# Screening for Mental Health Conditions

This is a PDF version of the following document:
Module 2:                          Basic HIV Primary Care
Lesson 6:                          Screening for Mental Health Conditions

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https://www.hiv.uw.edu/go/basic-primary-care/screening-mental-disorders/core-concept/all.

# Background

In the United States, people with HIV have a high prevalence of mental health conditions. This curriculum uses the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) as the basis for screening and classification of these conditions.[1] In the DSM-5-TR, all psychiatric conditions meeting the criteria for diagnosis are referred to as "mental disorders." For the purposes of this curriculum, we refer to mental disorders as mental health conditions. In addition, although people with HIV and mental health conditions often have comorbid substance use disorders, this curriculum addresses the topic of Substance Use Disorders in a separate topic review. Mental health conditions are more prevalent among individuals experiencing poverty, homelessness, and/or incarceration. Among the disorders described in the DSM-5-TR, evidence suggests that major depression has the strongest overall impact on HIV outcomes, but certain less prevalent conditions, such as schizophrenia and bipolar disorder, often lead to a marked negative impact on lifespan in persons with HIV, especially if combined with concomitant substance use disorder.

## Challenges in Mental Health Evaluations in People with HIV

Persons with HIV may also experience neurocognitive deficits. In particular, HIV-associated neuropsychiatric disorder (HAND) is an increasing concern for persons aging with HIV, and HAND often complicates the care of older persons (and some younger persons) with HIV. The aging of people with HIV and neurocognitive problems associated with many of the comorbidities associated with HIV, such as substance use and chronic hepatitis C, contribute to the complexity of diagnosing and managing cognitive problems. In addition, severe depression and psychotic disorders are strongly associated with cognitive problems. Therefore, clinicians caring for individuals with HIV should be aware of the multitude of challenges implicit in the screening, diagnosis, and management of mental health conditions and neurocognitive deficits and should assist their patients in obtaining access to appropriate, integrated neuropsychiatric treatment. It is also important to bear in mind that persons with HIV may have more than one psychiatric or neuropsychiatric diagnosis.

## Overview

This Topic Review will emphasize screening recommendations and tools for people with HIV to identify common mental health conditions, including depression, bipolar disorders, common anxiety disorders, and post-traumatic stress disorder (PTSD), as well as neurocognitive disorders. Delirium in persons with HIV will not be addressed in this review, but delirium should always be ruled out prior to making a psychiatric diagnosis. A detailed discussion of definitions, diagnostic criteria, and treatment for particular DSM-5-TR conditions is beyond the scope of this review. In addition, screening tools for Alcohol/Substance Use Disorders are addressed in the topic Substance Use Disorders.

# Prevalence of Mental Health Conditions

Separate studies performed during different time periods have consistently shown that persons with HIV have relatively higher prevalence rates of various mental health conditions than are present among persons without HIV.[2,3,4,5,6] Several investigators have described a chronic neuroinflammatory state that exists in persons with HIV that may contribute to the high prevalence of depression among people with HIV.[7,8]

- **Depression Symptoms Reported Medical Monitoring Project 2023 Cycle**: This survey, conducted in the United States from June 2023 through May 2024, evaluated 3,711 persons with HIV for the presence of depression during the 2-week period prior to the interview.[9] Using DSM-IV criteria, 16.9% reported depression, including 14.0% of participants reporting moderate or severe depression (using criteria of a PHQ-8 score ≥10) (Figure 1).[9] Because the Medical Monitoring Project largely includes data only from persons with HIV who are receiving care, these data may not entirely reflect rates of depression for all people with HIV in the United States.[9]
- **Anxiety Reported in Medical Monitoring Project 2023 Cycle**: In this Medical Monitoring Project survey, 21.2% of persons with HIV reported anxiety, including 8.6% with severe anxiety (Figure 2).[9] Because the Medical Monitoring Project largely includes data only from persons with HIV who are receiving care, these data may not entirely reflect rates of anxiety for all people with HIV in the United States.[9]
- **PTSD Meta-Analysis in Women with HIV**: In a meta-analysis of psychological trauma and post-traumatic stress disorder (PTSD) in women with HIV from the United States, investigators reported a PTSD rate of 30% among women with HIV, a rate approximately five times higher than among women without HIV.[10]

# Mental Health Conditions and HIV Transmission Risk

For people with HIV, mental health conditions may increase HIV transmission risk, often in the context of substance use.[11] Since persons with HIV who regularly take antiretroviral therapy and consistently maintain suppressed HIV RNA levels do not transmit HIV to sex partners, any factor that negatively influences antiretroviral adherence can interfere with this antiretroviral medication-related transmission benefit.[12] Major depression has been linked to increased rates of nonadherence to antiretroviral therapy, thus raising the likelihood of HIV transmission to partners.[13,14,15] In addition, anxiety, depression, and bipolar disorder have all been linked to increased sexual activity.[16,17,18] Treatment for mental health conditions, including treatment of substance use disorders, should be part of overall efforts to reduce HIV transmission.[19,20,21] A Duke University psychiatry group has generated a conceptual model outlining the impact of mental health treatment on HIV transmission risk behavior in persons with HIV (Figure 3).[20]

# Impact of Mental Health Conditions on HIV Outcomes

## Impact of Mental Health Conditions on the HIV Care Continuum

The presence of untreated mental health conditions in persons with HIV correlates with decreased initiation of antiretroviral therapy, reduced medication adherence, and lower rates of viral suppression, all of which have significant implications for individual health.[22] Studies have established a relationship between reduced adherence with antiretroviral therapy and symptoms of depression, post-traumatic stress disorder (especially in those patients with concomitant depression), and bipolar disorder.[14,18,23,24] Post-traumatic stress disorder has also been shown to predict increased HIV symptomatology among both men and women with HIV, high rates of emergency room utilization, and increased HIV-related morbidity.[25,26]

## impact of Mental Health Conditions on Morbidity and Survival

Mental health conditions have been shown to predict adverse outcomes in some groups of individuals with HIV who have a psychiatric condition. In particular, untreated depression significantly worsens adherence to antiretroviral medication, decreases the likelihood of full virologic suppression or CD4 cell recovery, and appears to increase the risk of disease progression and death.[27] Among individuals with HIV, those with mental health conditions experience increased morbidity and mortality when compared to individuals who do not have these conditions.[28] Certain health problems are inherently increased in general with mental health conditions, such as the well-established association of major depression with heart disease. In addition, some psychotropic medications have the unfortunate side effect of weight gain, contributing to obesity and metabolic syndrome. Further, several studies have shown that anxiety and depression in people with HIV are associated with a decline in cognitive functioning, particularly in learning and memory.[29,30]

# Benefit of Mental Health Care on HIV Outcomes

Among persons with HIV who have mental health conditions, treatment can improve psychiatric symptoms as well as improve adherence to antiretroviral therapy and overall HIV outcomes.[31] In some patients, the diagnosis of a mental health condition may facilitate closer monitoring and medical scrutiny, which fosters engagement in care and improved adherence rates. The following studies highlight evidence that addressing mental health care can have a major favorable impact on HIV outcomes.

- **Women's Interagency HIV Study (WIHS)**: In the Women's Interagency HIV Study (WIHS), researchers analyzed the impact of depression on utilization of antiretroviral therapy in a total of 1,668 women with HIV who were enrolled in the WIHS at 6 sites nationwide between April 1, 1996, and September 30, 1998.[32] The analysis demonstrated that individuals who used mental health services had a 20% increase in the adjusted odds of utilizing antiretroviral therapy compared to those who did not access mental health services.[32]
- **Kaiser/Group Health HMO Study**: In a retrospective cohort study of 3,559 persons with HIV and depression who were enrolled in the Kaiser Permanente and Group Health Cooperative Health Maintenance Organizations (HMOs) in an 8-state region in the period January 2000 through December 2003, investigators analyzed the impact of depression and treatment of depression on HIV outcomes.[33] Among individuals with depression, rates of virologic suppression were lower, but those treated with selective serotonin reuptake inhibitors (SSRIs) had better adherence to antiretroviral therapy, improved virologic suppression, and a greater rise in CD4 cell count compared to their counterparts who did not receive SSRI treatment.[33]
- **Atlanta Metropolitan Study**: In this study, investigators followed 324 persons with HIV (on antiretroviral therapy) across a 3-month period, with the goal of analyzing the impact of adherence to psychotropic medications on both depressive symptoms and antiretroviral adherence.[31] Overall, 33% (106 of 324) of those followed were also prescribed at least one psychiatric medication.[31] The investigators reported depression was associated with lower antiretroviral adherence, but adherence to psychiatric medications, regardless of medication class, increased antiretroviral adherence.[31]
- **UAB Project CONNECT**: In a retrospective analysis of 743 people with HIV who were seen at the University of Alabama at Birmingham (UAB) and enrolled in the Client-Oriented New Patient Navigation to Encourage Connection to Treatment (CONNECT) project between January 1, 2007, and December 31, 2013, investigators reported persons who received mental health services were more likely to be retained in primary care at 12 months relative to those who did not receive mental health services during their first year of care.[34]

