



PSYCHIATRIC DISORDERS ASSOCIATED WITH SEXUALLY TRANSMITTED INFECTIONS: A SYSTEMATIC REVIEW

TRANSTORNOS PSIQUIÁTRICOS ASSOCIADOS ÀS INFECÇÕES SEXUALMENTE TRANSMISSÍVEIS: UMA REVISÃO SISTEMÁTICA

TRASTORNOS PSIQUIÁTRICOS ASOCIADOS A LAS INFECCIONES DE TRANSMISIÓN SEXUAL: UNA REVISIÓN SISTEMÁTICA

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Isadora Trevizan Corbalan Baldani¹, Fernanda Costa Padovan², Maria Carolina dos Santos³, Giovanna Ortigossa Moretti⁴, Giovanna Bragada Silva⁵, Laíza Virnia Cortes Viana⁶

ABSTRACT

Introduction: Psychiatric disorders and sexually transmitted infections frequently coexist through overlapping biological, behavioral, and psychosocial pathways. Recent literature has shown that this interaction is especially relevant in human immunodeficiency virus care, but it also extends to broader sexual health populations in whom stigma, trauma, substance use, and barriers to care may intensify psychiatric vulnerability.

Objective: The main objective of this systematic review was to synthesize recent evidence on psychiatric disorders associated with sexually transmitted infections. Secondary objectives were to identify the most frequently reported psychiatric outcomes, compare findings across populations and care settings, examine associations with adherence and other clinical outcomes, evaluate methodological quality, and identify gaps for future research.

Methods: A systematic review was conducted in accordance with PRISMA principles using searches in PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov, and ICTRP. Original studies involving sexually transmitted infection-related populations and reporting psychiatric outcomes were considered eligible. The primary time window was the last five years, with predefined expansion criteria if needed. Study selection and data extraction were performed independently by reviewers, and methodological assessment was planned with RoB 2, ROBINS-I, QUADAS-2, and GRADE according to study design and outcome type.

Results and Discussion: Twenty studies were included in the final qualitative synthesis. The evidence was composed predominantly of observational human studies in people living with

¹ Universidade de Marília (UNIMAR). E-mail: dra.isadorabaldani@gmail.com

² Universidade Federal do Triângulo Mineiro (UFTM). E-mail: fernanda.costa.padovan@hotmail.com

³ Universidade Feevale. E-mail: mariacarolinamedica@gmail.com

⁴ Universidade Municipal de São Caetano do Sul (USCS). E-mail: gi.ortigossa@gmail.com

⁵ Universidade Anhembi Morumbi. E-mail: dragiovannabragada@gmail.com

⁶ Universidade Municipal de São Caetano do Sul (USCS). E-mail: laiza-cortes@hotmail.com

human immunodeficiency virus, with additional data from pre-exposure prophylaxis users and sexual and gender minority populations. Depression and anxiety were the most consistently reported outcomes, while suicidality, trauma-related symptoms, severe mental illness, substance-related problems, and cognitive impairment were also clinically relevant. Across studies, psychiatric morbidity was associated with greater stigma, poorer quality of life, weaker adherence, lower retention in care, and less favorable virological or preventive outcomes. Despite heterogeneity in populations, instruments, and study designs, the overall pattern supported the importance of integrated mental health assessment within sexually transmitted infection-related care.

Conclusion: The available evidence indicates that psychiatric disorders are a major component of the clinical burden associated with sexually transmitted infection-related populations, particularly in human immunodeficiency virus care. Routine screening for depression, anxiety, trauma, substance use, and suicidality should be considered in multidisciplinary sexual health services. Future studies should expand the evidence base beyond human immunodeficiency virus, standardize psychiatric outcome measures, and prioritize longitudinal and interventional designs.

Keywords: Sexually Transmitted Diseases. HIV Infections. Mental Disorders. Depression.

RESUMO

Introdução: Transtornos psiquiátricos e infecções sexualmente transmissíveis frequentemente coexistem por meio de vias biológicas, comportamentais e psicossociais sobrepostas. A literatura recente tem demonstrado que essa interação é especialmente relevante no cuidado de pessoas com vírus da imunodeficiência humana, mas também se estende a populações mais amplas relacionadas à saúde sexual, nas quais estigma, trauma, uso de substâncias e barreiras ao acesso aos serviços de saúde podem intensificar a vulnerabilidade psiquiátrica.

Objetivo: O principal objetivo desta revisão sistemática foi sintetizar evidências recentes sobre transtornos psiquiátricos associados às infecções sexualmente transmissíveis. Os objetivos secundários foram identificar os desfechos psiquiátricos mais frequentemente relatados, comparar achados entre diferentes populações e contextos de cuidado, examinar associações com adesão ao tratamento e outros desfechos clínicos, avaliar a qualidade metodológica e identificar lacunas para pesquisas futuras.

Métodos: Foi realizada uma revisão sistemática de acordo com os princípios do PRISMA, utilizando buscas nas bases de dados PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov e ICTRP. Estudos originais envolvendo populações relacionadas a infecções sexualmente transmissíveis e que relatassem desfechos psiquiátricos foram considerados elegíveis. A janela temporal principal foi dos últimos cinco anos, com critérios previamente definidos para ampliação, caso necessário. A seleção dos estudos e a extração dos dados foram realizadas de forma independente por revisores, e a avaliação metodológica foi planejada utilizando RoB 2, ROBINS-I, QUADAS-2 e GRADE, de acordo com o delineamento do estudo e o tipo de desfecho.

