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Supporting the implementation of written exposure therapy for posttraumatic stress disorder in an obstetrics-substance use disorder clinic in the Northeastern United States

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Abstract

Pregnant people with comorbid posttraumatic stress disorder (PTSD) and substance use disorder (SUD) constitute a highly vulnerable population. PTSD and SUD confer risks to both the pregnant person and the fetus, including a host of physical and mental health consequences. When PTSD and SUD co-occur, potential negative impacts are amplified, and the symptoms of each may exacerbate and maintain the other. Pregnancy often increases engagement in the healthcare system, presenting a unique and critical opportunity to provide PTSD and SUD treatment to birthing people motivated to mitigate risks of losing custody of their children. This paper presents implementation process outcomes of Written Exposure Therapy (WET), a brief, scalable, and sustainable evidence-based PTSD treatment delivered to pregnant persons receiving care in an integrated obstetrical-addiction recovery program at Boston Medical Center.

Trial participants (N = 18) were mostly White, non-Hispanic (61.1%), not currently working (77.8%), had a high school or lower level of education (55.5%), had an annual household income less than $35,000 (94.4%), and were living in a substance use residential program (55.6%). We examined intervention feasibility, acceptability, appropriateness, adoption; barriers and facilitators to implementation; and feedback on supporting uptake and sustainability of the intervention using coded qualitative sources (consultation field notes [N = 47] and semi-structured interviews [N = 5]) from providers involved in trial planning and treatment delivery. Results reflected high acceptability, appropriateness, and adoption of WET. Participants described system-, provider-, and patient-level barriers to implementation, offered suggestions to enhance uptake, but did not raise concerns about core components of the intervention. Findings suggest that WET is an appropriate and acceptable PTSD treatment for this difficult-to-reach, complex population, and has the potential to positively impact pregnant persons and their children.

Keywords

Pregnancy; Trauma; Posttraumatic stress disorder (PTSD); Perinatal; Implementation

1. Introduction

Posttraumatic stress disorder (PTSD) treatment needs are high during pregnancy, particularly in low-resource communities where pregnant people experience higher rates of trauma exposure (Roberts et al., 2011). Up to 30% of pregnant people receiving care in low-resource settings meet PTSD diagnostic criteria (Powers et al., 2020), compared to 3% in high-resource settings (Seng et al., 2009). PTSD during pregnancy is linked to negative outcomes including preterm birth, low infant birthweight, and postpartum depression (Muzik et al., 2016; Yonkers et al., 2014). Additionally, PTSD is a risk factor for engaging in high-risk behaviors, including using substances to cope with unresolved symptoms (Rheingold et al., 2004). As such, PTSD and substance use disorder (SUD) commonly co-occur. Almost half (46%) of individuals with SUD meet criteria for subthreshold or full PTSD (Pietrzak et al., 2011), with even higher rates (63%) in pregnant people (Thompson and Kingree, 1998). Importantly, the rate of substance use during pregnancy is increasing (Haight, 2018) and is associated with multiple negative health outcomes (Forray, 2016; Sanjuan et al., 2019). For persons with trauma histories, risk of return to substance use may be elevated during pregnancy due to additional stressors that exacerbate symptoms (Saia et al., 2016). Among individuals with comorbid SUD-PTSD, attempts to self-manage PTSD symptoms are a commonly reported reason for substance use (Flanagan et al., 2016). PTSD symptom reduction using exposure-based therapies has been shown to improve SUD outcomes (Flanagan et al., 2016). Thus, PTSD treatment implementation among pregnant people with comorbid PTSD-SUD presents a critical opportunity to interrupt the sequelae associated with untreated PTSD and promote positive pregnancy outcomes.

Engaging pregnant people with co-morbid PTSD-SUD in PTSD treatment is a major challenge. Birthing persons with SUD face many barriers to engaging in health care, including lack of health insurance, poor access to childcare, and competing psychosocial needs (Lester and Twomey, 2008; Rutman et al., 2020). Further, pregnant people with

SUD may avoid engaging in medical care due to fear of social and legal consequences, child welfare involvement, and criminalization associated with substance use (Saia et al., 2016; Lester and Twomey, 2008; Rutman et al., 2020; Stone, 2015). PTSD symptoms pose additional engagement challenges, such as avoidance of confronting the trauma memory (Sayer et al., 2009). Despite barriers, pregnancy is marked by increased utilization of the healthcare system, as birthing people are highly motivated to maintain custody of their child and may be more receptive to services (Frazer et al., 2019). Pregnancy presents an opportune window for intervention, and there is a need to test and optimize PTSD treatments during pregnancy.

