Drug and Alcohol Dependence Reports 7 (2023) 100170

Contents lists available at ScienceDirect

Drug and Alcohol Dependence Reports

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

Opportunities to expand postpartum support for those in recovery from opioid use disorder: Results from a qualitative study

Alicia Allen [*], Yvonne Bueno, Stephanie Mallahan, Allison Huff MacPherson, Julie Armin

Department of Family and Community Medicine, College of Medicine – Tucson, University of Arizona, 3950 South Country Club Road, Suite 330, Tucson, AZ 85714, USA

HIGHLIGHTS

- Perinatal Opioid Use Disorder (POUD) during is an increasing public health issue.
- Our goal was to identify opportunities to expand postpartum recovery support.
- We interviewed mothers with POUD and professionals who work with them.
- Ten themes were identified (e.g., individual agency, keeping mom-baby together).
- These themes offer insights into how to better support postpartum recovery.

ARTICLE INFO

Keywords:
Opioid use disorder
Recovery
Pregnancy
Postpartum
Perinatal
Qualitative research

ABSTRACT

Introduction: Over the past two decades the national prevalence of opioid use disorder (OUD) during pregnancy has increased more than 600%. Managing recovery from OUD during the postpartum period can be particularly challenging. Thus, we sought to identify ways to expand perinatal OUD treatment to ultimately reduce risk of postpartum return to opioid misuse.
Methods: We conducted in-depth semi-structured interviews with pregnant or postpartum (i.e., gave birth within the past year) mothers who have OUD, as well as with professionals who work with this population. Interviews were audio-recorded, transcribed, and coded for themes using Dedoose software using an eco-social framework.
Results: Participants included 7 mothers (median age 32 years old; 100% receiving treatment for OUD) and 11 professionals (average of 12.5 years in the field; n=7 healthcare providers, n=4 child safety caseworkers). A total of 10 major themes emerged in three levels. First, at an individual level themes included mental health, personal responsibility, and individual agency. Second, at the inter-individual level themes included support from friends and family, and other sources of support. Next, at the systems/institutional level themes included culture of healthcare systems, an ill-equipped healthcare system, social determinates of health, and continuum of care. Finally, a theme identified across all three levels included keeping mother and baby together.
Conclusions: Several opportunities to enhance the support and clinical care of OUD during the perinatal period were identified. Additional work is needed to explore how these themes may be incorporated into existing programs and/or the development of new interventions.

1. Introduction

Between 1999 and 2017 the national prevalence of opioid use disorder (OUD) in the United States during pregnancy has increased more than 600% from 1.5 per 1000 to 8.2 per 1000 hospitalized deliveries (Haight et al., 2018). While more recent national estimates are lacking, state-level estimates indicate the prevalence continues to increase (Alemu et al., 2020), especially during the COVID-19 pandemic (White et al., 2022). Further, corresponding increases in neonatal abstinence syndrome (NAS), neonatal opioid withdrawal syndrome (NOWS), and opioid-related maternal deaths have occurred over the past two decades (Maeda et al., 2014; Metz et al., 2016; Schiff et al., 2018). Despite these concerning trends, pregnancy provides increased access to and interaction with the healthcare system, plus an increase in intrinsic

* Corresponding author.
E-mail address: aliciaallen@arizona.edu (A. Allen).

https://doi.org/10.1016/j.dadr.2023.100170
Received 28 March 2023; Received in revised form 31 May 2023; Accepted 1 June 2023
Available online 2 June 2023
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motivation, sense of agency and self-efficacy; leading to increases in initiating and adhering to medication for OUD (MOUD) treatment (Daley et al., 1998; Goodman et al., 2020), especially for the sake of their unborn child (Goodman et al., 2020). However, nearly 2 out of 3 discontinue MOUD treatment within a year of childbirth (Schiff et al., 2021). Moreover, there numerous postpartum stressors that may exacerbate the risk of returning to misuse that can include, depression and anxiety, pain management, stigma and discrimination, legal and custodial issues (e.g., working with child protective services), and caring for a newborn exposed to opioids in-utero (Klaman et al., 2017; Nawaz et al., 2022; Proulx and Fantasia, 2021; Schiff et al., 2018; Wilder et al., 2015). Indeed, fatal opioid overdose is now a leading cause of maternal mortality (Metz et al., 2016; Smid et al., 2019). Significant morbidity is also caused by return to opioid misuse including a wide-range of negative outcomes, such as consequences related to physical (e.g., increased risk of overdose, intimate partner violence), emotional (e.g., increased risk of anxiety, depression, attention deficit disorder), and social (e.g., increased risk of unstable housing or homelessness, poor academic achievement, foster care placement) health (Reddy et al., 2017). Effective interventions for this growing public health problem with severe consequences are urgently needed.

