



How to Measure Depression in Low-resource Settings

By Julia Ruiz Pozuelo and Alan Stein

Depression is one of the most disabling and costly illnesses worldwide. Globally, the total number of people with depression is estimated to exceed 280 million.¹ Depression is associated with poor health and economic outcomes such as substance use disorders, HIV, educational impairments, and poverty.² It is also a major risk factor for suicide, the cause of death of around 800,000 people every year.³

Depression is underdiagnosed and undertreated around the world. This is particularly the case in low-income countries, where data on the prevalence of depression as well as the resources to address it are scarce.^{4,5}

Measuring depression in these settings is an essential starting point to understand the magnitude of the problem, develop treatment programmes, monitor progress, and inform policy. In this post, we discuss how depression is defined and which tools exist to measure it. We conclude with some best practices to follow when using these tools in research studies conducted in low-resource settings.

Definition and Classification

Depressive disorders are characterized by a combination of symptoms that affect the way that people feel, think, and behave. Depressive disorders include two main sub-categories:⁶

- *Major depressive disorder (or major depression)* involves the experience of depressed mood or loss of interest or pleasure almost all day, every day, for at least two weeks. Symptoms must affect how well an individual is able to keep up with normal functioning of daily life (e.g. taking care of household responsibilities, getting dressed, going to work).
- *Persistent depressive disorder (or dysthymia)*. Symptoms of dysthymia are similar to major depressive disorder, but tend to be less intense and last for an extended period of time (at least two years).

There are two main classification systems for guiding the diagnosis of depression:

- The first one is *The International Classification of Diseases (ICD)* published by the World Health Organization.⁷ The latest ICD revision is the 10th edition (ICD-10).
- The second one is *The Diagnostic and Statistical Manual of Mental Disorders (DSM)* published by the American Psychiatric Association.⁸ The latest DSM revision is the 5th edition (DSM-V).

These diagnostic systems identify a number of symptoms that need to be present during a 2-week period to make a diagnosis (table 1 lists those). Both classify depressive episodes as mild, moderate, and severe based on the number, type and severity of symptoms, and degree of functional impairment.

While both systems share a lot of similarities, there are also some differences. For example, in ICD-10, the individual must have at least four symptoms for a diagnosis (with at least two ‘core symptoms’), while in the DSM-V the individual must have at least five symptoms (with at least one “core symptoms”) to make a diagnosis. Further, the ICD-10 defines three “core symptoms” (depressed mood, loss of interest, reduction in energy), while the DSM-V only considers the first two to be core symptoms.

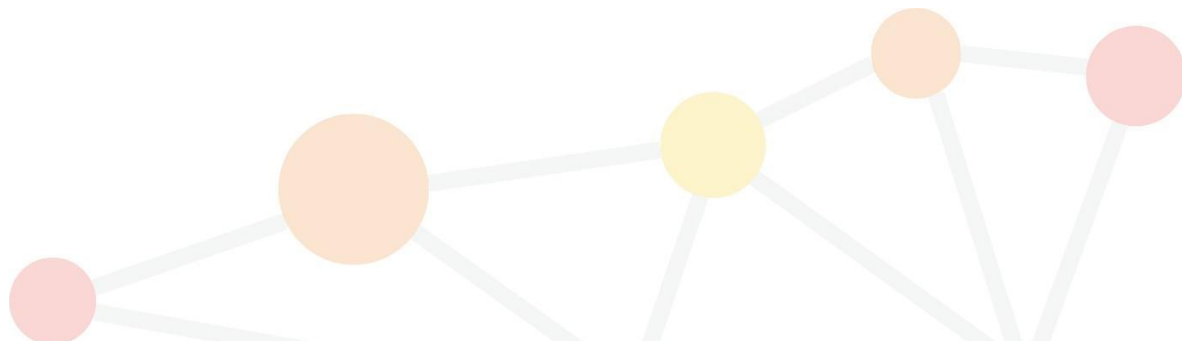


Table 1. Key symptoms of depressive disorders (ICD-10 and DSM-V)

Core symptoms	Depressed mood
	Loss of interest or pleasure (anhedonia)
	Fatigue or loss of energy (<i>core symptom for ICD-10; additional symptom for DSM-V</i>)
Additional symptoms	Loss of confidence and self-esteem*
	Feelings of worthlessness and guilt
	Suicidal ideation, plan, or attempt
	Diminished ability to think, concentrate or indecisiveness
	Psychomotor agitation or retardation
	Sleep disturbance
	Change in appetite and weight

