

**Impact of Resource Availability on Opioid Use Disorder Treatment Outcomes in Women:
A Literature Review**

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Abstract

The opioid epidemic has led to dramatic increases in opioid use disorder (OUD) and opioid related deaths. Currently, treatment consists of medications for opioid use disorder (MOUD) and nonpharmacological treatment, such as group or family therapy. However, patients often face barriers to treatment, preventing them from accessing necessary care. Without adequate treatment, OUD recovery can be negatively impacted. Women in particular may experience OUD differently than men and also encounter unique challenges that limit them from being able to obtain MOUD or other services. Therefore, it is crucial to research women specifically in order to tailor care for this population and optimize treatment. This literature review evaluates three main categories of resources and how their availability impacts treatment outcomes for women with OUD. These categories include availability of MOUD, wraparound services, and access to mental health resources. Subcategories were comprised of women-specific services, rural versus urban settings, childcare, housing, transportation, and types of mental health therapies. Findings demonstrate that access to these services improved treatment outcomes of longer time in OUD treatment (correlated with decreased risk of relapse), increased retention in treatment, reduced opioid use posttreatment, lower relapse rates, and overall greater patient satisfaction. The results of this review will help inform clinicians and impact policies in order to improve access to services that will enhance treatment outcomes in women with opioid use disorder.

Table of Contents

Preface.....	vi
1.0 Introduction.....	1
2.0 Availability of Medications for Opioid Use Disorder	4
2.1 Location: Rural Versus Urban.....	4
2.2 Women-Centered Services.....	6
2.3 Special Cases	8
3.0 Wraparound Services	12
3.1 Childcare	12
3.2 Transportation.....	14
3.3 Housing.....	16
4.0 Mental Health Services.....	19
4.1 Gender Differences in Mental Health Among People with OUD	19
4.2 Access to Women’s Mental Health Services	21
4.2.1 Group Therapy.....	21
4.2.2 Family Therapy.....	22
4.2.3 Individual Therapies.....	23
5.0 Conclusions.....	26
5.1 Future Implications	26
6.0 References	29

Preface

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Nomenclature: opioid use disorder (OUD), medications for opioid use disorder (MOUD)

1.0 Introduction

Opioids are defined as “a class of drugs that derive from, or mimic, natural substances found in the opium poppy plant” and elicit their effects in the brain (*Opioids*, 2022). Types of opioids are broken down into two main categories: natural and synthetic. Natural opioids come from the opium poppy plant, whereas synthetic opioids including oxycodone, morphine and methadone are human made (*Opioids*, 2022). In the brain, opioids bind to opioid receptors on specific neurons, which initiate the same signaling pathways that trigger the brain’s reward system (Kosten & George, 2002). This reward system releases dopamine, which produces feelings of pleasure. Therefore, when a person uses opioids, the reward system is activated, and a large amount of dopamine is released, causing the person to experience pleasure.

Part of the reward system is comprised of the ventral tegmental area (VTA) and is responsible for the release of dopamine (DA) in the nucleus accumbens (NAc), resulting in feelings of pleasure (Kosten & George, 2002). Opioids are commonly prescribed for pain relief but are considered highly addictive because “the brain cells that have opioid receptors on them gradually become less responsive to the opioid stimulation,” leading to tolerance (Kosten & George, 2002). Consequently, to experience the feelings of pleasure through the reward pathway, more opioids are needed to stimulate the VTA in order to release the same amount of dopamine from the NAc.

Increased tolerance can then lead to addiction, causing a person to be diagnosed with opioid use disorder (OUD). OUD is defined as, “the chronic use of opioids that causes clinically significant distress or impairment” (Dydyk et al., 2022). For a person to be diagnosed with OUD, they must meet the criteria of the Diagnostic and Statistical Manual of Mental Disorders Fifth

Edition (DSM-V), some of which include cravings, difficulties fulfilling life responsibilities, and continuing use despite physical and social consequences (Dydyk et al., 2022).

Opioid use has dramatically increased over the past few decades, leading to the opioid epidemic. Overall, the rise in opioid use and related deaths can be broken down into three waves (Centers for Disease Control and Prevention, 2022). The initial wave was prompted by an “increased prescribing of opioids in the 1990s” and was then followed in 2010 by a second wave involving increased deaths due to heroin, an illegal, semi-synthetic opioid (Centers for Disease Control and Prevention, 2022). The transition from wave one to wave two was caused by the fact that people using prescription opioids developed increased tolerance and required a stronger, more potent opioid like heroin (Ciccarone, 2019). Heroin use increased because the drug was highly pure and had a low cost (Ciccarone, 2019). The third wave of opioid use, which began in 2013, is characterized by a rise in synthetic opioid use, particularly the use of fentanyl (Centers for Disease Control and Prevention, 2022). This third wave began when “illicitly manufactured fentanyl [was] integrated into the illicit drug supply and sold as ‘heroin’ in powder form, or as counterfeit opioid or benzodiazepine pills” (Ciccarone, 2019). Statistically, the number of drug overdoses has quadrupled from 1999 to present day, and the opioid epidemic continues to be an issue in the United States, which is demonstrated by the fact that “nearly 75% of the 91,799 drug overdose deaths in 2020 involved an opioid” (Centers for Disease Control and Prevention, 2022).