# Neurocognitive Disorders in People with HIV

The term HIV-associated neurocognitive disorder (HAND) is used to describe the spectrum of neurocognitive dysfunction that includes asymptomatic neurocognitive impairment (ANI), mild neurocognitive disorder (MND), and HIV-associated dementia (HAD).[35] These three conditions have been classified based on criteria established by consensus research definitions (Table 1).[36]

## Estimates of Neurocognitive Disorders in People with HIV

Cognitive disorders are widespread in the general population, with prevalence estimated to be 5 to 7% in most parts of the world; age is the major predictive factor for the development of dementia, and the prevalence of dementia nearly doubles every 10 years after age 60.[37] Overall, adults with HIV have poorer cognitive performance compared with those without HIV.[3,38,39] The prevalence of HIV-associated neurocognitive disorders (HAND) is estimated to be in the range of 25 to 50%.[38,40,41] In the Multicohort AIDS Stud study, only 2% of participants met the criteria for HIV-associated dementia, which is a significant drop from the 10 to 15% prevalence of HIV-associated dementia prior to the availability of effective antiretroviral therapy.[38] In contrast, the prevalence of milder forms of HAND has not declined despite effective antiretroviral therapy, though the study results are complicated by a CD4 nadir below 200 cells/mm$^3$ in 70% of the participants.[38]

## Factors Associated with Neurocognitive Decline in People with HIV

In persons with HIV, older age has been identified as a strong predictor of neurocognitive decline; other factors associated with neurocognitive decline include low nadir CD4 count, detectable plasma HIV RNA levels, previous central nervous system (CNS) injury, and comorbid conditions, such as hypertension, insulin resistance, viral hepatitis, and substance use disorder.[3,38,42] In addition, major depression, another common comorbid condition in persons with HIV, carries a significant burden of cognitive impairment that is reversible in part with the treatment of depression.[43,44] The Multicohort AIDS Study found that asymptomatic neurocognitive impairment doubles the risk of developing symptomatic HAND compared to a diagnosis of normal cognition.[40]Among individuals with cognitive impairment and suppressed HIV RNA levels, intensification of antiretroviral therapy does not improve the cognitive impairment.[45]

## Differential Diagnosis of Neurocognitive Impairment

Although HAND describes a spectrum of neurocognitive impairment from mild to severe, it is important to recognize that persons with HIV continue to be at risk for other causes of neurocognitive decline, including cerebrovascular disease, severe psychiatric disorders, Alzheimer's disease, metabolic disorders (such as hypothyroidism), alcohol and drug use disorders, side effects of psychotropic drugs, neurotoxicity related to certain antiretroviral medications, previous or current central nervous system opportunistic infections (and their sequelae), or other neurological diseases.[3,46,47,48,49] Treatable causes of neurocognitive disorders, such as depression, thyroid disease, B12 deficiency, syphilis, an opportunistic infection, and tumors should be identified and addressed.

## HIV-Associated Brain Injury (HABI)

In 2023, an International HIV-Cognition Working Group issued a Consensus Statement that outlined recommendations for a new approach to cognitive impairment and causes of brain injury in people with HIV.[50] This working group has proposed a shift from using the HAND concept to an emphasis on conceptualizing brain injury in people with HIV as either (1) injury directly caused by HIV (HIV-associated brain injury [HABI]) or (2) injury from causes that are not directly caused by HIV (e.g., cerebrovascular disease, traumatic brain injury, neurodegenerative disorders).[50] In this context, HABI is subdivided based on whether plasma HIV RNA levels are suppressed or not suppressed.[50] Further, for individuals with suppressed plasma HIV RNA levels and evidence of brain injury, the working group characterized the brain

injury as legacy (inactive brain injury from pretreatment damage) or active (ongoing brain injury leading to clinical and/or radiological progression).[50] The HIV-Cognition Working Group provided six main recommendations that summarize a new diagnostic approach to cognitive impairment in people with HIV ( Table 2).[50]

# Overview of Screening Tools

## Barriers to Usefulness of Screening Tools

The primary limitation of screening tools for mental health conditions is the low rates of further diagnostic evaluation and linkage to and retention in mental health care that follows the initial screening. This problem has been well demonstrated with depression screening tools.[51,52] Barriers to treatment have led to a number of new team-based models for delivering mental health services within primary care; studies of these new models are promising, but they are not often conducted in settings where HIV care is delivered.[53] Although people with schizophrenia and other psychotic disorders have an increased risk of acquiring HIV, simple and reliable screening tools for these conditions are not available. Asking patients about prior psychiatric diagnoses, the use of psychotropic medications, and a history of psychiatric hospitalization is helpful in detecting these serious mental health conditions.

## Ideal Aspects of Screening Tools in Primary Care

Practical screening tools for use in the primary care setting should be brief, easily scored, free, evidence-based, and accessible to a range of providers without specific training. In addition, screening tests should be limited to conditions for which there is an available, effective treatment that can directly target the disease and improve prognosis and outcomes.[54] Most of the common mental health conditions seen among people with HIV have effective treatments. An ideal screening test for a mental health condition will accurately identify individuals with the clinical condition of interest without diagnosing individuals who do not have the condition. This is referred to as the sensitivity (probability of a test being positive when illness is present) and specificity (the probability of a test being negative when illness is absent) of a screening test. In addition, the test should ideally identify persons with the condition and simultaneously not falsely categorize people without the condition as having the condition; this is referred to as the positive predictive value.

## Follow-Up for a Positive Screen

A positive screen for a mental health condition usually needs to be followed by a further clinical diagnostic evaluation to clarify that the condition crosses the threshold for a true mental health condition. Unfortunately, there are no biological or laboratory tests that can be conducted in clinical care settings that diagnose a mental health condition. The diagnostic accuracy of the screening test can be improved by testing for medical conditions that can cause delirium and dementia and screening for the presence of substance use disorder with alcohol and/or other drugs. Several screening tools for the most common mental health conditions encountered in primary care are described below, with links provided to the screening tool.

# Depression Screening Tools

In June 2023, the United States Preventive Services Task Force (USPSTF) updated the screening recommendation for Depression and Suicide Risk in Adults (including women who are pregnant or postpartum), providing a Grade B recommendation for screening for major depression and a Grade I recommendation for suicide risk screening.[55] The USPSTF recommendations state, "It is important that persons who screen positive are evaluated further for diagnosis and, if appropriate, are provided or referred for evidence-based care."[55] The HIVMA/IDSA Primary Care Guidance recommends screening people with HIV for depression at least annually, and more frequently if needed, using the patient health questionnaire 9 (PHQ-9).[56] The PHQ-9 and PHQ-2 are the most commonly used screening tools, as described below, but the 2-item PRIME-MD and Hospital Anxiety and Depression Scale (HADS) are other, less used, available options.[57,58,59]

## Patient Health Questionnaire-9 (PHQ-9)

The Patient Health Questionnaire-9 (PHQ-9) can be self-administered or administered by a health professional. The questionnaire scores each of the 9 DSM-5 criteria in the range of 0 (not at all) to 3 (nearly every day) for items in the survey during the most recent 2 weeks. The PHQ-9 was designed to serve as a multipurpose instrument tool for screening, diagnosing, monitoring, and measuring the severity of depression and has been validated across diverse patient populations.[60,61]

