuzo. Qinisekisa ukuba uzifundisisile kakuhle zonke ingxelo kwiqela ngalinye phambi kokuba ukhethe.

1. Andiziva ndilusizi. 0
Ndiziva ndilusizi. 1
Ndisolo ndilusizi amaxesha onke kwaye andikwazi ukuzikhupha kule meko. 2
Ndilusizi kakhulu okanye ayindonwabisi into yokuba oku andikwazi ukumelana nako. 3

2. Andikatyhafiswa yinto ngokumayela nekamva. 0
Ndiziva ndityhafiswa zizinto ezithile malunga nekamva. 1
Ndiziva ndingenanto endijonge ukuyenza ebomini. 2
Ndiziva ndingenathemba malunga nekamva lam kwaye akukho nto inokuguquka kulo nto. 3

3. Andiziva ndingumntu ongenempumelelo. 0
Ndiziva ndingoyena mntu ungaphumelelanga ngakumbi kunomntu olingana nam. 1
Xa ndijonga ngasemva ebomini bam, ndibona kuphela ukungabi nampumelelo. 2
Ndiziva ndingumsileli ngokupheleleyo. 3

4. Ndiyalufumana ulwaneliseko oluninzi kangangoko kwizinto ezininzi njengesiqhelo. 0
Andizonwabeli izinto njengesiqhelo. 1
Andisafumani lwaneliseko lwaneleyo nasentwenina. 2
Andonelisekanga kwaye ndidiniwe yinto yonke. 3

5. Andiziva ndinetyala. 0
Ndiziva ndinetyala ixesha elininzi. 1
Ndiziva ndinetyala inkoliso yexesha. 2

https://etd.uwc.ac.za/

Ndiziva ndinetyala ngalo lonke ixesha.	3
6. Andiziva ndisohlwaywa.	0
Ndiva ngathi ndingohlwaywa.	1
Bendikulindele ukohlwaywa.	2
Ndiziva ndohlwayiwe.	3
7. Andiziva ndikudanele ukuba ndim.	0
Ndiziva ndikudanele ukuba ndim.	1
Ndiyazicekisa.	2
Ndiyazicaphukela.	3
8. Andiziva ndibaxekile kunomnye umntu.	0
Ndiyazigweba ngobuthathaka okanye ngeempazamo zam.	1
Ndiyazisola ngalo lonke ixesha malunga neziphene zam.	2
Ndiyazisola ngalo lonke ixesha malunga nento embi eyenzekayo.	3
9. Andinazicinga zokuzibulala kwaphela.	0
Ndike ndicinge ngokuzibulala, kodwa ndingade ndikwenze oko.	1
Ndingathanda ukuzibulala.	2
Ndingazibulala ukuba ndinganalo ithuba.	3
10. Andisakhali njengesiqhelo.	0
Ndikhala kakhulu ngoku kunesiqhelo.	1
Ndikhala lonke ixesha .	2
Ndandidla ngokwazi ukukhala, kodwa ngoku andisakwazi nkqu nokuba ndiyafuna.	3
11. Andisacutshukiswa kangako ngoku kunangaphambili.	0
Ndicaphuka msinya nalula kunangaphambili.	1
INdiziva ndicatshukisiwe ngalo lonke ixesha ngoku.	2
IAndisacatshukiswa ngokuphelelyo zizinto ezazidla ngokundicaphikisa ngaphambili.	3
12. Andikalahlekelwa ngumdla kwabanye abantu.	0
Andinamdla kakhulu kwabanye abantu kunangaphambili.	1
Ndalahlekelwa ngumdla omkhulu kwabanye abantu.	2
Ndalahlekelwa nguwo wonke umdla kwabanye abantu.	3
13. Ndisasenza isigqibo ngohlobo endandidla ngokusenza ngalo.	0
Ndikubekela ecaleni ukwenza izigqibo ngaphezu kokuba ndandidla ngokuzenza.	1
Ndifumana ubunzima obukhulu bokwenza izigqibo kunangaphambili.	2
Andisakwazi ukwenza izigqibo ngokupheleleyo.	3
14. Andiziva ndibaxekile kunesiqhelo.	0
Ndiyakhathazeka yinto yokuba ndikhangeleka ndimdala kwaye ndingenamtsalane ebantwini.	1
Ndiva kukho iinguqu ezisisigxina kwimbonakalo yam ezindenza ndingabi namtsalane .	2
Ndiyakholelwa ukuba ndimbi.	3
15. Ndingasebenza nasentwenina njengangaphambili.	0
Kufuneka ndenze iinzame ezithe xhaxhe ukuze ndiqalise ngokwenza into.	1
Ukuze ndibe ndiyaqalisa ukwenza into kufuneka ndizinyanzele.	2
Andinako ukwenza nawuphina umsebenzi konke-konke.	3
16. Andisakwazi ukulala njengesiqhelo.	0
Andilali ngendlela yesiqhelo.	1
Ndifuka kwixesha elingaphambili ngeyure e-1 ukuya kwezi-2 kunesiqhelo kwaye kubanzima ukuphinda ndilale.	2
Ndifuka kwixesha elingaphambili ngeeyure eziliqela kunesiqhelo kwaye kubanzima ukuphinda ndilale.	3
17. Andidinwa kakhulu kunesiqhelo.	0
Ndidinwa msinya nalula kunesiqhelo.	1
Ndidinwa phantse yinto yonke endiyenzayo.	2
Ndidinwe kakhulu ukuba ndenze nantonina.	3
18. Umdla wam ekutyeni awubaxekanga kunesiqhelo.	0
Umdla wam ekutyeni awulunganga njengesiqhelo.	1

