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(Review Article)

A review of models, outcomes, and policy implications in the United States, targeted at Integrating mental health into maternal HIV care

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Abstract

Background: Depression and anxiety are mental health disorders that are prevalent in women with HIV, especially during pregnancy and after childbirth. Although it is clear that mental health and HIV outcomes have a bidirectional relationship, the concept of integrating mental health care with maternal HIV services is implemented consistently in the United States.

Objective: This review synthesizes current evidence on models, outcomes, and policy implications for integrating mental health services into maternal HIV care in the U.S., identifying key challenges and opportunities for strengthening service delivery and policy alignment.

Methods: A narrative synthesis approach was used to identify and analyze studies, program reports, and policy documents published. Searches in databases such as PubMed, Scopus, PsycINFO, and CINAHL were conducted using keywords on HIV, maternal health, mental health integration, and the United States.

Results: The review identifies multiple integration models, ranging from co-located and collaborative care to community-based interventions, that demonstrate improved adherence, reduced depressive symptoms, and enhanced maternal-infant outcomes. However, persistent systemic barriers, such as fragmented funding, inadequate provider training, and policy misalignment, limit large-scale implementation.

Conclusions: Integrating mental health into maternal HIV care holds promise for improving both psychosocial and biomedical outcomes. The reform of policies and intersectoral cooperation are the keys to the expansion of evidence-based models, as well as the possibility of making the integration of healthcare systems equitable and sustainable.

Keywords: Mental Health Integration; Maternal HIV Care; Policy; United States; Models of Care

1. Introduction

In the United States, Human Immunodeficiency Virus (HIV) infection among women of reproductive age continues to be a significant public health concern. Recent estimates indicate that approximately one in every four people living with HIV is a woman, and a significant portion of them are of childbearing age (McKinnon et al., 2024). The intersection of pregnancy, HIV and mental health represents a critical area in maternal health policy and clinical practice that has not received adequate attention (Humphrey et al., 2023; Selix et al., 2017).

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Depression and anxiety are some of the mental illnesses that are common in pregnant and postpartum women with HIV (Villar-Loubet et al., 2014). Existing literature indicates that the rates of perinatal depression in HIV-positive women are almost twice as compared to the general obstetric population (Stringer et. al., 2014; Remien et al., 2019). Mental health issues are untreated and uncontrolled, and may worsen adherence to antiretroviral therapy (ART), increase viral load, and lead to poor birth outcomes during and after birth (Melese et al., 2024). Nevertheless, mental health conditions can be managed effectively, which is connected with increased ART adherence, lower chances of mother-to-child transmission (MTCT), and improved maternal well-being and functioning (Momplaisir et al., 2018).

Despite this evidence, service fragmentation persists. Mental health care is mostly isolated from maternal health and HIV care, creating missed opportunities for integrated, patient-centered services (McKinnon et al., 2024). Structural barriers like persistent stigma, limited reimbursement mechanisms, and insufficient provider training further slow efforts to harmonize care across domains (Remien et al., 2019). Workforce shortages in mental health and HIV specialities, geographic disparities in service availability, and fragmented data systems also impede comprehensive care coordination (Andrews et al., 2018). In response to these challenges, an emerging body of literature and practice-based innovations aims to integrate mental health into maternal HIV care. Examples include collaborative care models that embed mental health screening and treatment within HIV or obstetric settings, stepped-care approaches that tailor interventions to severity, and integrated care pathways that align ART management with mental health services (Momplaisir et al., 2018; Kuo & Lichterfeld, 2018). Telehealth and digital health tools have emerged as good modalities to expand access in underserved areas (Villar-Loubet et al., 2014). Peer support, social services linkage, and family-centered approaches are increasingly recognized as vital components of holistic care. However, the evidence base remains dispersed, and policy responses vary across jurisdictions, highlighting the need for scalable, interoperable models and standardized measurement of outcomes (Turan et al., 2017).

Going forward, the development of integrated care will have to be multi-level. Policymaking should encourage investments in co-located, or well planned, services, aid reimbursement of integrated processes, and encourage cross-disciplinary training. The improvement of clinical practice can be enhanced by standardized screening procedures on perinatal mood and anxiety disorders in HIV and obstetric services, and evidence-based treatment algorithms that are sensitive to ART interactions and maternal-fetal health. The research priorities are robust comparative effectiveness studies of integrated models, implementation science to understand the scalable method, and outcomes research, which capture the impact of maternal and infant health, and the general health of the population (Adimora et al., 2013; Leserman, 2008). The health system should enhance the partnership among HIV, obstetric, and mental health areas to improve the health and well-being of women living with HIV and their families during the perinatal period (Andrews et al., 2018; Selix et al., 2017).