Consequently, extensive treatment options have been developed to manage opioid use disorder and decrease the number of opioid related deaths. In acute overdoses, naloxone is used because this drug reverses the effects of opioids in the brain by displacing opioids from their receptors (Dydyk et al., 2022). For long term management, medications for opioid use disorder (MOUD), such as buprenorphine, methadone, or naltrexone are commonly used because MOUD

“reduces the risk of morbidity and mortality” (Dydyk et al., 2022). Methadone is a synthetic opioid agonist, whereas buprenorphine is a semi-synthetic partial agonist, meaning it does not bind as strongly to a receptor compared to a full agonist. MOUD reduces feelings of withdrawal but does not produce the same euphoric effects as opioids (*Medications for substance use disorders*, n.d.). Furthermore, methadone in particular can only be dispensed through specific opioid treatment programs, whereas buprenorphine can be prescribed by licensed providers and is available through pharmacies. In conjunction with MOUD, non-pharmacological treatment options are used to create a comprehensive, individually tailored management plan for patients with OUD. Examples include twelve-step programs, support groups, mental health therapy, and other forms of counseling depending on the patient’s needs (Dydyk et al., 2022). Together, pharmacological and non-pharmacological approaches can be used to promote the best outcomes for individuals with opioid use disorder.

Although these treatments can promote positive outcomes for people with OUD, barriers exist that prevent patients from accessing these services. For example, location relative to a methadone clinic or access to transportation can limit an individual in recovering from OUD because these factors make it difficult to adhere to MOUD treatment plans. This literature review will analyze the availability of three main categories of resources that are vital to OUD recovery: access to MOUD, wraparound services, and mental health services, specifically in women.

Historically, women have been underrepresented in clinical research because women are biologically more complicated compared to men and are typically the primary caregivers of children, making participation in research studies difficult (U.S. Department of Health and Human Services, 2021). Efforts have been made in recent years to include women in research, particularly for substance use research. For example, the National Institute on Drug Abuse has sponsored

studies that focus on risk factors and treatment needs for women with substance use disorders (U.S. Department of Health and Human Services, 2021). Although research on women specifically has improved, there is still a continuing need to further deepen our knowledge about women with OUD. This literature review will add to the body of current literature with women as a population of interest. Furthermore, the aim of this literature review is to analyze the impact of resource availability on treatment outcomes in with women opioid use disorder.

2.0 Availability of Medications for Opioid Use Disorder

Medications for opioid use disorder (MOUD) are used to treat OUD and can include methadone and buprenorphine. MOUD is effective because it reduces withdrawal symptoms, thus decreasing the risk of relapse. Having MOUD available is critical for OUD treatment, and this section will specifically focus on the impact of rural versus urban, women-centered services, and certain special cases on treatment outcomes.

2.1 Location: Rural Versus Urban

Location can affect treatment outcomes for people with OUD because there are differences in access to MOUD between rural and urban settings. Women face an even larger barrier in terms of location compared to men because women are usually the primary care giver for children. This added responsibility can make it more difficult to access treatment centers; therefore, location can greatly impact treatment outcomes.

Women experience differences in access to MOUD depending on whether they live in an urban versus rural setting because rural dwellers are naturally limited in their proximity to resources. Being physically farther from treatment centers makes it more difficult for women to consistently travel to these locations, especially since women taking methadone are required to visit the methadone treatment centered daily. Therefore, treatment adherence is of concern for women who have to travel every day for their methadone treatment. For example, Amiri et al. (2021) found that “approximately 25% of clients receiving methadone commuted more than 15

miles and 8% traveled more than 50 miles to receive treatment.” This increased distance to opioid treatment programs is associated with poorer outcomes because of decreased lengths of stay in treatment, diminished adherence, and poor retention of patients; therefore, women living in rural setting may be at an increased risk of negative OUD treatment outcomes due to their location (Amiri et al., 2021). Patients in urban settings with OUD that must travel more than 1 mile or longer than 2 minutes to a treatment center from their residence have a lower probability of completing treatment (Hyder et al., 2021).

Furthermore, these women face challenges to treatment because of rural versus urban differences in availability of MOUD treatment. MOUD may be unavailable or extremely limited in certain areas that are considered opioid deserts, which are defined as “an area with limited accessibility to medication-assisted treatment and recovery facilities for opioid use disorder” (Bunting et al., 2018). Rural counties in particular are at a disadvantage because these areas overall contain fewer healthcare workers and shorter supplies of MOUD (Jackson & Shannon, 2012). More specifically, substance use treatment facilities and providers who administer buprenorphine in an office are more scarce in rural areas (Amiri et al., 2021). Moreover, the lowest access to opioid treatment centers and office-based buprenorphine treatments was identified among micropolitan and small towns, which comprise rural areas (Amiri et al., 2021). Disparities between rural and urban settings in terms of MOUD availability for women with OUD affects outcomes because inadequate access results in worse treatment outcomes, such as relapse (Amiri et al., 2021).

