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Mental health problems in people living with HIV and integration of mental health in routine HIV care in low-and-middle-income countries: A scoping review

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Abstract
Background: The Human Immunodeficiency Virus (HIV) has remained a global health challenge for over four decades, with low- and middle-income countries (LMICs) bearing the highest burden of morbidity and mortality. Recent data have shown a higher prevalence of mental health problems in people living with HIV (PLWH). However, mental health care is not a part of routine HIV care in most LMICs. This review examined some studies on mental health problems in PLWH in LMICs, as well as the need to integrate mental health care into routine HIV care.
Main Body: This review involved 24 carefully selected articles on mental health problems among PLWH in LMICs. These articles published within the last 10 years in peer-reviewed journals were selected from PubMed, Springer, and Google Scholar using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist. Some of the mental health problems among PLWH in LMICs were depression, anxiety, and post-traumatic stress disorder (PTSD).
Factors such poor drug adherence, perceived and actual stigmatization and later stages of the disease were associated with mental health problems in PLWH. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), and the Beck Depression Inventory II (BDI-II) were some of the diagnostic tools for mental health problems in PLWH, while psychotherapy and pharmacotherapy were some of the treatment options. There was inadequate inclusion of mental health care in routine HIV care in most LMICs.
Conclusion: Mental health problems are common in PLWH, but the integration of mental health care into their HIV treatment is suboptimal in most LMICs. There is a need to fully integrate mental health care into routine HIV care to ensure holistic management and better well-being of PLWH in LMICs.

Keywords: Mental health, people living with HIV, low- and middle-income countries, HIV care, integration

Introduction

The Human Immunodeficiency Virus (HIV) and the Acquired Immune Deficiency Syndrome (AIDS) were discovered over four decades ago, and have resulted in over 85 million cases and more than 40 million fatalities from the time of discovery to the end of 2022 [1, 2]. Low-and-middle-income countries (LMICs), particularly sub-Saharan Africa currently bear the highest burden of HIV/AIDS globally [3]. The World Health Organization (WHO) reported that between January and December 2022, 39 million people were living with HIV, and there were 630,000 HIV-related deaths globally, with sub-Saharan Africa accounting for about 67% and 43% of the HIV/AIDS global prevalence and fatalities respectively [3, 4].

Studies have shown that HIV/AIDS is associated with mental health problems in people living with HIV/AIDS (PLWH). For instance, depression has been noted to be a common mental health disorder in PLWH [5]. In addition, PLWHs have a higher risk of mood, anxiety and cognitive disorders that will negatively impact the quality of their lives. HIV/AIDS on its own (especially if left untreated) and some of its associated opportunistic infections can affect the brain and other parts of the nervous system and result in significant mental health problems. Similarly, some of the drugs used in the treatment of HIV may have side effects that affect the mental health of the person taking them [5]. Furthermore, the stigma, discrimination and isolation associated with HIV/AIDS are of major concern [5]. Job losses are also common with HIV status disclosure, impairing breadwinners' abilities to provide for themselves and their families, and ultimately resulting in poverty and mental health disorders associated with economic hardship. This situation may also affect their ability to seek the needed care.

Available evidence suggests a significant burden of mental disorders among PLWH in Africa. A systematic review done in 2021 to determine the prevalence of mental health disorders in young people, aged 10 to 24 years, living with HIV in sub-Saharan Africa reported that the prevalence of major depression and anxiety disorder were between 16.8% - 40.8% and 2.2% - 25% respectively [6]. A similar review done in 2023 to assess mental health disorders in PLWH in Africa reported a prevalence of between 13% - 24% for major depression [7].

Diagnosis of mental disorders among PLWH is particularly challenging despite the availability of adequate screening/diagnostic tools for the detection or diagnosis of mental health problems generally. Many high-quality and validated tools are available and in use among mental health caregivers in LMICs to attend to patients who present with mental health disorders primarily [8]. However, these tools are not routinely utilized for PLWH as part of their care,

especially in LMICs, unlike in most high-income countries (HIC) [8]. This gap may be due to a lack of or inadequate knowledge of the application of the mental health screening/diagnostic tools by the health worker administering primary HIV care, non-referral of the patient to the mental health personnel even when a mental health problem is suspected, outright refusal of the patients to seek mental health care even after referral, fear of experiencing further stigmatization and discrimination as a result of mental health disorders co-existing with HIV, and the low availability or non-availability of trained mental health personnel [8, 9].

