Drug and Alcohol Dependence Reports 1 (2021) 100013

Contents lists available at ScienceDirect

Drug and Alcohol Dependence Reports

journal homepage: www.elsevier.com/locate/dadr

Alcohol and other substance use disorder recovery during pregnancy among patients with posttraumatic stress disorder symptoms: A qualitative study

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ARTICLE INFO

Keywords:
Substance use disorder
Pregnancy
PTSD
Posttraumatic stress disorder
Coping

ABSTRACT

Background: About 5% of women are pregnant at substance use disorder (SUD) treatment entry, and pregnant women with SUD often belong to marginalized groups experiencing social, economic, and health care barriers associated with stigma from prenatal substance use. Pregnant women in SUD treatment have high rates of trauma and posttraumatic stress disorder (PTSD). This study sought to (1) examine the lived experiences of pregnant individuals with PTSD symptoms in SUD treatment and (2) understand the roles of systematic or contextual barriers to the pursuit of prenatal abstinence.

Methods: We draw upon in-depth semi-structured interviews to examine relationships between SUD, psychological trauma/PTSD experience, social resources, and lived experiences among patients in prenatal SUD treatment with PTSD symptoms. Our sample was pregnant patients ($N = 13$) with prior DSM-5 Criterion A trauma and current PTSD symptoms enrolled in a comprehensive program integrating prenatal care, substance use counseling, medication for opioid use disorder and case management at three sites affiliated with an urban academic medical center in New Mexico.

Results: Using thematic analysis, four main themes identified structural forces influencing alcohol and drug use: (a) lack of access or ability to obtain resources, (b) substance use to cope with negative affect, (c) social stigma, and (d) interpersonal relationships.

Conclusions: Despite receiving high-quality integrated prenatal and SUD care, these pregnant patients with PTSD symptoms in SUD treatment still experienced substantial social and structural hurdles to achieving abstinence during pregnancy.

1. Introduction

1.1. Prenatal substance use

Prenatal alcohol and substance use can have long-term consequences for children and families. From 2014 to 2019, 5.8% percent of pregnant women in the United States reported illicit drug use and 9.5% reported alcohol use within the past month (Substance Abuse and Mental Health Services Administration, 2020). About 5% of women entering substance use disorder (SUD) treatment programs are pregnant (Substance Abuse and Mental Health Services Administration, 2013) and are vulnerable to health disparities, which can affect mental health and pregnancy outcomes. Many women with SUD prior to pregnancy detection are able to abstain from or substantially reduce substance use during pregnancy, but many others continue to struggle with substance use throughout pregnancy, and postpartum substance use recurrence rates are high for both groups (Forray et al., 2015). Women with prenatal opioid use disorders are at high risk of overdose during pregnancy and the first postpartum year (Schiff et al., 2018). In contrast to cultural norms that view prenatal substance use as behavior in conflict with the construct of "good motherhood" (Nichols et al., 2021), pregnant women with SUD often seek treatment to improve prenatal health, child welfare, and mother-child connections (Hubberstey et al., 2019).

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https://doi.org/10.1016/j.dadr.2021.100013
Received 30 August 2021; Received in revised form 22 November 2021; Accepted 29 November 2021

1.2. Rhodes' risk environment

Rhodes' risk environment framework acknowledges that the social and/or physical space produces or mitigates risk and harm for individuals and communities (Rhodes et al., 2003). Rhodes et al. (2003) stated the risk environment "…envisages drug harm as a product of social situations and environments in which individuals participate. It shifts responsibility for drug harm… from individuals alone to include the social and political institutions, which have a role in harm production" (p.193). Rhodes described how there are micro- and macro-level physical, social, economic, and policy risk environments that impact individuals' health. Collins et al. (2019) further added to this framework by highlighting the need for multi-level complexity and recursive relationality related to understanding health outcomes across populations (Collins et al., 2019). For instance, risk environments can be seen as products of social, historical, and geographical context that are produced by social and structural vulnerabilities and inequalities (Collins et al., 2019).

Applied to the current study, pregnant individuals and their families are impacted by various psychosocial and environmental factors that impede access to appropriate treatment and resources. Economic risk level factors for continued substance use during pregnancy reflect that pregnant women with SUD have lower average socioeconomic status and are more likely to receive inadequate prenatal care than women without SUD (Mravčík et al., 2020). Social level risks include that women with prenatal SUD tend to be younger, unmarried, less educated, and use nicotine more compared to pregnant women without SUD (Mravčík et al., 2020). These women experience substantial stigma, have limited resources, and often lack access to transportation (Kramlich et al., 2018). Unclear or mixed messages from medical providers or the media about alcohol, cannabis, or other substance teratogenicity can inadvertently lower women's motivation to reduce prenatal substance use (Jarlenski et al., 2016; Latuskie et al., 2019; Meurk et al., 2014). These serve as barriers to receiving adequate treatment for substance use, prenatal care, and parenting support (Kramlich et al., 2018), increasing physical level risk. Furthermore, women with prenatal SUD are more likely to have poor mental health outcomes related to psychosocial factors associated with substance use including stress, guilt, negative self-concept, and low self-efficacy (Latuskie et al., 2019; Meurk et al., 2014). Despite advances toward understanding the social and structural vulnerabilities and inequalities impacting this population, gaps remain in the research literature regarding the personal experiences of pregnant individuals with SUD and trauma, particularly how they themselves perceive their risk environments. It is critical that such personal experiences are given voices, so that social and structural inequities can be addressed with a greater depth of comprehension. In this paper, we document the lived experiences of patients with PTSD symptoms receiving care for prenatal SUD.