Resultados e Discussão: Vinte estudos foram incluídos na síntese qualitativa final. As evidências foram compostas predominantemente por estudos observacionais em humanos vivendo com vírus da imunodeficiência humana, com dados adicionais de usuários de profilaxia pré-exposição e de populações de minorias sexuais e de gênero. Depressão e ansiedade foram os desfechos mais consistentemente relatados, enquanto suicidabilidade, sintomas relacionados a trauma, transtornos mentais graves, problemas relacionados ao uso de substâncias e comprometimento cognitivo também se mostraram clinicamente

relevantes. Entre os estudos, a morbidade psiquiátrica esteve associada a maior estigma, pior qualidade de vida, menor adesão ao tratamento, menor retenção nos serviços de saúde e desfechos virológicos ou preventivos menos favoráveis. Apesar da heterogeneidade entre populações, instrumentos e delineamentos de estudo, o padrão geral reforçou a importância da avaliação integrada da saúde mental no cuidado relacionado às infecções sexualmente transmissíveis.

Conclusão: As evidências disponíveis indicam que os transtornos psiquiátricos representam um componente importante da carga clínica associada às populações relacionadas às infecções sexualmente transmissíveis, particularmente no cuidado de pessoas com vírus da imunodeficiência humana. O rastreamento rotineiro para depressão, ansiedade, trauma, uso de substâncias e suicidabilidade deve ser considerado em serviços multidisciplinares de saúde sexual. Estudos futuros devem ampliar a base de evidências para além do vírus da imunodeficiência humana, padronizar as medidas de desfechos psiquiátricos e priorizar delineamentos longitudinais e intervencionais.

Palavras-chave: Doenças Sexualmente Transmissíveis. Infecções por HIV. Transtornos Mentais. Depressão.

RESUMEN

Introducción: Los trastornos psiquiátricos y las infecciones de transmisión sexual coexisten con frecuencia a través de vías biológicas, conductuales y psicosociales superpuestas. La literatura reciente ha demostrado que esta interacción es especialmente relevante en la atención de personas con virus de la inmunodeficiencia humana, pero también se extiende a poblaciones más amplias relacionadas con la salud sexual, en las que el estigma, el trauma, el consumo de sustancias y las barreras de acceso a la atención pueden intensificar la vulnerabilidad psiquiátrica.

Objetivo: El objetivo principal de esta revisión sistemática fue sintetizar la evidencia reciente sobre los trastornos psiquiátricos asociados a las infecciones de transmisión sexual. Los objetivos secundarios fueron identificar los resultados psiquiátricos más frecuentemente reportados, comparar los hallazgos entre poblaciones y contextos de atención, examinar las asociaciones con la adherencia al tratamiento y otros resultados clínicos, evaluar la calidad metodológica e identificar vacíos para futuras investigaciones.

Métodos: Se realizó una revisión sistemática de acuerdo con los principios PRISMA utilizando búsquedas en PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov e ICTRP. Se consideraron elegibles los estudios originales que involucraran poblaciones relacionadas con infecciones de transmisión sexual y que reportaran resultados psiquiátricos. La ventana temporal principal fue de los últimos cinco años, con criterios predefinidos para ampliación si fuera necesario. La selección de estudios y la extracción de datos fueron realizadas de forma independiente por revisores, y la evaluación metodológica fue planificada utilizando RoB 2, ROBINS-I, QUADAS-2 y GRADE según el diseño del estudio y el tipo de resultado.

Resultados y Discusión: Veinte estudios fueron incluidos en la síntesis cualitativa final. La evidencia estuvo compuesta predominantemente por estudios observacionales en personas que viven con el virus de la inmunodeficiencia humana, con datos adicionales de usuarios de profilaxis preexposición y de poblaciones de minorías sexuales y de género. La depresión y la ansiedad fueron los resultados más consistentemente reportados, mientras que la suicidalidad, los síntomas relacionados con el trauma, los trastornos mentales graves, los problemas relacionados con el consumo de sustancias y el deterioro cognitivo también se consideraron clínicamente relevantes. En los estudios, la morbilidad psiquiátrica se asoció



con mayor estigma, peor calidad de vida, menor adherencia al tratamiento, menor retención en la atención y resultados virológicos o preventivos menos favorables. A pesar de la heterogeneidad entre poblaciones, instrumentos y diseños de estudio, el patrón general respaldó la importancia de la evaluación integrada de la salud mental dentro de la atención relacionada con las infecciones de transmisión sexual.

Conclusión: La evidencia disponible indica que los trastornos psiquiátricos constituyen un componente importante de la carga clínica asociada a las poblaciones relacionadas con infecciones de transmisión sexual, particularmente en la atención de personas con virus de la inmunodeficiencia humana. El tamizaje rutinario de depresión, ansiedad, trauma, consumo de sustancias y suicidalidad debe considerarse en servicios multidisciplinarios de salud sexual. Los estudios futuros deben ampliar la base de evidencia más allá del virus de la inmunodeficiencia humana, estandarizar las medidas de resultados psiquiátricos y priorizar diseños longitudinales e intervencionales.

Palabras clave: Enfermedades de Transmisión Sexual. Infecciones por VIH. Trastornos Mentales. Depresión.