Various treatment modalities exist for mental disorders, including medications, cognitive behavioural therapy, interpersonal therapy, motivational interviews, group therapy, meditation, stress management, and psycho-educational family interventions [8]. However, just like the mental health screening/diagnostic tools, these treatment methods have also not been routinely used in the management of mental health problems in PLWH probably due to similar reasons [8, 9].

Systematic reviews and meta-analyses done in LMICs have shown that PLWH will benefit from a wide range of mental health and behavioural interventions [10, 11]. Considering the relationship between HIV and mental health problems, as well as the contribution of mental health problems to poor outcomes in PLWH, especially in LMICs, there is a need to include universal mental health screening and treatment in the already existing routine care for PLWH [8].

This scoping review examined relevant literature on the prevalence, types, detection/diagnosis and treatment of mental health problems in PLWH in LMICs, as well as the need to integrate mental health care into the routine care for PLWH. The findings from this review will add to the existing evidence for appropriate recommendations to be made to the relevant stakeholders and policymakers on the need to fully integrate mental health care into the HIV care for PLWH in LMICs.

Materials and Methods

This section outlines the methodology employed for this scoping review focusing on the prevalence, types, detection/diagnosis and treatment of mental health problems among people living with HIV/AIDS (PLWH) in low- and middle-income countries (LMICs).

Inclusion and Exclusion Criteria

Studies were selected based on the following criteria:

Inclusion Criteria

Relevance: Studies directly addressing or related to mental health problems among PLWH.

Publication Type: Studies published in peer-reviewed journals.

Data Source: Studies utilizing primary or secondary data on mental health problems in PLWH.

Geographic Focus: Studies conducted in low- and middle-income countries.

Exclusion Criteria

Restricted Access: Studies published in journals with restricted access.

Limited Access: Studies in open-access journals where only the abstract is available.

Grey literature and studies that were not peer-reviewed.

Language: Studies not published in English.

Publication Date: Studies published more than 10 years ago.

Search Strategy

A comprehensive search strategy was implemented across three databases: PubMed, Springer, and Google Scholar. The search terms included a combination of keywords and subject terms specific to each database. Examples include:

Keywords: Mental health, HIV/AIDS, PLWH, low- and middle-income countries, prevalence, factors, diagnosis, treatment.

MeSH Terms (PubMed): Mental Disorders, Mental Health (MH), HIV/AIDS, and Developing Countries, Low- and middle-income countries

Selection Process: Two-Stage Screening

Articles retrieved from the search were rigorously screened in a two-stage process to ensure they met the inclusion criteria:

Stage 1: Title and Abstract Screening

Three reviewers independently reviewed the titles and abstracts of the retrieved articles according to the pre-defined inclusion and exclusion criteria.

Stage 2: Full-Text Screening

Full-text articles were retrieved from studies identified as potentially relevant based on the initial screening. The same three reviewers independently reviewed the full-text articles to confirm eligibility for final inclusion, ensuring a high level of accuracy.

Data Extraction and Analysis

A standardized data extraction form was developed to capture key information from the included studies. This form included:

- Study design (e.g., cohort study, cross-sectional study);
- Outcome Variables Prevalence, Types, Factors, Diagnosis and Treatment of Mental Health Problems in PLWH.

The extracted data was analyzed using a thematic analysis approach. This ensured the identification of recurring themes, characteristics of the studies, and outcome variables in the selected studies on mental health problems among PLWH in LMICs.