Access to PTSD treatment is limited in usual prenatal and SUD care settings. Despite high prevalence, PTSD screening and treatment during pregnancy is not common practice, resulting in a lack of data on PTSD treatment in the perinatal period (Nillni et al., 2018). Similarly, despite the common co-occurrence of PTSD and SUD, PTSD treatment is often not prioritized within the context of SUD treatment (Gielen et al., 2014), and most individuals engaged in SUD treatment never receive PTSD treatment (Brown et al., 1998). Offering PTSD treatment within integrated behavioral health (IBH) settings may promote engagement and maximize uptake. IBH models in obstetrics are growing to meet the complex behavioral health needs of pregnant people by providing comprehensive social supports, prenatal services, mental health, and substance use care in the same setting. This approach has been shown to be effective in promoting patient engagement (Lester and Twomey, 2008), improving perinatal outcomes (Brown et al., 1998), and is highly acceptable to birthing people with SUD (Goodman, 2015). Thus, incorporating PTSD treatment within an IBH model in obstetrics is ideal.

Lack of access to PTSD treatment where pregnant people with SUD receive medical or behavioral health treatment necessitates novel delivery strategies to minimize existing barriers and implementation science research to inform uptake and sustainability in usual care. Qualitative research from provider perspectives is particularly important in offering nuanced insight on factors that affect implementation processes (Patton, 2014). The present study fills gaps in research of PTSD treatment during pregnancy as the first to test delivery of a brief, scalable, and sustainable evidence-based treatment (EBT) for PTSD among people with comorbid PTSD-SUD in an integrated obstetrical-addiction recovery program. We used a hybrid 1 effectiveness-implementation design to test intervention effectiveness while gathering data on implementation (Curran et al., 2012). Main clinical effectiveness findings of this pilot open trial (N = 18) are reported elsewhere (Nillni et al., 2023). In this manuscript, we present implementation process and outcome findings, guided by Proctor's Taxonomy of Outcomes (Proctor et al., 2011), primarily from qualitative analysis of provider interviews and supported by consultation field notes. We used provider perspectives to (1) report on feasibility, acceptability, appropriateness, adoption, and fidelity, (2) specify implementation determinants, and (3) gather feedback on how to support uptake and sustainability.

2. Methods

2.1. Setting

This study took place at Project Recovery, Empowerment, Social services, Prenatal care, Education, Community and Treatment (RESPECT), an integrated obstetrical-addiction recovery program at Boston Medical Center, the largest safety net hospital in New England. Project RESPECT serves approximately 211 patients annually and utilizes an IBH model to provide comprehensive obstetric and SUD treatment for pregnant people and their newborns from an interdisciplinary team of co-located clinicians. See Fig. 1 for a diagram of Project RESPECT's collaborative care model. The clinical team (N = 9) includes obstetric providers, a psychiatrist, nurse case managers, and clinical social workers, and patients have access to their entire care team during medical visits. Clinical social workers are responsible for case management, crisis response, and brief support; yet the provision of therapy was not central to their role during the pilot study.

Written Exposure Therapy (WET) is a five-session exposure-based PTSD intervention (Sloan and Marx, 2019) selected for the trial due to its demonstrated effectiveness and brevity compared to other evidence-based PTSD treatments (LoSavio et al., 2021; Sloan et al., 2022). WET includes treatment rationale, PTSD psychoeducation, and directed writing assignments each session where patients write in detail for 30 min about their traumatic experience followed by approximately 10 min checking in with a therapist on reactions to writing. Therapists collect and review writings between sessions and provide feedback on how well writing instructions were followed to guide the next writing assignment. Although WET does not include assignments between sessions, patients are encouraged to allow themselves to have thoughts and feelings related to the trauma (rather than avoid).

Trial participants (N = 18) were mostly White, non-Hispanic (61.1%), with Non-Hispanic Black (22.2%), Hispanic Black (5.6%), Hispanic White (5.6%), and Other (5.6%) ethnicities less represented. The majority of participants were not currently working (77.8%), had a high school or lower level of education (55.5%), an annual household income less than $35,000 (94.4%), and were living in a substance use residential program (55.6%). The sample was medically complex, with 50% experiencing an obstetrical medical condition such as hypertension. Main outcomes are reported elsewhere (Nillni et al., 2023).