MOUD is the gold standard for perinatal treatment of OUD (Schiff et al., 2021, 2022; Wilder et al., 2015). The current clinical guidelines also state that "… *relapse prevention programs should be made available*." (Opioid Use and Opioid Use Disorder in Pregnancy | ACOG, 2021). However, there currently are no evidence-based programs/interventions specific to postpartum return to opioid misuse (Martinez and Allen, 2020; Seghete et al., 2020). Thus, the development of programs that can be used as adjunctive interventions to MOUD specific to the unique circumstances of the postpartum period is necessary. Programs offering MOUD during the perinatal period have been expanding nationally, with many offering key ancillary services, such as childcare and transportation (Meinhofer et al., 2020). This suggests that there is national interest and support for the expansion of treatment of MOUD during the perinatal period, which is further recommended at a national level (Office of National Drug Control Policy, 2023). Despite the clear support for an expansion of perinatal OUD-related clinical care, return to opioid misuse during postpartum remains an understudied problem.

The goal of this qualitative study was to address this critical treatment gap by identifying possible components of an adjunctive intervention that may improve MOUD adherence and, ultimately, reduce the risk of postpartum return to opioid misuse. To achieve this goal, we conducted in-depth semi-structured interviews with individuals with OUD who were in the perinatal period (i.e., currently pregnant or gave birth within the past year) and professionals who work with this population. Interviews were analyzed using an eco-social framework (Krieger, 2012), with a phenomenological approach (Proulx and Fantasia, 2021), taking into account lived experiences, and the discrimination and stigma that pregnant and postpartum people with OUD face, for themes related to the individual (e.g., biological/behavioral factors, personal history), inter-individual (e.g., relationships with others and their behaviors/influence), and institutional/system (e.g., healthcare system, programs, norms) levels. Identifying opportunities for intervention at each of these levels will provide critical information for the development of multi-level evidenced-based return to opioid misuse prevention programs specific to the unique needs of the early postpartum.

2. Methods

We used the COREQ (COnsolidated criteria for REporting Qualitative research) (Tong et al., 2007) Checklist to guide our reporting.

2.1. Recruitment and study sample

From April to November 2020, we recruited those with OUD who were in the perinatal period and professionals who worked with this target population (e.g., healthcare providers, child safety caseworkers). Specifically, we collaborated with our community and clinical partners in Tucson and Phoenix, Arizona to recruit participants. Physical flyers were given to program leaders of local support groups, parent advisory collaboratives, and high-risk pregnancy clinics, as well as placed in the local public health department, at local libraries, and community centers. Electronic recruitment flyers were sent to relevant healthcare clinics/programs (e.g., MOUD, prenatal) and community partners (e.g., Department of Child Safety [DCS]). We received approval from the University of Arizona's Human Subjects Protection Program.

All participants were fluent in English and able to provide informed consent. In addition, mothers[1] were eligible if they self-reported that they: (a) were due to have a baby within one month or recently (< 1 year) gave birth, (b) had custody, or expected to. of their baby, (c) had a recent (< 1 year) history of OUD, and (d) were adherent with an MOUD program. Professionals who self-identified as working with this population and had worked in their current position for at least one year were eligible to ensure they had at least a year of experience to draw from during the interview.

2.2. Methods

Once enrolled, participants provided informed consent. Due to the sensitive nature of the interview, we acquired a certificate of confidentiality. During the consent process, participants were notified of this, as well as the mandatory reporting obligations of research staff. Next, participants completed a brief survey to collect demographics, substance use history (mothers), and career history (professionals). Lastly, they completed a one-time 90 min (mothers) or 30 min (professionals) semi-structured in-depth interview with a focus on the facilitators and barriers to OUD recovery during postpartum (Supplemental Content A). The interview guides employed a phenomenological and eco-social approach to explore pregnant/post-partum people's experiences before, during and after childbirth, their experiences withMOUD, and their interactions with individuals or community organizations. Professionals were asked to share supports and challenges for pregnant/post-partum people with OUD. Small modifications to the semi-structured interview guides were made after conducting the first few interviews. All interviews were conducted *via* Zoom for Health and audio-recorded while participants were alone. The two interviewers (YB, SM) were both female doctoral students employed as research assistants by the project, and they were trained by the qualitative methodologist (JA) on the investigator team. The interviewers knew some of the professionals *via* their professional roles, neither knew any of the mothers. Mothers were compensated with a $50 gift card. The professionals were not compensated.