- **Interpretation**: The PHQ-9 score ranges from 0 to 27, with higher scores correlating with a greater likelihood of major depression (Figure 4).[60] The following PHQ-9 score ranges have been shown to correlate with different degrees of depression: 5 to 9 (mild), 10 to 14 (moderate), 15 to 19 (moderately severe), and 20 to 27 (severe).[60] A cumulative score of 10 points or higher has 88% sensitivity and specificity for major depression. For individuals who have a score of 1 or higher on any question, an additional tenth question is asked that evaluates how these problems impact function at home, at work, and with others.
- **Recommendation**: Based on both clinical practice and a review of the literature, a PHQ-9 score of 10 or higher is often used as the basis for referring individuals for further assessment of depression.[62,63] This further evaluation is essential because a PHQ-9 score of 10 or greater substantially overestimates the prevalence of major depression.[64] If prompt further diagnostic evaluation is not available, the clinician should use clinical judgment for diagnosing and managing depression, taking into account the duration and severity of the depression, its impact on functioning, and the individual's treatment preferences. Moderately severe depression or severe depression warrants treatment using antidepressants, psychotherapy, and/or a combination of both. In addition, any positive response to question 9 (presence and duration of suicide ideation) warrants immediate further evaluation to determine if there is an imminent risk of self-harm. Suicide screening instruments, including the PHQ-9, have not been shown to significantly predict near-term outcomes, so additional risk stratification may be necessary.[65]

## Patient Health Questionnaire-2 (PHQ-2)

The Patient Health Questionnaire-2 (PHQ-2) is a 2-item, validated screening tool that uses the first two questions of the PHQ-9 that ask about the frequency of depressed mood and anhedonia (the first two DSM-5 criteria for diagnosing major depression).[66] The PHQ-2 focuses the time frame to the past 2 weeks and grades answers on a 4-point scale.

- **Interpretation**: The PHQ-2 score ranges from 0 to 6. Using a cutoff score of 3, the PHQ-2 has a sensitivity of 83% and a specificity of 90% for major depressive disorder. In one study, investigators concluded a cutoff score of 3 was the optimal cut point for screening purposes, with the qualification that moving the cut point to 2 would enhance sensitivity and moving to 4 would increase specificity (Figure 5).[66]

- **Recommendation**: The PHQ-2 functions as a brief, practical, first-step screening tool intended to identify individuals who require additional evaluation with another instrument, such as the PHQ-9, or a direct diagnostic psychiatric interview.[67] The PHQ-2 should not be used as a final diagnostic tool for depression.

# Anxiety Disorder Screening Tools

Generalized anxiety disorder (GAD) and panic disorder are two of the most common anxiety disorders in the United States. In people with HIV, treatment of these disorders has been shown to improve patient outcomes.[68] In June 2023, the United States Preventive Services Task Force (USPSTF) issued screening recommendations for Anxiety Disorders in Adults (including pregnant and postpartum women), providing a Grade B recommendation for those younger than 65 years of age and an I recommendation for those 65 years of age and older.[69] The USPSTF recommendations state, "It is important that persons who screen positive are evaluated further for diagnosis and, if appropriate, are provided or referred for evidence-based care."[69] The HIVMA/IDSA Primary Care Guidance recommends screening for anxiety in persons with HIV using either the Generalized Anxiety Disorder-7 (GAD-7) or GAD-2, with screening taking place at the initial evaluation and annually thereafter.[56]

## Generalized Anxiety Disorder-7 (GAD-7)

The 7-item Generalized Anxiety Disorder-7 (GAD-7) anxiety scale is a brief, self-administered questionnaire that has been validated in the general population to identify patients with probable generalized anxiety disorder.[70,71,72] The questionnaire includes questions about anxiety symptoms occurring in the past 2 weeks.

- **Interpretation**: The GAD-7 scores can range from 0 to 21. A major study identified a cut-point score of 10 as having optimized sensitivity (89%) and specificity (82%) for diagnosing generalized anxiety disorder (Figure 6).[72] Score categories correlate with different levels of anxiety: 0–4 (minimal), 5 to 9 (mild), 10 to 14 (moderate), and 15 to 19 (severe). A meta-analysis suggested using a cutoff score of 8 to optimized sensitivity without compromising specificity.[73]
- **Recommendation**: Individuals who meet the threshold for a positive GAD-7 screen (a score of 8 or above) should ideally have a complete diagnostic evaluation.

## Generalized Anxiety Disorder-2 (GAD-2)

The 2-item Generalized Anxiety Disorder-2 (GAD-2) anxiety scale is a very brief screening tool derived from the first two questions of the GAD-7, asking if the individual has felt nervous, anxious or on edge and asking if they have not been able to stop or control their worrying in the preceding 2 weeks.[74]

- **Interpretation**: The two items are scored as follows: 0 (not at all), 1 (several days), 2 (more than half the days), or 3 (nearly every day), with a total score ranging from 0 to 6. A score of ≥3 has a sensitivity of 81% and specificity of 86% for generalized anxiety disorder.[75]
- **Recommendation**: A score of ≥3 is considered a positive screen and should be followed up by a full GAD-7.

## Patient Health Questionnaire for Panic Disorder (PHQ-PD)

This 5-item screening instrument is one subset of questions (questions 3a-d and questions 4a-k) derived from the longer Patient Health Questionnaire (PHQ), which itself is a short, self-reported instrument derived from a physician-administered PRIME-MD interview. The PHQ-PD (also called the panic module of the PHQ) has been found to be a valid screening instrument with a sensitivity of 44 to 66% and a specificity of 87 to 95%, depending on the scoring algorithm that is applied.[76] Using a single screening question taken from the PHQ-PD module (e.g., question 3a: "In the last 4 weeks, have you had an anxiety attack—suddenly feeling fear or panic?") improves sensitivity to 71% but drops specificity to 84%.

- **Interpretation**: A positive score on the original panic module is indicated with a positive (*yes*) answer on all four questions 3a-d plus a positive (*yes*) answer on at least four items from questions 4a-k. Modified versions of the test improve sensitivity by requiring only 2 or 3 positive answers for

questions 3a-d. The most sensitive version of the panic module screener is the single screening question 3a; a *yes* answer to this single question is considered a positive screen.

- **Recommendation**: Many experts recommend using the single screening question (question 3a) since it has better psychometric properties than the full PHQ-PD algorithm.[76] Moreover, because primary care settings do not usually screen for panic disorder, adding only one question minimizes any additional burden to screening procedures already in place. Individuals who screen positive require follow-up with a formal diagnostic procedure.

# Post-Traumatic Stress Disorder (PTSD) Screening Tools

There is limited evidence to support screening the civilian primary care population for post-traumatic stress disorder, and the United States Preventive Services Task Force does not address PTSD screening. In contrast, other organizations, including the National Institute of Health Care and Excellence in the United Kingdom (NICE-UK), recommend screening for PTSD when there is known exposure to a traumatic stressor.[77] Multiple PTSD screening instruments are available, including the 5-item Primary Care PTSD Screen from DSM-5 (PC-PTSD-5), the 17-item PTSD Checklist, the 4-item Startle-Physiologic Arousal-Anger-Numbness (SPAN), the 7-item Breslau's scale, the 10-item Trauma Screening Questionnaire, and the Single-Item PTSD Screener.[77,78,79] Among these screening tools, the PC-PTSD-5 test (five items) appears to be the best single screening test for PTSD for use in primary care.[78]

## Primary Care Post-Traumatic Stress Disorder (PC-PTSD)

The Primary Care PTSD for DSM-5 (PC-PTSD-5) screening test is a 5-item scale that includes questions about symptoms unique to PTSD (re-experiencing, avoidance, numbness, hyperarousal, and feelings of guilt or blame).[79] One study found that the previously used 4-item PC-PTSD was more effective when used in combination with the General Health Questionnaire-12 (GHQ-12), which is a set of 12 questions used to screen for nonpsychotic psychiatric disorders and graded on a 4-point response scale.[80]

- **Interpretation**: Different studies recommend different cutoff scores for a positive screen. A study involving 398 Veterans patients at a primary care clinic found a score of 3 correlated with 95% sensitivity and 85% specificity for the diagnosis of PTSD (Figure 7).[78,79] Another large study that used data extracted from clinical databases for Veterans Affairs primary care patients used a score of 2 or greater as the cutoff for a positive PC-PTSD screen.
- **Recommendation**: Individuals who screen positive on the PC-PTSD screening test qualify for additional evaluation from the primary care provider or a mental health practitioner that includes an interview evaluating PTSD criteria from the DSM-5.