Other factors influence the difference between treatment outcomes for rural versus urban settings in women with OUD. First, socioeconomically, women living in rural areas are less likely to have health insurance compared to their urban counterparts (Jackson & Shannon, 2012).

Without health insurance, affording MOUD may be difficult, which leads to poorer outcomes since treatment is not financially possible. Methadone treatment costs approximately \$126 per week, buprenorphine costs \$115 per week, and naltrexone is about \$294 per week (NIDA, 2021). However, MOUD proves to be a cost-effective treatment because methadone, buprenorphine, and naltrexone are associated with a cost “savings of \$25,000 to \$105,000 in lifetime costs per person” compared to no treatment (Fairley, 2021). Additionally, residents of rural areas experience higher rates of health disparities, including chronic disease and premature mortality (Jackson & Shannon, 2012). Along with health disparities, women living in rural settings face more stigma surrounding OUD, and this stigma may reduce the probability that a woman seeks MOUD treatment (Jackson & Shannon, 2012). Together, these factors are related to delayed treatment entry, as well as reduced completion of treatment programs, which are negative outcomes (Jackson & Shannon, 2012).

2.2 Women-Centered Services

Gender differences in opioid use disorder drive the need for women-centered services in order to ensure the best possible treatment outcomes for women with OUD. Beyond the existence of women-centered services, patients must be able to access these resources or else treatment outcomes will not improve.

Treatment programs geared specifically for women were developed for two main reasons. First, OUD treatment programs were male dominated and comprised of a male majority (Ashley et al., 2003). As a result, treatment approaches were also designed for males specifically, creating the second reason for the need of women-centered treatment services (Ashley et al., 2003).

Attention shifted to recognizing that men and women have differences in how they experience substance use disorder and treatment, such as the start of use, development to dependence, and social influences that affect treatment (Grella, 2008). For example, women are more likely to develop OUD through prescription opioids compared to men, and this demonstrates how OUD can vary between men and women (Joshi et al., 2021). For these reasons, women-specific programs were developed to better treat women with opioid use disorder.

Women-centered services are beneficial for women with OUD for numerous reasons, which is why their availability for this population is critical. To begin, treatment programs that consist of women exclusively attract female patients by making them feel more comfortable (Ashley et al., 2003). Women in particular face stigma and are more vulnerable to trauma, so limiting treatment programs to women only can help lessen negative effects that might result from stigma and trauma (Ashley et al., 2003). Furthermore, research demonstrates that OUD treatment centers who offer gender-specific services are able to retain women in treatment longer, and these women have better outcomes (Grella, 2008). Longer stay in treatment is ideal because literature demonstrates this is associated with better outcomes and reduced relapse risk for women with OUD (Uziel-Miller & Lyons, 2000).

Analyzing the prevalence of women-specific treatments can help us understand the availability of programs that offer services geared towards women in particular. In 2005, the National Survey of Substance Abuse Treatment Services collected data that showed 41% of all treatment programs offered women-specific services, meaning less than half of programs provided care for women exclusively (Grella, 2008). Moreover, Terplan et al. (2015) found a gap in care demonstrated through the statistic that 81-95% of women experienced an unmet need for treatments and services geared directly towards their population. Additionally, in the women-

specific programs that did exist, considerable variation was present for the types of services offered (Joshi et al., 2021). Women specific treatment programs are necessary because outcomes improve when care is gender-specific (Jacobs & Cangiano, 2018). Therefore, women with OUD having access to women-centered care and treatment can enhance treatment outcomes.

Pregnant women with opioid use disorder specifically need access to women-centered treatment programs because this population's treatment needs go beyond only MOUD (Joshi et al., 2021). For example, women disproportionately suffer from sexual abuse, intimate partner violence, and psychiatric diagnoses, all of which can negatively influence the effectiveness of treatment due to changes in engagement and retention in treatment (Joshi et al., 2021). However, programs often fail to utilize a comprehensive approach and instead focus only on pregnancy, so failing to address psychosocial factors like a history of abuse or co-morbid psychiatric diagnosis is neglecting the importance of treating the patient as a whole (Uziel-Miller & Lyons, 2000). The Substance Abuse and Mental Health Services Administration (SAMHSA) recommends women-specific treatment for women with opioid use disorder because this holistic approach involves focusing on several aspects of care (psychiatric and psychosocial factors) that could contribute to the success of OUD treatment (*Clinical guidance for treating pregnant and parenting women with opioid use disorder and their infants*, 2018).