2.3. Analyses

Audio-recordings were anonymized, transcribed, and uploaded into Dedoose (2021), a cloud-based qualitative data management software, for coding and analysis. Transcripts were not returned to interviewees. A codebook was developed using a deductive/inductive approach, starting with *a priori* codes (themes that guided the interviews) with additional codes subsequently identified in reading the transcripts (Bradley et al., 2007). Two authors (SM, YB) and a research assistant coded the transcripts independently, identifying additional, emerging codes to add to the codebook (Supplemental Content B) (Ryan and Bernard, 2003). Coders met weekly during the early stages of coding to resolve coding discrepancies, and clarify coding definitions, serving to assure intercoder reliability (Armin et al., 2022; Bernard et al., 2016; Cornish et al.,

[1] We are referring to our study participants as "mothers" henceforth, given all of our study participants self-identified as mothers. We strive to use gender-inclusive language throughout the rest of this manuscript.

2013).

Coded data were then reviewed and discussed by the entire study team to identify and interpret themes. Using an eco-social approach enabled us to describe "pathways to embodiment" (Krieger, 2012). This approach includes interactions with various programs (e.g., healthcare system, legal programs) that affect mothers' health. This approach also starts from the standpoint that pregnant/postpartum people with OUD experience discrimination and stigma from different interactions with various programs at three levels: individual, inter-individual, and institutional/systems. Analyses highlighted the areas where OUD programming is concentrated, to identify potential gaps/opportunities as identified by interviewees. We reached saturation when the team recognized no new themes emerging from the data (Guest et al., 2020) Findings were not shared with interviewees.

3. Results

3.1. Study participants

A total of 7 mothers and 11 professionals completed interviews, yielding a final sample of 18. Overall, mothers had a median age of 32 years (range 25 to 40 years), 85% were white non-Hispanic and 15% Hispanic. All were currently engaged in MOUD treatment (85% using methadone, 15% using buprenorphine). Two mothers were pregnant and five were postpartum. All either had custody of their infant or expected to (though one mother was considering adoption at the time of the interview). Professionals were all female, with a median age of 38 years, and had, on average, 12.5 years in the field (range 5.5 to 26 years) with 8.5 years in their current role. The professionals' specific roles included obstetrics-related healthcare (e.g., neonatal nurse practitioner, registered nurse, pediatric social worker, physician; n=4), DCS (n=4), and outpatient MOUD-related healthcare (e.g., MOUD clinic, outpatient mental health; n=4).

3.2. The individual level

3.2.1. Mental health needs

Mothers described feeling overwhelmed (Table 1). For instance, one mother shared that this feeling has persisted since pregnancy: *"Yeah I am pretty much just doing it on my own. It has been kinda overwhelming somedays..."* (Mother, Participant 4). Professionals articulated their awareness of potential mental health concerns, such as postpartum depression. They also lamented the effects of poor mental health on disengagement in treatment and recovery.

3.2.2. Personal responsibility

Both groups highlighted personal responsibility, though from opposing perspectives. Mothers describing the increased levels of required personal responsibility for the mother of a newborn who is also in recovery. In contrast, professionals emphasizing the work mothers should be doing. While both groups indicated that there was a lack of utilization of public programs and resources, the rationale varied. Specifically, mothers indicated that use of these resources is stressful, especially when balancing against many other demanding responsibilities. Professionals felt the lack of utilization is because mothers were simply unwilling to use them.

3.2.3. Individual agency

Mothers described situations in which they perceived a lack of agency, whereas professionals emphasized the importance of women exercising agency in treatment options. One mother described feeling "alone" and disempowered while in the hospital delivering her baby. She noted, *"I didn't get to call DCS on my own, the hospital called before I could."* (Mother, Participant 5)

Table 1
Illustrative quotes from mothers and professionals by emergent theme.