# Bipolar Disorder Screening Tool

Bipolar disorder encompasses a spectrum of clinical disorders (bipolar I disorder, bipolar II disorder, and cyclothymic disorder) consisting of episodes of manic, hypomanic, and depressive symptoms. The heterogeneous presentation of bipolar disorder can make it difficult to detect this disorder through screening, and lifetime prevalence estimates of bipolar disorder vary widely across studies.[81] The National Comorbidity Survey estimates that the lifetime and 12-month prevalence for bipolar I disorder is 1.0% and 0.6%, respectively; for bipolar II disorder, these numbers are 1.1% and 0.8%.[82] Although there are no formal recommendations for screening for bipolar disorder, some experts recommend that primary care clinicians implement selective screening for bipolar disorder in patients with known depression, anxiety, or substance use disorders.[81]

## Mood Disorders Questionnaire (MDQ)

The Mood Disorders Questionnaire (MDQ) can be used to screen for a lifetime history of mania or hypomania. The MDQ consists of 13 *yes* or *no* questions based on DSM-5 criteria for bipolar disorder with two additional items to assess the frequency and severity of *yes* responses. In primary care, evaluation of whether a person has bipolar disorder arises most frequently in the context of beginning an antidepressant medication, since these medications can precipitate mania in vulnerable individuals. The MDQ is not a practical screening tool for most primary care clinicians, primarily because of the need to ask so many questions. Accordingly, some clinicians may find that asking a few pointed questions during history taking can be useful in ruling out a history of mania: (1) "Have you ever been told that you have manic-depressive illness or bipolar disorder?" and (2) "Has there ever been a period of time when you were not your usual self, and you had much more energy than usual?" These questions parallel two of the items on the MDQ. Any *yes* answer would then lead to further inquiry.[83,84]

- **Interpretation**: In the primary care setting, a score of 7 on the MDQ has a sensitivity of 43% and a specificity of 95% for detecting any type of bipolar disorder. In the mental health setting, diagnostic characteristics are better overall: for a score of 7, sensitivity is 81% and specificity is 85% (Figure 8).[84]
- **Recommendation**: Based on data showing low sensitivity but high specificity (and high negative predictive value), bipolar disorder screening tools, such as the MDQ, may be utilized most appropriately to rule out bipolar disorder in patients presenting with depression, rather than as a general screening tool.[85,86]

# Neurocognitive Screening Tools

## Recommendations to Screen for Neurocognitive Disorders

The United States Preventive Services Task Force (USPSTF) has found insufficient evidence to recommend for or against screening for cognitive impairment in older adults in the general population in the absence of known impairments.[87] Considering that as many as 50% of persons with HIV have some form of HIV-associated neurocognitive disorder, most experts recommend that persons with HIV should ideally have a baseline neurocognitive assessment, with follow-up screening every 6 to 12 months for individuals at high risk for HAND and every 12 to 24 months in persons at lower risk.[88] From a practical standpoint, however, this recommendation is often not implemented because existing clinical screens do not perform well in identifying milder forms of HAND. Therefore, identifying and developing practical screening tools for individuals with HIV that can detect milder forms of HAND and distinguish among the different HAND disorders is essential.

## Screening Tools for Neurocognitive Disorders

Among the tools that are currently available, no consensus exists on which screening tool to use. The primary care literature offers four brief screening tools that are not specific to the diagnosis of HAND but are validated for general use in the primary care setting (Mini-Mental State Examination, General Practitioner Assessment of Cognition, Memory Impairment Screen, and Mini-Cognitive Assessment Instrument). The American Academy of Neurology acknowledged in its 2001 report on early detection of neurocognitive impairment that more research is needed to help clinicians differentiate among available screening instruments.[89,90,91] Several HIV-specific neurocognitive screening tools have been developed, but a consensus panel of experts on HIV neurocognitive disorders has concluded no single screening test is appropriate in all clinical situations—the choice of test may vary with patient population, provider experience and preference, cost, and time—and further acknowledges that all the available tools are less sensitive for detecting milder forms of cognitive impairment.[88] At the present time, a comprehensive neuropsychological assessment remains the gold standard for diagnosing HIV-associated neurocognitive disorders.

## General Population Neurocognitive Screening Tools

### Mini-Mental State Exam (MMSE)

The MMSE is among the oldest screening tools for cognitive impairment. The MMSE, which takes approximately 5 to 10 minutes to administer, includes a series of questions that cover 7 cognitive domains: orientation, registration, attention and calculation, recall, language, and construction.[92,93] A score of 24 points or lower (out of a total of 30 points) represents cognitive impairment. Most experts agree the MMSE is a weak tool for diagnosing HAND.[94,95] Due to poor performance in evaluating HAND in persons with HIV (and the logistical problems obtaining this test), we do not recommend using MMSE as a neurocognitive screening tool for HAND.

### Mini-Cognitive Assessment Instrument (Mini-Cog)

The Mini-Cog is a test consisting of a three-word registration, followed by a clock-drawing test, and then followed by three-word recall.[96] Patients receive 0 to 3 points based on the number of items recalled, and 0 or 2 points for clock drawing (a correct clock should have all the numbers placed appropriately, with the hands pointing to the time designated by the examiner). A total score of 0 to 2 indicates dementia. As a screening tool for mild cognitive impairment and dementia, based on a cutoff score of 2, the test has sensitivity ranging from 76 to 99% and specificity ranging from 73 to 93% across studies.[89,97] Because of its speed, accuracy, and the fact it does not require patient fluency in English, some primary care providers suggest using this test as the initial screen, with perhaps highest clinical utility when suspicion for cognitive impairment is low.[89] Again, the Mini-Cog is not specific to HAND.

### Memory Impairment Screen (MIS)

The MIS is a 4-minute, 4-item delayed, free, and cued recall test.[98] The patient is given a piece of paper with the names of four different items (an animal, vegetable, city, and musical instrument). The patient then counts from 1 to 20 and then back to 1; they are then asked to recall the names of the four items. A total of 2 points are given for items recalled without cueing, and 1 point is given for items recalled with cueing. As a screening tool for dementia, based on a cutoff score of 5, the sensitivity of the MIS is 86%, and the specificity is 91%.[89]

### Montreal Cognitive Assessment (MOCA)

The MOCA is a free, online, validated instrument that is available in many languages to screen for mild cognitive impairments. The MOCA takes approximately 10 to 15 minutes to administer and consists of 30 items that measure function in 8 cognitive domains.[99] A score of 26 points or lower (out of a maximum of 30) indicates cognitive impairment. The MOCA has been found to be more sensitive than the Mini-Mental Status Exam (MMSE) at detecting mild cognitive impairment in the general population.[90,100] Among individuals with HIV, the MOCA has only moderate sensitivity and poor specificity for detecting mild cognitive impairment.[99]

### Rowland Universal Dementia Assessment Scale (RUDAS)

The Rowland Universal Dementia Assessment Scale (RUDAS) is a brief, 6-item cognitive screening tool that assesses executive function, memory, language, and perceptual-motor skills.[101] It was specifically developed to reduce the impact of educational and cultural bias in the cognitive screening process.[101] When used as a dementia screening measure with a cutoff score of 23, RUDAS demonstrates sensitivity ranging from 77 to 82% and specificity ranging from 83 to 86%.[101,102] The diagnostic performance of RUDAS is comparable to that of the MMSE, and although it has not been validated in persons with HIV, it has been validated across diverse cultural and socioeconomic settings and is particularly well suited for use in culturally and linguistically different populations.[102]

## HIV-Specific Neurocognitive Screening Tools

### HIV Dementia Scale (HDS) and Modified HIV Dementia Scale (M-HDS)

The HIV Dementia Scale (HDS) is a test consisting of 4 items that address 4 cognitive domains: memory/recall, attention/learning, psychomotor functioning, and eye movements (visuoconstruction); the maximum score on the HDS is 16.[99,103,104] The HDS was originally developed in 1995 and found to be superior to the Mini-Mental Status Exam for identifying HIV-associated dementia. In one study, using an HDS cutoff score of 10 or less for identifying HIV dementia, the HDS performed with a sensitivity of 80%, specificity of 91%, and positive predictive value of 78%.[103] The HDS has been found to have inadequate sensitivity and specificity for detecting milder forms of cognitive impairment and has been difficult for non-neurologists given the need to evaluate antisaccadic eye movements.[99,105] A modified version of the HDS (M-HDS), which eliminates the evaluation of antisaccadic eye movement, is a more practical screening tool for clinicians and non-neurologists.[106]