Furthermore, pregnant women face a major barrier of not being able to coordinate their prenatal and OUD care, thus increasing their risk of poorer outcomes (Goodman, 2015). The Dartmouth-Hitchcock Medical Center developed the Perinatal Addiction Treatment Program, which was designed to provide a coordinated care model for pregnant and postpartum women with substance use disorders, including OUD, that integrated the collocation of midwifery services and medication treatment centers (Goodman, 2015). By implementing the Perinatal Addiction

Treatment Program, Goodman found that women were more likely to remain in treatment programs during the postpartum year due to increased patient satisfaction, and perinatal outcomes also improved (Goodman, 2015). There is a clear benefit of adherence to treatment programs because treatments like OUD minimize the chance of relapse and overdose in women with OUD.

It is important to note that research about OUD primarily focuses on men and women. Consequently, a majority of literature fails to represent populations beyond the gender binary. This lack of representation is problematic because the little research that does exist about non-binary populations shows that there is an increased risk of substance use disorders and greater likelihood of experiencing adverse outcomes associated with addiction in gender diverse populations (Ruppert et al, 2021). Additionally, because findings from studies about OUD are limited to the gender-binary, we are constrained in our ability to accurately extrapolate these conclusions to non-binary populations.

2.3 Special Cases

Certain cases and situations exist that offer a unique perspective on the impact of MOUD availability on opioid use disorder outcomes. First, some healthcare professionals are limited in their ability to administer controlled substances, including MOUD, thus constraining which healthcare workers patients are able to receive medication from (Davis et al., 2021). Paramedics and Emergency Medical Services (EMS) professionals in particular are restricted under federal laws when it comes to administering buprenorphine in the field to a patient with opioid use disorder (Davis et al., 2021). This administration is vital because starting a patient on buprenorphine can reduce the risk of a future overdose for the patient, thus increasing the chance of a better outcome

for the patient (Davis et al., 2021). If EMS were able to administer buprenorphine for OUD, these professionals would be able to save lives and allocate services to people who encounter barriers to MOUD initiation, particularly in rural areas (Davis et al., 2021).

Another special case of MOUD availability includes the COVID-19 pandemic because during this time, people with OUD were at an increased risk of overdose due to “social isolation, economic distress, and disrupted treatment services delivery” (Slavova et al., 2020, p.1). Social isolation allowed people to use opioids alone and more often, which heightened the risk for overdose without medical intervention (Slavova et al., 2020). Moreover, disrupting treatment services, such as MOUD, has a negative impact on patient outcomes because patients face barriers to accessing their medication. Without their MOUD, a patient may be more at risk of relapse and overdose, and this is supported by the dramatic rise in opioid overdoses during the COVID-19 pandemic (Slavova et al., 2020). Overall, the COVID-19 pandemic negatively impacted patient treatment outcomes due to difficulties accessing MOUD, as well as increased the chances of overdose.

Lastly, incarcerated pregnant women with opioid use disorder are another subpopulation of interest because prison can hinder access to MOUD, thus affecting treatment outcomes. Despite MOUD being considered the standard of care for pregnant women with OUD, jails do not provide adequate access to treatment (King et al., 2021). In a cross-sectional study, Sufrin et al. (2022) surveyed 836 US jails in 2019 to ask about the MOUD treatment for pregnant women at these facilities. Their results showed that 504 (60.3%) jails surveyed had MOUD available and were considered medication providing jails. Of these 504 jails, 267 had the option to both initiate and continue MOUD, whereas the other 237 jails only continued MOUD treatment. Furthermore, 120 (23.8%) medication providing jails included in the study continued to offer MOUD after

pregnancy. Even more striking, opioid withdrawal was reported as the only treatment option for 190 (22.7%) of the total 836 jails surveyed. These findings suggest a lack of access for pregnant women with OUD to MOUD, which is the standard of care (Sufrin et al., 2022). Coordinating care for incarcerated pregnant women with OUD to ensure they receive proper treatment is a vital step to improving outcomes by reducing relapses, decrease withdrawal symptoms, and overall lessen pregnancy complications (King et al., 2021).

3.0 Wraparound Services

Beyond availability of MOUD, wraparound services can also impact treatment outcomes by serving as barriers to treatment and care. In the following sections, access to childcare services, stable housing, and transportation will be analyzed to evaluate how they relate to successful treatment of OUD.

3.1 Childcare

Women are often the primary caretakers for children, putting most of the responsibility of caring for a child on mothers. If women are unable to find reliable childcare, they may be less likely to attend appointments. Although the burden of childcare is not unique to OUD, women with OUD might particularly benefit from this service since MOUD treatment, like methadone, requires daily appointments. Consequently, treatment can be demanding and require constant coordination with factors like childcare compared to other chronic disorders.