Emergent Themes	Illustrative Quotes	
	Mothers	Professionals
Individual Level		
Mental Health Needs	*"Yeah I am pretty much just doing it on my own. It has been kinda overwhelming somedays.... [Sometimes] you're bonding with your baby and enjoying this time and their life. I had the most miserable pregnancy just not knowing the whole time what was going to happen, and dealing with all this, and then now… It's just still stress."* - Mother, Participant 4 *"Overwhelming, just overwhelming, like set you up with DCS and stuff like that. The first few weeks of postpartum is so detrimental for postpartum depression and bonding and stuff like that – when you feel overwhelmed with all that kind of stuff it can really put a [pause] a damper on that – it could come between that. And it can completely throw you off mentally."* – Mother, Participant 7	*"..It's a struggle to get them involved and get them in treatment because I guess it's just so fairly new, and that postpartum of them still having that depression or whatever, that underlying mental health. And it's a struggle to get them involved in their substance abuse treatment. So, I think there's not a lot of success on my part when it comes to that, engaged in keeping them moving forward with recovery."* - Professional (Department of Child Safety), Participant 32
Personal Responsibility	*"My main goal was to hurry up and try and get a new job right away, but then I had to make sure that my son is healthy so that when I do get him back into daycare he is not getting sick to the point of getting sent home and me losing another job....because [Department of Child Safety] again is like 'why aren't you getting a job' and then at the same token, they're thinking I am making him sick or keeping him sick. He has been through five different antibiotics for his ears so that is something that I can't control…"* - Mother, Participant 5	*"I don't think there's any resource gaps. I think for instance, if someone is not willing to say I'm at this point in my life, I want to change. So, I mean because there's a lot of resources out there, we just have to find them and guide them in the right direction."* - Professional (Department of Child Safety), Participant 32
Individual Agency	*"I didn't get to call DCS on my own, the hospital called before I could call and DCS came to the hospital, questioned me, and between them and the social worker they made the decision before I ever left the hospital."* - Mother, Participant 5	
Inter-Individual Level		
Support from Friends and Family	*"…I need to stay sober and I can't go running around with people that are using because you know, being pregnant for one is the big no-no of you don't use when you're pregnant. But just even being with the people I was running with...those types of influence could have gotten me in more legal trouble versus, you know, not so much of a temptation to use – just knew I could get caught with*	*"...I think the big thing is families being able to develop trust with their families again. That's hard. You know, they've lost trust- which they will all tell you "I deserve to have lost trust" but then when they're healthy, regaining that trust. And it's so, so hard... and how do you say that it will come."* - Professional (Nurse), Participant 23

(continued on next page)

Table 1 (*continued*)