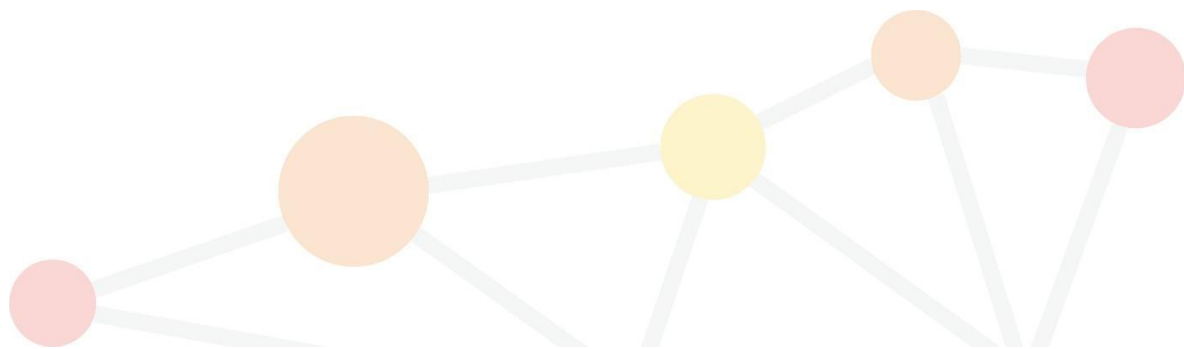
* This symptom is only included in the ICD-10 classification. The rest of the symptoms are the same across both diagnostic systems.

Measurement Methods

There are two methods to measure depression. The first one is using a standardised diagnostic interview, which is the recommended method to make a diagnosis of clinical depression. The second method is using depressive symptoms scales, which are often used to assess the severity of symptoms and as screening tools to identify individuals who may have depression.

As its name suggests, depressive symptoms scales measure “depressive symptoms” and as such do not provide a clinical diagnosis. A clinical interview would be necessary to provide definitive confirmation of whether a depressive disorder is present. However, recent evidence has shown that when compared to standardised diagnostic interviews, some depressive symptoms scales are reliable and valid instruments to identify depression, particularly for more severe cases.⁹ We provide more information on these two methods below.

1. Standardised diagnostic interviews: Interviews can either be structured (i.e. fully scripted) or semi-structured, which – along with standardised questions – also include some probing questions and rely on clinical judgement to make a diagnosis. They are designed to be administered by clinicians or trained ‘lay’ interviewers. Examples include the Composite International Diagnostic Interview (CIDI), the Diagnostic Interview Schedule (DIS), and the Structured Clinical Interview for DSM (SCID).



Standardised diagnostic interviews are often considered the ‘gold standard’ for depression diagnosis in clinical psychiatry research.¹⁰ However, they take time to conduct (45 mins – 2 hours) and require extensive training, making them expensive and often not feasible to use in low-resource settings.

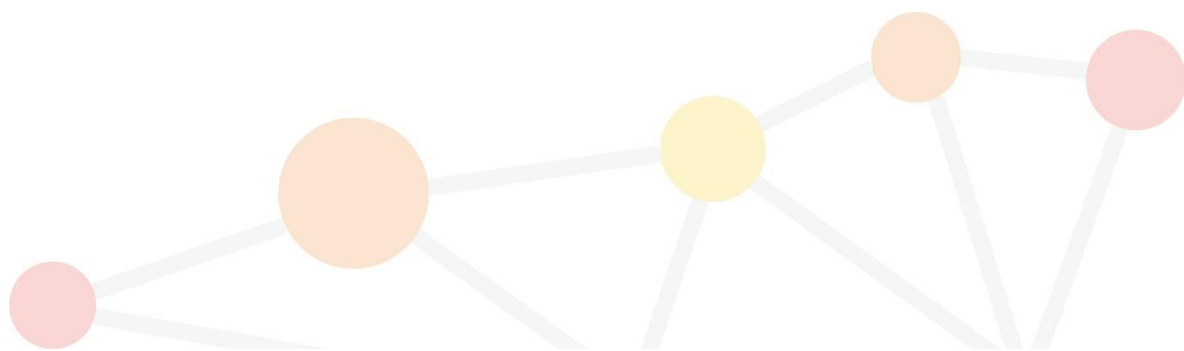
2. Depressive symptoms scales: These tools ask about the number, type, and severity of symptoms. These are often self-administered, and are simpler and quicker to implement.