Women might also have to bring their children to appointments, which can distract from care. As a result, the patient might not benefit as much from the appointment with their physician, and this can influence the success of treatment. Moreover, women who cannot find childcare may not be able to consistently receive their MOUD; as a result, treatment could not be as effective due to this inconsistency. Childcare can also be expensive, so women might not have the financial means to afford this care. However, treatment programs recognizing childcare as a potential barrier and working to provide such care could help alleviate the difficulties women with OUD face.

The lack of childcare can be a barrier to women with OUD, and these women often report difficulties in finding reliable childcare in order to attend treatment appointments and office visits in general (Ashley et al., 2003). In Frazer et al. (2019), researchers interviewed women with opioid use to obtain first-hand accounts of what women report as barriers to treatment. One woman stated, “I think that they should open... a daycare. Cause there are days that I can't come because I don't have day care for my daughter” which exemplifies how finding childcare is creating an obstacle that women have to overcome as part of their treatment (Frazer et al., 2019). Additionally, half of all participants in Frazer et al. (2019) reported at least one logistical reason for not being able to attend treatment consistently, which included 30% describing the lack of childcare as this main barrier.

Providing more access to childcare is crucial for women with opioid use disorder because this availability could improve treatment outcomes (Bawor et al., 2015). By offering childcare, women can more easily initiate treatment, and are also more likely to complete treatment (Ashley et al., 2003). Furthermore, having access to childcare specifically was significantly correlated with longer duration in treatment programs, and increased time in treatment programs is beneficial because it is related to positive outcomes and decreased relapse in women with OUD (Campbell et al., 2009; Uziel-Miller & Lyons, 2000).

Addressing childcare access for women with OUD has been found to be promising in improving treatment outcomes, yet only 9% of all treatment facilities provide childcare for patients (Ashley et al., 2003). Researchers, like Bawor et al. (2015), have found significant improvements in the treatment outcomes of OUD in women when services like childcare are prioritized as part of the management plan. Therefore, these findings demonstrate a need to emphasize access to childcare.

3.2 Transportation

Transportation to treatment facilities must be considered when analyzing the impact of resource availability on treatment outcomes in women with OUD because not having access to means of transportation for appointments results in women not receiving their MOUD. Inconsistency in receiving treatment can then negatively influence the success of treatment, and although this holds true for other chronic disorders, women with OUD may face a larger barrier to receiving consistent treatment since MOUD treatment involves daily visits. Therefore, access to transportation is particularly important for this population. Women face barriers to accessing transportation for treatment appointments for numerous reasons. For example, public transportation might not be an available option because of cost, and obstacles exist to obtaining reduced fares due to lack of education about resources (Sutter et al., 2016). Additionally, transportation for medical appointments might be provided by insurance companies during pregnancy for women with OUD; however, children, other relatives, and partners are not allowed to access or join the patient for this transportation (Sutter et al., 2016). Transportation available through insurance companies is impractical because women might require another person with them when attending visits or treatment appointments.

Access to transportation is critical for women with OUD because treatment appointments occur frequently; therefore, consistent and reliable ways to attend treatment is important. MOUD including methadone requires women to participate in daily visits to a methadone clinic, and this time commitment can be difficult, especially if a patient does not have a car or available public transportation (Bunting et al., 2018). Buprenorphine is another example of MOUD treatment, and this treatment involves weekly to monthly visits to a clinic (Bunting et al., 2018). Both of these

examples demonstrate how transportation can be a barrier to OUD treatment, thus impacting outcomes in women with opioid use disorder.

Research demonstrates that transportation to treatment centers acts as an obstacle to successful outcomes (Ashley et al., 2003). In Frazer et al. (2019), 20% of women reported transportation as a practical barrier to attending their treatment visits. One patient stated “Transportation's really difficult. Yeah. Especially with a baby... I'll have to carry a stroller, a car seat, a diaper bag, my purse, anything else... Like how do you do that on a bus? It's difficult.” (Frazer et al., 2019). Although providing transportation to treatment centers increased from 36% in 2002 to 38% 2009, this is only a 2-percentage point increase and is unlikely to reduce barriers to care that women with OUD face (Terplan et al., 2015).

Pregnant women are a subcategory of women with OUD who face additional unique barriers that limit their access to appropriate care. This population is considered underserved, and consequently, women delay seeking both prenatal care and OUD treatment because of inadequate access to resources, stigma, and other psychosocial factors (Sutter et al., 2016). By delaying treatment, outcomes of OUD treatment may be negatively affected since the initiation of MOUD is delayed, thus increasing the risk of relapse. Transportation is an important resource that needs to be easily accessible for pregnant women with OUD because initiating and remaining in treatment ensure more optimal outcomes. However, transportation serves as a barrier due to poverty and the lack of friends or family with a vehicle who can drive women to treatments (Sutter et al., 2016).