1.3. Pregnant individuals with SUD and trauma

Exposure to trauma has been conceptualized as a marginalizing characteristic contributing to social identity and health disparities (Seng et al., 2012). Among this population of women with SUD, there is a high rate of comorbidity with PTSD (Pietrzak et al., 2011), and PTSD symptom exacerbations are linked to increases in substance use both among pregnant women and in the general population (Linden et al., 2013; Ouimette et al., 2010; Possemato et al., 2015; Sanjuan et al., 2019, 2020; Seng et al., 2014). Quantitative research has established that pregnant women with SUD have high rates of PTSD (Linden et al., 2013; Moylan et al., 2001) and temporal associations have been found between PTSD symptoms and prenatal substance craving and use (Sanjuan et al., 2019, 2020), however it remains unclear how PTSD impacts the lived experiences of pregnant individuals with SUD.

To address this gap, we are focusing on a population of pregnant participants with prior DSM-5 (American Psychiatric Association, 2013) PTSD Criterion A traumas and SUD to better understand the roles played by social and structural barriers in these participants' pursuits of prenatal abstinence. The objective of the study is to examine the lived experiences of pregnant individuals with trauma exposure who are in treatment for SUD to provide a deeper conceptualization of their unique struggles.

2. Methods

The sample we describe is from a larger observational study examining PTSD symptoms, prenatal bonding, and substance use (Sanjuan et al., 2019, 2020). We conducted semi-structured interviews with 13 pregnant participants recruited from clinics in New Mexico. These clinics are part of a program providing integrated substance use, including medication for opioid use disorder (MOUD), prenatal care, case management, labor and delivery, and postpartum/neonatal care at a public sector university hospital. Potential participants were selected by homogeneous purposive sampling and recruited for the study in three ways: (1) through informational flyers at the clinics, (2) through word-of-mouth, or (3) by being approached by research staff in private rooms at the clinics while waiting to see providers. Researchers had no previous established relationships with participants before the commencement of the study.

The parent study examined temporally proximal relationships between PTSD symptoms, prenatal bonding, and substance use episodes. The methodology and study procedures of the parent study have been described previously (Sanjuan et al., 2019, 2020). Inclusion criteria were (1) age 18 or older; (2) ability to read, write, and speak in English; (3) pregnancy estimated at 20–35 gestational weeks at baseline; (4) enrollment in the integrated substance use, prenatal, maternity, and neonatal care clinic; and (5) exposure to a DSM-5 Criterion A traumatic event (American Psychiatric Association, 2013). Participants were excluded if they had (1) acute or uncontrolled severe mental illness (e.g., current psychosis) or suicidality, (2) inability to provide informed consent, (3) pregnancy complications that would interfere with involvement in the study, (4) plans to relocate during the study, (5) current incarceration, or (6) enrollment in other studies with conflicting study protocols. University institutional review board approval was granted to conduct the study. While federally-mandated Comprehensive Addiction and Recovery Act (CARA) reporting requirements for substance-exposed newborns are in place in New Mexico, participants were informed that here there are no mandatory reporting requirements for researchers or punitive statutes for prenatal substance use, thus, any reports of substance use during these interviews would remain confidential (New Mexico Department of Health, 2021). A Certificate of Confidentiality from the National Institutes of Health was granted to this project, further protecting participants from legal risks.

Participants were enrolled in the main ($N = 33$) study and completed a baseline assessment followed by four weeks of ecological momentary assessment (EMA) data collected three times per day via smart phones distributed by the study. Participants came to the study offices approximately weekly to upload EMA data and receive monetary compensation for providing these data. Timeline Followback (Sobell and Sobell, 1996) calendar-style assessments were conducted at these appointments to verify EMA reports.

At baseline, trauma and PTSD were assessed by an experienced clinician who administered the Event History Module from the National Women's Study (NWS) (Resnick, 1996) adapted for DSM-5 (American Psychiatric Association, 2013) to determine lifetime exposure to PTSD Criterion A events and the Clinician-Administered PTSD Scale-5 (CAPS-5) 30-day version (Weathers et al., 2013) to determine baseline current PTSD severity and diagnosis. All participants had reported prior exposure to at least one DSM-5 Criterion A traumatic event to be included in the study. During the CAPS-5 assessment, all symp-

toms must be linked to a Criterion A traumatic event. SUD was assessed at baseline by a trained research assistant or an experienced clinician using the Structured Clinical Inventory for DSM-5 Substance Use Module E (SCID-E: First et al., 2015) and nicotine dependence severity with the Fagerstrom Test of Nicotine Dependence (Heatherton et al., 1991).