This review synthesizes available evidence on (1) models of integration between mental health and maternal HIV services in the United States; (2) outcomes associated with such models; and (3) the policy frameworks that shape or constrain their implementation. The goal is to provide a consolidated understanding that can inform research, practice, and policy reform.

This study followed a narrative review synthesis approach, emphasizing conceptual integration over systematic quantification (Chuah & Haldane, 2017). Electronic databases like PubMed, PsycINFO, Scopus, and CINAHL were searched for studies published using combinations of the following terms: (“HIV” OR “HIV care”) AND (“maternal” OR “pregnancy”) AND (“mental health” OR “depression” OR “psychological support”) AND (“integration” OR “collaborative care”) AND (“United States”) (Andrews et al., 2018; McKinnon et al., 2024). Studies were included if they addressed mental-health integration within maternal or perinatal HIV care settings in the U.S. (Momplaisir et al., 2018; Fujita et al., 2024). Publications without a mental-health focus, conducted outside the U.S., or lacking empirical evidence were excluded (Selix et al., 2017). Data were extracted on study design, setting, intervention type, and outcomes, then grouped thematically under models of integration, outcomes, and policy implications (Chuah & Haldane, 2017; Remien et al., 2019).

2. Conceptual and Theoretical Framework

Integrating mental health into maternal HIV care is better understood through the study of the interplay of biological, psychological, and social determinants (Stringer et al., 2014). Several frameworks underpin this research (McKinnon et al., 2024; Chuah & Haldane, 2017).

2.1. The Biopsychosocial Model

This model reveals that health outcomes are shaped by interactions among biological, psychological, and social factors. In the context of maternal HIV, it suggests that viral suppression and maternal well-being are influenced not only by ART adherence but also by psychological resilience, social support, and environmental stability (Melese et al., 2024).

2.2. The Chronic Care Model (CCM)

The CCM is a model that provides a framework for improving outcomes for chronic conditions through productive interactions between informed patients and proactive healthcare teams (McKinnon et al., 2024). Applied to maternal HIV care, the model encourages coordinated healthcare delivery, evidence-based decision support, and self-management support for both HIV and mental health conditions (Momplaisir et al., 2018; Andrews et al., 2018).

2.3. The Integrated Behavioral Health Framework

This framework emphasizes the organizational and clinical integration of behavioral health into primary and specialty care (Kuo & Lichterfeld, 2018). It distinguishes between co-located care, that is, services provided in the same setting, collaborative care, and fully integrated systems, including unified care teams, shared records, and outcome tracking (Remien et al., 2019).

2.4. Equity and Intersectionality Perspective

The intersectional framework emphasizes the need for culturally responsive and trauma-informed care models that recognize these overlapping identities (Deaterly et al., 2023). That is because women living with HIV, especially those from racial or socioeconomic minority backgrounds, face barriers related to stigma, discrimination, and access to care (Turan et al., 2017; Adimora et al., 2013).

These frameworks together guide the synthesis of evidence on how mental health services can be effectively embedded within maternal HIV care, ensuring holistic support for women's health and their children's well-being (Remien et al., 2019).

3. Thematic Synthesis

This section synthesizes evidence across three interconnected themes, which are (1) models of integration between mental health and maternal HIV care, (2) outcomes associated with such integration, and (3) policy implications influencing the adoption and sustainability of integrated approaches in the United States.

3.1. Models of Integration in Maternal HIV Care

Integration models differ in scope, structure, and level of service coordination (McKinnon et al., 2024). Evidence from the U.S. shows three main categories. They are co-located care models, collaborative care models, and community-embedded or hybrid approaches.

3.2. Co-located Care Models

In co-located models, mental health professionals, psychologists, psychiatrists, or social workers are within maternal HIV clinics. This facilitates routine mental health screening, early referral, and continuous communication between providers (Fujita et al., 2024; Selix et al., 2017). In urban centers such as New York and Los Angeles, programs have shown improved screening rates for perinatal depression and increased ART adherence when behavioral health specialists were integrated into HIV obstetric clinics (Momplaisir et al., 2018). Such models also enhance continuity of care, reducing loss to follow-up, especially during the postpartum transition (Andrews et al., 2018; Remien et al., 2019). However, their scalability remains limited due to workforce shortages and funding mechanisms that separate mental and physical health reimbursement streams.