### International HIV Dementia Scale (IHDS)

In 2005, the International HIV Dementia Scale (IHDS) was developed by Sacktor and colleagues and adopted for use in global settings to address culturally specific elements of the original HIV Dementia Scale and trouble administering the anti-saccadic errors test.[107,108] The IHDS test has three tasks that evaluate motor speed, psychomotor speed, and memory recall: timed finger tapping, timed alternating hand sequence test, and 4-item recall at 2 minutes.[108] The maximum score is 12 points.[108] Patients with a score of 10 or lower should undergo further evaluation for possible dementia.[108] A meta-analysis showed this test performed well when screening for dementia but had low accuracy for milder HAND conditions.[105]

**European AIDS Clinical Society (EACS) Cognitive Screen**

The European AIDS Clinical Society recommends initial screening for cognitive impairment using 3 questions related to memory loss, reasoning, and attention. The questions are graded as *never*, *hardly ever*, or *yes, definitely*; an answer of *yes, definitely* on at least one question is considered to be an abnormal screen.**[4]**

# Integrating Mental Health Screening into HIV Care

## Integrating Screening into Primary Care

Models for integrating the evaluation and management of mental health conditions into the primary care setting have focused primarily on depressive disorders; key elements of this integrative approach are highlighted in the recent United States Preventive Services Task Force (USPSTF) recommendation that endorses routine screening for depression in the general adult population, including pregnant and postpartum women.[109] The USPSTF statement indicates that implementation of the screening recommendation is best realized through a collaborative model of multidisciplinary, team-based care developed by the Community Preventive Services Task Force. This model uses case managers to connect primary care providers, patients, and mental health providers with stated goals of increasing screening and evidence-based treatment as well as improving clinical and community support for patient engagement in self-management. In this model, providers are responsible for screening patients, initiating treatment, and ensuring proper referral, while the case managers provide patient education, tracking, and management of the treatment plan.

## Integrating Mental Health Screening in HIV Care Settings

### Depression Treatment Cascade

Given the high prevalence of mental health conditions, particularly depression, among persons with HIV, collaborative care models that allow for mental health treatment within the HIV medical home are paramount.[110] A depression treatment cascade, mirroring the well-known HIV treatment cascade, has been published, and it highlights the attrition along the continuum from depression diagnosis to effective treatment; according to this cascade, 18% of individuals with HIV and depression are receiving any treatment for depression, 7% are receiving adequate treatment, and only 5% are in remission (Figure 9).[110] There is also interplay between the two cascades since depression is recognized to decrease engagement in HIV care and adherence to antiretroviral medication.[110]

### Collaborative Care Models

Despite the recognized mental health treatment gap, there are limited data related to evidence-based strategies that can be integrated into HIV primary care. Some proposed solutions include co-located services and the use of embedded mental health providers. Just as the initiation of HIV care is more likely when diagnosis occurs at a site that offers co-located medical care, mental health treatment is also more likely when it is co-located within the familiar setting of a patient's medical home.[111,112] Collaborative care models to link antiretroviral and antidepressant management have also been tested in clinical trials. One such collaborative model, termed measurement-based care, has reported improvement in depression among participants. Measurement-based care is a decision support model for integrating antidepressant management into routine HIV care, in which depression case managers use metrics to give HIV primary care clinicians antidepressant treatment recommendations.[110,113]

### Limits of Collaborative Care Models

It is important to note that collaborative care models in primary care are targeted for people who have mild to moderate mental health conditions and may not be able to provide the full range of services needed by people with HIV who have serious mental health conditions, such as bipolar disorder, schizophrenia, and other psychotic conditions.

# Summary Points

- Among adults in the United States, the prevalence of depression, anxiety, and PTSD is significantly higher among adults with HIV than in adults without HIV.
- There is an increased risk for HIV acquisition and HIV transmission associated with certain mental health conditions, and mental health conditions have been associated with decreased utilization of antiretroviral therapy and predict worse HIV disease outcomes.
- Practical screening tools for use in the primary care setting should be brief, easily scored, free, and evidence-based. Screening tools for some of the most common mental health diagnoses encountered in primary care include 2-Item PRIME-MD, PHQ2, and PHQ-9 (for depression) and the GAD-7 (generalized anxiety disorder). A positive result on any screening test requires further evaluation.
- HAND likely affects 50% of people with HIV, with older age representing the greatest risk factor. Additional risk factors for HAND include low nadir CD4 count, previous central nervous system injury, detectable plasma HIV RNA levels, and comorbidities such as hypertension, insulin resistance, viral hepatitis, depression, and substance use disorder.
- HAND is subdivided into three categories based on the severity of disease: (1) asymptomatic neurocognitive impairment, (2) mild neurocognitive disorder, and (3) HIV-associated dementia.
- Screening tools for neurocognitive disorders include, among others, the MMSE, Mini-Cog, MIS, MOCA, RUDAS, European AIDS Clinical Society Cognitive Screen, HIV Dementia Scale, and the International HIV Dementia Scale.
- Neurocognitive disorders screening tools work best when screening for HIV-associated dementia, and they do not reliably detect milder forms of HIV-associated neurocognitive disorders.
- Meeting the needs of people with both HIV and the most serious mental health conditions, such as bipolar disorder and schizophrenia, are not well addressed in the common models proposed for integrating primary and HIV care along with care for people with mild to moderate mental health conditions.

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# Figures

**Figure 1 Depression in Persons with HIV During the 2 Weeks Before Interview—Medical Monitoring Project, United States, 2023 Cycle**

Using the DSM-IV criteria, major depression was defined as having at least 5 symptoms of depression and other depression defined as having 2–4 symptoms of depression.

Source: Centers for Disease Control and Prevention. Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection—Medical Monitoring Project, United States, 2023 Cycle (June 2023–May 2024). Published March 16, 2026.
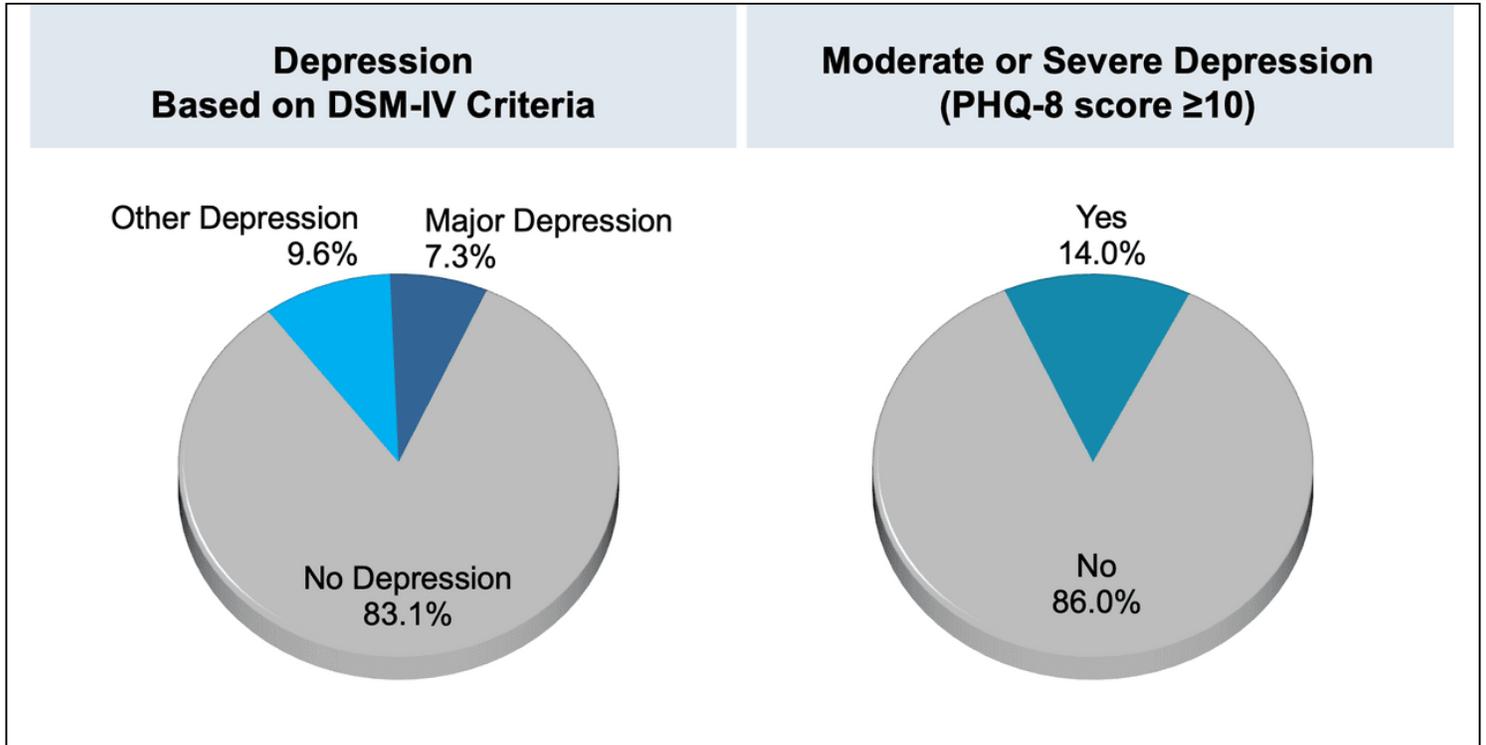
**Figure 2 Anxiety in Persons with HIV During the 2 Weeks Before Interview—Medical Monitoring Project, United States, 2023 Cycle**

Anxiety definitions were according to criteria from the DSM-IV and based on GAD-7 scores. Severe anxiety was defined as having a score of ≥15, moderate anxiety as having a score of 10–14, and mild anxiety as having a score of 5–9.