Results

Search Results

The initial general search on mental health problems in PLWH generated a total of 827 studies, of which 787 were peer-reviewed, while 40 studies were from grey literature sources. This was followed by the exclusion of the 40 studies from grey literature sources since they were not peer-reviewed yet. Then, after a thorough screening of the 787 peer-reviewed studies, 730 studies were excluded, leaving 57 studies to be further assessed in this review. Then, 33 sources were further excluded because they either did not provide specific information relevant to this scoping

review (n =4), were published in a language other than English (n =2), were published over 10 years ago (n = 18), or were duplicates (n=9). Consequently, a total of 24 eligible sources were included in this review. The PRISMA diagram detailing this screening process is shown in Figure 1 below:

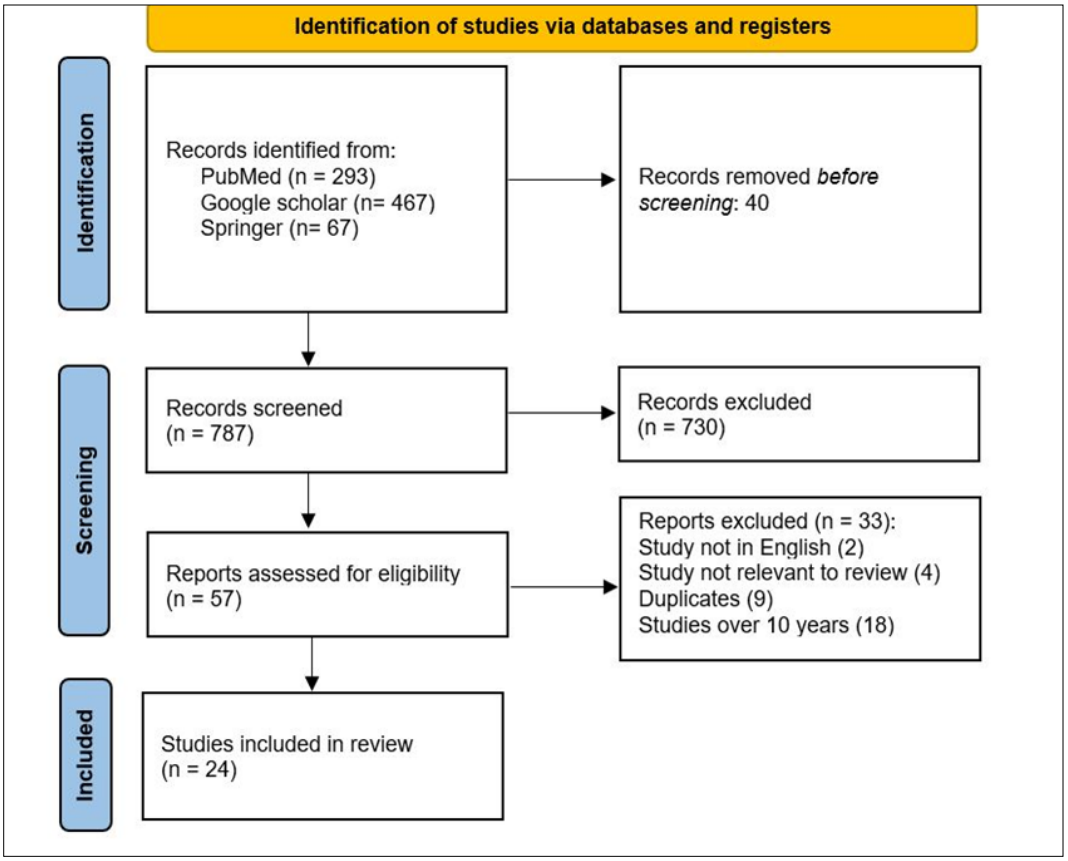

Fig 1: PRISMA Flowchart of the Studies used for this Review

Table 1: Themes used for the study and definitions

Theme	Definition
Prevalence	The number of cases of mental health problems
Types	The variety of mental health problems
Factors associating HIV with mental health problems	Factors that predispose to mental health problems among PLWH
Diagnosis of mental health problems	Screening and confirmation of mental health problems
Treatment of mental health problems	Drug and non-drug management of mental health problems.