Additionally, pregnancy complicates OUD treatment because women must attend prenatal visits, as well as MOUD treatment appointments. Logistically, coordinating transportation for all of these appointments can be difficult, but Rose-Jacobs et al. (2019) found that co-location of

prenatal care and MOUD treatment decreases barriers related to transportation and also results in positive short and long-term health outcomes for these women. For instance, a study done by Goodman (2015) focused on colocation of midwifery services within Dartmouth-Hitchcock Medical Center Perinatal Addiction Treatment Program for pregnant women with OUD as a way to improve access to maternity care. Goodman found that the main hospital at the medical center is where lab testing and ultrasounds are conducted, but the OUD treatment center is a 10-minute drive from the hospital. In this area, buses and other public transportation options are incredibly rare, meaning women without a car face a barrier to easily accessing their treatment (Goodman, 2015).

Sutter et al. (2016) also observed similar findings because researchers observed that a coordinated, comprehensive treatment program for women with OUD leads to better outcomes, including increased rates of program completion and longer duration of sustained recovery. Furthermore, incorporating comprehensive care leads to improved psychosocial outcomes, such as an increased probability of obtaining stable housing and heightened likelihood of maintaining child custody (Sutter et al., 2016). Numerous studies suggest that women with OUD who have available transportation for treatment visits have more positive outcomes compared to women who lack access to transportation.

3.3 Housing

Opioid use has been shown to be correlated with unstable housing, which is why addressing access to housing for women with OUD is essential. Albright et al. (2021) observed that housing instability was strongly associated with increased opioid use frequency, meaning people with OUD

who have unstable housing may have a higher probability of frequently using opioids. These researchers also found another correlation between housing instability and an increase in the number of days of opioid use (Albright et al., 2021). Consequently, access to stable housing is a factor that needs to be addressed to promote the best possible outcomes for women with OUD.

Stable housing is important because it forms the environment that these women live in, and this can have both positive and negative effects. Housing can create a strong support system with the people cohabiting the house, as well as offer a sense of comfort and calmness. On the other hand, unstable housing can produce barriers to recovery by exposing women to an environment with possible triggers that jeopardize their goal of recovery (Villegas et al., 2016). These can include family members or spouses who use opioids and other drugs, thus putting the woman at a greater risk of relapse (Villegas et al., 2016). Moreover, unstable housing has the potential to make a woman feel isolated or like they do not have a support system; therefore, these factors act as barriers to positive outcomes for OUD treatment (Villegas et al., 2016).

An additional component of housing that can affect treatment outcomes is how in-patient treatment programs usually do not allow children to live with their mother during this time, so this adds a level of stress for the mother to coordinate a safe living environment for their children while they are seeking treatment (Sutter et al., 2016). Addressing and prioritizing healthy living situations can help women in their OUD recovery.

In 2019, Rose-Jacobs et al. found in their study that 61 out of 100 participants with OUD interviewed reported housing instability. With over half of the participants lacking a stable housing environment, these women are more at risk of relapse, and studies have shown that optimal outcomes are seen when services such as housing are offered as a part of their OUD treatment (Parlier-Ahmad et al., 2021). More specifically, poverty can complicate OUD interventions,

including MOUD, which demonstrates the importance of focusing on housing situations in order to ensure the best treatment outcomes (Parlier-Ahmad et al., 2021).

Similar to other wraparound services previously discussed, housing impacts pregnant women with opioid use disorder in a unique way compared to women with OUD who are not pregnant. For example, Sutter et al. in 2016 observed that a disproportionate number of pregnant women with OUD lack stable housing throughout their pregnancy, and this instability increases the risk of relapse, as well as both the mother and baby's safety. Research has also found that frequent moves are associated with issues in continuing medical care, so women might experience a period of time where they are unable to receive MOUD or other treatment services (Rose-Jacobs et al., 2019). Such disruptions in care can lead to poor treatment outcomes, including relapse. Findings support the need to address housing instability because limited access to healthy, stable environments can hinder successful recovery and treatment outcomes for women with OUD.

4.0 Mental Health Services

Mental health must be addressed as a component of care in order to provide optimal treatment for women with opioid use disorder. Simply treating OUD and ignoring comorbid psychiatric diagnoses has the potential to impact the success of treatment and positive outcomes. Consequently, access to mental health services as part of OUD treatment is critical and will be analyzed in the following sections.

4.1 Gender Differences in Mental Health Among People with OUD

Mental health differences exist between men and women who are diagnosed with opioid use disorder. In general, women with OUD have a higher probability of being diagnosed with a comorbid psychiatric diagnosis compared to men with OUD (Parlier-Ahmad et al., 2021). Specifically, studies have found that compared to men, women with OUD are significantly more likely to have a cooccurring axis I diagnosis, which according to the DSM-IV includes mental health and substance use disorders (Brady et al., 1993). Currently, the DSM-V is the most updated version and consists of a different classification system than the DSM-IV. According to the DSM-V, an axis system is no longer used, and mental health diagnoses are now broken into categories including anxiety disorders, depressive disorders, etc. Substance use disorders are under the class of substance-related and addictive disorders. Anxiety disorders, mood disorders, and PTSD are among the top mental health diagnoses that are more prevalent in this population of women (Brady et al., 1993; Evans et al., 2020).