Source: Centers for Disease Control and Prevention. Behavioral and Clinical Characteristics of Persons with Diagnosed HIV Infection—Medical Monitoring Project, United States, 2023 Cycle (June 2023–May 2024). Published March 16, 2026.



Anxiety

No Anxiety 78.8%

Mild Anxiety 5.0%

Moderate Anxiety 7.6%

Severe Anxiety 8.6%
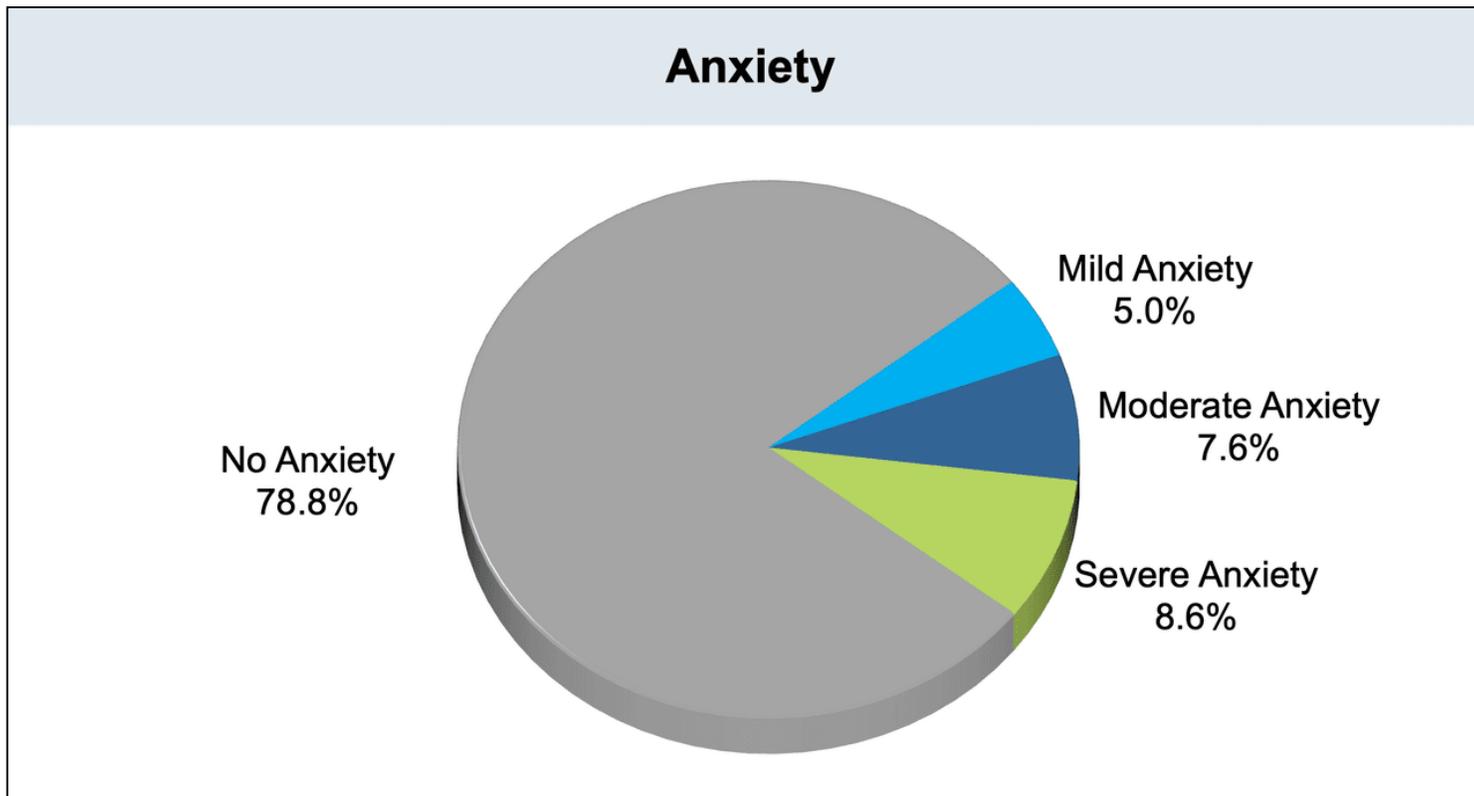
**Figure 3 Positive Prevention Model Showing Hypothesized Effects of Mental Health Treatment on HIV Transmission Risk Behavior**

Source: Sikkema KJ, Watt MH, Drabkin AS, Meade CS, Hansen NB, Pence BW. Mental health treatment to reduce HIV transmission risk behavior: a positive prevention model. AIDS Behav. 2010;14:252-62.
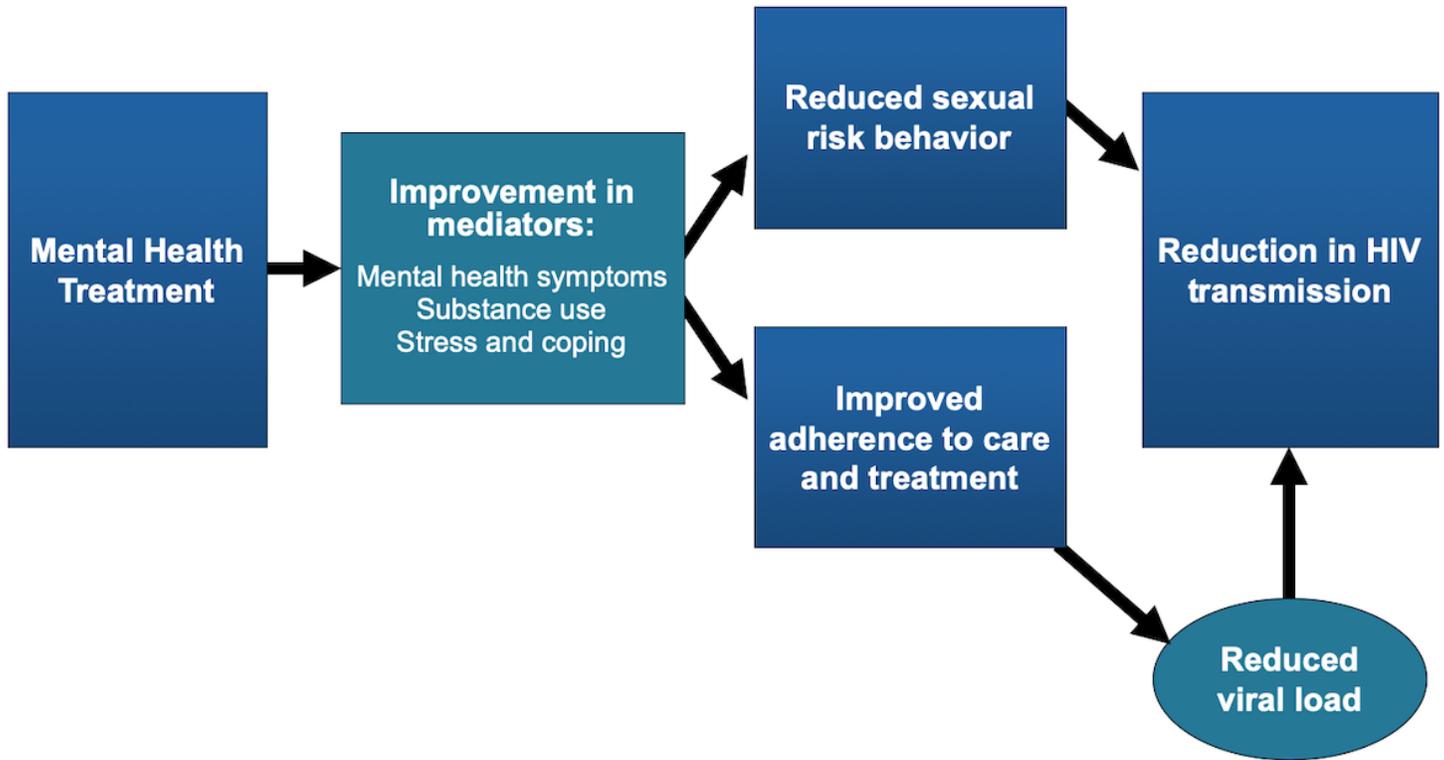
**Figure 4 PHQ-9 Scores and Likelihood Ratio for Major Depression**

These data are based on surveys from 580 patients who completed the PHQ-9 and had a structured interview by a mental health professional to determine the presence or absence of major depression.