There are at least 280 depressive symptom scales to measure depression, each of which was developed for different settings and purposes.¹¹ For example, some scales were developed to assess severity of symptoms or monitor progress during treatment in already diagnosed individuals, while other scales can be used as screeners for depression in general population settings. Table 2 provides some examples of the most widely used tools in mental health research.

Table 2. Examples of Depressive Symptoms Scales

Tool	Items	Other versions	Age range	Cost
Patient Health Questionnaire (PHQ-9) ¹²	9-items	- PHQ-8: omits item on suicidality - PHQ-A: modified version for adolescents - PHQ-2	≥12 years	Free
Revised Child Anxiety and Depression scale (RCADS-25) ¹³	25-items	- Low mood subscale (10-items)	8–18 years	Free (user must read and agree to the terms of use)
Center for Epidemiological Studies Depression (CESD) ¹⁴	20-items	- Short version: CES-D-10	≥13 years	Free
Depression Anxiety Stress Scales (DASS) ¹⁵	42-items	- Short version: DASS-21	≥17 years	Free (yet DASS manual costs US\$55.00)
Beck Depression Inventory (BDI) ¹⁶	21-items	- Updated version: BDI-II - Short version: BDI-13	≥13 years	Available for purchase
Children’s Depression Inventory 2 (CDI-2) ¹⁷	28-items	- CDI 2 Short (12-items) versions to be completed by parents and teachers about a child are also available	7–17 years	Available for purchase

The appendix below includes the specific scales (only for those that are freely available), as well as additional information about scoring and copyright.



Best Practices

1. Ethical considerations

Several ethical issues may arise when measuring depression in a research study, particularly when a severe case for depression is detected. The following steps are recommended to minimise ethical issues:

a) Develop a risk management protocol in advance. The risk management protocol should outline the procedures that will be used to ensure participants' safety, as well as the relevant personnel that will be responsible for implementing and overseeing these procedures. An appropriate referral system for any participant that shows an indication of being severely depressed and/or suicidality must be in place. Researchers should engage with local service providers (e.g. social workers, psychologists, psychiatrists) to ensure that the risk management protocol is feasible and comprehensive.

b) Train enumerators to minimise stigma and emotional harm. It is possible that some participants may feel uncomfortable when discussing experiences of low mood or recalling upsetting events. Enumerators should be trained on how to ask questions in a supportive and non-judgmental way, manage distress, and maintain participant's privacy and confidentiality. Some studies have relied on Audio Computer Assisted Self-Interviewing (ACASI) to minimise discomfort among participants (more information about this method can be found in [this post](#)).

2. Stick to 'common mental health metrics'

In July 2020, two of the largest funders of mental health research worldwide — the National Institute of Mental Health (NIMH) in the US and the Wellcome Trust in the UK — [announced plans](#) to standardize mental health measurement.

As part of this initiative, they recommended (and will later be mandating) the use of a small number of metrics for use in mental health research, particularly for that involving young people.

The following set of outcome measures were recommended: (i) the Patient Health Questionnaire (PHQ-9) for depression, (ii) the General Anxiety Disorder (GAD-7) for anxiety, (iii) Revised Child Anxiety and Depression Scale (RCADS-22) for depression and anxiety in children and adolescents, and (iv) World Health Organisation Disability Assessment Schedule (WHODAS) for impact on adult functioning.