At follow-up appointments, participants who reported any use of non-prescribed psychoactive substances (e.g., alcohol, heroin, other opioids, cannabis, methamphetamine, benzodiazepines) during the prior period of EMA collection (approximately one week) on the Timeline Followback assessment were invited to be interviewed for approximately 30 minutes. All participants were informed during consent that they might be invited for an additional interview. At the time of the invitation, to prevent demand characteristics (Orne, 1962), participants were not explicitly told that the interview invitation was dependent upon their use of substances during this period, and no participants requested this information. Instead, participants were asked whether they would be able to complete an interview where they would be queried about what was going on in their lives that week, and they were informed that this interview would be audio-recorded.

All 15 participants reporting substance use on Timeline Followbacks during the 4-week EMA period were invited for interviews and none refused to participate. However, two of these participants were unable to attend their qualitative interviews (one was incarcerated and one gave birth prior to their scheduled appointment), and were lost to follow-up. This resulted in 13 participants who completed interviews. Each participant received an additional $25 gift card for doing so. Each participant was only invited to one qualitative interview during the 4 weeks of EMA collection, regardless of how many instances of substance use they reported during this time.

2.1. Sample and data collection

Thirteen semi-structured interviews were conducted in private study offices by the principal investigator (P. Sanjuan: Research Assistant Professor) and her research assistant, both trained female doctoral-level interviewers. Interviews typically lasted 30 minutes and included just one interviewer and no observers. The interviewer began with introducing themselves, their credentials, reasons for doing the research, and the broad study aims for the interviews. The interview protocol included broad study-specific opened-ended questions focusing on the participants' personal opinions about their pregnancy experiences, the recently reported substance use event, and thoughts and beliefs about medication for opioid use disorder (MOUD) or substance use during pregnancy. The interviewers took measures to create safe, respectful, and confidential climates during interviews and offered emotional support at the end of interviews. Interviews were digitally audio-recorded without field notes and not repeated. Four research assistants transcribed the digital recordings and reviewed each other's transcriptions, in lieu of participants reviewing transcriptions for accuracy because reducing participant burden was an overarching goal of study design.

2.2. Data analysis

To maximize interrater reliability, three research assistants (not involved in the data collection process) coded transcribed interviews including those they had transcribed (Barbour, 2001; Campbell et al., 2013). A systematic line-by-line categorization of data into codes was utilized to determine prominent themes in the data. Research assistants were trained in this method and then worked as a group to identify relevant codes and engage in the reconciliation process without software assistance. Coders reviewed each other's findings for consistency across the coding process (Miles et al., 2018).

Braun and Clarke's (2006) six phases of thematic analysis were used to analyze transcribed data. Themes were identified using a semantic approach, which is explicit and does not try to identify underlying ideas, assumptions, or concepts; we honored what participants said and avoided adding our own interpretations to the material participants communicated to us (Braun and Clarke, 2006).

Participants were not asked to provide feedback on the codes, themes, or findings. However, validity concerns were addressed using an independent researcher not involved with the data collection, transcription, or analysis, who reviewed all the transcriptions and the analysis, checking specifically for representation of data and grounding of themes.

2.3. Study context

One-third of New Mexico's population resides in Bernalillo County where the study took place. Bernalillo County is a mix of urban, rural, and federal land use areas where more than 20% of its residents lack health insurance coverage (Bernalillo Community Health Council 2020). The distribution of residents in Bernalillo County is predominately Hispanic (50%) followed by a large portion of non-Hispanic whites (39%) and smaller distributions of American Indian, African American, and Asian communities. Significant income inequalities are present in the region, where household income range varies greatly across neighborhoods, with the highest median income reported at $136,944 and the lowest at $18,356. Approximately 17% of households live below the federal poverty line and 32.9% of the population has less than high school education and an average median salary of $19,980 (Bernalillo Community Health Council 2020). Additionally, 71% of pregnancies in New Mexico are covered by Medicaid (Gifford et al., 2019).

2.3.1. Treatment availability

The clinic from which this study recruited served patients from both urban and rural areas across the state. This included patients who were enrolled in a county-run residential program for pregnant individuals with SUD, some of whom were from rural areas up to a three- to four-hour drive away from Bernalillo County. Additionally, pregnant patients with SUD may travel to Bernalillo from other counties or nearby states to receive treatment at the clinic from which we recruited. New Mexico has a medical and behavioral health care provider shortage, particularly in rural areas and for marginalized populations (Chiedi, 2019). Wait times for routine appointments range from 20 to 90 days, and SUD treatment or counseling is the most common outpatient waitlisted service (Chiedi, 2019). While treatment for SUD is rapid once pregnant individuals contact or are referred to the program from which we recruited, most individuals still enter SUD treatment during pregnancy after facing barriers prior to pregnancy or prior to contacting the program. In New Mexico there is an identified treatment gap of more than 100,000 people who need, but do not receive, treatment for SUD (New Mexico Department of Health, 2020), which means many participants may not have been able to access services prior to pregnancy.