Table 1 above provides the definitions for the themes used in this review. The prevalence included the number of cases of mental health problems among PLWH in LMICs, while the types included the varieties of mental health problems among PLWH in LMICs. The factors associating HIV with mental health problems were the likely reasons that predisposed the PLWH in LMICs to having mental health problems. Furthermore, the diagnosis of mental health problems includes the methods of screening and confirmation of mental health problems among PLWH in LMICs, while the treatments of mental health problems were either pharmacological or non-pharmacological management of mental health problems among PLWH in LMICs.

Table 2: Literature Review Matrix of the Articles included in this Review

Number	Title of article/study	Author(s)	Country(ies)/ Region	Journal
1	Psychological interventions for Common Mental Disorders (CMD) for People Living with HIV in Low- and Middle-Income Countries: Systematic Review [12].	Chibanda et al.	LMICs	Trop Med Int Health
2	Mental health interventions for persons living with HIV in low- and middle-income countries: a systematic review [13].	Nakimuli-Mpungu et al.	LMICs	J Int AIDS Soc
3	Psychosocial interventions for depression delivered by non-mental health specialists to people living with HIV/AIDS in low- and middle-income countries: A systematic review [14].	Zeying et al.	LMICs	J Glob Health
4	Improving mental health among people living with HIV: a review of intervention trials in low- and middle-income countries [10].	Sikkema et al.	LMICs	Glob Ment Health (Camb).
5	HIV-associated psychiatric comorbidity among attendees at a	Oyedun Akinbola,	Nigeria	South African Journal

	tertiary hospital, North-Eastern Nigeria [15].	Oluwatoyin Ganiyu		of Psychiatry
6	Psychological interventions for post-traumatic stress disorder in people living with HIV in Resource-poor settings: a systematic review [16].	Verhey et al.	LMICs	Trop Med Int Health
7	Depression and HIV: integrated care towards 90-90-90 [17].	Chibanda Dixon	LMICs	Int Health
8	A Systematic Review and Meta-Analysis on Depression and Associated Factors among Adult HIV/AIDS-Positive Patients Attending ART Clinics of Ethiopia: 2021 [18].	Zewudie et al.	Ethiopia	Depress Res Treat.
9	Psychosocial Factors Associated with Suicidal Ideation Among HIV/AIDS Patients on Follow-Up at Dessie Referral Hospital, Northeast Ethiopia: A Cross-Sectional Study [19].	Tamirat et al.	Ethiopia	HIV AIDS (Auckl).
10	Effectiveness of psychological treatments for depressive symptoms among people living with HIV/AIDS in low- and middle-income countries: A systematic review and meta-analysis [20].	Asrat et al.	LMICs	Journal of Affective Disorders
11	Prevalence and factors associated with common mental disorders in young people living with HIV in sub-Saharan Africa: a systematic review [6].	Too et al.	Sub-Saharan Africa	J Int AIDS Soc
12	Mental health symptoms and inflammatory markers among HIV infected patients in Tanzania [21].	Memiah et al.	Tanzania	BMC Public Health
13	Prevalence and correlates of common mental disorders among HIV patients attending antiretroviral therapy clinics in Hawassa City, Ethiopia [22].	Duko et al.	Ethiopia	Ann Gen Psychiatry
14	Prevalence of depression and associated factors among people living with HIV/AIDS in public hospitals of Southeast Ethiopia [23].	Desta et al.	Ethiopia	BMC Psychiatry
15	Prioritizing Mental Health in the HIV/AIDS Response in Africa [7].	Godfrey Catherine, Nkengasong John	Africa	New England Journal of Medicine
16	Addressing Common Mental Health Disorders Among Incarcerated People Living with HIV: Insights from Implementation Science for Service Integration and Delivery [24].	Smith et al.	Sub-Saharan Africa	Curr HIV/AIDS Rep
17	Associations Between Anxiety and Adherence to Antiretroviral Medications in Low- and Middle-Income Countries: A Systematic Review and Meta-analysis [25].	Wykowski et al.	LMICs	AIDS Behav.
18	Depression symptom trajectories among mothers living with HIV in rural Uganda [26].	Familiar et al.	Uganda	AIDS Behav
19	Effectiveness and cost-effectiveness of group support psychotherapy delivered by trained lay health workers for depression treatment among people with HIV in Uganda: a cluster-randomised trial [27].	Nakimuli-Mpungu et al.	Uganda	Lancet Glob Health
20	Factors associated with depression among adolescents living with HIV in Malawi [28].	Kim et al.	Malawi	BMC Psychiatry
21	Integrating Mental Health and HIV Services in Zimbabwean Communities: A Nurse and Community-led Approach to Reach the Most Vulnerable [29].	Duffy et al.	Zimbabwe	J Assoc Nurses AIDS Care.
22	Prevalence and correlates of probable post-traumatic stress disorder and common mental disorders in a population with a high prevalence of HIV in Zimbabwe [30].	Verhey et al.	Zimbabwe	European Journal of Psychotraumatology
23	Prevalence of depression among people living with HIV in rural hospitals in South-Western Nigeria-Association with clinico-demographic factors [31].	Adedeji et al.	Nigeria	AIDS Res Ther
24	Understanding the experience and manifestation of depression in people living with HIV/AIDS in South Africa [32].	Andersen et al.	South Africa	AIDS Care