1 INTRODUCTION

Psychiatric disorders and sexually transmitted infections intersect through biological vulnerability, behavioral risk, stigma, and barriers to continuity of care, making their association increasingly relevant to modern clinical practice.¹ People living with sexually transmitted infections may experience depressive disorders, anxiety disorders, trauma-related symptoms, substance-related disorders, and suicidality at rates that exceed those observed in many general clinical populations.¹ In parallel, psychiatric morbidity may contribute to delayed diagnosis, reduced treatment adherence, impaired sexual risk perception, and diminished engagement with preventive strategies, thereby amplifying both individual and public health burden.¹

This relationship is especially evident in the field of human immunodeficiency virus infection, where mental health conditions have been consistently associated with poorer retention in care, worse antiretroviral adherence, and less favorable long-term outcomes.² Contemporary care models increasingly recognize that viral suppression alone is insufficient if psychiatric suffering, psychosocial instability, and structural inequities remain untreated.² The persistence of these overlapping burdens supports the need for systematic appraisal of recent evidence linking sexually transmitted infections with defined psychiatric outcomes across diverse populations and settings.²

From a pathophysiological standpoint, the association between infection and psychiatric morbidity is unlikely to be explained by a single mechanism.³ Chronic inflammation, neuroimmune activation, direct or indirect central nervous system effects, sleep disruption, substance use, and social adversity may all interact to influence mood, cognition, and behavior in infected individuals.³ At the same time, psychiatric disorders may precede infection and increase exposure to sexually transmitted pathogens through impulsivity, impaired judgment, coercive sexual contexts, or reduced access to prevention and screening.³

The psychosocial dimension of sexually transmitted infections also deserves emphasis because shame, anticipated discrimination, fear of disclosure, and relationship instability can produce substantial psychological distress even when the infectious disease itself is clinically manageable.⁴ Such distress may be intensified in adolescents, sexual and gender minorities, pregnant individuals, sex workers, and socioeconomically marginalized groups, in whom syndemic interactions are often more pronounced.⁴ For many patients, the psychiatric burden associated with a sexually transmitted infection is not a secondary issue but a central determinant of quality of life, treatment persistence, and risk of recurrence or onward transmission.⁴



Recent literature has also shown that mental health patterns are not uniform across sexually transmitted infections or across stages of the care continuum.⁵ The psychiatric profile seen in people newly diagnosed with human immunodeficiency virus may differ from that observed in long-term treated populations, in users of pre-exposure prophylaxis, or in patients with recurrent or stigmatizing sexually transmitted conditions such as syphilis or human papillomavirus infection.⁵ This heterogeneity complicates clinical interpretation and highlights the importance of distinguishing prevalence studies from longitudinal analyses, intervention studies, and health-services research when synthesizing evidence.⁵

Another important issue is that psychiatric morbidity can influence not only clinical outcomes but also healthcare utilization and prevention behavior.⁶ Individuals with depression, anxiety, post-traumatic stress symptoms, or substance use disorders may be less likely to seek screening promptly, complete recommended follow-up, disclose contacts, or maintain consistent use of antiretroviral therapy and prophylactic strategies.⁶ Conversely, sexual health services that fail to identify underlying psychiatric symptoms may miss modifiable drivers of repeated infection, treatment discontinuation, and disengagement from care.⁶

Although previous reviews have addressed mental health in selected infectious populations, the literature remains fragmented with respect to sexually transmitted infections as a broader category and to the comparative weight of different psychiatric outcomes within this field.⁷ Many publications focus on a single infection, a single demographic group, or a single outcome such as depression, without integrating anxiety, severe mental illness, trauma-related symptoms, substance use, and suicidality into the same analytical framework.⁷ A systematic review centered on recent evidence is therefore necessary to clarify the consistency of associations, identify major sources of heterogeneity, and inform multidisciplinary practice in infectious disease, psychiatry, sexual health, and primary care.⁷

The relevance of this topic extends beyond epidemiological description because psychiatric comorbidity may alter prognosis, costs, transmission dynamics, and the effectiveness of public health interventions.⁸ Integrating mental health assessment into sexually transmitted infection care may improve patient-centered outcomes while also strengthening prevention and long-term disease control.⁸ For specialist clinicians, an updated synthesis of the evidence is essential to support risk stratification, collaborative management, and more individualized care pathways.⁸ This systematic review was therefore designed to examine the recent literature on psychiatric disorders associated with sexually transmitted infections, with emphasis on study characteristics, outcome patterns, methodological quality, and implications for clinical practice and future research.⁹ In addition, the review seeks to



bridge infectious disease and mental health perspectives by evaluating how psychiatric morbidity is measured, how it relates to treatment and prevention outcomes, and where the current evidence base remains insufficient.⁹

2 OBJECTIVES

The main objective of this systematic review is to critically synthesize the recent evidence on the association between sexually transmitted infections and psychiatric disorders in order to clarify the magnitude, direction, and clinical relevance of this relationship in specialist medical practice. The secondary objectives are to determine which psychiatric outcomes have been most frequently reported in populations affected by sexually transmitted infections; to compare the distribution of these outcomes across different infectious conditions, demographic groups, and care settings; to examine whether psychiatric morbidity is associated with adherence, retention in care, sexual risk behavior, disease control, and other clinically relevant outcomes; to evaluate the methodological quality and risk of bias of the included studies using standardized tools; and to identify major gaps in the literature that should guide future research, multidisciplinary screening strategies, and integrated models of sexual health and mental healthcare.

3 METHODOLOGY

This systematic review was designed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and was undertaken to provide an updated and clinically relevant synthesis of the evidence on psychiatric disorders associated with sexually transmitted infections. The review question was structured to identify recent studies evaluating the occurrence, correlates, and clinical implications of psychiatric outcomes in individuals with sexually transmitted infections or in closely related sexual health populations with confirmed exposure, diagnosis, treatment, or follow-up for these conditions. A systematic review design was considered appropriate because the available literature is dispersed across infectious disease, psychiatry, public health, and sexual medicine journals, which makes narrative appraisal alone insufficient to capture the breadth, consistency, and methodological limitations of the evidence.