https://etd.uwc.ac.za/

Umdla wam ekutyeni ubaxeke kakhulu ngoku.	2
Andisenawo umdla wokutya kwaphela.	3
19. Ndiphulukene nobunzima bam mva nje, ukuba bukhona.	0
Ndiphulukene nobunzima obungaphaya kweekilogram ezi-5.	1
Ndiphulukene nobunzima obungaphaya kweekilogram ezi-10.	2
Ndiphulukene nobunzima obungaphaya kweekilogram ezi-15.	3
Ndizama ukuphulukana nobunzima ngabom ngokuthi nditye kancinci. Ewe / Hayi	
20. Andisakhathazeki kakhulu ngoku ngempilo yam kunesiqhelo.	0
Ngoku ndikhathazeka kakhulu ngeengxaki zomzimba ezifana neentlungu okanye isisu esingamanga kakuhle okanye esiqunjelweyo.	1
Ndikhathezeke kakhulu zingxaki zomzimba kwaye kunzima ukuba ndicinge ngezinye.	2
Ndikhathazeke kakhulu gqitha zingxaki zomzomba wam kangangokuba andikwazi nokucinga ngenye into.	3
21. Andikaphawuli lutshintsho kumdla wam omalunga nendibano yesondo.	0
Andinamdla kakhulu kwindibano yesondo kunesiqhelo.	1
Mncinci kakhulu ngoku umdla wam kwndibano yesondo.	2
Ndiphulukene nomdla kwindibano yesondo ngokuphelelyo.	3

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

BECK'S DEPRESSION INVENTORY

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire. 1.

0	I do not feel sad.
1	I feel sad
2	I am sad all the time and I can't snap out of it.
3	I am so sad and unhappy that I can't stand it.

2.

0	I am not particularly discouraged about the future.
1	I feel discouraged about the future.
2	I feel I have nothing to look forward to.
3	I feel the future is hopeless and that things cannot improve.

3.

0	I do not feel like a failure.
1	I feel I have failed more than the average person.
2	As I look back on my life, all I can see is a lot of failures.
3	I feel I am a complete failure as a person.

4.