2.2. Participants and procedures

Provider participants were hospital employees in Project RESPECT, including clinical leadership and behavioral health providers. Providers were first recruited via email to support trial planning, and clinical social workers were offered participation as study therapists. Participation was voluntary and none declined. Self-reported information on demographics, previous mental health training, and previous experience with PTSD treatment was collected. Participating providers did not have prior experience delivering PTSD or exposure-based treatments. Study therapists completed a 5-h pre-recorded training presented by the co-developer of WET and a 2-h in-person training led by two study authors (S.E.V., Y.I.N.), which focused on study procedures. Study therapists received ongoing weekly group consultation and individualized written feedback based on audio review

of sessions. Consultation included case presentation and troubleshooting implementation barriers, and field notes were collected from October 2019–June 2021 (total word count: 10,769) by the research assistant (RA) to capture real-time implementation barriers and responses. Study therapists completed a brief investigator-adapted three-item survey for each patient at the end of treatment to gauge the appropriateness, usefulness, and adoption of WET. Post-trial, providers completed a 30–45 min semi-structured interview conducted by two doctoral-level clinical psychologists (S.E. V., Y.I.N.). The interview guide (Table 1) was adapted from other trials implementing PTSD EBTs in the setting (Godfrey et al., 2023). Interviews were audio-recorded and transcribed verbatim. Identifiable information was removed from transcripts. Participants were remunerated $25. The study received an exempt determination from the Institutional Review Board.

2.3. Data analysis

We utilized a team-based approach (Patton, 2014) in developing the qualitative codebook for interview data. The coding team included two doctoral-level psychologists, one postdoctoral fellow, one doctoral student, and one bachelor's level RA, all of whom had previous experience in qualitative coding and analysis. Team psychologists and fellows had led content analysis of provider interviews on over 10 projects and provided direct training and supervision to junior team members, including a standardized training on qualitative methods (content analysis, rapid coding, and implementation-focused research questions) and frequent team meetings. Junior members of the team were coders in the analysis of similar data from another PTSD treatment implementation study conducted by the same principal investigator (PI) (Godfrey et al., 2023). A rapid coding procedure was first applied to consultation field notes to quickly capture core themes and identify evaluation foci of qualitative data (Neal et al., 2015). Two members of the coding team (the RA and a PI) reviewed consultation field notes and identified salient themes pertaining to implementation outcomes, which formed the preliminary codebook. Following directed content analysis (Hsieh and Shannon, 2005), the coding team met weekly to expand, refine, and finalize the codebook by applying codes to interview transcripts until no new codes emerged (see Table 2). All interview transcripts were coded collaboratively through live consensus coding (LoSavio et al., 2021) during weekly meetings using NVivo 12 software (QSR International).

3. Findings

Our evaluation of implementation process and outcomes was guided by Proctor's Taxonomy of Outcomes (Proctor et al., 2011), which outline indicators of implementation success. We used semi-structured interviews (N = 5) to assess provider perspectives of acceptability (satisfaction with various aspects of the intervention), adoption (uptake, ongoing intention to use), appropriateness (perceived fit of the intervention for patients), feasibility (sustainability for everyday use), and sustainability of the intervention (recommended modification to ensure sustainability in the practice), and consultation field notes (N = 47) to support findings. We present interview findings by theme with exemplar quotes in-text and a summary of recommendations for enhancing implementation in Table 3.

3.1.   Appropriateness

3.1.1.   Patient outcomes—Respondents described WET as highly appropriate for patient needs, evidenced by *"Not just reductions in their PTSD symptoms based on the scaling that we used, but more forward thinking, goal-oriented, safe choices that people are making that they may not have made prior to engagement in this treatment."* Respondents noted the profound impact of WET in supporting SUD recovery, and the potential long-term positive impact of offering WET to this population, stating *"It could be paramount in helping sustained recovery and remission from their substance use disorder. And also, I think what I've observed is it really just builds internal coping and increases distress tolerance. A lot of these women are already resilient, but [WET] helps them realize that. … it brings it forward – 'hey, yeah, I have survived a lot and I can move forward' so, I think the long-term impact is huge. And I would be worried if this is something that we stop doing."*

3.1.2.   Pregnancy window—Providers perceived pregnancy as an ideal window to implement WET. As one respondent described, *"This is such an opportune time to capture women in care. There's often high motivation, you know? I think that's why we try to capture women in substance use disorder treatment during pregnancy, but I think we really want to try to get women into treatment when they're motivated. And then if they [also] get PTSD treatment, then the goal is to minimize symptoms and substance use and really enable them to be present with their family."*