Table 2 is a literature matrix of the studies included in this review. In terms of the prevalence and types of mental health problems among PLWH in LMICs, as much as 44.9% had depression [23], 49.6% had anxiety [6], 49.4% had a combination of depression and anxiety [15], 55.3% had post-traumatic stress disorder (PTSD) [30], 9.4% had suicidal thoughts [19], while 27.7% had psychosis [15]. Some of the factors that were positively associated with mental health problems among PLWH in LMICs were low CD4 count, later stages of disease, poor adherence to antiretroviral therapy (ART), opportunistic infections, poor social support, low socioeconomic status, perceived and actual stigmatization, substance use disorder, bullying, and the loss of a loved one [6, 7, 18, 19].

Some of the tools used for the diagnosis of mental health problems among PLWH in LMICs include the Mini International Neuropsychiatric Interview (MINI), Patient Health Questionnaire (PHQ-9), Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), and the Beck Depression Inventory II (BDI-II) [15, 22, 28, 30]; while some of the methods for treating mental health problems among PLWH in LMICs include cognitive behavioral therapy (CBT), interpersonal therapy, group therapy, and medications [10, 12, 14]. It was evident from most of the studies

included in this review that there was inadequate inclusion of mental health care into routine HIV care in most LMICs.

Discussion

Common mental disorders (CMD), which consist of depression and anxiety disorders, were among the most prevalent mental health problems in PLWH in LMICs. It was also evident that these conditions were more prevalent among PLWH than the general population. Approximately half of PLWH in LMICs met the criteria for one or more mental health disorders [14, 15, 33, 34]. In addition, about half of PLWH in LMICs experience depression in combination with anxiety, or other mood disorders globally [14, 15, 33, 34].

A systematic review of sub-Saharan African PLWH reported similar findings that anxiety and depression affected 32% and 9% of the study participants respectively [35]. These mental health disorders are associated with delayed HIV diagnosis, and suboptimal HIV treatment outcomes, including late ART initiation, poor ART adherence, lack of viral suppression, and increased AIDS-related mortality across LMICs [33, 34].

It is also evident from most of the studies reviewed that although mental health disorders are common among PLWH in LMICs, and these disorders have been associated with suboptimal HIV outcomes, most HIV care providers neither screen nor treat their patients for such disorders, thereby contributing to a situation where mental health disorders among PLWH are underdiagnosed, resulting in a substantial gap in their mental health management.

Poor integration of mental health services into HIV care was identified in some of these studies as a major reason for the suboptimal mental healthcare received by PLWH in LMICs. Integrating mental health care into HIV care has been identified as a promising strategy for improving the mental health and HIV treatment outcomes of PLWH in LMICs [33, 34].