0	I get as much satisfaction out of things as I used to.
1	I don't enjoy things the way I used to.
2	I don't get real satisfaction out of anything anymore.
3	I am dissatisfied or bored with everything.

5.

0	I don't feel particularly guilty
1	I feel guilty a good part of the time.
2	I feel quite guilty most of the time.
3	I feel guilty all of the time.

6.

0	I don't feel I am being punished.
1	I feel I may be punished.
2	I expect to be punished.
3	I feel I am being punished.

7.

0	I don't feel disappointed in myself.
1	I am disappointed in myself.
2	I am disgusted with myself.
3	I hate myself.

8.

UNIVERSITY of the CAPE

https://etd.uwc.ac.za/

0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9.
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10.
0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11.
0 I am no more irritated by things than I ever was.
1 I am slightly more irritated now than usual.
2 I am quite annoyed or irritated a good deal of the time.
3 I feel irritated all the time.

12.
0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13.
0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions more than I used to.
3 I can't make decisions at all anymore.

14.
0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel there are permanent changes in my appearance that make me look Unattractive
3 I believe that I look ugly.

15.
0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.

https://etd.uwc.ac.za/

2 I have to push myself very hard to do anything.
3 I can't do any work at all.

16.
0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17.
0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18.
0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19.
0 I haven't lost much weight, if any, lately.
1 I have lost more than five pounds.
2 I have lost more than ten pounds.
3 I have lost more than fifteen pounds.

20.
0 I am no more worried about my health than usual.
1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think of anything else.

21 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I have almost no interest in sex.
3 I have lost interest in sex completely

https://etd.uwc.ac.za/

INTERPRETING THE BECK DEPRESSION INVENTORY

Now that you have completed the questionnaire, add up the score for each of the twenty-one questions by counting the number to the right of each question you marked. The highest possible total for the whole test would be sixty-three. This would mean you circled number three on all twenty-one questions. Since the lowest possible score for each question is zero, the lowest possible score for the test would be zero. This would mean you circles zero on each question.
You can evaluate your depression according to the Table below.
Total Score
Levels of Depression

1-10	these ups and downs are considered normal
11-16	Mild mood disturbances
17-20	Borderline clinical depression
21-30	Moderate Depression
31-40	Severe Depression
> 40	Extremely Depression

UNIVERSITY of the
WESTERN CAPE

https://etd.uwc.ac.za/

APPENDIX 5: Permission to conduct the study letter

UNIVERSITY OF THE WESTERN CAPE
SCHOOL OF NURSING
Private Bag X17 BELLVILLE 7535 South Africa
Telephone: 27 021 959-2271//2523 Fax: 27 021 959-2679
Email: 2134398@myuwc.ac.za

Topic:	Prevalence of depression among HIV positive clients receiving anti retro-viral treatment (ART) at a Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town.
Date:	10 November 2017
Ms:	Noluvo Rode
Position:	Research Nurse/ District Manager
Address:	9 Ngulube Street Luzuko 7785 (Home)
:	University of the Western Cape Private Bag X 15 Bellville

Re: Permission to conduct the study

Sir/Madam:

I am writing this letter to request permission to conduct a research study/audio recording at your health facility. I am currently studying Masters in Advance Psychiatry at University of the Western Cape. Topic aims and objectives in my already uploaded research proposal for this application.

If approval is granted to perform this research in your facility the interview should not take more than three (3) days and should be done on clinic convenience.

Your approval to conduct this study will be greatly appreciated.