Emergent Themes	Illustrative Quotes	
	Mothers	Professionals
	paraphernalia of theirs with them being with me or something or being in my vehicle. Just trying to stray me away from the wrong crowd basically." - Mother, Participant 10	
Other Sources of Support	*I didn't get to see my daughter for four months and I was in severance and so – but the lady who ended up fostering my daughter ended up being probably one of my biggest supports.*" - Mother, Participant 2	*"Because it's hard for [mothers in recovery] to trust professionals a lot of times. And so, I know we have recovery support specialists that have been through recovery and stuff, they're on recovery now. But that's after the fact. You know, I mean I really think it needs to start early on and guide them through the whole process. Someone that's been pregnant when they were using and, you know- because professionals are really scared of us at first. And they're just afraid that- but if someone was there to like, you know, that's been through it and take their hand, say, "You know what? I'm going to help you."* - Professional (Department of Child Safety), Participant 31
Institutional/System Level		
Culture of the Healthcare System	*"I avoided going to the hospital because I knew what was going to happen and I was really ashamed of it. I didn't want to face the consequences of my judgment and everything. I was scared for [my daughter], scared for me, and I knew they were going to take her, and I didn't think I could get clean so I figured - I kept joking the whole time I was pregnant I'm just going to have her at home so I can keep her and it ended up actually happening."* - Mother, Participant 2 "*I just think that a lot of people go to using and get in these types of situations because they go down the wrong road, they get in with the wrong crowd or maybe they're in a bad relationship. I see that a lot, a lot of [inaudible] ends up in pregnancy or using and it's all intertwined. So I just wish there was more ways that there was more open communication for people to feel safe that it was okay to talk to someone and not have your kids ripped away from you if you go to talk to someone in confidence*" - Mother, Participant 5	
Ill-Equipped Healthcare System	*"But they didn't bother to even find out that I wasn't [actively using drugs]. They just immediately walked in the room and because I was on methadone, they were treating me as if I was putting a needle in my arm and not caring about my baby and, you know... Maybe if they had more training and know that like – cause when they make the report to DCS about me being on methadone while I was pregnant, they file it under neglect. And that is exactly what it is not, I am on methadone because I am trying to change my life for the better and because I am trying to help my baby and help myself and, you know, not be on drugs."* - Mother, Participant 12	*"I believe that we need to have more connection with the OB doctors and to educate them as well. Because just recently I believe one or two years ago finally (American Association of OBs), they admitted that [MOUD is] the right treatment for pregnant females... And we just have to educate them that it's okay, because a lot of OB doctors, they just force females to detox from the pain pills or something like that. So, instead of that, and it would be harmful not only for females but for the baby as well, because they will go through the withdrawal... so we just need to educate medical professional in the OB field."* - Professional (Physician's Assistant), Participant 26
Social Determinates of Health	"*It's the three of us. So, we were all homeless. We weren't homeless, we were displaced. We weren't on the streets, but we didn't have our own home. And then [baby's father's] grandma helped us get in an apartment.*" – Mother, Participant 10 *"Yeah it's just been like really stressful, not having a job right now. I mean I haven't filed my tax return for the last 2 years because I've been trying to get my daughters social security number so I haven't gotten anything for the (COVID) stimulus and I filed unemployment wrong and got denied for that so no money really, I have a little bit but I haven't paid my rent for [this month]."* – Mother, Participant 2 *"like [at the group home] we're not allowed to go on public transportation, we are not allowed to do things like that so me not having a car is a really hard thing too with trying to find work because I am pretty much stuck in the house a lot because it is too hot to walk anywhere with my baby, to go look for jobs. So I apply online as much as I can but in order to actually get to work and do things it makes it really difficult not being allowed to take the public transit."* –Mother, Participant 12 "*My main goal was to hurry up and try and get a new job right away, but then I had to make sure that my son is healthy so that when I do get*	*"... create some housing, specific for these women... There would be, I think, different levels of housing, like levels with some pretty intense support, like possibly like inpatient treatment, but then housing that they could move to and graduate at certain levels. And housing that was just secured, and as long as they met certain criteria, like they held a job for 20 hours a week, they were able to get their housing. They didn't have to pay for it and they were able to get back on their feet. Along with that housing would come some really great staff. I think we do not pay staff enough that work in this field and therefore we don't get the quality staff. And that just kind of perpetuates the- some of the problems that women have to face."* - Professional (Nurse), Participant 22

(*continued on next page*)

Table 1 (*continued*)

Emergent Themes	Illustrative Quotes	
	Mothers	Professionals
	him back into day care he is not getting sick to the point of getting sent home and me losing another job." – Mother, Participant 5	
Continuum of Care	*"I mean my personal OB/GYN she is great. She's very down to earth and I can talk to her about anything but again being on the methadone they don't agree with it. They want you off of it, they don't want to provide any narcotics for the c-section or at birth. They didn't want – at the c-section, just the epidural. They were really leery about providing me any kind of pain medication after giving birth just – I mean I really didn't have anything that stood out that I would say really worked."*- Mother, Participant 5	*"So, a nurse [comes] to their house like every day, then once a week, and actually provide a lot of support to the postpartum woman... they definitely need that. And usually [a] woman ...is taught how to deal with everyday situations. And I think it benefits every postpartum woman. Because they don't know, they don't have like a manual or guidelines in what to do with the baby, so it's really, really helpful for them., I believe it benefits every single woman regardless if they are in the treatment or not."* - Professional (Physician's Assistant), Participant 26
Cross-Cutting		
Keeping Mother and Baby Together	*"… I didn't think I would ever get a chance to be her mom and when they let me stay in the hospital with her while she was going through withdrawals, that was the moment that kind of changed everything for me. I bonded with her"* - Mother, Participant 2	*"I think the early challenges are, you know, it's almost like- it's very difficult for them because not only are they trying to get sober, but they've also had their child removed from their care. I mean a brand-new baby. So, they're not getting that mother-child bonding all the time, you know? We try to give them as much as we can… visitation. But they don't always get it. So, that's really difficult for them. And so, because of that, a lot of times they kind of just want to turn back to, you know, going back to using opiates or heroin, whatever they were using. And so that's really difficult. So, at that point we try to make sure that we engage them as much as possible, you know. Trying to in any way let them see their kid. Giving them more visits. Letting them, if I have- if the child is with a family member, and that family member's okay with the mom coming over, you know, we try to do that. Just so they don't- they're not sitting at home kind of depressed and, you know, having to deal with being newly sober and a mom that doesn't have her kid, you know. Especially being able to- usually they can't breastfeed. So, that's kind of the main struggle in the very beginning."* - Professional (Department of Child Safety), Participant 31

