# Title Page:

**Title:** Multi-component frailty assessment tools for older people with psychiatric disorders: A systematic review

**Short running title:** Frailty assessment and psychiatric disorder

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**Impact statement:** We certify that this work is novel. To the authors best knowledge this is the first systematic review to consider frailty assessment in the context of psychiatric disorder in older adults. This review highlights that no existing multi-component frailty assessment has been developed for or validated in older adult populations with psychiatric disorders. It also highlights that significant construct overlap and potential confounding exists between the indicators of frailty as conceptualised in existing frailty assessment tools and DSM-5 diagnostic criteria for common psychiatric disorders, including Major Depressive Episode and Generalised Anxiety Disorder. It determines that further research is necessary to establish a reliable and valid tool to assess frailty in this population.

## ABSTRACT:

**Objective:** To review evidence evaluating the use of multi-component frailty assessment tools in assessing frailty in older adults with psychiatric disorders. **Methods:** A systematic literature review was conducted to identify all multi-component frailty assessment tools (i.e. a tool that assesses ≥2 indicators of frailty). The items of each frailty assessment tool were compared to DSM-5 diagnostic criteria for psychiatric disorders to assess construct overlap. Studies conducted in community, inpatient and outpatient clinical settings were considered for inclusion. **Participants:** Adults aged ≥60 years old. **Results:** 5,639 studies in total were identified following the removal of duplicates; 97 of which were included for review. Of the 48 multi-component frailty assessment tools identified, no tool had been developed for, or validated in, older adult populations with psychiatric disorder. 24/48 frailty assessment tools contained a psychological assessment domain, with 18/48 tools using presence of depressed mood and/or anxiety as a frailty indicator. Common areas of construct overlap in frailty assessment tools and DSM-5 diagnostic criteria included weight loss (29/48) and fatigue (21/48). **Conclusions:** Significant construct overlap exists between the indicators of frailty as conceptualised in existing frailty assessment tools and DSM-5 diagnostic criteria for common psychiatric disorders, including Major Depressive Episode and Generalised Anxiety Disorder, which has the potential to confound frailty assessment results. Further research is necessary to establish a reliable and valid tool to assess frailty in this population.



**Keywords:** frailty assessment, psychiatric disorder.

## INTRODUCTION:

Frailty is a prevalent issue in later life, with evidenced links to adverse outcomes including functional decline, falls, institutionalisation and mortality.[1-5] Frailty is a multifactorial clinical state or syndrome; it represents decline in multiple physiological systems resulting in poor maintenance of homeostasis and decreased reserves and resilience to stressors[6,7]. There are number of models to conceptualise frailty, the two most widely accepted being the Canadian Study of Health and Ageing Cumulative Deficit Model[8] and the Cardiovascular Health Study Phenotype Model[9]. The Cumulative Deficit Model assesses frailty through an index of deficits associated with aging including disabilities and diseases; a higher index score indicates a higher level of frailty, with no cut point to distinguish between frail and robust[8]. The Phenotype Model establishes a frailty phenotype consisting of the following frailty indicators; involuntary weight loss, self-reported exhaustion, self-reported sedentary behaviour, slow gait speed and weak grip strength[9]. The presence of zero frailty indicators suggests an individual is robust, 1-2 frailty indicators is suggestive of pre-frail (the intermediate stage between robust and frail) and ≥3 indicators confirms frailty[10].

Frailty and psychiatric disorders, such as Major Depressive Disorder and Generalised Anxiety Disorder, are thought to be distinct but highly related clinical entities.[11,12] Evidence suggests that frailty and psychiatric disorders are highly co-morbid[12,13]. A recent systematic review of evidence exploring comorbidity of frailty and depression found that 4-16% of frail adults aged ≥60 years had major depression, with this rising to 35% in frail older adults aged ≥75 years and in male populations.[13] The rate of co-morbid frailty in depressed older adult populations reached 46-57%.[13]

In addition to comorbidity there is good evidence to support a bidirectional association between depression/anxiety and frailty in later life.[12,14-16] Evidence suggests that older adults with a psychiatric disorder are at an increased risk of becoming frail and often experience the highest levels of frailty.[17,18] For example, a cross sectional observational study by Collard and colleagues[19] found that the overall prevalence of physical frailty in a depressed older adult population was 27.0%, three times higher than the prevalence in the study's non-depressed sample (9.1%). Conversely, evidence suggests that frailty is associated with an increased chance of developing clinically meaningful depression and anxiety symptoms.[12,14-16] Further to this, physical frailty has been shown to adversely affect the course of late-life depression, with increased odds of non-remission associated with increased physical frailty[20]. Brown and colleagues[21] have recently proposed a depressed frail phenotype as a high-risk profile for late life frailty. Given that psychiatric disorders are also pervasive late life issues with increased risks for many of the same adverse outcomes as frailty including dementia and morality,[22,23] frailty in the context of psychiatric disorder warrants specialist clinical detection and intervention.