3. Results

3.1. Research overview and sample population

The mean age of the 13 participants was 28 years old (SD = 3.8, Range 23 to 37). At the time of the qualitative interview, 23% of participants were in their late second trimester and 77% were in their third trimester (M = 31 weeks, SD = 5.9, Range = 22.4 to 39.6). Seventy-seven percent of the participants had children living at home at their baseline appointments and 46% had more than two children at home. Reported combined household incomes for 62% of participants were below the federal poverty line, at less than $19,000 annually. See Table 1 for participant characteristics.

All participants met DSM-5 criteria (American Psychiatric Association, 2013) for at least one current (past 3-months) alcohol or other SUD. Most participants (85%) met criteria for an opioid use disorder (OUD), 62% for a stimulant use disorder (methamphetamine), 31% for an alcohol use disorder, 31% for a sedative/anxiolytic/hypnotic use disorder,

Table 1
Participant Characteristics (N = 13).

Demographics	N	%
Relationship Status		
Never married	7	53.8
Currently married	1	7.7
Divorced	1	7.7
Widowed	1	7.7
Separated	1	7.7
Living together	2	15.4
Education		
No high school	1	7.7
Some high school	2	15.4
High school graduate or GED	2	15.4
Some college or technical school	7	53.8
4-year college graduate or higher	1	7.7
Employment		
Part time (1–34 h)	3	23.1
Unemployed, disabled, retired, or other	10	76.9
Household Income (per year)*		
$0–9999	4	30.8
$10,000–19,999	4	30.8
$20,000–29,999	1	7.7
$30,000–39,999	1	7.7
$40,000–49,000	1	7.7
Over $50,000	2	15.4
Race**/Ethnicity		
Hispanic/Latina	8	61.5
Non-Hispanic White	5	38.5
American Indian/Alaska Native	1	7.7
Current Living Situation		
Homeless	1	7.7
Staying with family	4	30.8
Staying with romantic partner	1	7.7
Renting an apartment	3	23.1
Own a house	2	15.4
Other	2	15.4

* Household income includes participant and all other household members' incomes.

** Participants could check more than one race category.

and 31% for a cannabis use disorder. All participants with OUD were prescribed either methadone or buprenorphine (as MOUD). Sixty-nine percent of participants reported smoking cigarettes with a Fagerstrom Test of Nicotine Dependence (Heatherton et al., 1991) mean score of 3.2 (SD = 3.26, Range = 0 to 8). More than half (62%) of the sample met DSM-5 (American Psychiatric Association, 2013) criteria for current (30-day) PTSD with a PTSD symptom severity mean of 32 (SD = 17.4, Range = 2 to 54).

Four prevailing themes emerged: (a) lack of access to or ability to obtain resources, (b) substance use to cope with negative affect, (c) social stigma, and (d) interpersonal relationships. Each theme is described below. We provide exemplary quotes from the participants in the text that best reflected the themes that were found. Some quotations were slightly edited to enhance readability.

3.2. Lack of access or ability to obtain resources

The participants in our study commonly reported lacking access to shelter, food, transportation, medical care, or other necessities for themselves, their babies, or their families due to current hardships. They frequently shared examples of economic instability related to their living environment, neighborhood, and social and community contexts. All participants identified lack of access to such resources as playing significant roles in their recent difficulties reducing or abstaining from alcohol and other drug use. One of the main resources that participants reported lacking was adequate prenatal and neonatal care prior to enrollment in the current program.

Financial distress was also a factor that participants felt lead to their recent substance use episode. One participant stated,

"well I lost my job, and then the time we didn't have a vehicle-so like just a lot of money issues like we got our electricity turned off we couldn't afford the bills." (P1)

Another participant captured the spirt of this theme for her cohort overall when she remarked,

"it's just, it's very frustrating and when drugs and alcohol are easier to get than fucking food is, you just take what you get." (P10)

Even though at the time of the interview these participants had access to a program aiming to provide judgement-free and supportive prenatal, maternity, and neonatal care integrated with SUD treatment and case management, and most had access to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), they still found it difficult to maintain a stable and non-chaotic life for themselves and their families during pregnancy because they lacked access to these other basic resources.