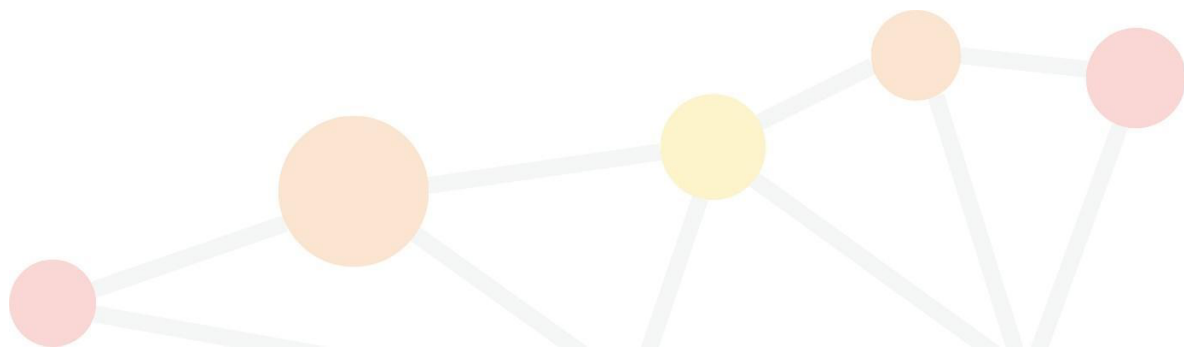
Researchers wanting to measure depression should prioritise these tools, as this will allow comparisons across multiple contexts, monitor progress over time, and ensure that differences found are not simply artefacts of the way different studies have collected data on depression.

3. Cross-cultural comparability and psychometric properties

There is a large body of evidence suggesting that the language used to describe symptoms varies across different contexts, and as a result, these tools might not measure the same construct across settings.¹⁸ It might also be that the extent to which symptoms are recognized as an illness as opposed to natural consequences of negative events in life also differ across cultures, which could impact the capacity of individuals to recall these symptoms on inquiry.

Most diagnostic criteria and depressive symptoms scales were developed in high-income countries, and thus might not be appropriate in other contexts due to translation challenges. For example, in the Zimbabwean Shona language the term "depression" doesn't exist, and thus, researchers have typically used other terms such as '*kufungisisa*' (which means thinking too much) to explain the concept of depression to patients and health workers.¹⁹

The following steps are recommended to ensure that the tools are culturally and clinically valid:



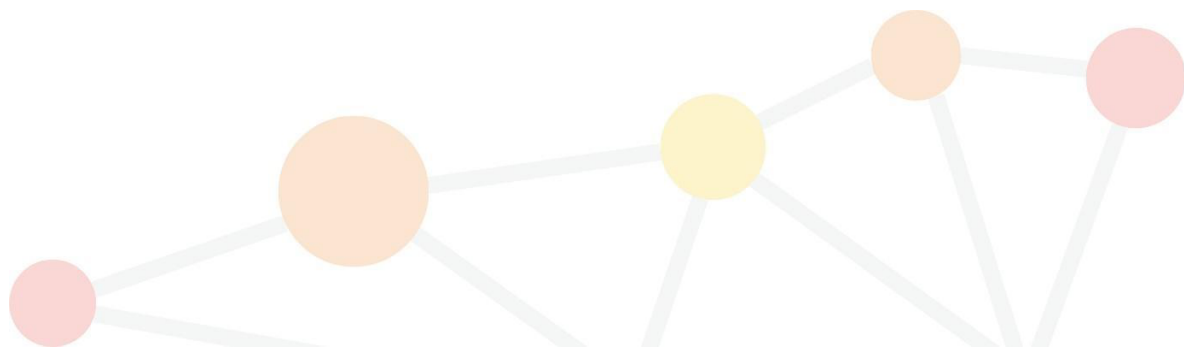
- Use a pre-existing and validated screening tool – ideally validated in the same setting where the study is being conducted (see Sweetland et al., 2013 for a review on depressive symptoms scales that have been validated in sub-Saharan Africa).²⁰
- Check the psychometric properties of the scale (more information on these properties can be found [in this post](#)).
- Conduct heavy piloting of both the content and the administration.

More Data on Depression is Needed

The lifetime risk of depression is high, with almost one in five people experiencing one episode of depression at some point in their life.²¹ Despite the high prevalence and the significant economic costs, data on depression – particularly in low-resource settings – is lacking.

This is surprising given that several factors suggest that the burden of depression is disproportionately borne by individuals in low-income countries: determinants of mental health such as poverty and violence are overrepresented, access to treatment is insufficient (fewer than 10% of depressed individuals in low-resource settings have access to treatment), and stigma associated with mental health care is high.²²⁻²⁴

More data on depression in low-resource settings is needed to understand the extent of the problem, monitor progress, and to inform effective policies. We hope that this post is useful in encouraging more researchers to measure depression as part of their research studies.



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