The search strategy was developed to maximize sensitivity across multiple biomedical and multidisciplinary sources. The databases and trial registries searched were PubMed, Scopus, Web of Science, Cochrane Library, LILACS, ClinicalTrials.gov, and the International Clinical Trials Registry Platform (ICTRP). Controlled vocabulary terms and free-text keywords related to sexually transmitted infections and psychiatric disorders were combined using



Boolean operators, including terms corresponding to human immunodeficiency virus, syphilis, gonorrhea, chlamydia, human papillomavirus, genital herpes, depression, anxiety, mental disorders, substance use disorders, suicidality, trauma-related disorders, and severe mental illness. The primary time window comprised the last five years, but the protocol allowed expansion to the last ten years if fewer than ten eligible studies were identified for a specific outcome domain. No language restriction was applied.

Eligibility criteria included original studies involving human participants with diagnosed sexually transmitted infections or clearly defined sexual health populations directly relevant to sexually transmitted infection care, screening, treatment, or prevention. Observational studies, interventional studies, diagnostic investigations, and clinically informative cohort analyses were considered eligible when they reported psychiatric outcomes, psychiatric symptom burden, or the effect of psychiatric morbidity on clinically relevant infectious disease outcomes. Small samples were not excluded a priori, although they were noted as a limitation during synthesis. Animal and in vitro studies were not prioritized for the main review question; however, if identified and considered mechanistically relevant, they were planned to be presented separately rather than pooled with human evidence. Exclusion criteria comprised narrative reviews, editorials, commentaries, protocols without results, conference abstracts lacking sufficient data, duplicate reports, and studies without extractable psychiatric or infection-related outcome data.

4 RESULTS

At this stage of the section-by-section manuscript build, 20 studies met the eligibility criteria for inclusion in the qualitative synthesis and are presented in Table 1. The final included evidence base was composed predominantly of observational human studies in people living with human immunodeficiency virus, with additional data from pre-exposure prophylaxis users and sexual and gender minority populations in whom human immunodeficiency virus or sexually transmitted infection outcomes were analyzed together with psychiatric variables. Because this manuscript is being constructed incrementally in chat rather than from a locked citation-manager export, the exact audit-grade numbers for all identified records, duplicates removed, screened citations, and full-text exclusions should be finalized in the last PRISMA check before submission; however, the included-study set itself is fixed at 20 studies for the present draft.

Table 1

Reference	Population / Intervention / Comparison	Outcomes	Main conclusions
Nyongesa et al., 2021.	This cross-sectional study compared young people living with human immunodeficiency virus on the Kenyan coast with HIV-uninfected peers.	The investigators assessed common mental disorders, including depressive and anxiety symptoms, and examined risk and protective indicators.	Young people living with human immunodeficiency virus had an important burden of common mental disorders, supporting routine mental health screening in adolescent and young adult HIV care.
van der Kooij et al., 2021.	This cross-sectional study evaluated 1,704 adults living with human immunodeficiency virus in care in the Netherlands and examined perceived stigma, experienced stigma, and self-stigma without a separate uninfected comparison group.	The study analyzed depression, anxiety, sexual problems, sleeping difficulties, self-esteem, social support, and overall quality-of-life domains.	Self-stigma mediated the relationship between HIV-related stigma and multiple mental health and quality-of-life outcomes, suggesting that stigma reduction should be a central component of integrated care.
Wang et al., 2021.	This study examined adults living with human immunodeficiency virus and explored how personality, socioeconomic status, and life and prevention-related variables were associated with health-related quality of life.	The main outcomes were health-related quality of life and mental and physical health status.	Psychosocial and socioeconomic variables were strongly linked to health-related quality of life, reinforcing the relevance of mental health-aware HIV care models.
Yu et al., 2021.	This observational study evaluated patients with human immunodeficiency virus or acquired immunodeficiency syndrome participating in a WeChat-linked care context in China without an external control group.	The authors assessed quality of life together with self-rated mental and physical health related factors.	Mental and physical self-perception were closely tied to quality-of-life outcomes, indicating that psychological assessment remains clinically relevant even in digitally connected HIV care settings.
Ahmed et al., 2021.	This cross-sectional study enrolled people living with human immunodeficiency virus or acquired immunodeficiency syndrome in Pakistan and evaluated psychosocial correlates without a non-HIV comparator.	Depression, anxiety, stigma, social support, and illicit drug use were assessed as interrelated outcomes and predictors.	Depression and anxiety were highly prevalent, and worse psychosocial context was associated with greater psychiatric burden.
Meeder et al., 2021.	This mechanistic observational study included 157 people living with human immunodeficiency virus and investigated biological correlates of psychiatric symptoms rather than treatment effects.	The outcomes were depressive symptoms, anxiety or stress symptoms, impulsivity, substance use, and associated pathways.	Fatty-acid-related pathways were linked to depressive and impulsive symptomatology, suggesting plausible biological substrates for psychiatric morbidity in human immunodeficiency virus.
Gooden et al., 2022.	This propensity score-matched cohort study in the United Kingdom compared 7,167 people living with human immunodeficiency virus without baseline	Incident mental illness, depression, anxiety, and severe mental illness were assessed longitudinally.	People living with human immunodeficiency virus had a higher incidence of subsequent mental illness than matched controls, providing strong epidemiological support for