Women with OUD are thought to specifically suffer from the psychiatric disorders mentioned above for numerous reasons. Anxiety and mood disorders are hypothesized to be more prevalent because of unique challenges faced by women. For example, women in particular have a higher likelihood to experience intimate partner violence, maternal depression, and stress of being the primary caretaker of children (Grella, 2008; Huhn & Dunn, 2020). Additionally, women with OUD experience stigma due to societal beliefs and stereotypes about substance use disorders, especially for mothers, which can exacerbate the anxiety these women are already predisposed to (Huhn & Dunn, 2020). However, we can focus our attention to stigma-reducing strategies, as well as educating healthcare professionals on the importance of eliminating stigma surrounding OUD because these efforts have been shown to positively impact patient health (Parlier-Ahmad et al., 2021).

Although this section mainly focuses on men and women since the majority of current literature is limited to the gender binary, non-binary populations face unique challenges that adversely influence mental health. For example, this population experiences stigma to a much greater extent compared to cisgender counterparts, leading to an increased risk of negative mental health outcomes (Scandurra et al, 2019). Therefore, addressing mental health needs for non-binary populations with opioid use disorder, as well as working to expand our inclusivity of such populations in research is critical.

Adverse childhood experiences (ACE) are an additional factor contributing to the gender differences in mental health patients with OUD. A study done by Evans et al. (2020) evaluated the relationship between ACE and psychiatric comorbidity in adult OUD patients. The researchers observed a correlation between ACE and several factors; more specially, the greater number of ACE was associated with earlier initiation of opioid use, prolonged use of opioid injection, and

increases in number of overdoses (Evans et al., 2020). These factors mentioned above are important because they are indicators and predictors of more severe OUD, meaning we can target such factors in order to decrease the severity of opioid use disorder. Moreover, Evans et al. (2020) also found that more exposure to ACE affects mental health by advancing the risk for cooccurring anxiety or mood disorders in women specifically, but this was not the case for men. This research study demonstrates the importance of addressing mental health for women with OUD because psychiatric diagnoses are more prevalent among this population. By providing mental health services, the chances for successful treatment and improved overall health are increased.

4.2 Access to Women's Mental Health Services

Research has proven that decreasing barriers to mental health services that are provided alongside OUD treatment greatly enhances positive treatment outcomes. The combination of MOUD and mental health services has been shown to enhance treatment retention and increase patient survival (*Medications for substance use disorders*, 2023). In general, comprehensive treatment programs that include mental health services as a component of the treatment program are more effective than those who only treat OUD because utilizing mental health in conjunction with OUD serves as the most beneficial and optimal treatment approach (Marsh et al., 2009). Moreover, substance use after completing a treatment program was reduced when mental health services were offered to women (Marsh et al., 2004). Therefore, availability and easy access to psychiatric services must be available for women with OUD because facing barriers to these services can result in a greater likelihood for relapse.

4.2.1 Group Therapy

Participating in therapy through a group setting as opposed to individual therapy can be beneficial for women with OUD and contribute to positive treatment outcomes. Having other patients included in therapy can alleviate anxiety from sitting one-on-one with a therapist, and women can relate to each other's experiences, making them feel less alienated. Additionally, combining group therapy and OUD treatment can help address experiences common to women with substance use disorders, and this approach is more valuable than traditional self-help groups like narcotics anonymous. This preference for group therapy can be seen in studies that found women participated more frequently in group counseling compared to men, which results in decreased relapse rates (Marsh et al., 2004). Sutter et al. (2019) found similar, consistent results for the positive effects of group therapy on women with OUD. In the study, women reported an increase in trust with healthcare providers and peers during group counseling, and as a result, women felt more engaged in treatment. Moreover, women experienced heightened trust and engagement with peers and increased motivation for abstinence, which helps protect against relapse (Sutter et al., 2019).

Treatment programs might not provide group therapy, which serves as a barrier to accessing care for psychiatric diagnosis. Addressing mental health treatment in conjunction with OUD treatment provides a holistic approach to promoting successful recovery. Knowing women prefer group therapy, and that this form of counseling can lessen relapse risk, it is critical to provide access to such services to women in order to optimize treatment outcomes.

4.2.2 Family Therapy

Therapy is important for women with OUD because they disproportionately suffer from psychiatric diagnoses compared to men. Several forms of therapy are beneficial, and family therapy in particular can be valuable because research has shown that family involvement motivates women to successfully complete treatment. A study by Villegas et al. (2016) specifically looked at the impact of family therapy on treatment outcomes for women with OUD who are also mothers. Women reported believing that family therapy would benefit their recovery because this form of therapy allowed for open communication to family members that otherwise did not exist prior to therapy (Villegas et al., 2016). Additionally, women expressed that family therapy aided in showing their families that they are working towards recovery and have changed, and this helps form a strong support system for the patient, which is critical for the recovery process (Villegas et al., 2016). However, a barrier to family therapy is created when it is only offered in an office setting instead of a patient's home because coordinating family members to attend an appointment can be difficult. Even though family therapy has been proven to be an effective resource for this population, limited access can hinder treatment outcomes.

