

COVID-19 Pandemic: Engagement in Obstetric Care for Women with HIV and Substance Use Disorder

Yen Nguyen^{1*} PhD(c)/DNP(c), BSN, RN-BC
Nancy Goldstein¹ DNP, ANP-BC, RNC, CNE

Johns Hopkins University School of Nursing, Baltimore,
Maryland, USA

*Corresponding author

Yen Nguyen, Johns Hopkins University School of Nursing, 525 N Wolfe Street, Baltimore, MD 21205, USA, Phone number: 571-373-1869, E-mail: ynguyen2@jhu.edu

Submitted: 24 Apr 2021; Accepted: 30 Apr 2021; Published: 06 May 2021

Citation: Yen Nguyen and Nancy Goldstein (2021) COVID-19 Pandemic: Engagement in Obstetric Care for Women with HIV and Substance Use Disorder, *Journal of Nursing & Healthcare* V6 2: 1-9.

Abstract

Background: HIV and substance use disorder are major risk factors for poor obstetric outcomes and women who live with both conditions should be closely monitored during pregnancy and postpartum. It is unclear what engagement in obstetric care for women living with HIV and substance use disorder look like before and during the COVID-19 pandemic. This literature review aims to examine engagement in obstetric care for women living with HIV and substance use disorder before and during the COVID-19 pandemic and offer strategies to increase engagement in care during the COVID-19 pandemic for this vulnerable population.

Methods: A literature review was conducted on January 12, 2021 across major databases including Pubmed, PsychInfo, Cochrane, and CINAHL.

Results: A total of 6 studies were included in this review. Studies either assessed outcome of engagement in care among pregnant women living with HIV or pregnant women with substance use disorder. Our findings demonstrate that pregnant women with HIV or substance use disorder tend to have comorbid conditions and are less likely to be engaged in obstetric care, and this trend is aggravated by the COVID-19 pandemic. Approaches to care during the COVID-19 pandemic included expanding services outside of the clinic to virtual visits, telephonic engagement, text messaging, or electronic mail.

Conclusion: Pregnant women with HIV and/or substance use disorder are at much higher risk for poor engagement in obstetric care, suboptimal financial and social support, and adverse outcomes. We recommend each in-person clinic visit be accompanied by thorough screening for mental health issues, and psychosocial difficulties. Referral services should be ready and accessible if the woman screens positive. Nurses are an integral part of ensuring proper care coordination and follow-up. More research is needed to examine engagement in obstetric care for women with both HIV and substance use disorder during the COVID-19 pandemic.

Key Words: HIV, substance use disorder, pregnancy, engagement in care, obstetric care, COVID-19

Background

Women of reproductive age (15-44) are at the highest risk of developing substance use disorder and have a greater chance of suicidal ideation (Substance Abuse and Mental Health Services Administration) [1]. This is concerning in the setting of pregnancy and HIV. In the United States (U.S.), the 2019 National Survey on Drug Use and Health (NSDUH) showed that 5.8% of pregnant women used illicit drugs in the past month, 9.6% used tobacco products, and 9.5% used alcohol [1]. Not only are women of re-

productive age at risk for substance use disorder, but they are also highly vulnerable to contracting HIV during these years. Women of reproductive age living in the U.S. account for 22.3% of those living with HIV [2]. These women are at the most risk of experiencing adverse outcomes due to the COVID-19 pandemic.

Although studies oftentimes examine engagement in care for HIV or substance use disorder separately among pregnant women, there is considerable danger of having concurrent HIV and substance

use disorder during pregnancy. It is well known that injection drug users are at higher risk of contracting HIV and Hepatitis C (National Institute of Drug Abuse [3]. HIV and substance use are also known to disproportionately affect racial and ethnic minorities. HIV is diagnosed in about 59% of black/African American women living in the U.S. [2,4] Schiff et al. (2020) found that compared to white women, 37% (95% CI 0.28-0.49) of black women and 42% (95% CI 0.35-0.52) of Hispanic women were significantly less likely to receive medication for treatment (MAT) of opioid use disorder and 24% (95% CI 0.17-0.35) and 34% (0.27-0.44) less likely to have consistent use of MAT [5]. This is inconsistent with the recommendation made by the American College of Obstetricians and Gynecologists (ACOG) to universally screen all pregnant women for substance use disorder to reduce stigma and stereotyping and to refer them for opioid agonist pharmacotherapy and counseling [6]. Without proper care for substance use disorder, pregnant women are at higher risk of pregnancy-associated death; at least 15-22% of pregnancy-associated deaths were attributed to substance use [7].

Both substance use disorder and HIV also pose a risk for poor outcomes for infants. Babies of mothers with substance use disorder had a 1.8 – 2.3 times greater risk of stillbirth [8]. Opioid use disorder particularly has increased substantially in recent years, reflecting an increased incidence of neonatal opioid withdrawal syndrome [7]. Infants may also show withdrawal symptoms for other substances as well, including alcohol, benzodiazepines, and barbiturates [8]. For women who are not on antiretroviral therapy (ART) or are not virally suppressed, they have a higher likelihood of transmitting HIV to infants at time of delivery [9]. About 15% of women are not virally suppressed at time of delivery [10]. Among children diagnosed with perinatal HIV infections, 65% are Black or African American [9].