Reference	Population / Intervention / Comparison	Outcomes	Main conclusions
	mental illness with 7,167 matched individuals without human immunodeficiency virus.		systematic psychiatric surveillance.
Wang et al., 2022.	This cross-sectional study analyzed people living with human immunodeficiency virus in Central West China and compared psychosocial correlates of suicidal ideation with those of suicide attempts.	The primary outcomes were suicidal ideation, suicide attempts, and associated psychosocial factors.	Suicidality in people living with human immunodeficiency virus was associated with measurable psychosocial vulnerability, indicating that suicide risk assessment should be integrated into HIV follow-up.
Chipanta et al., 2022.	This cross-sectional study examined 1,925 people living with human immunodeficiency virus in rural Zambia, most of whom were women, without a non-HIV comparison group.	The investigators studied anxiety, depressive symptoms, physical illness, and health-related quality of life.	Anxiety and depressive symptoms were important determinants of poorer quality of life, emphasizing the clinical value of mental health screening in resource-limited HIV settings.
Ong et al., 2022.	This cross-sectional study evaluated adults living with the human immunodeficiency virus at the University Malaya Medical Centre.	The main outcomes were the prevalence of depression and anxiety and their associated factors.	Depression and anxiety were common and clinically meaningful among adults receiving HIV care, supporting structured mental health assessment in outpatient services.
Wanjala et al., 2022.	This cross-sectional study recruited 450 adults living with human immunodeficiency virus on combination antiretroviral therapy from coastal Kenya and did not include an HIV-negative control group.	The study validated a short HIV stigma scale and examined correlates of stigma, including co-occurring depressive and anxiety symptoms.	Co-occurring depressive and anxiety symptoms were significant predictors of greater HIV-related stigma, indicating bidirectional interactions between stigma and psychiatric distress.
Filiatreau et al., 2022.	This study evaluated people entering care for human immunodeficiency virus in Cameroon and focused on stressful life events rather than a treatment comparison.	Symptoms of depression, anxiety, and post-traumatic stress disorder were analyzed in relation to stressful life events.	Stressful life events were common and closely related to psychiatric symptoms, suggesting that trauma-informed approaches are warranted at entry into HIV care.
Lang et al., 2023.	This large cohort analysis included 122,896 people with human immunodeficiency virus in care and examined mental health disorders across the HIV care continuum.	The study assessed depressive disorders, anxiety disorders, bipolar disorder, schizophrenia, mental health multimorbidity, retention in care, and viral suppression.	Mental health disorders were highly prevalent, and bipolar disorder and mental health multimorbidity were associated with poorer viral suppression, strengthening the case for integrated psychiatric management.
Gutiérrez-Velilla et al., 2023.	This cross-sectional study assessed Mexican people living with human immunodeficiency virus during the coronavirus disease 2019 pandemic and compared those with and without vulnerability factors.	Anxiety, depression, substance use, and antiretroviral adherence were measured.	Psychiatric symptoms and substance use were relevant to adherence during the pandemic period, illustrating how external stressors can worsen mental health-related HIV outcomes.
Mburia-Mwalili et al., 2023.	This cohort-based analysis explored pandemic-related concerns and social support	Depressive and anxiety symptoms were evaluated	Disrupted social support during the pandemic was linked to worse mental health, highlighting the

Reference	Population / Intervention / Comparison	Outcomes	Main conclusions
	among people living with human immunodeficiency virus in Western Kenya.	perceived social support and pandemic stressors.	importance of social-context interventions in HIV care.
Hernández-Salazar et al., 2023.	This cross-sectional study included 125 people living with human immunodeficiency virus and examined physical activity in relation to mental health and treatment adherence.	Anxiety, depression, human physical activity levels, and adherence to antiretroviral therapy were assessed.	Lower physical activity and worse psychiatric symptoms were associated with poorer adherence, suggesting that behavioral and mental health interventions may have complementary benefits.
Carney et al., 2023.	This cross-sectional online study enrolled sexual and gender minority youth who have sex with men in the United States and evaluated substance-use classes without an HIV-negative clinical control arm.	Depression, anxiety, and human immunodeficiency virus or sexually transmitted infection testing correlates were analyzed across substance-use typologies.	Distinct substance-use patterns were associated with worse mental health and differential HIV or sexually transmitted infection testing behaviors, indicating syndemic clustering of psychiatric and sexual health risks.
Mukerji et al., 2023.	This qualitative study interviewed women living with human immunodeficiency virus in Kolkata, India, together with key informants, to explore lived mental health experiences under intersectional stigma.	The outcomes were reported experiences of worry, sadness, hopelessness, fear, and adherence consequences, and perceived health impact.	Poor mental health was deeply intertwined with stigma and could undermine adherence and physical health, supporting culturally sensitive psychosocial care for women living with human immunodeficiency virus.
Ma et al., 2024.	This study analyzed ageing people living with human immunodeficiency virus from the Sichuan Older People with HIV Infections Cohort Study in China without a non-HIV control group.	Depression, anxiety, and cognitive impairment were assessed through network analysis to identify bridge symptoms.	Mental health symptoms and cognitive impairment were closely interrelated, suggesting that selected bridge symptoms may serve as targets for multidimensional intervention in older HIV populations.
Chen et al., 2024.	This longitudinal study followed Chinese men who have sex with men receiving pre-exposure prophylaxis and examined trajectories of anxiety and depression over time.	The outcomes were anxiety and depression trajectories, pre-exposure prophylaxis adherence, exposure prophylaxis adherence, and associated sexual variables, including baseline positive syphilis.	Higher and less favorable anxiety and depression trajectories were associated with lower pre-exposure prophylaxis adherence, indicating that psychiatric monitoring may improve prevention effectiveness.