Frailty is widely considered to be a dynamic process with potential for restorative and preventative clinical interventions.[6,24] The need to develop new treatment modalities to address frailty in the context of psychiatric disorders has been recently highlighted[13,25]. The accurate assessment of frailty is key in the development and provision of such interventions. A recent systematic review of the psychometric properties of existing multi-component frailty assessment tools found the extent and quality of psychometric testing of these tools to be limited[26]. Only two of the thirty-eight tools included for review evidenced reliability and validity data within statistically significant parameters and were of fair-to-excellent quality according to the COnsensus-based Standards for the selection of health

Measurement INstruments (COSMIN) checklist[27]; the Frailty Index-Comprehensive Geriatric Assessment (FI-CGA)[28] and the Tilburg Frailty Indicator (TFI)[29]. To date, there is no frailty assessment tool that is widely accepted as a gold standard.[26]

Given the high co-morbidity of frailty and psychiatric disorders in late life, associations between the two, the increased risk for adverse outcomes and potential for restorative and preventative interventions, the accurate assessment of frailty in older adult psychiatric populations should be a priority. Of the 10 systematic reviews concerning frailty assessment published to date,[7,26,30-37] none have considered frailty assessment in the context of mental illness. Therefore, the aims of this review were to: (1) Establish if any existing multi-component frailty assessment tools have been developed for or validated in older adult populations with a diagnosis of psychiatric disorder, and (2) establish any construct overlap between the assessment domains of existing multicomponent frailty assessment tools and the Diagnostic and Statistical Manual of Mental Disorders (DSM–5) diagnostic criteria for psychiatric disorders in older adults, exploring the potential impact of this on valid and reliable frailty assessment in this population.

## METHODS:

Search strategy

The following databases were searched on 15th February 2017: Medline (1946–present), PsychINFO (1806–present), Embase (1947– present) and the Cochrane Central Register of Controlled Trials. The search strategy used was: frailty AND (older OR elder* OR geriatr*) AND (measure* OR assess*). The reference lists of 10 systematic reviews[7,26,30-37] concerning

frailty assessment identified through the above search strategy were also searched manually.

Selection criteria

Studies were selected for inclusion for review if they met the following criteria:

- All study participants were aged ≥60 years old.
- The study described a multi-component tool, which was defined as a tool that assesses ≥2 indicators of frailty, such as a frailty index.
- The study described a tool that was specifically developed to assess frailty.
- The main purpose of the study was the development and/or evaluation of the reliability and validity of a multi-component tool to assess frailty.
- The study applied the original version of a multi-component tool to assess frailty.
- The full content of the multi-component tool was available (including all indicators of frailty, units of measurement and scoring systems).
- The study reported quantitative data.
- The full peer-reviewed study text was available.
- Studies were available in English or were translated wherever possible.

See supplementary file 1 for an expanded explanation of study selection criteria. The title and abstracts were screened, and potentially eligible studies were selected for inclusion by JLS. Studies were considered for inclusion regardless of their methodological quality.

## Data extraction and analysis

Data were extracted regarding: i) study characteristics; ii) the population each tool was developed for and validated in; iii) the content of each frailty assessment tool. Data for items i) and ii) were extracted by two independent raters, while data for items iii) were extracted by JLS.