Despite increased need for support and close monitoring, women with substance use disorder may be less likely to seek prenatal care [11]. This is a similarly seen pattern with women of reproductive age living with HIV [12]. However, given that both HIV and substance use disorder are major risk factors for poor obstetric outcomes and thus require close monitoring of women during this time, it is important to examine engagement in obstetric care for women living with HIV and substance use disorder. Therefore, this literature review aims to examine engagement in obstetric care for women living with HIV and substance use disorder. Additionally, strategies to increase engagement in care will be offered during the time of the COVID-19 pandemic for this vulnerable population. There is no single definition for engagement in care for people with substance use disorder. The Health Resources and Services Administration (HRSA) outlines an HIV Care Continuum model that encompasses diagnosis, linkage, engagement in care all the way to treatment and viral load suppression for people living with HIV. For the purpose of this paper, engagement in obstetric care is defined as care for the pregnant woman during antepartum, intrapartum, and postpartum and encompass appropriate HIV care as defined by HRSA (2 medical visit dates with an HIV provider at least 90 days apart in a year) and substance use disorder care that address barriers to treatment such as finding a trusted source of childcare and referral to a treatment program that prioritizes engagement of family and parental training [13].

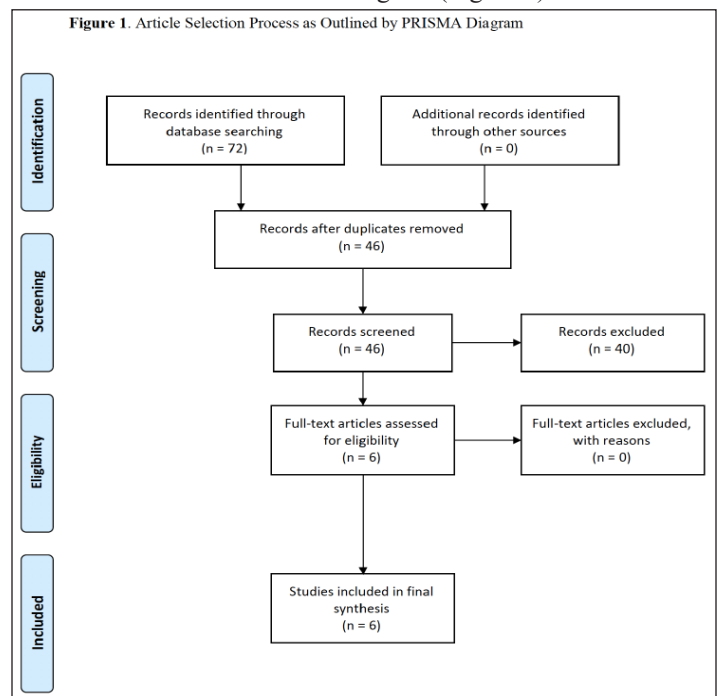
Methods

A comprehensive literature search of Pubmed, PsychInfo, Cochrane, and CINAHL was conducted on January 12, 2021 using the following search terms and associated synonyms: HIV, substance use, pregnancy, and engagement in care. The term COVID-19 was excluded in this initial search as no articles were yielded and a separate search was conducted (described below).

Articles were included if they discussed HIV care, substance use and pregnancy, and patient’s engagement to care during the obstetric period. Studies were excluded if they were conducted outside of the US, not published in a peer-reviewed journal, not written in English, and were older than 10 years. The decision to exclude articles older than 10 years was to ensure the literature review reflects the most current landscape of engagement in obstetric care for women with HIV and substance use disorder.

The initial search yielded a total of 26 articles. Once duplicates were removed, 9 articles were left for title and abstract screening. Out of 9 articles, 5 were removed because they did not address engagement in care for women with HIV and/or substance use during pregnancy or postpartum. A total of 4 articles were deemed eligible for full-text review and were all relevant for inclusion in this review.

A separate search across all four databases was conducted for the terms COVID-19 and substance use and HIV. Engagement in care was excluded as a search term as it yielded no relevant study. A total of 46 articles were found. Once duplicates were removed, 37 articles were eligible for title and abstract screening using preset inclusion criteria, and engagement in care was manually searched during this time. 35 articles were excluded, leaving two articles for full text assessment. These two articles were deemed relevant to the objectives of this literature review. The process of selection is outlined in the PRISMA Flow Diagram (Figure 1).