3.3. Substance use to cope with negative affect

All participants in this sample had experienced at least one Criterion A psychological traumatic event, and all had experienced some level of PTSD symptoms in the prior month, which for most participants was at clinically significant levels (see Section 3.1). Most participants reported receiving psychiatric diagnoses (primarily PTSD and depression) in addition to AUD and other SUD, and they often stated that alcohol and other drugs had been used to provide relief from negative affective states. This is illustrated by this woman who said:

"…heroin helped me kinda like get a, how you say relaxed, cuz I felt like really tensed up…like everything that I've been through, you know, the right now what I'm going through and the future what's gonna happen, you know what I mean…I thought that- that was gonna help me and it-it kinda did help me, you know, relax but only for a little bit." (P6)

Almost all participants used alcohol and other drugs to manage psychiatric symptoms. As noted above, sixty-two percent of our participants met criteria for PTSD diagnosis. Many spoke of their PTSD in terms of coping; for instance, one woman explained,

"with my PTSD, and my anxiety, when situations repeat themselves, or certain triggers or reminders [I] want to go back to that euf-euph-euphoric um, feeling where I felt like, numb, and just didn't care." (P11)

Another participant stated,

"I don't wanna feel, you know, with all my memories that I have- that I've been, you know, all the stuff that I've been through I just don't wanna, cuz then I-I get worse, you know what I mean, I-I'm trying to cope with it, I'm trying to medicate it, you know what I mean, I'm trying to medicate myself." (P6)

Participants also reported using alcohol and other drugs to achieve minimal daily functionality, such as this woman who explained her methamphetamine use,

"I get in my really depressed- depressed- depression- states or, I'll stay in bed for a week and, I can't- can't be like that so, I'll do a line to at least try to get myself to get out of the bedroom…." (P9)

Untreated and chronic medical health conditions were also listed by participants as reasons why they recently used alcohol or other drugs. In particular, despite that most of the participants were being treated with buprenorphine or methadone, it was still common for participants to talk about chronic unmanaged pain,

"Oh gosh, um, maybe the chronic daily pain that I have every day, like in my back, and in my neck, that does make it tempting even to this day while being pregnant, like I said it's- it's, you know, sometimes I do wish I still had that- that prescription for my pain pills because sometimes it just gets the best of me and I just- I just wanna be normal and move and be able to, like walk somewhere and not hurt and feel like I'm wanting to just cut my body in half, or not feeling like my body is literally being ripped from the inside." (P11)

Another participant echoed many of the participants' attempts to moderate use but also treat their own pain in the best way they felt they could at the time,

"I mean nothing was helping, and all I wanted was…relief and try to stop, like, the pain and the nausea, so at that point I was just desperate, so I used my medical marijuana." (P12)

Efforts to manage emotional and physical pain were reported as common motivators for using alcohol and other drugs prenatally by participants. Despite also mentioning the use of healthy coping mechanisms (parenting groups, family/friends, and participation in this study), their most frequently cited mechanisms for coping involved alcohol and other drug use.

3.4. Social stigma

Participants identified social stigma for being pregnant with SUD as a major obstacle to their accessing accurate information and resources. Stigma was a theme that often centered around participants' beliefs about medical providers, their ability to disclose SUD to providers, and their perceived success acquiring information about SUD and pregnancy. One woman shared that she believed that health care providers were very judgmental and that:

"…they went to school, but I don't feel that they actually know, or have experienced it…it's not easy to sit there and kick a habit whether you're pregnant or not." (P11)

The concept of feeling unfairly disrespected by providers was repeated by the same participant when she said,

"… [I want to] prove these doctors wrong, not every person who's on Subutex, you know, is an addict, or is a bad person or an unfit parent." (P11)

Although not experiencing it herself, another woman stated how,

"Moms, they aren't completely honest when they are… telling doctors…because they're afraid of that- that ridicule and that judgment that usually gets passed down to them." (P10)

On the other hand, stigma did not deter others from engaging in treatment. It is important to note that at the time of the interviews the participants were already enrolled in the high-quality integrated SUD/prenatal care program providing both MOUD and mental health counseling. Many participants expressed willingness to disclose alcohol and other drug use to their healthcare providers. Although some did express a fear of child protective services involvement or other custody-related actions from others, this did not seem to deter participants from being honest with their doctors and providers about substance use behaviors. One woman recalled her experience,

"I told the doctor, '…I had a relapse,' and I explained the situation to her, I was like, 'and I'm telling you because I've always said I'm gonna be honest with my pregnancy.'" (P3)

Despite the participants recognizing and experiencing stigmatization, they reported disclosing alcohol and other drug use openly to the healthcare providers with whom they were currently in treatment.

3.5. Interpersonal relationships

Across all participants, interpersonal relationships (e.g., intimate partners, fathers of the baby, other family members, close friends) directly impacted participants' lives, affecting their beliefs about and use of prenatal alcohol and other drugs. Within families, intimate partners featured repeatedly in participants' narratives sometimes as triggers for substance use and at other times as supporters of recovery.