3.3. The inter-individual level

3.3.1. Support from friends and family

Mothers indicated the need to manage relationship dynamics, which often shift based on circumstances. One mother averred that her brother might not be seen as the best supporter for someone in recovery, but she relies on him. She noted, "*Yeah, even though he's an – [long pause] alcoholic and he still drinks but, I mean, he is like my best friend and he is really supportive.*" (Mother, Participant 2). Similarly, professionals noted that support from families can be challenging due to frayed trust.

3.3.2. Other sources of support

Both groups referred to informal supports. One new mother noted that traditional family relationships may not help in her situation and, instead, she received support from her daughter's foster parent. Similarly, another mother described, *"The lady who drives me in the morning [to MOUD clinic] has kind of become my mom now basically… I can talk to her about anything."* (Mother, Participant 2)

Professionals acknowledged that mothers may not trust them, but also indicated that professional recovery support specialists may help with building trust. Professionals also expressed concerns that a lack of these informal relationships may adversely impact recovery, especially postpartum. One professional stated, "*If they don't have support systems around them, normally they'll unfortunately, run into potentially other users … who are actively using and pressure them to use also.*"(Professional [DCS], Participant 30)

3.4. The institutional/systems level

3.4.1. Culture of the healthcare system

Mothers noted a lack of trust within the healthcare system. Mothers felt that professionals made assumptions regarding their substance use and/or involvement with legal systems, impacting their treatment. One mother specifically reflected on feeling judged by professionals, saying: *"There was a lot of judgment and stuff about me holding her if I started to fall asleep, which I understand cause I was on drugs. But it sucks being told you can't breastfeed and you can't do this and you walk out of the room with your baby to go get a drink and like security starts running around thinking you stole your baby." (*Mother, Participant 2). Additionally, mothers noted a culture shift over time. This was from a past interaction with the healthcare system, to their present experience, saying: *"... in the four years since I have had my daughter, the way that [the community] has grown and the stigma has become a lot less against the moms …. I think it has been really great seeing how far it has come." (*Mother, Participant 2). While their experiences have improved, there is still room for improvement; with one mother saying: *"[Healthcare professionals should] definitely have more training about methadone. Because to me…they shouldn't treat anybody the way they treated me, whether I was actively using or not. But they didn't bother to even find out that I wasn't they just immediately walked in the room and because I was on methadone, they were treating me as if I was putting a needle in my arm and not caring about my baby..." (*Mother, Participant 12)

3.4.2. Ill-equipped healthcare system

Like mothers, professionals noted the systems culture issue and suggested better communication and coordination across specialties, programs, and services. They state the need for more training about the perinatal recovery process (e.g., clinical treatment recommendations,

expected length of MOUD, expected dosage changes). Alternatively, mothers noted issues regarding healthcare providers' lack of understanding about MOUD. Mothers report getting mixed messages from healthcare providers. For example, one mother said: *"...once I was sent to the NICU, I was no longer a patient so I had to figure out how to do [MOUD] on my own. It would have been a little easier if they could have kept me as a patient when my son was in the NICU because I had to leave every morning to go dose. And do all that on my own because he was now the patient, I wasn't...." (*Mother, Participant 12)

3.4.3. Social determinates of health

Mothers described specific life stressors (e.g., managing finding a job, childcare, custody, housing, transportation). Professionals reported a need to address these (e.g., housing) barriers, while also promoting postpartum recovery. One professional shared that if they had a magic wand, they would: "*… have more residential-transitional [housing], like that type of stable environment… I think when there's that lack of stability and then everything else, just so many stressors in their life, it's not uncommon to relapse.*" (Professional [Social Worker], Participant 25)