Following data extraction, the assessment items of each frailty assessment tool were compared to the DSM–5 diagnostic criteria for the seven common psychiatric disorders in older adults; Major Depressive Disorder (MDD), Bipolar Affective Disorder (BAD), Schizophrenia, Generalised Anxiety Disorder (GAD), Social Anxiety Disorder (SAD), Specific phobia (SP) and Panic Disorder (PD).[22,38] An assessment of definite construct overlap between the items of the frailty assessment tools and the DSM-5 diagnostic criteria was then completed. Definite construct overlap was defined as instances where the frailty assessment tool item and DSM-5 diagnostic criteria were conceptually the same (for example, 'troubles with sleeping' and 'Insomnia or hypersomnia'). The exact units and process of measurement did not need to be the same, but they must have assessed the same theoretical construct. The potential for an individual to be assessed as frail or pre-frail based on mental health symptoms alone was also reviewed. Assessment of definite construct overlap was completed by two independent blind raters (JLS, RG, MC, EW, AB, MLS, MS, AR). Any disagreements were resolved through discussion.

## Assessment of methodological quality of studies included for review

The COSMIN checklist is a standardized tool for evaluating the methodological quality of studies examining measurement properties of health-related instruments.[27,39,40] It assesses measurement properties across the following domains, awarding ratings of 'excellent',

'good', 'fair', or 'poor' quality; internal consistency, reliability, measurement error, content validity, structural validity, hypotheses testing, cross-cultural validity, criterion validity and responsiveness.[27,39,40] A rating of 'excellent' indicates that the evidence provided for that measurement property is adequate. A rating of 'good' indicates that the evidence provided can be assumed to be adequate. A rating of 'fair' indicates that the evidence is questionable, and 'poor' indicates that the evidence provided is inadequate. The COSMIN checklist was applied to each study and data were extracted by two independent, blind raters (JLS, RLG, MCC, AMB, EVW, MLS, GL). Any disagreements were resolved through discussion.

Reporting

This review followed the PRISMA standards[41] for reporting of systematic reviews.

## RESULTS:

Literature search and inclusion for review:

The literature search identified 5,639 records in total following the removal of duplicates; from which 95 studies were included for review following assessment against selection criteria (see Fig. 1).[3,9,28,29,42-132]

Study characteristics

A full outline of study characteristics is provided in supplementary table 1. Forty-eight multi-component frailty assessment tools were examined across 95 studies.[3,9,28,29,42-132] The most frequently observed study design was prospective cohort (32/95 studies).[3,42-46,9,48-51,70-72,74,75,80,82,86,89,91,94,97,99,103,107,109,116,118,131,132] Of the 62 studies with follow-up data available,

follow-up periods ranged from 1 month[53,64,73] to 348 months.[119] The total number of participants per study ranged from 14[121] to 931,541.[67] The overall total percentage of female participants, calculated by pooling the percentage female population from the 84/95 studies with data available, was 65.9%. The overall mean age of participants, calculated by pooling the mean ages from the 73/95 studies with data available, was 74.9 years. Participants were most commonly sampled from The Netherlands (29/95 studies).[29,60-62,68,76,77,84,86-92,95,96,98,101,102,107,111,113-115,125-128] The cohorts were predominantly community based, general older adult populations (51/95).[3,9,29,42,46,48,50,56-58,60-62,67,69,70,74,76,77,79,81,82,84-88,90,95-99,103,105,106,108,109,111,118,119,123-132] Only one of the 95 cohorts consisted of 'psychogeriatric patients' (80.8% diagnosed with dementia, 5% depression, 11% unspecified, 3% no mental disorder).[107] Data regarding participant mental health diagnoses were not available in the remaining 94 studies.

Methodological quality of studies included for review

The COSMIN checklist results are detailed in supplementary table 2. In total, 7/95 studies had one aspect of methodological quality rated as excellent.[48,56,59,84,99,111,132] All ratings of excellent were in relation to content validity. A further 7/95 studies had at least one aspect of methodological quality rated as good; hypothesis testing being the measurement property with the highest number of good ratings (4/7).[67,73,88,101,103,122,123] 70/95 studies had at least one aspect of methodological quality rated as fair.[3,9,28,29,42,44,45,47,48,51-60,62,64,66,69-72,74-77,81-87,89-99,101-103,106,107,109-118,120,124,125,127-129] Hypothesis testing had the greatest number of fair ratings (65/70). 42/95 studies had at least one aspect of methodological quality rated as poor. [43,46,50,52,53,57,58,60,61,63,65,68-70,76,78-80,82,84,86-88,91,98-100,104,105,108,111,112,115,118,119,121,126,129,130]

Criterion validity had the greatest number of poor ratings (30/42). Five studies cited low response rates as a study limitation.[29,76,125,126,128]

Construct overlap between multi-component frailty assessment tool items and psychiatric disorder