Results

In total, six articles were retained for this literature review. They included research (cohort studies and cross-sectional data analysis) and non-research (commentary) articles. Studies took place in the U.S. between 2015-2020 across major urban cities (Chicago, Philadelphia, Richmond, Nashville, and Norfolk). Three articles discussed obstetric care for women and their engagement in care before the COVID-19 pandemic, and three discussed changes to obstetric care for women during the pandemic. Studies either assessed care for pregnant women living with HIV or pregnant women with substance use disorder, but the patient population was not specifically focused on pregnant women with both HIV and substance use disorder. Table 1 summarizes the findings of included articles.

Three themes emerged from the included literature: pregnant women with HIV or substance use disorder often suffered from comorbidities such as mental health illness and were less likely to be retained in care [14-16], engagement in obstetric care was poor before the COVID-19 pandemic and approaches to obstetric care, including HIV and substance use disorder care, should be altered during the COVID-19 pandemic to meet the needs of the patients [17-19].

Characteristics of pregnant women with HIV and/or substance use disorder

Studies varied in the presentation of descriptive data. Two studies reported the majority of their study population (50.8% and 78.1%) consisted of Black American women [14,16], and one reported the majority of their study population as 76.9% White women [15]. Two studies reported most of the women seeking prenatal care were between ages 25-34, and one reported a median age of 26.58 (Interquartile Range [IQR] of 5.12) in their high-risk group versus median age of 32.23 (IQR 5.73) in their low-risk comparison group [15,16]. Women typically came in for their first prenatal care visit in the second trimester; Lewis et al. (2017) reported a mean gestational week of 19.9 ± 9.15 at the first prenatal visit, and Oliver et al. (2019) reported a median of 15 weeks (IQR 12-22) at the first prenatal visit. Pregnant women who reported substance use primarily used cocaine, opioid/heroin, and marijuana [15,16]. Women living with HIV who also had substance use disorder were less likely to be engaged in HIV care postpartum [14]. Lewis et al.

(2017) found that a majority of women (46.9%) with substance use disorder had a co-occurring mental health condition.

Engagement in obstetric care pre-COVID-19 pandemic

Engagement in obstetric care was poor among women with HIV and substance use disorder [14,16]. Those with substance use reported reluctance to initiate prenatal care due to fear of legal consequences [15]. Adams et al. (2015) examined retention in HIV care for postpartum women and found that a little over one-third of women were still engaged in HIV care after delivery. The authors found that those still engaged in HIV care within 90 days postpartum were more likely to be retained in care at 1 and 2 years postpartum, suggesting there is high value in increasing efforts to ensure women are not lost to HIV care after delivery. Unfortunately, the majority of women who reported substance use were not engaged in HIV care within 90-day postpartum [14,16].

Approaches to obstetric care during COVID-19 pandemic

Three articles, all of which were commentaries for practice changes, discussed alternative approaches to obstetric care for women with HIV and those with substance use disorder during the COVID-19 pandemic [17-19]. For women living with HIV engaged in obstetric care, these approaches included considerations toward HIV diagnosis and linkage to care, ART initiation and continuation, options for birth outside of healthcare facilities, and providing “bundled services” for mother and baby living with HIV postpartum. Vrazo et al. (2020) discussed bundle services to include a sufficient supply of ART to last mothers for a few months and HIV prophylaxis, as well as clear instructions for giving HIV prophylaxis to the infant. All studies discussed expanding services outside of the clinic to other platforms such as virtual visits, telephonic engagement, text messaging, or electronic mails. One study discussed increased interest in home births by women living with HIV and provided recommendations for safety measures despite caution against home births, citing fear of contracting COVID-19 in hospital and the prospect of giving birth alone [17]. Despite these recommendations for expansion of services, Sadicario et al. (2020) warned that providers must be mindful of socioeconomic inequities limiting patients’ access to the internet or cell phone, and that these patients may have the most difficult times engaging in care.