Thanks

Yours Truly

Noluvo Rode....

https://etd.uwc.ac.za/

APPENDIX 6: City Health Certificate

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CITY HEALTH

Dr Hélène Visser
Manager: Specialised Health

T: 021 400 3981 **F:** 021 421 4894 **M:** 083 298 8718
E: Helene.Visser@capetown.gov.za

2017-12-08

Re: Research Request: Prevalence of depression on HIV Positive individuals who are on Anti retro-viral treatment (ART) conducted at selected Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town 7921

Dear Ms Noluvo Rode

Your request has been approved as per site requested:

Eastern & Khayelitsha
Contact Person

Luvuyo CDC
Dr V de Azevedo (Area Manager)
Tel/Cell: (021) 360- 1258 /083 629 3344

Please note the following:

1. A copy of the final report must be sent to the City Health Head Office, P O Box 2815 Cape Town 8001, within 6 months of its completion (which is currently scheduled for March 2018) and feedback must also be given to the clinics involved.
2. Your project has been given an ID Number (7921). please use this in any future correspondence with us.

Thank you for your co-operation and please contact me if you require any further information or assistance.

Yours sincerely

DR G H VISSER
MANAGER: SPECIALISED HEALTH

cc. Dr V de Azevedo
Dr K Jennings
Mr Johann Daniels

https://etd.uwc.ac.za/

APPENDIX 7: Volunteer research assistant agreement

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2749 Fax: 27 21-959 1385
E-mail: 2134398@myuwc.ac.za

Volunteer Research Assistant Agreement

This Volunteer Agreement describes what we can each reasonably expect from your voluntary research assistant role with "the University of the Western Cape". The University appreciates you volunteering with us and will do the best it can to make your volunteer experience with us enjoyable and rewarding.

Part 1: Summary information

Research project title: **Prevalence of depression on HIV Positive individuals who are on Anti retro-viral treatment (ART) conducted at selected Primary Health Care (PHC) Clinic in Khayelitsha, Cape Town.**

Name of volunteer:

Name of supervisor:

Name of supervisor's line manager:

Start date for volunteer:

Expected end date of volunteer:

Anticipated time commitment per week:

Brief summary of nature and components of Volunteer Research Assistant role:

Part 2: The University

You can expect the University to provide:

2.1. Induction and training

- To provide an induction on the University, the above research project, its staff and your volunteering role.
- To provide any training that you will need to meet the responsibilities of this volunteering role.

2.2. Supervision and support

- To explain the standards that we expect and to encourage and support you to achieve and maintain them.
- To treat you with respect and to do our best to help you develop your volunteering role with us.

2.3. Professional development

- To provide as much responsibility and work diversity as possible.
- To provide, as much as possible, access to opportunities that will contribute to your learning and development as a researcher.
- To provide time off to attend job interviews.

https://etd.uwc.ac.za/

- To provide you with a reference relating to this role, should you require it.

2.4. Recognising your contribution

- To recognise your contribution to the research project by including your name and contribution in the Acknowledgements section of publications that result from the work that you have contributed to.

2.5. Health and safety

- To provide adequate training and feedback in support of our Safety, Health and Wellbeing policy, a copy of which is available from your supervisor or accessed via the University's intranet.

2.6. Equal opportunities

- To ensure that all volunteers are dealt with in accordance guided by the principles of research.

2.7. Problems

- To try to resolve fairly any problems, complaints and difficulties that you may have while you volunteer with us, and in the event of an unresolved problem, to offer an opportunity to discuss the issues with the line manager or your supervisor.

Part 3: The Volunteer

The University expects you:

- To help the University provide research services, carrying out your role as detailed in Part 1 above;
- To perform your volunteering role to the best of your ability;
- To act in a professional manner and to follow the University's procedures and standards, including Safety, Health and Wellbeing, and Equality and Diversity policies, in relation to its staff, volunteers and clients;
- To maintain the confidential information of the University, of any organisation in which your volunteering activity takes place, of any research participants and research data arising from your volunteering activity with University of the Western Cape.