Source: Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16:606-13.
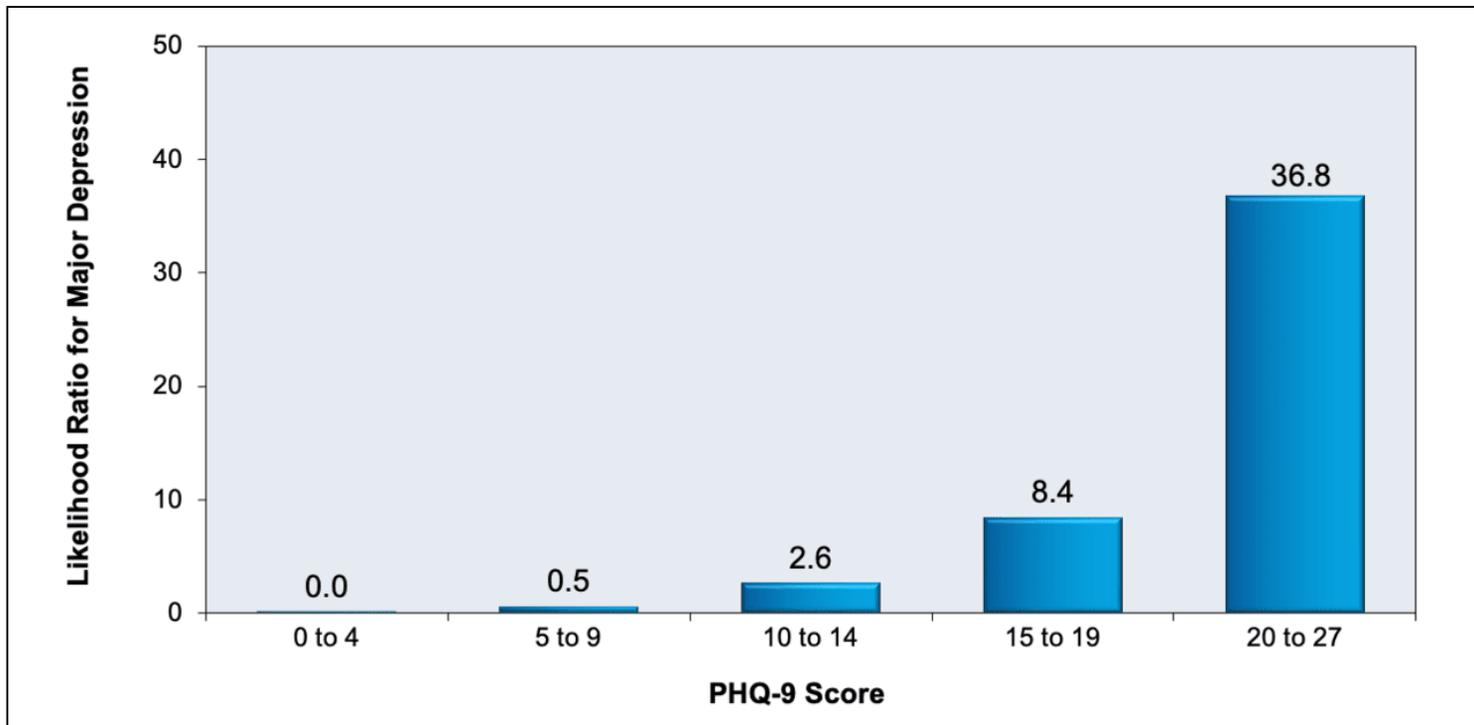
**Figure 5 Operating Characteristics of PHQ-2 for Major Depression**

This table shows the sensitivity, specificity, positive predictive value, and likelihood ratios for the range of PHQ-2 scores in diagnosing major depressive disorder based on surveys from 580 individuals who completed the PHQ-2.

Source: Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. Medical Care. 2003;41:1284-92.

## Operating Characteristics of PHQ-2 Screen for Major Depression

| PHQ-2 Score | Sensitivity | Specificity | Positive Predictive Value | Likelihood Ratio |
|---|---|---|---|---|
| 1 | 97.6 | 59.2 | 15.4 | 0.3 |
| 2 | 92.7 | 73.7 | 21.1 | 0.6 |
| 3 | 82.9 | 90.0 | 38.4 | 2.9 |
| 4 | 73.2 | 93.3 | 45.5 | 5.5 |
| 5 | 53.7 | 96.8 | 56.4 | 10.3 |
| 6 | 26.8 | 99.4 | 78.6 | 48.2 |

**Figure 6 Operating Characteristics of GAD-7 for Generalized Anxiety Disorder**

This table shows the sensitivity, specificity, and likelihood ratios for the GAD-7 scores in the range of 8 to 15 as a diagnosis for generalized anxiety disorder. These data are based on 995 patients who completed the GAD-7 and underwent structured psychiatric interviews by a mental health professional as an evaluation for generalized anxiety disorder.

Source: Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166:1092-7.

### Operating Characteristics of GAD-7 Screen for Generalized Anxiety Disorder

| GAD-7 Score | Sensitivity | Specificity | Likelihood Ratio |
|---|---|---|---|
| 8 | 92 | 76 | 3.8 |
| 9 | 90 | 79 | 4.3 |
| 10 | 89 | 82 | 5.1 |
| 11 | 82 | 85 | 5.5 |
| 12 | 73 | 89 | 6.5 |
| 13 | 66 | 91 | 7.7 |
| 14 | 56 | 92 | 7.2 |
| 15 | 48 | 95 | 8.7 |

**Figure 7 Diagnostic Characteristics for the Primary Care PTSD Screen**

These data are based on surveys from 399 adult Veterans seen at a primary clinic. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5) screening tool was used.

Source: Prins A, Bovin MJ, Smolenski DJ, et al. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5): Development and Evaluation Within a Veteran Primary Care Sample. J Gen Intern Med. 2016;31:1206-11.

## Diagnostic Characteristics of the PC-PTSD-5 Screen by Cut-Off Score

| Cut-off Score | Sensitivity | Specificity | Likelihood Ratio |
|---|---|---|---|
| 0 | - | - | - |
| 1 | 99 | 67 | 2.99 |
| 2 | 98 | 78 | 4.41 |
| 3 | 95 | 85 | 6.33 |
| 4 | 83 | 91 | 8.79 |
| 5 | 56 | 97 | 17.40 |

**Figure 8 Operating Characteristics of the Mood Disorder Questionnaire**

This graphic is based on data from 198 individuals seen at five outpatient clinics. A score of 7 or higher (gray vertical line) was chosen as the optimal cutoff.