3.4.4. Continuum of care

Professionals discussed the need for services providing a continuum of care for mothers, covering both recovery support and parenthood. Participants described the potential benefit of involving a dedicated peer support specialist (i.e., someone who has been in recovery during new motherhood) early in pregnancy. One professional described the ideal peer support specialist as*".... Somebody that's been through it… Because it's hard for [mothers in recovery] to trust professionals a lot of times. And so, I know we have recovery support specialists that have been through recovery… Someone that's been pregnant when they were using… And they're just afraid that- but if someone was there that's been through it and take their hand, say, "You know what? I'm going to help you."* (Professional [DCS], Participant 31). Similarly, the benefits and challenges of early connection were mentioned: *"One of the programs I like is the Nurse-Family Partnership. But you have to be in before 29 weeks, and it has to be your first pregnancy. And we often don't catch women that early. Many of them are coming to care pretty late, for a number of reasons. But I do feel like Nurse-Family Partnership is really good. It follows them long-term and they make that connection and they seem to do well."* (Professional [Nurse], Participant 22)

3.5. Cross-Cutting theme: keeping mother and baby together

One theme, keeping mother and baby together, arose at all three levels from both groups. Participants described how keeping mother and baby together is advantageous to the mother's recovery and for infants. One professional stated, *"I have worked caring for infants with neonatal abstinence syndrome ever since I was in the NICU. And, I have become really involved with understanding substance use disorder and addiction, and trying to create a program that is non-judgmental and really works to keep the mother and the baby together because we believe that the mother really is the best treatment for the baby."* (Professional [Nurse], Participant 22)

Barriers were also noted. A professional described agencies' guidelines for parents who want to bring children with them to treatment, noting that the inclusion of children is driven by the ability to comply with agency rules, stating "*There are a few agencies that will allow them to be with their children. But they have to demonstrate that they can start working the program and just not revert back to using again…*" (Professional [DCS], Participant 29)

4. Discussion

We sought to identify possible components of an adjunctive MOUD treatment program to reduce the risk of postpartum return to opioid misuse. In interviews with mothers and professionals, ten themes identified were fitted within the eco-social framework at three levels: (a) individual level included addressing mental health needs, mother's personal responsibility, and individual agency, (b) the inter-individual level included support from friends and family, and other sources of support, (c) the institutional/systems level included the culture of healthcare systems, an ill-equipped healthcare system, social determinates of health, and continuum of care, and (d) across all levels was the goal of keeping the mother and baby together. These observations provide insights into how we may better support postpartum mothers in recovery from OUD.

Across all three levels, both professionals and mothers described the importance of keeping mother and baby together. Indeed, fear of separation is a primary reason mothers do not seek MOUD and prenatal healthcare (Leiner et al., 2021; Martin et al., 2022; Proulx and Fantasia, 2021). Prior work indicates that mothers would benefit from continued interaction with baby by developing a bond and strengthening attachment (Martin et al., 2022; Rankin et al., 2022). Our results also offer new insights into why keeping the mother and baby together maybe beneficial to the infant, with one professional noting that it is advantageous in NAS/NOWS treatment; indicating that nurturing and supporting the mother-infant relationship will be advantageous to both (Bigelow and Power, 2020; Bigelow and Williams, 2020; Sanders et al., 2022). Future research should explore how to keep mothers and infants together safely in an effort to increase MOUD adherence.

At the individual level, mothers in our study shared their feelings of overwhelm, whereas the professionals spoke of postpartum depression and its adverse impact on treatment and recovery. Elsewhere parents have noted adverse impact of mood on recovery, parenting, and other postpartum health conditions (Martin et al., 2022; Proulx and Fantasia, 2021). We also heard from mothers that they felt overwhelmed by their growing list of responsibilities and limited individual agency in parenting and treatment options. Collectively, these observations may indicate an opportunity to offer further postpartum mental health support as an adjunctive to MOUD. Specifically, the clinical guidelines for treating OUD during the perinatal period call for shared decision-making (Opioid Use and Opioid Use Disorder in Pregnancy | ACOG, 2021). Schiff et al. (2022) have furthered this recommendation by advocating four topics be discussed within the context of perinatal MOUD treatment: (1) maternal/infant health risk of perinatal opioid use, (2) risks and benefits of perinatal MOUD, (3) expected dosing changes of perinatal MOUD, and (4) child protective services. We recommend further expansion of this list to include mental health. Proactively educating pregnant people with OUD about the possible implications of and changes in their mental health, as well as providing them with resources and referrals to seek additional care, may reduce the impact of adverse mental health issues on recovery, parenting, and overall health. Indeed, prior qualitative work suggests that healthcare providers are effective at alleviating fears held by people with OUD in the perinatal period (Leiner et al., 2021).