Table 1: Summary of characteristics and findings of included articles

First Author (year)	Study Design	Sample (n) Setting	Relevant findings for SUD and/or HIV for pregnant or postpartum women	Relevant findings during COVID-19 pandemic	Limitations
Adams et al. (2015)	Retro-spective cohort analysis	695 babies of 561 women with HIV 78.1% Black women Setting: Philadelphia, PA	92% of women received ART or had labs done (CD4 or VL) 38% of women engaged in HIV care at 90 day postpartum; these women more likely to be retained in HIV care (aOR 11.38, 95% CI 7.74-16.68) and virally suppressed (aOR 2.60, 95% CI 1.82-3.73) at 1 and 2 year postpartum 22.3% of women had alcohol, tobacco, or marijuana use during pregnancy. Of these, 19.8% were engaged in HIV care within 90 days postpartum 16.3% of women had illicit drug use during pregnancy. Of these, 14.5% were engaged in HIV care within 90 days postpartum	N/A	Reliance on medical record data Lack of predictor variables: socioeconomic status, insurance postpartum, pregnancy intention, or partner/family disclosure Limited generalizability to similar racial demographics
Lewis et al., (2017)	Cross-sectional data analysis	Sample: 141 women who attended high-risk OB clinic matched with 142 women who attended general OB clinic in the same 12-month period 76.9% of women were White Setting: Norfolk, VA	HCWs to closely engage with women with SUD in prenatal care to prevent drug-related adverse outcomes Women in high-risk clinic: Began prenatal care at 19.9 mean gestational week (SD 9.15); more likely to have chronic medical illnesses (29% Hepatitis C, 8.7% asthma, 6.7% hypertension) compared to general clinic; reported cocaine (21.4%), opioid (46.5%), heroin (23.7%), non-prescribed prescription drug use in the past 30 days (33.3%); 46.8% had current or history of psychiatric problem; reported reluctance to begin prenatal care for fear of being reported to child welfare 40.9% were currently taking methadone, and 33.7% Suboxone Women with mental health conditions or HIV: initiated prenatal care earlier compared to those with SUD, who initiated care at over 20 week gestation; less likely to adhere to psychiatric treatment compared to those in the low-risk clinic Social worker/case management may enhance care coordination for high-risk pregnant women with HIV, SUD, and/or psychiatric illness	N/A	Women from each group differed on age, marital status, HIV status, STD status, medical and psychiatric problems. Drug use was either assessed by drug screen at intake or self-report, resulting in bias of use Routine drug screen was not performed; self-report of drug use since becoming pregnant; recall bias or social desirability bias possible ART use not assessed in this study; limits understanding of HIV engagement in care Only baseline data was collected; cannot account for drug use or engagement in care after initiating prenatal care
Oliver et al. (2019)	Observational cohort study	Sample: 309 deliveries among 248 women living with HIV at Vanderbilt Obstetrics Comprehensive Care Clinic between 1999-2015 (2070 total person-years of follow-up) 50.8% of women were Black Setting: Nashville, TN	29.4% of women had prenatal substance use: 56.2% marijuana, 49.3% cocaine, 17.8% opioids, 15.1% benzos, and 5.5% amphetamines Prenatal substance use (aRR, 1.40; 95% CI, 1.08–1.80) and poor viral suppression (aRR, 1.20; 95% CI, 1.04–1.38) associated with poor retention in care 50.4% person-years contributed lacked viral suppression postpartum; of which 54.7% not suppressed within first 12 months Lack of viral suppression at baseline associated with poor retention in care (aRR, 1.64; 95% CI, 1.15–2.35) and poor viral suppression (aRR, 1.59; 95% CI, 1.30–1.94) 37.6% person-years contributed overall and 22.0% contributed in first year postpartum not retained in care	N/A	Definition of retained in care may not account those who transferred to another clinic Limited generalizability of study to similar racial demographics Unclear if women who were not virally suppressed were breastfeeding or if there was vertical transmission of HIV. Baseline data such as substance use may change overtime, however authors unable to capture this data

Prem-kumar et al. (2020)	Com-mentary	Sample: preg-nant women living with HIV Setting: Chica-go, IL	ACOG recommends against home birth particularly for women living with HIV given the high risk perinatal trans-mission during labor if mothers are not virally suppressed. Provide IV Zidovudine during labor	Women reached out to staff to discuss home birth due to potential COVID-19 infection, reduced hospital access, visitor limitations, and poor quality care due to overwhelmed health systems Home birth is rec-ommended if the pregnant woman is virally suppressed with confirmatory lab at 35-37 weeks A safety plan should be in place in case the woman needs higher level of care Shared decision-making approach toward IV Zidovudine administration intrapartum outside of hospital Women should be informed exten-sive measures are taken in the hospital to protect all patients from COVID-19 and that they would receive compassionate care	Recommendations limited to one setting in the US, and practices may differ elsewhere
Sadi-cario et al. (2020)	Com-mentary	Sample: pregnant and postpartum women with substance use disorder Setting: Vir-ginia Com-monwealth University Health System, Richmond, VA	In person or in hospital visits Lack of centralized and accessible patient tracking informa-tion, which are shared during in-person meetings or in clinic Appointments made in clinic	Clinic visits through tele-medicine or phone Interdisciplinary care meet-ings via Zoom call Difficulty for psychology trainees to consult and make recommendations with other providers or receive warm handoff Patients should con-tinue to engage in treatment for substance use disorder, facilitated by ongoing psy-chosocial support Patients may not have access to resources to use telemedicine (internet, phone); difficulty navigating domestic violence, suicidal or homicidal ideation compared to if patient seen in clinic Increased missed therapy sessions due to bur-den of childcare at home Increased mistrust of health system due to lack of warm handoffs and new trainees that patients have not seen before More flexibility for referral to specialties and integrate wrap-around services	Study described an inte-grated health system model which may not be represen-tative of typical addiction treatment programs, limited generalizability of their novel implementation All novel approaches during COVID-19 pandemic are not yet fully assessed; long-term outcomes (engagement in care, patient's satisfac-tion, adequate provision of care) unclear.