Another perceived benefit of offering WET during pregnancy was the potential for treatment to facilitate recovery prior to giving birth. One respondent stated, "*I thought it was really a good time to be using it. Especially trying to get in before they give birth, trying to get in earlier in the pregnancy to help them with the healing process of some of their past traumas."* However, WET may be a better fit for some patients after delivery: *"For some women I feel like prenatal made sense and they could do it, and then some women I feel like have a different stage of change postpartum and things drastically adjust and they'd be better candidates* [then] *… I wish we could do it for everyone."*

3.1.3.   Need to support patient engagement given complex needs—Notably, no respondents endorsed concerns about appropriateness of intervention components. Rather, challenges were attributed to complex needs and competing stressors (e.g., ongoing domestic violence; social needs [housing]), which interfered with the ability to fully engage in WET: *"The multiple stressors that are ongoing with our patients, it's just, their level of vulnerability is astounding. Even if we've tried to set forth some sort of stable ground for them, there is just a lot of assistance with resources. Sometimes these things are unpredictable and just … sitting with a patient while they lose housing, or the program kicks them out … the vulnerability level just keeps going up."*

Providers underscored that potential benefits of WET outweigh the risk of patients dropping out of care: *"One thing I've learned from this treatment too is not to really 'fragilize' the patients, and ultimately, regardless of the intervention, [dropping out of treatment] could happen for any reason and that's a choice that people can make … It's sad but, I think that the risk-benefit analysis of having it easier to access for people … outweighs the risk*

of patients maybe not returning." Supporting patient engagement should be a focus moving forward, more so than adapting intervention components.

3.1.4. Quantitative assessment of appropriateness—Therapists' ratings of appropriateness via self-report surveys supported qualitative interview findings. The extent to which WET was viewed as appropriate and the perceived usefulness of WET for the patient were high: M = 97.5 (SD = 7.0) and M = 81.8 (SD = 20.4) out of 100, respectively. This suggests that while WET was appropriate based on patient needs, it may not be useful for all patients due to challenges with engagement. For example, survey open-text boxes noted other stressors (e.g., custody loss, dissatisfaction with SUD residential treatment program) and in-session avoidance in accessing emotions as individual barriers to engagement/full benefit of WET.

3.2. Acceptability

Respondents expressed high satisfaction with WET and reflected on key treatment components. One respondent described emotion identification (labeling) and expression as a core component in promoting distress tolerance: *"I think just learning that your feelings and emotions and what happened to you is in the past and you can survive it right now … sitting with the intense emotions and learning that you will get back to a homeostatic place."* Similarly, one participant described how WET enabled patients to confront avoidance and process their trauma, explaining, *"I think their coping skills have been to avoid for a very long time and internalize, and I don't think that they've ever really been given the space to process some of this stuff."* Another respondent perceived the exposure component of WET as critical to helping patients regain a sense of control over the memory and their affective responses, describing *"This person had to go through that experience* [sexual assault] *by herself and there was such a loss of control, and then as she was narrating the experience I was able to sit with her … sort of re-experiencing with somebody you trust and regaining a sense of control that way."*

3.3. Adoption

Intent to continue using WET was high, with an average of 98.6 (SD = 5.3) out of 100 for the likelihood to use WET with future patients. One respondent described being *"Super excited to use it anywhere I go and everywhere I go now that I feel confident in using it,"* while also expressing the need for ongoing consultation to support providers: *"I think the consultation is really important. So, I feel like it would be hard to do it in isolation, at least right now. But I think that I'm super excited about it … I would want to continue doing it here."*

3.4. Feasibility: barriers/facilitators to implementation

3.4.1. Patient-level

Ongoing trauma.: Providers noted that ongoing violence interfered with patients' ability to focus on distal events. One respondent described the challenge of addressing the trauma when patients were still involved with the perpetrator: *"I think something I found both surprising and challenging was that for both of my patients their traumas were linked*

to a person … they were still very involved with." Another respondent described how contextual factors interfered with patients' ability to distance themselves from the trauma and implement change outside of session: "Unfortunately with my first patient she was legally tied [to her abuser] in a lot of ways too because he had custody of her children, which I think made it so much more difficult. And I know a lot of our … work was about those boundaries, and then also trying to navigate how she still sees her kids." Importantly, therapists still perceived WET to be suitable for 86% of patients who were experiencing ongoing violence during treatment.