3.3. Collaborative Care Models

Collaborative models extend beyond co-location by creating interdisciplinary teams that jointly manage maternal HIV and mental health needs (McKinnon et al., 2024). These teams typically include obstetricians, infectious disease specialists, mental health providers, social workers, and peer navigators. Evidence shows that when mental health screening results directly inform HIV case management plans, women demonstrate higher adherence and improved psychosocial outcomes (Momplaisir et al., 2018; Villar-Loubet et al., 2014). The Perinatal Integrated Care Initiative (PICI) and similar pilot programs in the southeastern United States illustrate how shared electronic records and care

coordination meetings foster a continuous feedback loop between providers. This approach enhances the detection of comorbidities such as perinatal depression, intimate partner violence, and substance use disorders, enabling tailored interventions (Remien et al., 2019).

3.4. Community-Based and Hybrid Models

Community and hybrid models integrate formal medical systems with peer-led, community health, or digital health interventions (Turan et al., 2017). Examples include home-based counseling programs and telehealth platforms that offer virtual mental health screening and support for pregnant women living with HIV. These models have proven effective in engaging women from marginalized communities, where stigma and logistical barriers limit clinic attendance (Kuo & Lichterfeld, 2018). A hybrid model combining tele-psychiatry with routine prenatal visits in a Midwestern HIV program reported substantial improvements in screening uptake and patient satisfaction (Adimora et al., 2013). These models have shown that integration enabled by technology is crucial in the deprived and rural regions.

In all these models, effective integration is defined through three similar factors, and they are: (1) strong interdisciplinary collaboration, (2) routine and standardized screening for perinatal mental health conditions, and (3) patient-centered coordination mechanisms (Chuah & Haldane, 2017). However, implementation is still a problem, and it is limited by resources, a lack of mental health facilities, and the absence of policy support (Andrews et al., 2018; Remien et al., 2019)

3.5. Outcomes of Integrated Maternal HIV and Mental Health Care

Evidence from observational and interventional studies consistently indicates that integration yields both clinical and psychosocial benefits.

3.6. Mental Health Outcomes

The models of integrated care can be linked to the decrease in the number of depressive and anxious pregnant and postpartum women with HIV. Integrated mental-health screening interventions like PHQ-9 or EPDS that involve regular screening and prompt referral to counseling or pharmacotherapy claim as much as forty percent (40%) of symptomatic depressions (Momplaisir et al., 2018; Villar-Loubet et al., 2014). Also, early mental health care is associated with increased self-efficacy, coping ability, and adherence motivation (Stringer et al., 2014; Remien et al., 2019).

3.7. HIV-Related Outcomes

Mental health integration has been shown to affect adherence to ART and viral suppression positively (Melese et al., 2024). Depression is one of the predictors of non-adherence; therefore, addressing it directly within maternal HIV care settings mitigates this risk. Some of the integrated models show more than twenty percent (20%) of reported ART adherence and improvements in viral suppression rates in the course of pregnancy and postpartum (Momplaisir et al., 2018; Kuo and Lichterfeld, 2018). Improved mental health also facilitates increased participation in postpartum follow-up, a critical period for preventing the worsening of maternal health (Momplaisir et al., 2021).

3.8. Maternal and Infant Health Outcomes

Integrated care contributes indirectly to improved obstetric and neonatal outcomes. Research indicates reductions in preterm birth, low birth weight, and postpartum complications among women receiving mental health inclusive HIV care (Villar-Loubet et al., 2014; Andrews et al., 2018). Some programs report higher rates of exclusive breastfeeding and early pediatric HIV testing, attributed to greater maternal psychological readiness and adherence support (Stringer et al., 2014).

3.9. Health Systems and Economic Outcomes

Beyond clinical effects, integration generates system-level efficiencies. Shared service delivery models reduce redundant appointments, improve coordination, and enhance patient satisfaction (Chuah & Haldane, 2017). Though there are limited cost-effectiveness analyses, preliminary findings suggest that integrated models are economically favorable due to reduced emergency visits, lower rates of ART discontinuation, and better maternal retention in care (Adimora et al., 2013).

These findings emphasize that integration improves individual-level outcomes and the overall performance of maternal HIV programs (McKinnon et al., 2024). However, methodological differences across studies, screening tools, sample sizes, and follow-up duration limit comparability and underline the need for standardized evaluation metrics (Remien et al., 2019).

3.10. Policy and Systems Implications

While clinical and community-based evidence support integration, policy frameworks in the United States remain fragmented. The extent of integration depends heavily on local leadership, institutional innovation, and state-level funding priorities (Andrews et al., 2018; Adimora et al., 2013).