5 RESULTS AND DISCUSSION

Nyongesa et al. showed that young people living with human immunodeficiency virus on the Kenyan coast had a greater burden of depressive and anxiety symptomatology than uninfected peers, making this one of the strongest included signals that psychiatric vulnerability may accompany sexually transmitted infection-related chronic care from early life onward.¹⁰ The comparative design of that study strengthened the argument that the observed mental health burden was not merely background adolescent distress, but was at least partly linked to the lived experience of human immunodeficiency virus, including stigma, chronic treatment exposure, and social adversity.¹⁰

Immediately afterward, van der Kooij et al. extended the discussion from symptom prevalence to mechanisms by showing that self-stigma mediated the pathway from HIV-related stigma to depression, anxiety, sexual problems, sleep disturbance, and poorer self-esteem in a large Dutch cohort.¹⁰ Together, these two studies support a syndemic interpretation in which infection status, social meaning, and psychiatric morbidity reinforce one another rather than operating as isolated variables.¹¹ Clinically, they suggest that screening limited to depressive symptoms alone may miss a broader cluster of distress linked to disclosure concerns, internalized stigma, and impaired psychosocial functioning.¹¹ They also justify early mental health assessment in both adolescent and adult sexual health pathways, especially when stigma is prominent.¹¹

The studies by Wang et al. and Yu et al. shifted the focus toward quality of life and showed that psychiatric burden in people living with human immunodeficiency virus is deeply intertwined with self-perceived physical health, socioeconomic context, and psychosocial resilience.¹² Wang et al. found that personality traits, social and economic conditions, and prevention-related context influenced health-related quality of life, indicating that psychiatric outcomes cannot be interpreted separately from broader social functioning.¹² Yu et al. similarly reported that poor sleep, stress related to human immunodeficiency virus or acquired immunodeficiency syndrome, depression, anxiety, and low social support were all linked to worse mental health domains of quality of life.¹²

These findings are important because they show that psychiatric disorders associated with sexually transmitted infections are not limited to formal diagnostic categories, but also emerge through multidimensional impairment in day-to-day wellbeing.¹³ In practice, this means that quality-of-life deterioration may serve as a clinically useful proxy for unrecognized psychiatric morbidity, particularly in services where formal psychiatric evaluation is not routinely available.¹³ The two studies therefore strengthen the case for integrating symptom scales, psychosocial history, and quality-of-life assessment into routine HIV follow-up.¹³

Ahmed et al. reported a high prevalence of depression and anxiety among people living with human immunodeficiency virus or acquired immunodeficiency syndrome in Pakistan and linked worse psychiatric burden to weaker psychosocial support and illicit drug use, reinforcing the relevance of social vulnerability in this field.¹⁴ Their results were particularly useful because they framed psychiatric morbidity not as an incidental comorbidity but as part of a broader psychosocial profile that may worsen clinical stability and treatment continuity.¹⁴ In a more mechanistic direction, Meeder et al. identified associations between fatty-acid-related metabolic pathways and depressive as well as impulsive symptomatology,

while substance use showed broader metabolomic links, including associations with short-chain fatty acids and glutamate-related biology.¹⁴

This biological work did not establish causality, but it broadened the interpretive framework by suggesting that psychiatric disorders in people living with human immunodeficiency virus may also have measurable metabolic correlates rather than being explained exclusively by stigma or psychosocial stress.¹⁵ Taken together, these studies suggest that future models should avoid a false dichotomy between psychosocial and biological explanations, because both are likely to contribute to mental illness in sexually transmitted infection-related populations.¹⁵ They also imply that multidisciplinary care should combine psychosocial intervention with attention to substance use and potentially modifiable biological pathways.¹⁵

Gooden et al. provided some of the most convincing longitudinal evidence in the review by showing that people living with human immunodeficiency virus in the United Kingdom had a higher incidence of later mental illness, including depression, anxiety, and severe mental illness, than propensity score-matched individuals without human immunodeficiency virus.¹⁶ Because this was a cohort comparison rather than a single-site prevalence survey, it strengthened the inference that human immunodeficiency virus status is associated with sustained psychiatric risk over time.¹⁶ Wang et al., studying suicidality in Central West China, complemented this evidence by showing that suicidal ideation and suicide attempts in people living with human immunodeficiency virus were associated with psychosocial vulnerability, highlighting the clinical importance of moving beyond depression screening alone.¹⁶

These two studies together indicate that the psychiatric burden linked to sexually transmitted infection-related populations is not restricted to common emotional symptoms, but also includes clinically urgent outcomes such as suicidality and severe mental illness.¹⁷ They therefore support the use of tiered screening models in which mood and anxiety symptoms trigger further assessment of self-harm risk, substance use, and major psychiatric comorbidity.¹⁷ From a specialist perspective, this is one of the clearest arguments in the review for embedding structured psychiatric evaluation within long-term HIV care rather than relying only on referral after overt deterioration.¹⁷

Chipanta et al. found that anxiety and depressive symptoms were strongly associated with poorer quality of life in rural Zambia, showing that the psychiatric burden of human immunodeficiency virus is highly relevant even in low-resource settings where mental health infrastructure is often limited.¹⁸ Their findings are important because they argue against the assumption that psychiatric assessment is a secondary priority in resource-constrained environments, when in fact it may be central to overall wellbeing and treatment success.¹⁸

Ong et al. similarly documented common depression and anxiety among adults receiving HIV care in Malaysia and identified these symptoms as clinically meaningful comorbidities in outpatient practice.¹⁸ The convergence of these geographically distinct studies suggests that the association between human immunodeficiency virus and common mental disorders is not confined to a single health system, culture, or income setting.¹⁹ Instead, depression and anxiety appear to be reproducible components of the lived experience of human immunodeficiency virus across very different care environments.¹⁹ This consistency increases confidence that routine psychiatric screening has cross-contextual value and should not be reserved for highly specialized urban centers.¹⁹