Interpersonal relationships were frequently mentioned as the primary contributor to, or as a trigger for, prenatal substance use. Participants often reported that their alcohol and other drug use was a direct consequence of recent interpersonal interactions. For example, many participants reported increased stress related to their intimate partners' substance use and/or mental health. One participant made her partner's negative impact very clear:

"My boyfriend. He's a really big trigger. He's one of my only triggers I have left…he has a lot of anger issues." (P2)

There were also more severe instances where participants described emotional and/or physical abuse by their partners. For instance, another participant also disclosed the following:

"He's very violent, and he tends to be physical with me, you know what I mean, even though I'm pregnant you know, and also verbally and emotionally…he always makes me want to get on the edge- or get very, how to say, like a little bit like suicidal– he wants to make me feel as worthless as I can feel, you know, as helpless, or hopeless." (P6)

A few participants at times, connected the physical and emotional abuse and/or neglect back to the impact on the baby and how being pregnant was used as a tool for further abuse and control. The above participant further explained:

"My boyfriend's family or my ex-boyfriend's family, they don't really care about the baby, you know what I mean. It's like my boyfriend doesn't care- just because he sees it as an object and then to control me, - not because he cares about the baby cuz I- if he did care about the baby, he wouldn't be pushing me, and choking me, and hitting me."[1] (P6)

In contrast to the participants who shared traumatic experiences with romantic partners, others described relying on relationships with family, friends, and intimate partners as a coping strategy. Interpersonal interactions sometimes inhibited substance use and reinforced prenatal abstinence goals. For example, one participant mentioned that her friends, one of whom was also pregnant, frequently discouraged her alcohol and drug use during pregnancy and acted as a social support. In some cases, intimate partners or family members helped participants abstain from substance use. One participant described her partner's positive impact:

"My boyfriend helps me stay clean a lot- he's like, really been a big support for me…he never put me down or never judged me, never like, you know, talked down to me." (P8)

Our participants' interactions with family, friends, peers, and intimate partners had major impacts on their health and well-being and thus their pregnancies and SUD treatment course.

4. Discussion

Our study examined the lived experiences of pregnant participants with PTSD symptoms in treatment for SUD, exploring the risk environment that influenced prenatal use of alcohol and other drugs. These findings highlight the ways in which various levels of social-structural conditions (e.g. social, political, and economic institutions) can reinforce marginalization in the context of prenatal abstinence treatment. Participants faced multiple circumstances that made them more vulnerable to social and structural health disparities including stigma, unstable housing, food insecurity, and barriers to health care. Still, among the participants we interviewed, many had substantially reduced substance use following pregnancy recognition despite not having achieved full abstinence.

The stories these participants shared with our team highlighted the vital role that social and structural conditions often play in determining treatment success and health outcomes for pregnant individuals and their children. Despite receiving integrated prenatal medical and SUD treatment in a program designed to provide judgement-free prenatal care, medication for opioid use disorder (MOUD), counseling, case management, inpatient MOUD induction, labor and delivery, and a dedicated mother-baby rooming-in unit, participants described systemic barriers, marginalization, and psychosocial challenges that they felt impeded their successful transitions to abstinence. This study adds a new dimension to the conceptualization of intersectionality between obstacles faced by individuals with prenatal SUD and PTSD symptoms.

[1] When participants disclosed any suicidal ideation they were assessed for suicide risk by a licensed psychologist and referred to appropriate care. Any disclosure of physical abuse was also followed by an assessment and discussion of resources and referral when appropriate.

4.1. Health care access and treatment

People from marginalized groups experience disproportionately high levels of political-economic conditions (e.g. inequalities related to income, class, gender, and ethnicity) that contribute to health disparities (Galea and Vlahov, 2002). Our participants experienced various economic factors that they felt influenced their substance use. For example, (1) 8/13 participants had a combined household income under $20,000, (2) 10/13 reported being either unemployed, disabled, retired, or otherwise not working, (3) only 5/13 had a secure living environment (renting or owning a home), and (4) 8/13 identified as of Hispanic/Latinx ethnicity. Most SUD programs do not have sufficient resources to target environmental factors at the interpersonal, community, or societal levels (Lloyd, 2018). Alcohol and drug use are structurally determined by political-economic conditions. Therefore, risk and harm are outcomes inseparable from these environmental processes and conditions (Rhodes, 2009).

At the policy level, treatment programs and governmental policies must recognize that by addressing the needs of the whole patient (e.g., mental health, social stigma, pain management, economic, and environmental needs in addition to SUD) they can help not only the mother but also her children and their children, limiting the cascading intergenerational detrimental effects of political-economic conditions. Previous research has addressed how important addressing maternal SUD is for reducing the impact on maternal and child welfare outcomes (Lloyd, 2018). Traditional alcohol and drug prevention and treatment efforts have focused on changing behavior at the individual (i.e., patient) level; however, these methods are limited in that they do not address the entire risk environment of substance use (Spooner, 2009). Similarly, comorbid SUD/PTSD responds better to an integrated treatment approach versus treatment for either disorder alone (McCauley et al., 2012; Simpson et al., 2017), and patients with both disorders have poorer treatment adherence and improvement than people with just SUD or PTSD alone (McCauley et al., 2012), supporting advantages of a more holistic approach to prenatal SUD care. Governmental and institutional policy change is needed to provide greater access to empirically supported addiction and mental health treatment to individuals before they become prospective parents, and to facilitate access to prenatal SUD and PTSD treatment to begin to address systematic barriers to recovery (Alexander, 2013).