3.11. Federal Policy Landscape

Despite the role of the Ryan White HIV/AIDS Program (RWHAP) in providing comprehensive care to women living with HIV, mental health services are often designated as “supportive” rather than “core” services (Cheever et al., 2024). This categorization limits dedicated funding for behavioral health integration (Kuo & Lichterfeld, 2018). Similarly, the Affordable Care Act (ACA) improved access to mental health services through parity provisions, but these do not guarantee integration at the programmatic level.

The National HIV/AIDS Strategy (2022–2025) recognizes mental health as a determinant of HIV outcomes but stops short of mandating integrated service delivery for maternal populations. Policy alignment between the HIV, maternal health, and mental health sectors remains insufficient.

3.12. Medicaid and State-Level Programs

Medicaid, the primary payer for maternal health services in the U.S., has initiated various state waivers and demonstration projects to expand integrated behavioral health models. However, most focus on general populations rather than women living with HIV (Momplaisir et al., 2018; Remien et al., 2019). State disparities persist in reimbursement for integrated services, especially where billing systems do not support same-day mental and physical health visits.

3.13. Legislative and Advocacy Efforts

Recent legislation, such as the Maternal Mental Health Leadership Alliance Act (2022) and the Perinatal Mental Health and Substance Use Disorder Task Force, signifies federal acknowledgment of the issue (Andrews et al., 2018). However, integration into HIV care remains peripheral in these policies (McKinnon et al., 2024). Advocacy coalitions emphasize the need for inclusion of HIV-positive mothers in federal perinatal mental health initiatives and funding streams.

3.14. Structural and Equity Considerations

Persistent racial and socioeconomic inequities, especially among Black and Latina women, underscore the need for equity-driven policy design (Turan et al., 2017; Adimora et al., 2013). Intersectional barriers such as stigma, poverty, and systemic racism amplify risks of untreated mental illness. Policies promoting culturally competent, trauma-informed, and linguistically accessible services are essential for equitable implementation (Selix et al., 2017).

Current policy structures provide partial support for integration but lack coherence across maternal health, HIV, and mental health systems. Sustainable integration will require policy harmonization, funding realignment, and incentive mechanisms that reward integrated service models (Andrews et al., 2018; Remien et al., 2019). The evidence base supports the idea of integration, but structural reforms remain necessary to operationalize it at scale (McKinnon et al., 2024).

4. Discussion

This is a review of models, outcomes, and policy implications of integrating mental health into maternal HIV care in the United States (Remien et al., 2021). Findings highlight that although multiple models demonstrate measurable benefits, structural and policy fragmentation continue to limit their full implementation. Integration between mental health and maternal HIV care represents a logical and evidence-based approach. The consistent associations between improved maternal mental health, higher ART adherence, and reduced risk of mother-to-child transmission (MTCT) underline the necessity of unified care (Costa-Cordella et al., 2022). Across diverse models co-located, collaborative, and community-based, results converge on the same conclusion: when mental health care is embedded within HIV services, both maternal and infant outcomes improve. Despite these good outcomes, integration remains underutilized. The underlying reasons are multifactorial and span the health system, workforce, and policy environment (Andrews et al., 2018; Momplaisir et al., 2018).

4.1. Interpreting Models and Outcomes

Co-located and collaborative models of care present evidence-based evidence in the U.S. setting. They are successful because they allow the establishment of an immediate referral pathway and provider communication (McKinnon et al., 2024). Urban clinic-based programs have shown better depression screening, ART adherence, and retention in care in mothers (Momplaisir et al., 2018; Remien et al., 2019). However, these models are often limited to urban, resource-rich academic centers, limiting reach to marginalized populations, including rural and minority women disproportionately affected by HIV (Villar-Loubet et al., 2014; Turan et al., 2017).

Community-based hybrid models offer scalable and culturally responsive alternatives. By leveraging community health workers, peer mentors, and telehealth platforms, these models extend care to populations less likely to access formal healthcare systems (McKinnon et al., 2024). They are more responsive to the real-life conditions because they include social determinants of health, including transportation, stigma, and family support. It has been revealed that the combination of the psychosocial and structural support enhances adherence and maternal-infant outcomes (Stringer et al., 2014; Kuo and Lichterfeld, 2018). However, to maintain such models, the organization needs regular funding streams, digital infrastructure, and regulatory flexibility.

Importantly, evidence reviewed highlights that integration is a logistical exercise and a philosophical shift to a holistic, woman-centered care (Selix et al., 2017; Adimora et al., 2013). Intricate biomedical silos that do not capture the lived experiences of women who navigate complex, interdependent health needs are the cause of fragmentation between maternal, mental, and HIV services (Andrews et al., 2018)

4.2. Systems-Level Barriers and Opportunities

At the systems level, a persistent barrier is the lack of dedicated reimbursement for integrated care. Many health systems operate under billing models that segregate mental and physical health services, disincentivizing co-management (Remien et al., 2019). The shortage of trained workforce in both perinatal and HIV-related mental health care further compounds this gap (McKinnon et al., 2024).