Difficulty selecting index trauma event.: Patients reported lifetime exposure to M = 7 (SD = 1.8) types of potentially traumatic events. Respondents described how extensive trauma histories made it difficult for patients to identify a single index event, stating, "Women that have gone through this study have just such high levels of acuity and such complex trauma, and it's typically not just … one incident …. This is … lifelong trauma, starting … at [their own] birth." As clinically appropriate, index events often switched during the course of therapy, thereby extending the number of sessions: "… [treatment] can be [complicated] when we are working on a single incident and then the other traumas come up as well." Avoidance of shame-based trauma experiences also interfered with selecting the accurate index event. One respondent described, "With picking the index event … I know for [one particular] patient I was just talking about, who started and then didn't finish, there is totally a different index event that [should] have been picked. And I think especially in cases of incest, right? We know how high that is in our patient population and I think there's a lot of shame in putting words to that, and so, how can you help normalize the spectrum of what an index event could be [beyond] the checkbox screening tools. Because people might not be as authentic on those." There may need to be increased assessment of initial selection of the index event, particularly for shame-based traumas.

Motivational factors.: Avoidance of confronting the trauma memory was a barrier to engagement despite initial high motivation to complete WET. One provider described that patients were "Super excited in the beginning, and then I would talk to them maybe a day after their session and they'd be like 'I hate it, I'm never doing that again!' but a lot of that is just the treatment itself, right? It's the distressing feelings they've never sat with, so it was a lot of psychoeducation and just validation and reinforcing – 'this is what we're looking for.'" To minimize dropout, providers suggested repeated orientation to the rationale for exposure and trajectory of WET, including setting the expectation of initial heightened distress, and increased support for patients throughout treatment. Patients' conceptualization of PTSD as part of SUD recovery was cited as supporting engagement: "I heard one person say to me 'I know I have to do this, because if I don't do this … I'm never gonna get to the bottom of my substance use disorder.'" Increased psychoeducation around the link between PTSD and SUD may bolster motivation.

3.4.2. Provider-level

Misconceptions.: Respondents described initial misconceptions of trauma-focused treatments (e.g., may lead to relapse for patients with SUD), which were debunked through training and observed outcomes delivering WET: "I think when I first was reading about

it and watching those videos I was really skeptical because I don't have a background in exposure therapies. I had been concerned that it would be really triggering and lead to relapse, and we're finding that doesn't happen … The connection [between PTSD treatment and SUD relapse] isn't there …. If anything, it decreases the likelihood of relapse if the patient is engaged and motivated to continue [WET]." Provider perceptions about trauma-focused treatments may be a barrier to uptake of WET without addressing misperceptions through consultation.

Provider discomfort.: Some providers described challenges tolerating their own distress during WET, underscoring the need for ongoing support to minimize provider burnout and secondary traumatization. One provider noted the importance of bolstering both patient and provider distress tolerance during WET: *"I think a big part of it is developing comfort with the discomfort. Not just with patients, but with myself."*

3.4.3. System-level

Inter-system care coordination.: Respondents suggested that inconsistent messaging across the patient's extended interdisciplinary care team (RESPECT vs. outside providers) impacted engagement. Outside providers were reported to possibly discourage patients from engaging in PTSD treatment, perhaps due to misconceptions of harm. One respondent suggested *"the reason why we saw such high level of activation in a lot of the participants is that they've never really done this before, and the direction of every other treatment provider has been like, 'you need to not think about this right now.'"* Similarly, respondents stated that PTSD treatment is not prioritized in SUD treatment programs, which may encourage avoidance of trauma reminders (also substance use cues) rather than addressing them. *"First, they're always siloed … the mental health and the addiction piece, and I think that's a huge systemic problem in general, but when we think about the substance use piece, a lot of it is, 'what are your triggers? Let's talk about how to avoid them,' rather than 'let's talk about how to manage them.'"* Cohesive messaging and disseminating of information to outside providers is an important consideration in supporting patient engagement.

Delivery setting.: There were clear benefits to the integration of WET within obstetrics and scheduling therapy alongside prenatal visits. For some, *"It may have been easier for people who have to go into the hospital anyway for their prenatal care to just do it all in person while they're there and try to schedule it that way."* One potential con of this integrated model was that patients may be too exhausted to engage in intense therapy following lengthy prenatal visits: *"When the patients come in for an appointment, they're here for 5 h already, and sometimes the last thing they want to do is more meetings, and especially one that is going to be challenging."* Space and privacy constraints in the hospital setting were challenges. One provider expressed difficulty with using an obstetric exam room for therapy, explaining, "*I think the exam room is hard, and even the room I would use that was near the ultrasound had a giant window. People are walking by, people are talking in the hall. It's just pretty distracting,"* and described benefits in shifting to telehealth due to COVID-19: *"eliminating the barrier of having to come here [by offering telehealth] is great."* However, remote delivery introduced new barriers, including difficulty responding to in-session avoidance, obtaining writings, technology access and literacy challenges, and

preference for in-person visits. Although providers acknowledged that "*Some liked the Zoom. Some did,*" they also described that "*I think for the patients I got assigned, most were like, 'I feel like the Zoom is awkward' and they really wanted to come in person. And so having them have to sit with … the challenge of toggling space [for privacy] and … figuring all of that [out was] tricky.*" There seems to be advantages to offering a hybrid approach that works best for the individual patient.