Vrazo et al. (2020)	Com-mentary	Sample: high risk populations living with HIV (pregnant and breastfeeding women, infants, children, and adolescents) Setting: N/A	Provision of HIV testing as part of antenatal and maternal child health services Community-based ART approaches to retain patient in care and promote adherence have high retention rates Facility based initiation of ART	Women with reactive HIV tests must be prioritized to engage in same-day linkage to care with virtual, telephonic, SMS or online follow-up Contact information should be confirmed and updated with every interaction Community-based ART approaches should be continued Same-day ART initiation in the community for pregnant and breastfeeding women may be considered plus virtual follow-up Longer monthly ART refills with or without VL Bundled services (“mother-baby packs” including multi-month ART, infant prophylaxis and Bactrim with instructions) should be provided	Unclear outcomes for pregnant women and children who are recommended different venues of care delivery during COVID-19 and how these venues of care delivery are put into practice
---------------------	-------------	--	--	---	--

Abbreviations: HIV, human immunodeficiency virus; ART, antiretroviral therapy; VL, viral load; aOR, adjusted odds ratio; CI, confidence interval; SD, standard deviation; aRR, adjusted risk ratio; HCWs, healthcare workers; SUD, substance use disorder; OB, obstetric; N/A, not applicable.

Discussion

The prenatal period is an ideal time to not only ensure pregnant women are receiving the prenatal care they need for optimal mother and baby outcomes, but it is also an opportunity to screen, link and engage patients with HIV and substance use disorder in care. The evidence demonstrated by this literature review found that pregnant women with HIV and/or substance use disorder tend to have concomitant conditions such as mental health illness and are less likely to be engaged in care during or after pregnancy. Poor engagement in care for this vulnerable group of women may be worsened during the COVID-19 pandemic, thus prompting novel approaches to care to ensure that women are appropriately supported such as telemedicine and “bundled services” for mothers and babies living with HIV.

Characteristics of pregnant women with HIV and/or substance use disorder

Our review demonstrated that women with either HIV or substance use disorder were late to engage in prenatal care, typically initiating their first healthcare visit in the second trimester. The American Academy of Pediatrics and ACOG recommend initiating prenatal care in the first trimester and individualizing the frequency of visits during the pregnancy based on a woman’s risk status [6]. Women with substance use disorder are not only high risk for poor obstetric outcomes and thus require more prenatal care visits, but they are often afflicted with other conditions such as HIV, depression, trauma, homelessness or poverty, all of which have a negative impact on engagement in obstetric care [15,16,20].

A recent study examining pregnancy outcomes among pregnant

women living with HIV found that these women had four-fold greater odds of opioid use compared to those who were not living with HIV [21]. Pregnant women living with HIV and substance use disorder also had higher odds of alcohol use, depression, and adverse pregnancy outcomes, such as preterm births, poor fetal growth, and spontaneous abortion compared to those living with HIV or those with substance use disorder [21]. Though this study did not specifically examine engagement in care, it highlighted the significant risks that women with concurrent HIV and substance use disorder carried and the necessity of close monitoring during pregnancy. These findings are not novel; prior research has demonstrated that mental health illnesses (depression, post-traumatic stress disorder), sexual abuse, and substance use disorder are associated with worsened HIV outcomes [22]. Given the significant adverse outcomes for pregnant women living with HIV and substance use disorder, more research should focus on addressing engagement to care among pregnant women with co-occurring HIV and substance use disorder.

Engagement in obstetric care pre-COVID-19

Engagement in obstetric care was not optimal prior to the COVID-19 pandemic. Our findings reflected prior evidence that pregnant women living with HIV or substance use disorder were not well connected to obstetric, were often burdened with other comorbid conditions such as depression or anxiety and required additional follow-up. Among people living with HIV, multiple factors have been identified to be associated with poor engagement in care, including stigma and fear [23]. Pregnancy is often the first opportunity for HIV screening and therefore pregnant women with a positive diagnosis are at risk of feeling stigma and fear, which

may prevent them from engaging in HIV care. It is imperative that obstetric care is mindful to provide women a safe space to discuss feelings of stigma and fear, as well as the importance of engaging in HIV care after the prenatal period.

Another reason for poor engagement in obstetric care may be attributed to fear of criminalization for those having a substance use disorder [15,24]. This fear is not unfounded; the U.S. government bodies, from local to national, have used punitive legal sanctions against pregnant women with substance use disorder [24]. These sanctions disproportionately affected Black pregnant women, who have historically suffered from racial disparities in health and pregnancy outcomes. Multiple medical and public health organizations including the ACOG and American Academy of Nursing (AAN) recommend an approach to care for women with substance use disorder through evidence-based prevention and treatment, rather than punitive drug testing and criminal prosecution [24,25]. Currently, there are 23 states and District of Columbia (D.C.) that define substance use during pregnancy as child abuse, and 25 states plus D.C. requiring reporting suspected drug use [26]. In order to ensure women with substance use disorder are properly engaged in care and have good obstetric outcomes, it is imperative that state and national lawmakers are informed of the evidence to care and are invested in ensuring legislations are reflective of scientific evidence.