Figure 2 summarizes key findings in relation to the review aims. Table 1 provides an overview of construct overlap observed in relation to frailty assessment domains and supplementary table 3 provides an overview of all construct overlap observed. Of the tools reviewed, only 7/48 had no definite construct overlap between frailty assessment tool items and DSM-5 diagnostic criteria for MDD, BAD, Schizophrenia, GAD, SAD, SP or PD; Brief Clinical Instrument to Classify Frailty,[42-44] Clinical Frailty Scale (CFS),[48-51] Frailty predicts death One yeaR after CArdiac Surgery Test (FORECAST),[54,55,73] Frailty Index Based on Common Laboratory Tests (FI-LAB),[75] Korean Longitudinal Study of Health and Aging (KLoSHA) Frailty Index,[99] Palumbo Frailty Index,[102] and the 9-Item Frailty Measure.[132] In 29/48 tools, definite construct overlap was established between the nutritive domains of the frailty assessment tool (weight loss/reduced appetite) and DSM-5 diagnostic criteria for MDD and BAD[38] concerning weight loss and appetite changes.[3,9,28,29,43,44,47,52,59,63-67,70-72,76-79,81,82,84-98,100,101,103-106,108,109,111-131] Definite construct overlap was observed between frailty items concerning fatigue and the DSM-5 diagnostic criteria for MDD, BAD and GAD[38] concerning fatigue in 21/48 tools.[3,9,28,43,47,52-55,68,69,76-79,81,83,85,87,93,97,103-105,108-118,121-131] In 9/48 tools, definite construct overlap was established between cognitive items relating to concentration and processing skills and the DSM-5 diagnostic criteria for MDD, BAD and GAD,[38] concerning diminished ability to think or concentrate.[28,44,45,67,70-72,76,77,80,87,100,107,119-130] Definite construct overlap was observed between the frailty item ‘slowness’ and

psychomotor retardation; a DSM-5 diagnostic criteria for MDD, BAD[38] in 8/48 tools.[3,9,43,53-55,82,103-105,107-109,111-115]Definite construct overlap was observed between frailty indicators concerning reduced activity levels and the DSM-5 diagnostic criteria for schizophrenia,[38] concerning negative symptoms in 8/48 tools.[39,50-52,64,65,77,82,105-108,111,114-118] Definite construct overlap was also identified between sleep disturbance domains and the DSM-5 diagnostic criteria for MDD, BAD and GAD,[38] concerning sleep disturbance in 4/48 tools.[47,67,74,76,77] A detailed summary of all construct overlap between all 48 frailty assessment tool items and DSM-5 diagnostic criteria for MDD, BAD, schizophrenia, GAD, SAD, SP & PD is provided in Supplementary tables 4-10, respectively.

Of the 31 tools for which there is a clear cut-off point to distinguish between individuals who are frail or robust, an individual could be classified as frail solely on the basis of their mental health symptoms in 11/31 tools,[3,9,28,43,44,70-72,78,79,100,103-105,107-109,116-120] and as pre-frail on a further 4/31[45,58,110-115] (15/31total).

21/48 multi-component frailty assessment tools identified in this review contain a psychological assessment domain (domains/items concerning 'psychological indicators of frailty' defined by the author).[28,43-47,52,56,57,59-66,68-72,76-78,81,84-92,94,100,101,109,110]

18/48 tools include the presence of depressed mood and/or anxiety as specific measurement items indicating frailty.[28,43-47,52,56,57,59-66,68-72,76,77,81,84-92,94,100,101] 12/48 tools include items from existing psychiatric assessment tools; five of which use items from the Centre for Epidemiological Studies-Depression Scale (CES-D).[3,9,43,58,68,79,104,105,108] Other tools included the Hospital Anxiety and Depression Scale (HADS)[59] and the Beck Depression Inventory II.[94] However, in the majority of these cases, items included from existing mental

health tools were used to assess fatigue (7/12),[3,9,43,58,68,79,81,93,104,105,108] rather than the presence of mental illness (5/12).[28,44,45,63,70-72,94,100]

## DISCUSSION:

To the authors' knowledge, this is the first systematic review that has considered frailty assessment in the context of psychiatric disorder in older people.

In summary, no tool identified in this review has been developed for or validated in older adult populations with psychiatric disorder. One tool that has been tested in a psychogeriatric population; the Prognostic Risk Score,[107]was developed for and validated in a cohort of whom 80.8% had a dementia diagnosis. This identifies a gap in the current research.