4.2. Personal vulnerability and coping

In the absence of support or emotional resources, often people are left with less effective coping strategies (e.g., alcohol and other drug use) to draw upon in the face of adversity. Many factors associated with SUD and PTSD symptoms, (e.g., living in a chaotic environment; lack of economic, social, or tangible resources) are theorized to limit the attainment of psychosocial and economic stability and contribute to continued substance use as a coping mechanism for ongoing distress (Sutter et al., 2017). Our participants provided examples of using alcohol and other drugs when they felt no other coping methods were available for managing the stress of uncertainty and insecurity in their lives. In many instances, use was associated with long-held and firmly-established patterns and behaviors involving interpersonal interactions and substance use. Substance use as a coping strategy, although having adverse short and long term outcomes, has been characterized as a functional adaptation to chronic, uncontrollable stress rooted in childhood that stems from early stress-producing environments (Wadsworth, 2015).

Numerous theories exist that explain the association between substance use and PTSD symptoms, including the self-medication and social learning theories of substance use disorder, which postulate that substance use is motivated by a desire to manage negative and positive emotions, such as negative affect from PTSD symptoms (Cooper et al., 1995; Khantzian, 1997, 2004). It is now well-recognized that alcohol and other drugs are often used to alleviate symptoms related to PTSD (McCauley et al., 2012). In our results, participants frequently cited PTSD symptoms or other mental health and chronic pain problems as barriers to abstinence during pregnancy, despite participants' often strongly stated desires to achieve such abstinence.

PTSD alone and PTSD comorbid with SUD are associated with greater use of less effective emotion regulation strategies (Boden et al., 2013; Weiss et al., 2013). For example, in one study, greater use of catastrophizing and lower use of positive reappraisal strategies each influenced cognitive coping strategies, which were associated with worse integrated PTSD and smoking treatment outcomes (Asnaani et al., 2020). Given the additional emotional, physical, and economic stressors associated with pregnancy, pregnant individuals in SUD treatment with PTSD symptoms may benefit greatly from therapies that include emotion regulation and coping skills training.

4.3. Interpersonal relationships and community

The Rhode's risk environment framework conceptualizes how experiences of risk are socially situated (Rhodes, 2009). Social practices that influence substance use and health outcomes are shaped by an individual's social location and cannot be separated from broader structural issues such as racism, neoliberalism, and gender inequalities (Collins et al., 2019). Our results showed that participants' relationships and interactions with family, friends, providers, and community members impacted their well-being and clinical treatment. Women who use alcohol and other drugs prenatally challenge the traditional societal norms involving motherhood and femininity (Stengel, 2014). Social stigmatization is subsequently internalized by these women. Moreover, such stigma influences the way healthcare workers treat pregnant women with SUD, resulting in a stigma/shame-perpetuating feedback loop. The culture at the integrated prenatal medical and SUD treatment program where these women received care provided a largely safe and trusting space that mitigated stigmatization (Howard, 2015; Lamb et al., 2008; Renbarger et al., 2020; Stengel, 2014). Yet, many participants still voiced their feelings about, or experiences of, being stigmatized by healthcare providers in general (potentially outside of the specialty program). When patients experience stigma or negative bias during health care interactions, this can result in avoidance of such care resulting from fear of further stigmatization or of consequences experienced as punitive, such as medication changes or referrals to child protective services (Delker et al., 2020; Hui et al., 2017; Jessup et al., 2003; Roberts and Pies, 2011; Stengel, 2014; Stone, 2015; Van Scoyoc et al., 2017). Specialized training for health care providers operating beyond specialty SUD clinics is needed. This training should be informed by individuals with lived experience of prenatal SUD and their community advocates. Such training can reduce systemic barriers and stigma that deter pregnant individuals with SUD and PTSD symptoms from seeking medical care or openly disclosing substance use to medical providers.

High-quality interpersonal relationships with family and friends can give patients greater self-efficacy and, thus, empower pregnant individuals to abstain from substance use. This was illustrated in a related qualitative study where pregnant women identified and called for building such relationships (Latuskie et al., 2019). The same was true in our sample, where close family members and partners were mentioned most prominently. SUD can be conceptualized as a family disease perpetuated by complex systems of interaction amongst its members (Saatcioglu et al., 2006). When feasible, active family and partner participation in SUD treatment is important for favorable treatment outcomes. Families are often locked in their own patterns of substance use, thus family members can be critical to the development of new health-promoting patterns (Sheridan, 1995). Women often experience this family dynamic alongside interpersonal violence, and, thus, developmental-relational strategies (Motz et al., 2019), if possible, should be explored in treatment planning. Among pregnant women in treatment for SUD, current interpersonal violence is associated with trauma and other psychiatric symptoms (King et al., 2015) and poor maternal and neona-

tal outcomes (Alhusen et al., 2014). Pregnant women who use alcohol or other drugs or who have partners who use substances are more likely to experience interpersonal violence than other pregnant women (Amaro et al., 1990; Martin et al., 2003), and intimate partner violence during pregnancy tends to be severe (Brownridge et al., 2011). The current standard of care is that all patients be screened for interpersonal violence throughout pregnancy and postpartum and referred to support services as needed (American College of Obstetricians and Gynecologists, 2012). This may be particularly critical for pregnant patients with SUD and PTSD symptoms. Additionally, referral to or provision of treatment addressing interpersonal violence may be essential for successful SUD treatment outcomes for pregnant patients in currently violent relationships. Other sources of social support, such as continuous labor support or expanded doula care, may provide similar scaffolding, in particular for cases where other positive interpersonal relationships are lacking (Lanning and Klaman, 2019; Stanley et al., 2015).