Therapist burden.: Therapist burden is a major barrier to sustainability of WET in Project RESPECT. Due to the severity of competing social, medical, *and* behavioral needs, providers describe "*so much uncertainty with the volume of patients.*" Therapy provision is not central to the role of study therapists, and other urgent stressors may take precedence over WET sessions. One provider described how frequent WET sessions are not feasible in their current caseload, resulting in "*not seeing as many Project RESPECT patients, and I think that has to do with my availability to offer appointments more frequently. My capacity right now is once every 4 to 6 weeks, which is really not ideal for patients seeking therapy.*" Another provider suggested that therapist capacity challenges speak "*to the fact that our clinic really needs a higher drive of psychosocial support. But the medical providers outnumber the psychosocial providers and until we even out that balance it just makes it a little bit harder because psychosocially, when we do interventions, they take double the time of providers, and then the documentation is triple what providers write.*"

3.4.4. Sustainability—Respondents made several recommendations to address determinants of WET implementation, including bolstering support for providers, increasing collaboration of with external care teams to support patient engagement, and allowing for flexible frequency of delivery. No adaptations to intervention components were recommended. See Table 3 for a comprehensive list of recommendations with exemplar quotes.

4. Discussion

Pregnant people with comorbid PTSD-SUD are at high risk for adverse obstetric and mental health outcomes (Muzik et al., 2016; Yonkers et al., 2014), yet have historically been excluded from mental health treatment (Myers et al., 2015). Pregnancy presents a crucial opportunity to dually address PTSD and SUD, as pregnant people are more engaged with health care. There is little research on PTSD treatment embedded within obstetrics, and no studies we could find conducted in an obstetrics-SUD program. The purpose of this evaluation was to understand provider perceptions of using a brief PTSD treatment (WET) with pregnant people with comorbid SUD. We present key implementation outcomes and provide recommendations to promote sustainability and improve access and engagement among this high-risk population. Findings suggest high acceptability, appropriateness, and intended adoption of WET. Providers were highly satisfied with WET, observed reductions in PTSD symptoms and functional improvements, and were optimistic that participation in WET would promote long-term SUD recovery. Respondents affirmed that pregnancy was an ideal window to engage patients in treatment due to high motivation, especially when patients understood the link between PTSD and SUD recovery, and noted that the immediate postpartum period may also be suitable for some patients given risks for mental

health and relapse during this period. Although intent to continue using WET was high, respondents described system-, provider-, and patient-level barriers to implementation and offered suggestions to enhance uptake in the setting. Importantly, recommendations did not include revision of core components of the intervention, but, rather, ways to support delivery and patient engagement.

Most implementation barriers occurred at the system-level, as shown in Table 3. Lack of access to training and therapist capacity challenges have been cited as main barriers to EBT implementation (Foa et al., 2013). Prior to training in WET, many therapists were new to manualized and PTSD treatments, yet high provider satisfaction and adoption highlighted that clinicians in this setting were eager to provide EBTs. Thus, there is a need to prioritize access to trainings in EBTs, particularly in low-resource settings where training is less accessible (Sauer-Zavala et al., 2019). Capacity was particularly challenging in Project RESPECT, as therapy provision was not central to the role of therapists, and competing responsibilities interfered with their ability to deliver WET consistently. Respondents emphasized the need for protected time to deliver WET and additional behavioral health staffing to meet high patient behavioral health needs. This pilot study coincided with redefining the roles of embedded social workers, and one outcome of this partnership was sustaining integrated behavioral health services. The clinic has since increased the size of the integrated practice and clinicians have reported continued use of WET post-trial.