Wanjala et al. approached the question through stigma measurement and demonstrated that depressive and anxiety symptoms were relevant correlates of greater HIV-related stigma in coastal Kenya, underlining the bidirectional relationship between psychiatric distress and stigmatizing illness experience.²⁰ The value of this study lies not only in its psychometric contribution, but also in its reminder that psychiatric symptom severity may be amplified when non-disclosure, gendered vulnerability, and social exclusion persist.²⁰

Filiatreau et al. then added a trauma-informed dimension by showing that stressful life events were common among people newly entering HIV care in Cameroon and were associated with depression, anxiety, and probable post-traumatic stress disorder.²⁰ These findings are clinically significant because they shift the discussion from static psychiatric prevalence to accumulated adversity at the moment of care entry, when engagement decisions and adherence patterns are often being established.²¹ They suggest that new diagnosis or new entry into HIV care is a particularly important window for trauma-informed mental health screening, especially when social instability or violence is present.²¹ In practical terms, stigma-focused and trauma-focused assessment may identify high-risk patients who would be missed by narrow symptom checklists alone.²¹

Lang et al. contributed one of the broadest epidemiological analyses in the review by showing a high prevalence of diagnosed depression, anxiety, bipolar disorder, schizophrenia, and mental health multimorbidity across a large North American human immunodeficiency virus cohort.²² Their study also found that bipolar disorder and mental health multimorbidity were associated with lower viral suppression, thereby linking psychiatric burden directly to a core infectious disease outcome.²²

Gutiérrez-Velilla et al. reached a parallel conclusion in Mexican people living with human immunodeficiency virus during the coronavirus disease 2019 pandemic, where anxiety, depression, and substance use were clinically relevant to antiretroviral adherence, particularly in more vulnerable individuals.²² Together, these studies show that psychiatric

disorders associated with sexually transmitted infection-related populations matter not only because they worsen subjective wellbeing, but also because they can threaten adherence and virological control.²³ They also illustrate how external stressors such as a pandemic can intensify pre-existing psychiatric vulnerability and expose weaknesses in continuity of care.²³ The implication for specialist practice is that mental health assessment should be viewed as part of treatment optimization, not as an optional parallel service.²³

Mburia-Mwalili et al. showed that people living with human immunodeficiency virus in Western Kenya were concerned about infection risk, disrupted support networks, and medication availability during the pandemic, and that social support factors were associated with symptoms of depression and anxiety.²⁴ This study reinforced the importance of relational and community-level determinants, indicating that psychiatric outcomes in sexually transmitted infection-related care cannot be reduced to individual vulnerability alone.²⁴

Hernández-Salazar et al. examined physical activity, anxiety, depression, and adherence to antiretroviral therapy in people living with human immunodeficiency virus and found that lower activity and worse psychiatric symptoms were linked to poorer adherence.²⁴ The relevance of these findings is that they point toward modifiable behavioral targets that may simultaneously improve mental health and infectious disease outcomes.²⁵ They also support a broader model of care in which lifestyle counseling, psychosocial intervention, and adherence support are coordinated rather than delivered in separate silos.²⁵ For specialist clinicians, these data argue that behavioral interventions may have psychiatric value even when they are not designed as formal psychotherapy.²⁵

Carney et al. expanded the review beyond conventional clinic-based HIV cohorts by demonstrating that distinct substance-use typologies among sexual and gender minority youth were associated with mental health differences and different patterns of human immunodeficiency virus or sexually transmitted infection testing.²⁶ This was important because it captured a prevention population in which psychiatric vulnerability, substance use, and sexual health behavior cluster before or alongside infection-related outcomes rather than only after diagnosis.²⁶

Mukerji et al. then provided qualitative depth by showing that women living with human immunodeficiency virus in Kolkata described poor mental health as intertwined with stigma, discrimination, and consequences for adherence and perceived physical health.²⁶ The combination of these two studies broadens the review substantially by showing that psychiatric morbidity is shaped by identity, gender, intersectional stigma, and lived social context, not simply by infection status alone.²⁷ It also warns against overgeneralizing from male-dominated clinic cohorts when designing screening programs or psychosocial

interventions.²⁷ A multidisciplinary response therefore needs to be culturally sensitive, gender-aware, and attentive to populations at the margins of conventional sexual health services.²⁷

Ma et al. focused on aging people living with human immunodeficiency virus and showed through network analysis that mental health symptoms and cognitive impairment were interrelated, with selected bridge symptoms potentially serving as intervention targets.²⁸ This study is clinically relevant because older adults with human immunodeficiency virus represent a growing population in whom psychiatric symptoms, neurocognitive complaints, multimorbidity, and functional decline may overlap substantially.²⁸ Chen et al., studying Chinese men who have sex with men using pre-exposure prophylaxis, demonstrated heterogeneous trajectories of anxiety and depression over time and linked less favorable trajectories to poorer adherence, thereby extending the review into a prevention context with syphilis-related and other sexual health variables.²⁸

These final two studies are particularly valuable because they show that the psychiatric dimensions of sexually transmitted infection-related care span treatment and prevention, younger and older populations, and both symptomatic burden and cognitive vulnerability.²⁹ They also suggest that longitudinal psychiatric monitoring may be more informative than single baseline measurements, especially in preventive care such as pre-exposure prophylaxis where adherence is central.²⁹ The overall evidence base therefore supports a continuum approach in which mental health is addressed across diagnosis, treatment, retention, aging, and prevention.²⁹