- To meet the time expectations and standards which have been mutually agreed and to give reasonable notice so other arrangements can be made when this is not possible;
- To provide referees, if requested, who may be contacted, and to agree to a Disclosure and Barring Service check being carried out where necessary.
- To act in accordance with the guidance and instructions provided by the University through your supervisor, and to refrain from any action not authorised or approved by the University.

https://etd.uwc.ac.za/

Part 4: Copyright and intellectual property rights

4.1. All records, documents, and papers (including copies and summaries thereof and whether in physical, electronic or other form) made or acquired by you in the course of your volunteering shall be the property of the University. The Intellectual Property Rights in all such records, documents and papers shall at all times belong to the University.

This Agreement is binding in honour only; it is not intended to be a legally binding contract between us and may be cancelled at any time at the discretion of either party by giving notice in writing to the other party.

Neither of us intends nor expects any employment relationship to be created as a result of this volunteering agreement, either now or at any time in the future.

I, the Supervisor, confirm that I understand and accept this Agreement:

Signed:.....

Printed Name:.....

Date:.....

I,..... the Volunteer, confirm that I understand and accept this Agreement:

Signed:.....

Printed Name:.....

Date:.....

UNIVERSITY of the WESTERN CAPE

https://etd.uwc.ac.za/

APPENDIX 8: Volunteer research assistant reimbursement agreement

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2749Fax: 27 21-959 1385
E-mail: 2134398@myuwc.ac.za

Volunteer Research Assistant Re-Imbursement Agreement

The position of research assistant for mini-thesis from University of the Western Cape is voluntary. This means that, if you accept the role, you perform all duties on a voluntary basis and you will not receive remuneration or payment for your work, other than reasonable reimbursement of expenses.

As a volunteer for data collection on mini-thesis performed for the University of the Western Cape in Luvuyo Clinic, Makaza, you will be reimbursed with **Five Hundred Rand** for any reasonable out –of-pocket expenses that you incur when performing authorised tasks associated with your role. This amount will be paid directly into your bank account by your supervisor. Therefore, a one month bank statement will be required to perform this task.

You will be provided with a one day training as a benefit which will fall on volunteering role, which will include **Fifty Rand** for transport costs and will be paid cash to research assistants and free food will be catered.
Where this occurs, it is on a gratuitous basis at the discretion of said University and is not payment in lieu of salary.

Signed:.....this day.....this year..... at this place.....
Print name and surname(Research Assistant)
.....

AND

Signed:.....this day.....this year.....at this place.....
Print name and surname
(Supervisor).....

https://etd.uwc.ac.za/

APPENDIX 9: Editorial Certificate

Idea Corporation t/a
AQUARIAN PUBLICATIONS

10 December 2019

To whom it may concern

Dear Sir/Madam

RE: Editorial certificate

This letter serves to prove that the thesis listed below was language edited for proper English, grammar, punctuation, spelling, as well as overall layout and style by myself, publisher/proprietor of Aquarian Publications, a native English speaking editor.

Thesis title

THE PREVALENCE OF DEPRESSION IN HIV POSITIVE INDIVIDUALS WHO ARE ON ANTI RETRO-VIRAL TREATMENT (ART) CONDUCTED AT A SELECTED PRIMARY HEALTH CARE (PHC) CLINIC IN KHAYELITSHA, CAPE TOWN

Author

Noluvo Rode

UNIVERSITY of the WESTERN CAPE

The research content, or the author's intentions, were not altered in any way during the editing process, and the author has the authority to accept, or reject my suggestions and changes.

Should you have any questions or concerns about this edited document, I can be contacted at the listed telephone and fax numbers or e-mail addresses.

Yours truly

E H Londt
Publisher/Proprietor

STREET ADDRESS
9 Dartmouth Road
Muizenberg 7945

POSTAL ADDRESS
P O Box 00000
Muizenberg 7946

TELEPHONE
021 788 1577

FAX
021 788 1577

MOBILE
076 152 3853
082 878 9509

E-MAIL
eddi.idea@gmail.com
eddi.aquarian@gmail.com
eddi.londt@gmail.com

WEBSITE
www.aquarianpublications.com

PUBLISHER/PROPRIETOR
E H Londt

https://etd.uwc.ac.za/