Only seven tools were identified as having no definite construct overlap with DSM-5 diagnostic criteria: Brief Clinical Instrument to Classify Frailty[42-44] and CFS,[48-51] which are screening instruments designed for use in general hospitals; FORECAST[54,55,73], which was designed to assess frailty following cardiac surgery; FI-LAB[75], which is based on common laboratory tests for use in long-term residential care facilities; KLoSHA Frailty Index[99], developed for use with community-dwelling elderly Korean population; Palumbo Frailty Index[102], designed to assess frailty in multiple myeloma patients; and 9-Item Frailty Measure[132], designed for use in routine geriatric practice. However, as noted, none of these tools have been developed for use in a mental health setting, or with consideration for the complex interactions between frailty and psychiatric disorder. Significant construct overlap was identified between indicators of frailty as conceptualised in existing frailty assessment tools and DSM-5 diagnostic criteria for seven common psychiatric disorders. The diagnostic criteria for MDD (and thus the depression criteria for BAD) had the highest proportion of

definite construct overlap with frailty assessment items (41/48 tools). The diagnostic criteria for GAD also had a high proportion of definite construct overlap (34/48 tools). The diagnostic criteria for SAD and SP had the lowest proportion of definite construct overlap observed (11/48 tools and 10/48 tools respectively).

21/48 frailty assessment tools contained a psychological assessment domain, with 18/48 tools including the presence of depressed mood and/or anxiety as a frailty indicator. The frailty indicators and DSM-5 diagnostic criteria that had the most construct overlap concerned weight loss (29/48 tools) and fatigue (21/48). This construct overlap was further confounded by the inclusion of questions from existing psychiatric assessment tools to assess fatigue in 7/48 tools. For the tools for which there is a clear cut-off point to distinguish between individuals who are frail or robust; an individual could be classified as frail or pre-frail solely based on their mental health symptoms in half of them (15/31 tools). This thus demonstrates significant potential for inaccurate assessment and recognition of frailty in psychiatric populations.

Specifically, significant construct overlap and confounding was observed for the frailty assessment tools with the most extensive reliability and validity testing;[26] FI-CGA[28] and TFI[29]. FI-CGA[28] items such as 'problems with mood', 'problems with motivation' and 'changes in weight' were observed to have definite construct overlap with DSM-5 diagnostic criteria for MDD. On FI-CGA[28] it is possible to be assessed as frail based on psychiatric symptoms alone; the tool contains a psychological assessment domain and utilises questions from the Geriatric Depression Scale[133] to assess mood, further increasing confounding. TFI[29] items such as 'unexplained weight loss', 'physical tiredness' and 'feeling down' were observed to have definite construct overlap with DSM-5 diagnostic criteria for MDD. The TFI also

includes a psychological assessment domain. Whilst it is not possible to be assessed as frail based purely on the definite construct overlap observed for TFI, the level of overlap is such that it is likely to confound frailty assessment in psychiatric populations. Definite construct overlap was also observed for tools based on the prominent Cumulative Deficit Model[74] and Phenotype Model[9], increasing the risks of confounding when assessing frailty with such tools in psychiatric populations.

It is of note that there were many frailty assessment items for which a direct plausible association with DSM-5 diagnostic criteria was observed, but which did not meet the criteria for definite construct overlap. For example, tools such as the FI-LAB[75]contain a measure of serum albumin as part of a nutritive domain, with low levels indicating malnutrition. Whilst this cannot be classified as definite construct overlap with the MDD diagnostic criterion 'unintentional weight loss', there is a direct and plausible association. Tools such as the Brief Frailty Index[45] and Prognostic Risk Score[107] included 'low body mass index ' as an indicator of frailty, which again whilst highly associated with 'unintentional weight loss', did not meet the criteria for definite overlap. Another example are tools such as the Palumbo Frailty Index[102] and the KLoSHA Frailty Index[99] which include a functional assessment of instrumental activities of daily living (IADL). Whilst no definite construct overlap was identified, there is a plausible association between IADL assessment performance and the symptoms of fatigue and reduced interest in activities and concentration associated with MDD.