Social support was a prominent theme at the inter-individual level. While the mothers found support through unexpected people (e.g., foster parent, driver), our participants also spoke of the challenges that can come with support (or lack thereof) from family and friends due to the existing context of those relationships (e.g., a lack of trust due to their history of use, friends who may continue to use). These results concur with prior work (Goodman et al., 2020; Martin et al., 2022). The professionals in our study also commented on the benefit of incorporating peers into perinatal treatment. Inclusion of peers can enhance patients' confidence, sense of accountability, effectively address mood issues, and improve recovery outcomes (Goodman et al., 2020; Martin et al., 2022). While professionals in our study suggested the need to outsource support for mothers with OUD, professionals interviewed elsewhere (Martin et al., 2022) expressed confidence that healthcare providers can deliver support to mothers with OUD. The difference in these observations may be driven by the differences in study samples given we included caseworkers from DCS whereas others focused solely on health professionals. Future research should examine how expansion

of social support may strengthen postpartum recovery.

Finally, the most challenging aspect of the current landscape of perinatal OUD is at the intuitional/systems level. While the mothers noted improvement over time, there is still significant stigma and judgement occurring. They voiced that this as a reason to forego perinatal-related healthcare here and elsewhere (Burgess et al., 2021; Martin et al., 2022). Additional challenges stem from a disjointed healthcare system in which mothers need to obtain their MOUD treatment (e.g., from an outpatient clinic) but are also expected to stay with their hospitalized infant (Schiff et al., 2022). This is amplified by social determinants of health (e.g., lack of transportation, childcare) further impeding successful adherence to MOUD treatment (Goodman et al., 2020; Howard, 2016; Roberts and Pies, 2011). Overall, with a better integrated healthcare system and sufficient wrap around services, maintaining OUD recovery while parenting a potentially high-needs infant would be more successful. Unfortunately, there is currently a dearth of these services (Meinhofer et al., 2020; Proulx and Fantasia, 2021).

This qualitative study included two critical and differing perspectives (i.e., mothers with OUD and professionals who work with them) with strong methodological approaches (e.g., dual coding); however, limitations are present. While we reached data saturation, we did have a relatively small and homogenous convenience sample. Our recruitment was adversely impacted by the beginning of the COVID-19 pandemic. Additionally, several mothers we interviewed received relatively high levels of support from outpatient treatment providing care for mothers and substance exposed infants. We suspect selection bias may be altering our results to indicate there is more support than in reality. Moreover, we recruited our sample from a single state in the Southwestern U.S. which may reflect different lived experiences elsewhere and reduce generalizability. Despite these limitations, our results may be used to launch additional research efforts to identify evidence-based ways to reduce the risk for postpartum return to opioid misuse.

The themes of this qualitative study indicate that opportunities for expanding support for mothers with OUD during the postpartum period exist. Additional research is needed to determine the acceptability, feasibility, and efficacy of these approaches to promote postpartum recovery.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Funding

This project was funded by the University of Arizona's Research, Discovery & Innovation Internal Funding Program *via* a Faculty Seed Grant. Additional support was provided by National Institutes of Health's Eunice Kennedy Shriver National Institute of Child Health & Human Development (DP2HD105541) and National Center for Advancing Translational Sciences (UL1TR000445).

Author agreement

All authors have seen and approved the final version of this manuscript. This manuscript is not being considered elsewhere for publication and has not already been published.

CRediT authorship contribution statement

Alicia Allen: Conceptualization, Writing – original draft, Funding acquisition, Visualization. **Yvonne Bueno:** Formal analysis, Supervision, Data curation, Writing – review & editing, Resources, Validation. **Stephanie Mallahan:** Formal analysis, Supervision, Data curation, Writing – review & editing, Resources, Validation. **Allison Huff MacPherson:** Conceptualization, Methodology, Visualization, Writing – review & editing. **Julie Armin:** Methodology, Visualization, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors have no competing interests.

Acknowledgments

We extend our thanks to Dr. Susan Hadley, Joy Subrin, and Cholpon Rosengren for their input during the development of our interview questions, to Ciara Walden for her participation in the transcription and coding process, and to the participants in this research, who demonstrated a commitment to making lives better for themselves and others.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dadr.2023.100170.

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