Source: Hirschfeld RM, Williams JB, Spitzer RL, et al. Development and validation of a screening instrument for bipolar spectrum disorder: the Mood Disorder Questionnaire. Am J Psychiatry. 2000;157:1873-5.
Reprinted with permission from the American Journal of Psychiatry, (Copyright ©2000). American Psychiatric Association. All Rights Reserved.
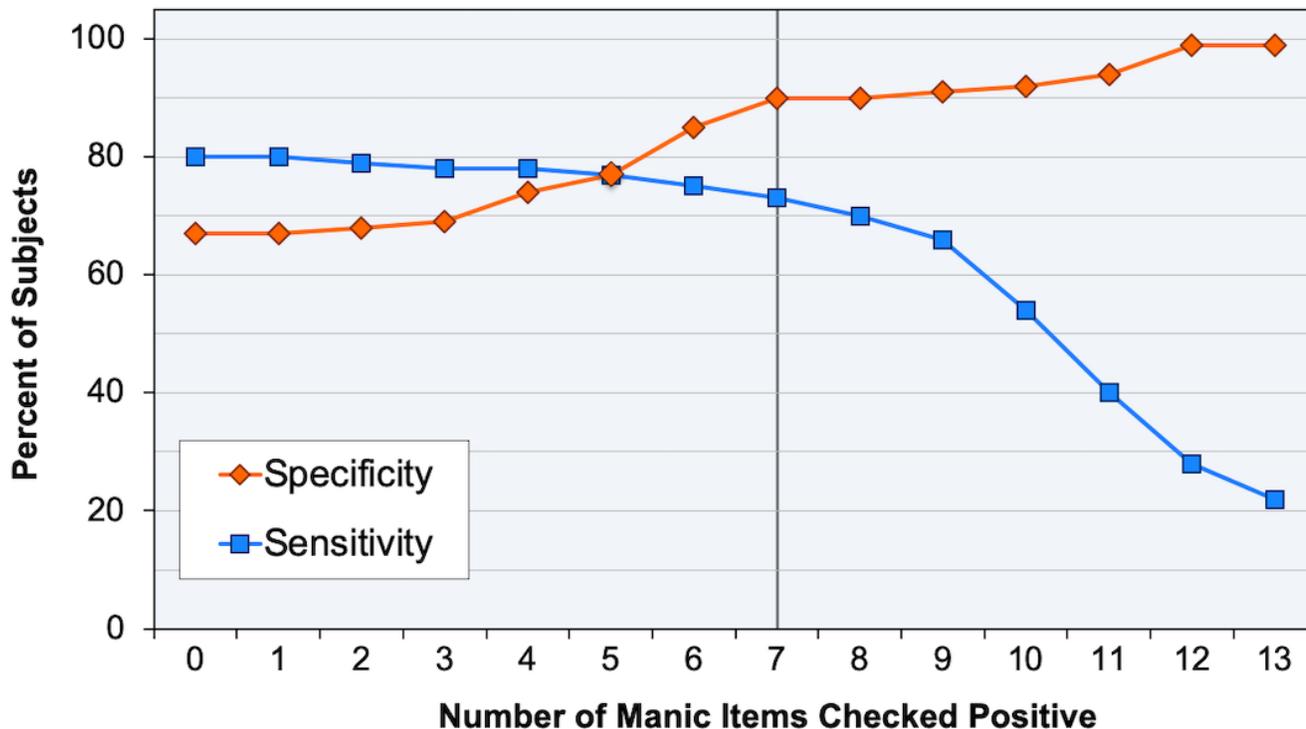
**Figure 9 Depression Treatment Cascade for Patients with HIV**

This graphic shows the estimated proportion of all HIV patients with a major depressive episode in the past year who had depression recognized clinically, received any treatment, received adequate treatment, and achieved remission.

Source: Pence BW, O'Donnell JK, Gaynes BN. Falling through the cracks: the gaps between depression prevalence, diagnosis, treatment, and response in HIV care. AIDS. 2012;26:656-8.
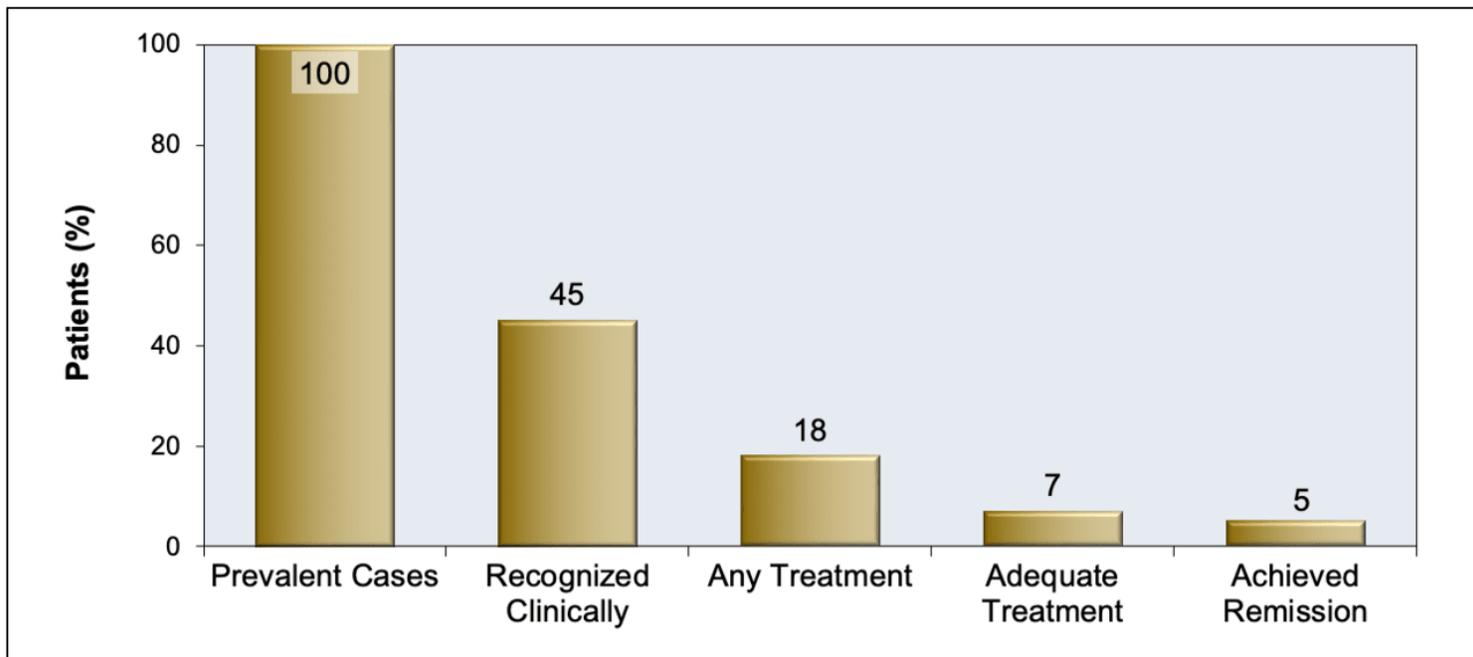
Table 1. Classification of HIV Neurocognitive Disorders

Table 1.

**Classification of HIV Neurocognitive Disorders***

| Category | Diagnostic Criteria |
|---|---|
| Asymptomatic Neurocognitive Impairment (ANI) | • Impairment in ≥2 neurocognitive domains (≥1 SD)<br><br>• Does not interfere with daily functioning |
| Mild Neurocognitive Disorder (MND) | • Impairment in ≥2 neurocognitive domains (≥1 SD)<br><br>• Mild to moderate interference in daily functioning |
| HIV-Associated Dementia (HAD) | • Marked (≥2 SD) impairment in ≥2 neurocognitive d<br><br>• Marked interference in daily functioning |

*Adapted from: Antinori A, Arendt G, Becker JT, et al. Updated research nosology for HIV-associated neurocognitive
Neurology. 2007;69:1789-99.
Abbreviations: SD = standard deviation

Source:

- Antinori A, Arendt G, Becker JT, et al. Updated research nosology for HIV-associated neurocognitive
  disorders. Neurology. 2007;69:1789-99. [PubMed Abstract]

Table 2. Recommendations from the International HIV-Cognition Working Group

Table 2.

**Recommendations from the International HIV-Cognition Working Group**

| | |
|---|---|
| **Recommendation 1** | HIV-associated brain injury (HABI) should be considered as one cause of cognitive impairment alongside other potential causes of brain injury occurring in people living with HIV. |
| **Recommendation 2** | HABI should be differentiated on the basis of HIV RNA suppression and the activity of pathology. |
| **Recommendation 3** | Low performance on cognitive tests should not be labeled as cognitive impairment with clinical context. |
| **Recommendation 4** | When interpreting cognitive data, the false-classification rate should be considered. |
| **Recommendation 5** | A research classification of cognitive impairment in people living with HIV should consider a combination of cognitive symptoms, low performance on cognitive testing, and abnormality on neurological investigations. |
| **Recommendation 6** | Cognitive symptoms should refer to any change in cognition that has been noticed by the individual or an observer, whether or not this change has an impact on daily functioning. |

Source:

- Nightingale S, Ances B, Cinque P, et al. Cognitive impairment in people living with HIV: consensus recommendations for a new approach. Nat Rev Neurol. 2023 Jun 13. [online ahead of print] [PubMed Abstract]