Patients simultaneously receiving care in external SUD programs faced additional engagement barriers. Some residential treatment programs imposed transportation and childcare restrictions and limited phone access/privacy, which interfered with patients' ability to attend in-person and telehealth sessions. One potential solution is to implement WET within SUD residential programs by disseminating training to providers in these settings. Future research is needed to identify the optimal setting to engage patients. Despite evidence that exposure-based therapy is safe, effective, and may promote long-term recovery among patients with comorbid SUD-PTSD (Flanagan et al., 2016), previous qualitative research among providers in SUD care settings has suggested that misconceptions around trauma-focused treatments are a main barrier for integration of PTSD treatment in SUD care (Gielen et al., 2014), which was consistent with our findings. External providers in SUD treatment settings actively discouraged patients from engaging in PTSD treatment due to the erroneous belief that confronting the trauma would promote cravings or relapse. Inconsistent messaging is particularly harmful in the context of PTSD treatment, as it promotes patient avoidance, maintaining PTSD symptoms and interfering with engagement. Dissemination efforts on education surrounding PTSD treatment, the mechanisms underlying WET specifically, and the link between PTSD-SUD are needed to bolster provider support for trauma-focused treatments in SUD treatment settings. Increased collaboration to ensure consistent messaging across patients' entire care teams would be paramount in promoting patient engagement.

Providers were eager to implement WET in Project RESPECT, and few provider-level barriers existed. Despite initial misconceptions about the harm of exposure-based treatments for SUD recovery, once providers began using WET these concerns were quickly assuaged. Managing personal discomfort and vicarious trauma that arose during the therapy process

was a challenge. Providers described consultation as a crucial space to process session content and receive additional support in WET delivery. Indeed, ongoing consultation has been identified as an effective implementation strategy in adoption, uptake, and sustainability of EBTs (Edmunds et al., 2013; Nadeem et al., 2013), and may prevent secondary traumatization and burnout.

Patient-level engagement barriers included competing hierarchical needs, ongoing trauma, and motivational challenges. New stressors (e. g., housing instability, child welfare involvement) would arise, taking precedence over engagement in therapy. Importantly, respondents affirmed that despite complex needs, and even in cases of ongoing trauma, WET was still an appropriate treatment for most patients. In addition to greater psychosocial needs, individuals in low-resource settings experience higher rates of trauma exposure (Hatch and Dohrenwend, 2007), which challenged treatment trajectory. Patients had difficulty identifying a single index trauma and switched during WET, which extended treatment. Manualized treatments may require flexibility in the number and frequency of sessions to accommodate these challenges. Consistent with literature on PTSD treatment engagement across all populations (Sayer et al., 2009; Forbes et al., 2019), and WET specifically (Andrews et al., 2022), combating avoidance was a challenge. Difficulty tolerating distress when confronting trauma is a significant contributor to dropout, particularly in exposure-based interventions (Najavits, 2015). Incorporating WET within Project RESPECT and scheduling sessions alongside prenatal visits was described as effective in bolstering engagement and minimizing avoidance. Respondents highlighted how patients were highly motivated by their desire to maintain custody of their children and more willing to engage in WET despite initial distress. Incentives (e.g., certificates of completion) were also useful as indicators of progress that patients could present in cases of child welfare involvement. Taken together, findings suggest that pregnancy may be an ideal opportunity to minimize patient-level barriers and provide PTSD treatment to an otherwise difficult-to-engage population.

While the trial was designed to implement WET alongside in-person prenatal visits to maximize patient engagement, the COVID-19 pandemic shifted all visits to telemedicine, yielding additional barriers and facilitators. Remote delivery of WET introduced challenges in responding to in-session avoidance and obtaining writings, and research suggests that the shift to telemedicine may exacerbate disparities due to technology access and literacy challenges in low-resource communities (Ortega et al., 2020). Ultimately, respondents supported hybrid delivery of WET. For patients who were already in clinic for prenatal care, in-person sessions were effective in promoting engagement, while for others, remote improved accessibility by removing transportation and childcare barriers.

4.1. Limitations

This study may be limited in its generalizability to other obstetrics settings. This exploratory, single-site, hybrid 1 open pilot reflects input from five providers. Replication of these findings in a larger sample and a less integrated care setting will lend additional support to the conclusions drawn from this study.

Project RESPECT provides specialized obstetrics care to pregnant persons with SUD—and is one of few such specialty clinics in Massachusetts. This clinic employs embedded clinical social workers to address behavioral health needs of patients—thus, there was an existing workforce to deliver WET. We positioned our selected intervention in this context, and exclusively focused on PTSD symptom targets. Further research is needed to understand the feasibility, acceptability, and implementation strategies for providing WET in a more typical obstetrics setting, or within SUD programming focused on pregnant people. That said, we believe that our success in implementing WET in this integrated care practice, with a highly complex patient population, signals that WET may be feasible in settings where pregnant people access medical or behavioral health treatment. Implementation of WET in a non-integrated obstetrics setting may have additional challenges with therapy provision— as there may not be a clinical team member with skills to dually address obstetrics and behavioral health concerns. Our study clinicians were highly skilled, competent therapists, although their job roles did not accommodate therapy visits.