At the practice level, nurses, nurse practitioners, and nurse leaders have a role as the patient's advocate to prioritize the protection of health, human and legal rights of the patient [24-27]. AAN provides recommendations to adopt five essential practices: objectively assess all women engaged in prenatal and postpartum care for substance use with a validated screening tool for anxiety, depression, and substance use disorder, conduct drug testing with full and informed consent from the patient, provide education on maternal-child bonding, and refer her to a treatment program, recovery support, and/or parenting program after delivery [24]. At the policy level, integration of services addressing HIV, substance use treatment programs and community mental health programs is supported by both SAMHSA and NHAS and should be prioritized in recognition that engagement to care may have more success if barriers to engagement are reduced [28,29].

Approaches to engaging patients in obstetric care during the COVID-19 pandemic

The COVID-19 pandemic dramatically affected those with substance use disorder – the Centers for Disease Control and Prevention (CDC) reported the highest number of opioid overdoses within a 12-month period and suggested the pandemic had an impact on accelerating these deaths [30]. Moreover, there is evidence that the COVID-19 pandemic disproportionately affected people of racial and ethnic minorities and lower socioeconomic status [31,32]. Pregnant women of racial and ethnic minorities and lower-income status were also found to experience increased psychological and financial stressors and less social support during the COVID-19 pandemic, with fear of contracting COVID-19 increasing the likelihood of missing obstetric appointments [33]. In a high-risk population such as women living with HIV and/or substance use disorder, poor engagement in obstetric care due to interrupted services may result in detrimental consequences.

Although this literature review found commentaries advising changes to obstetric care to increase telephonic or telemedicine encounters versus face-to-face, it is important to take into consideration the challenges people with HIV and/or substance use disorder face, such as lack of access to phone or internet and unstable housing and/or homelessness. These limitations may make it difficult to follow up with patients or to ensure up-to-date contact information for the patient. Telephonic or telemedicine encounters may also make it difficult to assess for domestic violence or suicidal ideation [18]. Vrazo et al. (2020) discussed provision of bundled services for pregnant women living with HIV who are discharged from the hospital which would include multiple months of ART, infant prophylaxis, and instructions for medication use in case women are unable to return to the clinic. A novel approach to care, such as the OB Nest model, may be an acceptable alternative to regular in-person visits [34,35]. Restructuring care delivery to revolve around essential services and thereby limiting patient's need to be in-person for every visit and providing patients with home monitoring tools such as blood pressure machine and Doppler alongside nurse education may be beneficial during the COVID-19 pandemic [36]. Designating a nurse as a point of contact person from the initial obstetric visit could provide the patient with proper education on home monitoring of blood pressure and fetal heart tone, ensure appropriate care coordination, establish a trusting relationship between the patient and the nurse, and decrease lost to follow-up among high-risk pregnant women living with HIV and/or substance use disorder.

Given that pregnant women with HIV and/or substance use disorder are at much higher risk for poor engagement in obstetric care, suboptimal financial and social support, and adverse outcomes, we recommend each in-person encounter should be accompanied by thorough screening for mental health issues and psychosocial difficulties. Referral services should be ready and accessible if the woman screens positive. Additionally, we recommend that women identified to be more likely to suffer from increased stressors during the pandemic are provided essential supplies, such as food vouchers, transport vouchers, baby supplies [33].

Limitations

We recognize multiple limitations to our literature review. Few studies specifically examined engagement in obstetric care for pregnant women with both HIV and substance use disorder despite the danger of concomitant diseases on the impact of engagement in obstetric care and health outcomes, therefore we were unable to make definite recommendations for engagement in obstetric care for the pregnant woman living with both HIV and substance use disorder. Half of the studies included in this literature review were commentaries; none of these studies had primary data on engagement in obstetric care during the COVID-19 pandemic or whether telemedicine may be equally or better than standard care prior to the pandemic among this patient population. It is imperative that further research is conducted to provide more concrete evidence on this topic to prevent disruption in care and adverse outcomes that may result from poor engagement. Despite these limitations, our study may be the first to collectively discuss engagement in obstetric care before and during the COVID-19 pandemic, highlighting the significant gap in research and practice for pregnant women who may need both linkage and engagement in care for

HIV and substance use services.