<u>Research and clinical implications</u>

No frailty assessment tool identified in this review has been developed for use with, nor had its reliability or validity tested in older adult psychiatric populations. Consequently, the

evidence-base for each frailty assessment tool lacks interpretability and generalisability in relation to psychiatric populations, significantly increasing the risk of invalid assessment and identification of frailty. Additionally,, the risk of invalid frailty assessment in psychiatric populations is increased with the application of frailty assessment tools: i) for which definite construct overlap was observed between assessment items and DSM-5 diagnostic criteria; ii) that include a psychological assessment domain; and iii) include items derived from psychiatric assessments.

Given the established high level of comorbidity of frailty with psychiatric disorders and evidenced associations between psychiatric disorders and frailty, inaccurate assessment of frailty in psychiatric populations holds substantial clinical risks. If frailty is not recognised and treated within this high-risk population, the potential for adverse outcomes including worsening of psychiatric symptoms and delayed psychiatric remission increases.[13,21,25] Similarly, if an individual is inaccurately assessed as being frail or pre-frail based on psychiatric symptoms alone, then this could inappropriately or unnecessarily inform treatment planning and provisions. At a wider level, the presence of frailty and psychiatric disorders individually represent increased risks of adverse outcomes including functional decline, institutionalisation and mortality.[1-5,22] Accurate assessment and thus treatment of frailty in the context of psychiatric disorder is essential in minimising risks of such adverse outcomes and associated increased healthcare service utilisation.

In research terms, the implications of inaccurately assessing frailty are also substantial, including an increased likelihood of the interpretation and reporting of flawed results. There exists the potential to identify a research population as frail based on their mental health symptoms alone, thus limiting the potential to identify a ‘true’ frail psychiatric population.

Considering the established research priorities specific to this population, including the need to develop specialist treatments and preventative interventions, the impact of this is considerable.

Further research is necessary to establish a reliable and valid tool to accurately assess frailty in older adults with a diagnosis of psychiatric disorder. Some level of construct overlap and confounding between the indicators of frailty and of psychiatric disorder is inevitable. For example, sarcopenia is widely considered to be a fundamental component of the frailty syndrome, and unintentional weight loss is an established symptom of MDD, both of which are highly related concepts. However, it may be possible to minimise this construct overlap by considering the way that indicators are conceptualised and measured, for example, by defining and measuring the frailty indicator 'slowness' in a way that minimises construct overlap with psychomotor retardation. Future research is required to establish this.

Limitations of the review

This review has several limitations. The search strategy was completed in February 2017, therefore any potentially relevant studies published after this date were not considered for review. Studies were assessed against inclusion criteria by the lead author (JLS) only, increasing the risk of selection bias. This was minimised by strict adhesion to the search strategy and following the PRISMA standards for reporting in systematic reviews. Data extraction concerning the content of frailty assessment tools was also completed by JLS only, however all analysis including assessments of construct overlap were completed by two independent raters. Studies concerning tools that were not explicitly developed to assess frailty were excluded, limiting the scope of this review but deemed appropriate given the multifaceted nature of the frailty presentation. The COSMIN checklist applied also has a

number of limitations (see previous review for discussion of these limitations)[16]. However, COSMIN is a standardized tool for evaluating the methodological quality of studies examining measurement properties of health-related instruments, so it was deemed appropriate. In establishing construct overlap between frailty assessment tool items and psychiatric indicators, the use of a different set of diagnostic criteria for mental illnesses such as the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10)[134] may have produced variation in the areas of construct overlap identified. Due to the large volume tools reviewed, it was not possible to apply two separate sets of diagnostic criteria. As the DSM-5 provides in-depth descriptions of diagnostic criteria and is widely used, it was considered appropriate. Finally, whilst the majority of construct overlap observed was due to actual construct overlap; a small amount could be attributed to ambiguous wording of the frailty assessment tool items. For example, the term ''problems with'' allows for a large range of symptoms to be scored under one item.

## Conclusions

To date, no multi-component frailty assessment tool has been developed for or validated in older adult populations with psychiatric disorders. This review has provided an in-depth analysis of construct overlap and confounding between the indicators of frailty as conceptualised in existing frailty assessment tools and DSM-5 diagnostic criteria for seven common psychiatric disorders. In designing a tool for use with older adults with a diagnosis of psychiatric disorder, special consideration should be given, where possible, to minimising the construct overlap identified in this review. Further research is necessary to establish a reliable and valid tool to accurately assess frailty in this specific population.

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