Some of the studies also found a significant association between mental health and HIV treatment outcomes among individuals living with HIV who have concurrent mental health disorders. These studies reported that mental health problems among PLWH negatively affected their adherence to antiretroviral therapy (ART), while on the other hand, adequate adherence to ART improved the mental health status of PLWH in LMICs.

The identification and prioritization of other factors that influence this relationship between adherence to ART and the mental health status of PLWH in LMICs may also help to optimize the quality of care for PLWH with mental health disorders, thereby improving their overall health outcomes. In light of this, most of the reviewed studies recommended that research related to mental health in PLWH be prioritized to facilitate the effective and efficient expansion of the "treat all" approach among PLHW in LMICs and beyond.

To achieve the 95-95-95 objectives and overcome barriers to antiretroviral therapy (ART) adherence, it is essential to screen and treat mental health disorders at the time of HIV diagnosis and throughout the patient's life. Screening and treatment protocols for mental health disorders that can be integrated into HIV treatment and used by specialists and non-specialists need to be developed, implemented, and evaluated, especially in LMICs, as these will be efficient and cost-effective.

The findings from this scoping review indicate that there is limited evidence from LMICs on the integration of mental health services into HIV care, despite the availability of studies indicating a higher prevalence of mental health disorders in this population, especially when compared to the general population [12].

There is adequate evidence that integrating mental health and HIV care services can lead to improved outcomes for PLWH, especially in low- and middle-income countries (LMICs) where access to mental health care is limited [36]. Therefore, it is important to prioritize and implement the integration of adequate mental healthcare into HIV testing and care settings in LMICs. Appropriate models of integrated care should be implemented and evaluated to determine their effectiveness, with particular emphasis on strategies that can be implemented in the context of 'treat all' implementation.

Furthermore, considering the reasons for the non-integration of mental health care into routine HIV care in LMICs, more robust implementation research is needed to better understand how to address these challenges. Such research should focus on identifying effective and efficient strategies for integrating mental health interventions into HIV service delivery programs.

Conclusion

It is clear that mental health problems are common in people living with HIV in most LMICs. These mental health problems include depression, anxiety, PTSD, suicidal ideation, and even psychosis. Some of the factors associated with mental health problems in PLWH in LMICs include poor drug adherence, perceived and actual stigmatization, later stages of the disease, and the loss of a loved one. However, there was suboptimal inclusion of mental health care into the routine care of PLWH in most LMICS.

Recommendations

- The government at various levels in LMICs should ensure that mental health care is added to the existing policies on the care of PLWH such that both services (mental health and HIV) are received routinely during the same visit in the health facilities where PLWH receive care. This inclusion should be at the primary, secondary and tertiary health facilities, whether public and private.
- The management of the health facilities where PLWH receive care in LMICs should ensure the sustained implementation of the policy on the inclusion of mental health care in the routine care for HIV.
- Task-shifting and task-sharing should be appropriately applied such that adequately trained lower cadres of health workers can provide certain aspects of mental health care (evaluation, diagnosis, psychotherapy) to PLWH with simple or mild mental health problems, while promptly referring patients with more serious problems to the mental health experts.

List of Abbreviations

AIDS: Acquired Immune Deficiency Syndrome
ART: Anti-Retroviral Therapy
BDD – II: Beck Depression Inventory – II
CBT: Cognitive Behavioral Therapy
DSM – 5: Diagnostic and Statistical Manual of Mental Disorders, 5th Edition

HIV: Human Immunodeficiency Virus
LMIC: Low- and Middle-Income Countries
MINI: Mini International Neuropsychiatric Interview
PHQ – 9: Patient Health Questionnaire – 9
PLWH: People living with HIV
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analysis
PTSD: Post-Traumatic Stress Disorder

Ethical Approval
Not applicable.

Competing Interests
The authors declare no competing interests.

Authors' Contributions
Conceptualisation: AOA, ONE and OOA;
Methodology (scoping synthesis): All authors;
Investigation and data extraction: ONE, AOO, AAA;
Writing (original draft): ONE, AOO, OOA, AAA;
Writing (review & editing): AOA, ONE;

All authors read and approved the final manuscript.

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