Conclusion

This literature review examines the current landscape of engagement in obstetric care for women living with HIV and substance use disorder. Studies revealed that pregnant women with HIV or substance use disorder tend to have comorbid conditions and are less likely to be engaged in obstetric care. The COVID-19 pandemic has the potential to aggravate this trend, prompting multiple care facilities to revisit the way they approach patient care through increased flexibility with patient care delivery via telemedicine, phone, or in-person visits, as well as provision of “bundled services” for mother and baby living with HIV postpartum in settings where access to care may be limited. Given the potential adverse outcomes for mother and fetus and newborn, it is imperative that pregnant and postpartum women living with HIV and substance use disorder are closely monitored to prevent loss to follow-up, especially during the COVID-19 pandemic when social safety nets associated with engagement in care are significantly disrupted. Nurses, nurse practitioners, and nurse leaders may be impactful to ensure appropriate follow-up and prevent women from being lost to follow-up. Urgent research is needed to provide primary data on engagement in obstetric care for the pregnant woman with both HIV and substance use disorder, the safety of provision of in-trapartum care in hospital and whether novel approaches like telemedicine or nurse care coordinator may contribute to improved engagement in obstetric care for pregnant women living with HIV and substance use disorder.

Acknowledgment

This manuscript was supported by The Johns Hopkins School of Nursing.

Funding: none.

Conflicts of interest: none declared.

References

1. Substance Abuse and Mental Health Services Administration U.S. Department of Health and Human Services. 2019 National Survey on Drug Use and Health: Women. Report released September 2020. Retrieved from <https://www.samhsa.gov/data/sites/default/files/reports/rpt31102/2019NSDUH-Women/Women%202019%20NSDUH.pdf>.
2. Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2014–2018. HIV Surveillance Supplemental Report 2020;25(No. 1). <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published May 2020.
3. NIDA. 2019, July 29. Drug Use and Viral Infections (HIV, Hepatitis) DrugFacts. Retrieved from <https://www.drugabuse.gov/publications/drugfacts/drug-use-viral-infections-hiv-hepatitis>.
4. Meyer JP, Springer SA & Altice FL (2011) Substance abuse, violence, and HIV in women: a literature review of the syndrome. *Journal of Women's Health* 20: 991-1006.
5. Schiff DM, Nielsen T, Hoepfner BB, Terplan M, Hansen H, et al. (2020). Assessment of racial and ethnic disparities in the use of medication to treat opioid use disorder among pregnant women in Massachusetts. *JAMA Network Open* 3: e205734-e205734.
6. American College of Obstetricians and Gynecologists. (2017) Opioid use and opioid use disorder in pregnancy. Committee Opinion No. 711. *Obstet Gynecol*, 130: e81-e94.
7. Ecker J, Abuhamad A, Hill W, Bailit J, Bateman BT, et al. (2019) Substance use disorders in pregnancy: clinical, ethical, and research imperatives of the opioid epidemic: a report of a joint workshop of the Society for Maternal-Fetal Medicine, American College of Obstetricians and Gynecologists, and American Society of Addiction Medicine. *American Journal of Obstetrics & Gynecology* 221: B5-B28.
8. NIDA. 2021, April 13. Substance Use While Pregnant and Breastfeeding. Retrieved from <https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/substance-use-while-pregnant-breastfeeding>
9. CDC. (n.d.). HIV and pregnant women, infants, and children. Retrieved from <https://www.cdc.gov/hiv/group/pregnantwomen/index.html#>
10. Katz IT, Leister E, Kacanek D, Hughes MD, Bardeguez A, et al. (2015) Factors associated with lack of viral suppression at delivery among highly active antiretroviral therapy-naïve women with HIV: a cohort study. *Annals of Internal Medicine* 162: 90-99.
11. Wong S, Ordean A, Kahan M, Gagnon R, Hudon L, et al. (2011) Substance use in pregnancy. *Journal of Obstetrics and Gynaecology Canada* 33: 367-384.
12. Momplaisir FM, Brady KA, Fekete T, Thompson DR, Diez Roux A & Yehia BR (2015) Time of HIV diagnosis and engagement in prenatal care impact virologic outcomes of pregnant women with HIV. *PloS One* 10: e0132262.
13. Substance Abuse and Mental Health Services Administration. (2021). Addressing the Specific Needs of Women for Treatment of Substance Use Disorders. Advisory.
14. Adams JW, Brady KA, Michael YL, Yehia BR & Momplaisir FM (2015) Postpartum engagement in HIV care: an important predictor of long-term retention in care and viral suppression. *Clinical Infectious Diseases* 61: 1880-1887.
15. Lewis MW, Wu L, Prasad MR & Locke C (2017) Women Attending High-Risk Substance Abuse Clinics Versus General Obstetrics Clinics. *Journal of Social Work Practice in the Addictions* 17: 237-257.
16. Oliver C, Rebeiro PF, Hopkins MJ, Byram B, Carpenter L, Clouse K & Pettit AC (2019) Substance Use, Demographic and Socioeconomic Factors Are Independently Associated With Postpartum HIV Care Engagement in the Southern United States, 1999–2016. In *Open forum infectious diseases* (Vol. 6, No. 2, p. ofz023). US: Oxford University Press.
17. Premkumar A, Cassimatis I, Berhie SH, Jao J, Cohn SE, Sutton SH & Yee LM (2020) Home birth in the era of COVID-19: counseling and preparation for pregnant persons living with HIV. *American Journal of Perinatology* 37: 1038.
18. Sadicario JS, Parlier-Ahmad AB, Brechbiel JK, Islam LZ & Martin CE (2021) Caring for women with substance use disorders through pregnancy and postpartum during the COVID-19 pandemic: Lessons learned from psychology trainees in an integrated OBGYN/substance use disorder outpatient treatment program. *Journal of Substance Abuse Treatment* 122: 108200.
19. Vrazo AC, Golin R, Fernando NB, Killam WP, Sharifi S,