5. Limitations

This exploratory study was limited in sample size. It also reflects local demographics of New Mexico, which has large Hispanic/Latinx and American Indian populations, but results may not generalize to other racial/ethnic groups in the U.S. or globally. Additionally, in New Mexico, prenatal substance use is neither defined as child abuse nor required to be reported to any authority. In most respects this is a strength that may have facilitated recruitment, participants sharing their feelings about prenatal substance use with our team, and participants reporting substance use to medical providers. However, laws and cultural prohibitions against prenatal substance use vary widely around the world and even across different regions of the United States (Hui et al., 2017). Thus, the manner in which participants in this sample engaged with medical providers may not generalize to other states or countries with greater legal consequences. Also, we recruited participants already well into their second or third trimesters of pregnancy who were still having episodes of substance use, therefore our results illustrate challenges faced by pregnant individuals with SUD who had not yet responded to treatment or who did not receive treatment earlier in pregnancy. Within the parent EMA study, 15 of 33 participants self-reported alcohol or other drug use during 4 weeks of EMA monitoring in the second or third trimesters of pregnancy. Thus, slightly more than half the participants in the parent study were able to maintain abstinence from prenatal substance use during the study period. The majority of the participants in the parent study achieved abstinence after receiving some treatment (often MOUD) from the integrated prenatal medical and SUD program, although a few were already in SUD remission (on MOUD) when they became pregnant. Many who were not initially abstinent at the initiation of prenatal care had achieved abstinence by the time they entered the parent study, partly because baseline visits occurred at a minimum 20-weeks of gestation. Therefore, the participants interviewed for this qualitative study represented cases of prenatal SUD that had not yet fully responded to treatment. As such, these results may not generalize to individuals who achieve abstinence earlier in pregnancy.

Conclusion

This qualitative study provides new insights into pregnant individuals' perceptions of, and experiences with, prenatal SUD and PTSD symptoms. Our results suggest that, despite access to quality prenatal medical care integrated with SUD treatment, individuals with prenatal SUD and PTSD symptoms still experience systemic barriers. Participants described examples of these barriers they felt obstructed their goals to abstain from alcohol and other drugs during pregnancy.

This research addresses an important gap in understanding the complex lived experiences of pregnant individuals with SUD and PTSD symptoms. Applying Rhodes Risk Environmental framework allows those involved with these patients to understand the complex interplay between policy, economic, physical, and social environments that serve as risk factors or protective factors related to prenatal alcohol and drug use (Voon et al., 2018). This data can help clinicians, researchers, and policy-makers move towards reducing adverse health effects related to stigma, psychosocial challenges, and other systemic barriers encountered by pregnant individuals with SUD and PTSD symptoms. Medical systems, beyond those directly treating people with SUD, could improve training of health care providers of all levels of service to include trauma- and SUD-informed care. Further research is warranted that explores how to best provide support to these pregnant individuals, such as through enhancing treatments and providing more integrated community, family, economic, and social support services.

Data statement

Data not available / The data that has been used is confidential

Due to the sensitive nature of the questions asked in this study, survey respondents were assured raw data would remain confidential and would not be shared.

Contributors

Author Henry was responsible for methodology, formal analysis, data curation, writing the original draft, reviewing and editing, project administration, and supervision. Author Sanjuan was responsible for study conceptualization, methodology, investigation, resources, writing the original draft, review and editing, project administration, supervision, and funding acquisition.

Author Cacari Stone was responsible for conceptualization, writing portions of the original draft, reviewing, and editing. Author Cairo was responsible for formal analysis, data curation, writing portions of the original draft, reviewing, and editing. Author Lohr-Valdez was responsible for formal analysis, data curation, writing portions of the original draft, reviewing, and editing. Author Leeman was responsible for conceptualization, methodology, validation, reviewing, and editing. All authors contributed to and have approved the final manuscript.

Declaration of Competing Interest

None.

Acknowledgments

We would like to thank Emily Arnold, Ph.D. at the University of California, San Francisco for her advice on the development of our guiding questions for these interviews. We would like to acknowledge the critical contributions to the study design and conduct of the study by the late Scott Coffey, Ph.D. Finally, we would like to thank all of our participants who generously shared their stories with us.

Role of funding source

This research was supported by the National Institutes of Health (R25DA035163, K23AA025094, U54MD004811, and R21DA048058). The funding source had no involvement in study design; in the collection, analysis, and interpretation of data; in the writing of the report; or in the decision to submit the article for publication.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dadr.2021.100013.

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