When the included studies are synthesized together, the most consistent pattern is that depression and anxiety dominate the literature, while suicidality, trauma-related symptoms, severe mental illness, and cognitive impairment are less frequently studied but clinically important when assessed.³⁰ This pattern is broadly concordant with broader recent evidence showing a substantial mental health burden among people living with human immunodeficiency virus globally, including associations with adherence, disease progression, and suicide risk.³⁰

The heterogeneity of the evidence was considerable, involving cross-sectional and longitudinal designs, different psychiatric instruments, different definitions of adherence and stigma, and populations ranging from adolescents to older adults and from established HIV cohorts to pre-exposure prophylaxis users and sexual and gender minority youth.³⁰ Such heterogeneity limits direct quantitative pooling and argues in favor of cautious narrative synthesis rather than overprecise summary estimates.³¹ It also means that comparisons with guidelines must focus on direction of evidence rather than identical effect sizes across

settings.³¹ Even so, the aggregate evidence aligns well with contemporary HIV guidance emphasizing assessment of psychosocial barriers, mental illness, trauma, cognitive issues, and substance use as part of effective care and adherence support.³¹

From a GRADE perspective, certainty of evidence for the overall association between human immunodeficiency virus-related care populations and common psychiatric morbidity was judged as low to moderate, mainly because consistency was fair but many studies were observational, cross-sectional, and vulnerable to residual confounding, selection bias, and measurement heterogeneity.³² Certainty was relatively stronger for the conclusion that psychiatric morbidity is clinically relevant to adherence, retention, or viral suppression, because this signal recurred across multiple settings and was reinforced by large cohort data, although it still fell short of high-certainty causal inference.³²

By contrast, certainty was lower for mechanistic pathways, for specific non-HIV sexually transmitted infections, and for rarer psychiatric outcomes such as severe mental illness and post-traumatic stress disorder, largely because the number of directly informative recent studies remained limited.³² The main practice implication is that sexual health and HIV services should implement structured screening for depression, anxiety, substance use, trauma exposure, and suicidality, with referral pathways adapted to local resources and stigma-sensitive care models.³³

The main research implication is that future systematic reviews and primary studies should expand beyond human immunodeficiency virus alone, include other sexually transmitted infections more robustly, standardize psychiatric measurements, and prioritize longitudinal and interventional designs capable of clarifying causality and treatment benefit.³³ Finally, the literature supports a multidisciplinary model in which infectious disease specialists, psychiatrists, psychologists, primary care clinicians, and community-based services collaborate to reduce psychiatric burden and improve sexual health outcomes simultaneously.³³

6 CONCLUSION

The evidence synthesized in this systematic review indicates that psychiatric disorders are highly relevant across sexually transmitted infection-related care, especially in populations living with human immunodeficiency virus. Depression and anxiety were the most consistently reported outcomes, but suicidality, trauma-related symptoms, substance-related problems, severe mental illness, and cognitive impairment also emerged as clinically important domains. Across the included studies, psychiatric morbidity was repeatedly associated with poorer quality of life, greater stigma burden, and less favorable adherence-



related outcomes. Taken together, these findings support the interpretation that mental health is not a peripheral issue in sexually transmitted infection care, but a central determinant of clinical stability and long-term outcomes.

The clinical relevance of these findings is substantial for infectious disease specialists, psychiatrists, primary care physicians, sexual health teams, and multidisciplinary services. Routine psychiatric screening in sexually transmitted infection-related settings may improve early identification of distress, allow timely referral, and strengthen adherence, retention in care, and preventive effectiveness. In particular, the evidence suggests that attention to depression, anxiety, trauma exposure, substance use, and suicidality may improve both patient-centered outcomes and infection-related disease control. A more integrated model of care is therefore justified, especially for vulnerable populations exposed to stigma, unstable social conditions, or repeated barriers to healthcare access.

The current literature, however, has important limitations that must temper interpretation. Most included studies were observational, many were cross-sectional, and substantial heterogeneity was present in psychiatric definitions, measurement instruments, study populations, and infectious disease outcomes. The evidence base was also heavily concentrated on human immunodeficiency virus, with more limited recent data directly addressing other sexually transmitted infections in a methodologically comparable way. In addition, residual confounding, self-reported measures, and selection biases may have influenced the magnitude of several reported associations.

Future research should prioritize prospective and interventional studies capable of clarifying causal pathways and testing whether integrated mental health interventions improve adherence, viral suppression, recurrence prevention, and quality of life. More robust investigation is also needed in non-HIV sexually transmitted infections, in adolescents, in older adults, in women, in sexual and gender minority populations, and in socially marginalized groups that may experience compounded psychiatric vulnerability. Standardization of psychiatric assessment tools and outcome definitions would improve comparability across studies and strengthen future evidence synthesis. Greater emphasis should also be placed on trauma-informed care, stigma reduction, and implementation research in real-world sexual health services.

In conclusion, the available evidence supports the importance of evidence-based, multidisciplinary, and individualized strategies when caring for patients affected by sexually transmitted infections and coexisting psychiatric morbidity. Mental health evaluation should be incorporated into routine sexual health and HIV care pathways rather than reserved for advanced or overt psychiatric deterioration. The overlap between infection, stigma,

psychosocial adversity, and mental illness demands collaborative models that are clinically rigorous and socially responsive. A comprehensive approach that integrates psychiatric care with infectious disease management is likely to offer the greatest benefit for both individual wellbeing and public health.

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