However, telepsychiatry, shared electronic health records, and perinatal integration pilot program are some of the emerging innovations that demonstrate the possible solutions (Villar-Loubet et al., 2014; Turan et al., 2017). Models based on technology can overcome geographical and workforce limitations, and combined electronic systems can support interdisciplinary shared decision-making (Momplaisir et al., 2018; Andrews et al., 2018). Moving forward, it is necessary to focus more on the assessment of such innovations in real-world contexts in the health service delivery (Remien et al., 2019).

4.3. Policy Alignment and Integration Readiness

Policy frameworks remain critical to scaling integration efforts. The Ryan White HIV/AIDS Program, Medicaid, and the Affordable Care Act each address elements of care but lack cross-sector coordination (Andrews et al., 2018; Adimora et al., 2013). Integration readiness requires alignment across three domains (McKinnon et al., 2024), which are;

- Policy and Funding: Redesign reimbursement to support mental health services as essential within HIV maternal programs.
- Clinical Infrastructure: Standardize screening, referral, and data sharing procedures.
- Equity and Inclusion: Embed equity metrics to ensure programs reach marginalized women most affected by both HIV and mental health disparities.

Legislative progress in maternal mental health provides an opportunity. Federal initiatives such as the Maternal Mental Health Leadership Alliance Act and the Perinatal Mental Health Task Force mark progress in maternal mental health policy, but rarely include women living with HIV (Turan et al., 2017). Equity-focused metrics are crucial for ensuring that programs address racial, economic, and gender disparities (Adimora et al., 2013).

4.4. Implications for Practice and Policy

The evidence synthesized here supports a paradigm shift toward comprehensive, integrated models that address the psychological, biomedical, and social determinants of health (Kuo & Lichterfeld, 2018). Clinicians should adopt routine mental health screening and referral as standard of care within maternal HIV services (Villar-Loubet et al., 2014). Interdisciplinary training and collaborative team structures should be incentivized at the institutional level (Turan et al., 2017). From a policy perspective, integration must move from discretionary to core and mandatory practice within maternal HIV programs (McKinnon et al., 2024; Momplaisir et al., 2018). Reimbursement structures should reflect the

essential nature of mental health support, and policy frameworks should explicitly require mental health indicators within maternal HIV performance metrics. Ultimately, integration is a question of equity and human rights. Women living with HIV deserve care that addresses their full spectrum of needs, physical, emotional, and social (Costa-Cordella et. al., 2022). Integration also supports the U.S. national goal of ending the HIV epidemic by addressing social determinants of health that impede ART adherence and viral suppression (Remien et al., 2019; Adimora et al., 2013).

5. Conclusion and Recommendation

This review shows that integrating mental health into maternal HIV care in the United States offers benefits across health outcomes, service efficiency, and patient experience (Momplaisir et al., 2018; Andrews et al., 2018). Evidence from models consistently shows that integration reduces depressive symptoms, improves ART adherence, enhances maternal and infant health outcomes, and strengthens system-level coordination (Remien et al., 2019). However, fragmented funding streams, policy misalignment, and workforce limitations continue to hinder large-scale implementation (McKinnon et al., 2024). To realize the promise of integrated care, policy reform must designate mental health as a core component of maternal HIV programs. Interdisciplinary training, equitable funding, and data-driven evaluation frameworks will be essential to sustain progress. The integration of mental health into maternal HIV care represents not merely an enhancement of service delivery, but a necessary evolution toward holistic, woman-centered health systems (Selix et al., 2017). As the United States (U.S) moves toward ending the HIV epidemic, prioritizing integrated and equitable models of care will be indispensable to ensuring that no woman is left behind (Andrews et al., 2018; Remien et al., 2019).

Despite encouraging data, gaps remain in evidence of evaluation and scalability. Few studies have used rigorous longitudinal designs to measure long-term outcomes of integrated models. Moreover, most evidence derives from small-scale pilots, limiting generalizability. Standardized indicators covering mental health, HIV outcomes, and maternal-infant health are necessary to build a robust comparative evidence base. Therefore, further research should explore Implementation science approaches to identify facilitators of sustained integration, cost-effectiveness analyses to inform policy decision-making, culturally tailored models addressing intersectional identities and stigma reduction, and longitudinal outcomes across preconception, pregnancy, and postpartum periods.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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