- Phelps BR & Srivastava M (2020) Adapting HIV services for pregnant and breastfeeding women, infants, children, adolescents and families in resource-constrained settings during the COVID-19 pandemic. *Journal of the International AIDS Society* 23: e25622.
20. Meyer JP, Isaacs K, El-Shahawy O, Burlew AK & Wechsberg W (2019) Research on women with substance use disorders: reviewing progress and developing a research and implementation roadmap. *Drug and Alcohol Dependence* 197: 158-163.
 21. Nguyen NH, Le EN, Mbah VO, Welsh EB, Daas R, Spooner KK & Salihu HM (2020) Opioid Use Among HIV-Positive Pregnant Women and the Risk for Maternal-Fetal Complications. *South Med J*, 292-297.
 22. Schranz AJ, Barrett J, Hurt CB, Malvestutto C & Miller WC (2018) Challenges facing a rural opioid epidemic: treatment and prevention of HIV and hepatitis C. *Current HIV/AIDS Reports* 15: 245-254.
 23. Valverde E, Rodriguez A, White B, Guo Y & Waldrop-Valverde D (2018) Understanding the association of internalized HIV stigma with retention in HIV care. *Journal of HIV and AIDS* 4(3).
 24. Jessup MA, Oerther SE, Gance-Cleveland B, Cleveland LM, Czubaruk KM, Byrne MW & Martinez-Rogers N (2019) Pregnant and parenting women with a substance use disorder: actions and policy for enduring therapeutic practice. *Nursing Outlook* 67: 199-204.
 25. ACOG (n.d.). Policy priorities: Substance use disorder in pregnancy. Retrieved from <https://www.acog.org/advocacy/policy-priorities/substance-use-disorder-in-pregnancy>
 26. Guttmacher Institute (2021, March 1). State laws and policies: substance use during pregnancy. Retrieved from <https://www.guttmacher.org/state-policy/explore/substance-use-during-pregnancy>.
 27. American Nurses Association. (2016). The Nurse's role in ethics and human rights: Protecting and promoting individual worth, dignity and rights in practice settings. ANA Center for Ethics and Human Rights. Retrieved from: <https://www.nursingworld.org/~4af078/globalassets/docs/ana/ethics/ethics-and-human-rights-protecting-and-promoting-final-formatted-20161130.pdf>.
 28. Substance Abuse and Mental Health Services Administration. (2014, April 24). Minority AIDS initiative continuum of care pilot – integration of HIV prevention and medical care into mental health and substance abuse treatment programs for racial/ethnic minority populations at high risk for behavioral health disorders and HIV. <http://www.samhsa.gov/grants/grant-announcements/ti-14-013>
 29. NHAS 2020. National HIV/AIDS strategy for the United States: Updated to 2020. Retrieved from <https://files.hiv.gov/s3fs-public/nhas-update.pdf>. Accessed April 2021.
 30. CDC (2020, December 18). Overdose deaths accelerating during COVID-19. Retrieved from <https://www.cdc.gov/media/releases/2020/p1218-overdose-deaths-covid-19.html>
 31. Haley DF & Saitz R (2020) The opioid epidemic during the COVID-19 pandemic. *Jama*, 324: 1615-1617.
 32. Ochalek TA, Cumpston KL, Wills BK, Gal TS & Moeller FG (2020) Nonfatal opioid overdoses at an urban emergency department during the COVID-19 pandemic. *Jama* 324: 1673-1674.
 33. Barbosa-Leiker C, Smith CL, Crespi EJ, Brooks O, Burduli E, Ranjo S & Gartstein M A (2021) Stressors, coping, and resources needed during the COVID-19 pandemic in a sample of perinatal women. *BMC Pregnancy and Childbirth* 21: 1-13.
 34. de Mooij MJ M, Hodny RL, O'Neil DA, Gardner MR, Beaver, et al. (2018) OB Nest: reimagining low-risk prenatal care. *In Mayo Clinic Proceedings* 93: 458-466. Elsevier.
 35. Tobah YS B, LeBlanc A, Branda ME, Inselman JW, Morris M A, Ridgeway JL & Famuyide A (2019) Randomized comparison of a reduced-visit prenatal care model enhanced with remote monitoring. *American journal of obstetrics and gynecology* 221: 638-e1.
 36. Peahl AF, Smith RD & Moniz MH (2020) Prenatal care redesign: creating flexible maternity care models through virtual care. *American journal of obstetrics and gynecology* 223: 389-e1.

Copyright: ©2021 Yen Nguyen. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.