4.2.3 Individual Therapy

In addition to group and family therapy, individual therapy for women with OUD has been proven to positively benefit treatment outcomes. Access to these services ensure that women are receiving comprehensive treatment, allowing for a more successful recovery. Although group therapy has its own unique advantages, individual counseling is an alternative option that could still provide promising results. Marsh et al. (2009) found that counseling services tailored to

specific patient needs is associated with longer retention in treatment and reduced posttreatment substance abuse; this correlation was more significant in women compared to men. Remaining in treatment for a longer period of time is a positive treatment outcome because the longer a woman is in OUD treatment, the less chance there is of relapse (Uziel-Miller & Lyons, 2000). Therefore, access to counseling can serve as a beneficial resource to optimize treatment outcomes in women diagnosed with opioid use disorder. Utilizing mental health services as a supplement to medications can provide more optimal treatment outcomes for women with OUD; therefore, access to these services is imperative.

5.0 Conclusions

This literature review demonstrates that numerous services can improve treatment outcomes in women with opioid use disorder, such as decreased relapse risk, increased patient retention, and lowered number of opioid related deaths. Ensuring that women with OUD can easily access resources, like women-centered services, transportation, or mental health, can promote the best possible outcomes for this population.

5.1 Future Implications

This research can have an impact on three areas of focus: clinical, legislative, and funding. In terms of clinical implications, education can have a beneficial impact because making clinicians aware of what barriers women with OUD may face or find particularly difficult, can help ensure quality care. Education can also include future research in order to deepen our clinical knowledge of opioid use disorder. For example, studies should aim to follow women with OUD in a longitudinal manner to evaluate the long-term implications of resource availability on treatment outcomes, such as relapse and opioid related death rates. Additionally, future research should focus on including non-binary populations into studies about opioid use disorder. There is a lack of non-binary representation in research about OUD, which is problematic because the absence of knowledge about risk factors and experiences unique to non-binary people can hinder the ability to create optimal treatment plans.

Additionally, progress can be made in terms of prescribing laws, which combine the areas of clinical and legislative impacts from this research. Expanding prescribing regulations can allow more patients with OUD to receive proper care. Clinicians can also provide care to a greater number of patients. Recently, there has been an expansion of prescribing policies, specifically with the removal of the X-waiver. The X-waiver was a notice of intent that prescribers had to submit in order to prescribe certain medications, including buprenorphine; however, this waiver was removed in January of 2023, meaning that any practitioner with a current DEA license can now prescribe buprenorphine for a patient with OUD without having to submit an X-waiver (*Removal of DATA Waiver (X-Waiver) Requirement*, 2023). This policy change decreases prescribing barriers that clinicians face for certain medications, such as buprenorphine.

Although removal of the X-waiver had positive impacts on clinician prescribing abilities, some healthcare workers are still limited in their capability to prescribe buprenorphine. For example, EMS are legally restricted in their ability to administer buprenorphine in a pre-hospital setting to OUD patients. Expanding prescription laws to EMS as well can further improve access to care, especially for rural patients who rely on EMS for medical services more compared to other populations. Some pilot programs and studies have evaluated the effectiveness of EMS buprenorphine use on patient outcomes. A study conducted by Hern et al. (2023) found that “patients had a 50% (18/36) rate of treatment retention at 7 days and 36% (14/36) were in treatment at 30 days” when a paramedic-initiated buprenorphine. EMS might serve as an easy access point for patients with OUD to seek and initiate treatment. Further studies need to be conducted in order to better understand how EMS professions can positively impact treatment outcomes for OUD patients.

Legislatively, modifying or creating policies to increase access to medications can be beneficial for patients with OUD. Recently, on March 29th, 2023, the U.S. Food and Drug Administration approved Narcan for over-the-counter use, meaning people now have straightforward access to a lifesaving drug that can reverse an opioid overdose (FDA, 2023). We can continue to push for progress towards making medications, like Narcan, available and affordable for the community in order to treat patients with OUD.

Lastly, in terms of funding, having knowledge of what resources are most beneficial for women with OUD can help influence where funding should be directed. For example, allocating funds for providing childcare or mental health services can improve treatment outcomes. The Biden Administration “awarded \$1.5 Billion to all states and territories to address addiction and the opioid crisis” (The United States Government, 2022). Funding money towards the opioid epidemic can allow for further education, prevention, and treatment of OUD; therefore, we must continue advocating for OUD patients to have access to services that will benefit their treatment outcomes. The legislative changes and funding discussed are only recent events, so although we are making progress in a positive direction, we must continue to advocate for women with opioid use disorder in order to provide this population with the most optimal treatment.

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