The level of consultation provided to therapists was higher than would be feasible in typical settings. At least one PI reviewed every audio-recorded therapy session and provided written and verbal feedback in weekly consultation meetings. Therapists expressed high satisfaction with this level of support, but voiced concerns about scale-up and sustainability. Future research should focus on more sustainable training and consultation approaches to supporting fidelity, and preventing drift or drop in voltage that can happen in usual care post-training. Project RESPECT has a strong record of hiring exceptionally qualified clinical social workers, which should be considered in determining the resources necessary to support fidelity.

Our study may be subject to biases that may have occurred during qualitative interviewing and analysis. The interview guide did not contextualize WET within the larger context of clinic demands, services, and priorities, which may have resulted in providers' overstating the importance of WET within their array of services. We attempted to reduce biases in analysis through consensus coding, however, data were coded by three women psychologists with expertise in trauma-specific therapies, and two women RAs receiving mentorship from study PIs. Familiarity with the psychological training and EBTs for PTSD may have influenced how interview data were coded (e.g., PIs may have been more attuned to provider training gaps).

Finally, this study focuses on the perceptions of behavioral health providers in Project RESPECT and does not include programmatic or system stakeholders whose perspective may be essential when considering uptake, sustainability, and future scale of WET in obstetrics. Patient perspectives are also not reported here, yet are published elsewhere (Nillni et al., 2023). Future implementation studies ought to aim for a wider, more diverse set of stakeholders, including in the broader OB practice, across the hospital, and community-based SUD programs. Policy stakeholders may also be key in addressing implementation challenges related to inter-system care coordination, yet were not included in the current study.

5. Conclusion

Although pregnant people with PTSD and SUD face numerous barriers to treatment, based on these preliminary findings, WET appears to be an acceptable and appropriate intervention for this population, offering hope that these complex and comorbid problems can be simultaneously addressed in the context of routine obstetrics care. PTSD treatment during the prenatal period may lead to positive clinical and psychosocial outcomes for pregnant people and their children. While respondents described barriers to implementation, they were optimistic about the potential for uptake and sustained use of WET. Scaling up delivery of WET has the potential to improve the lives of high-risk pregnant people with PTSD and SUD.

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References

Andrews AR, Acosta LM, Acosta Canchila MN, et al. , 2022. Perceived barriers and preliminary PTSD outcomes in an open pilot trial of written exposure therapy with latinx immigrants. Cognit. Behav. Pract. 29 (3), 648–665. 10.1016/j.cbpra.2021.05.004. [PubMed: 36171805]

Brown PJ, Stout RL, Gannon-Rowley J, 1998. Substance use disorder-PTSD comorbidity. Patients' perceptions of symptom interplay and treatment issues. J. Subst. Abuse Treat. 15 (5), 445–448. 10.1016/s0740-5472(97)00286-9. [PubMed: 9751003]

Curran GM, Bauer M, Mittman B, Pyne JM, Stetler C, 2012. Effectiveness-implementation hybrid designs. Med. Care 50 (3), 217–226. 10.1097/MLR.0b013e3182408812.. [PubMed: 22310560]

Edmunds JM, Beidas RS, Kendall PC, 2013. Dissemination and implementation of evidence–based practices: training and consultation as implementation strategies. Clin. Psychol. Sci. Pract. 20, 152–165. 10.1111/cpsp.12031.

Flanagan JC, Korte KJ, Killeen TK, Back SE, 2016. Concurrent treatment of substance use and PTSD. Curr. Psychiatr. Rep. 18 (8), 70. 10.1007/s11920-016-0709-y.

Foa EB, Gillihan SJ, Bryant RA, 2013. Challenges and successes in dissemination of evidence-based treatments for posttraumatic stress: lessons learned from prolonged exposure therapy for PTSD. Psychol. Sci. Publ. Interest J. Am. Psychol. Soc. 14 (2), 65–111. 10.1177/1529100612468841.

Forbes D, Pedlar D, Adler AB, et al. , 2019. Treatment of military-related posttraumatic stress disorder: challenges, innovations, and the way forward. Int. Rev. Psychiatr. 31 (1), 95–110. 10.1080/09540261.2019.1595545.

Forray A, 2016. Substance use during pregnancy. F1000 Res. 5 10.12688/f1000research.7645.1. F1000 Faculty Rev-887.

Frazer Z, McConnell K, Jansson LM, 2019. Treatment for substance use disorders in pregnant women: motivators and barriers. Drug Alcohol Depend. 205, 107652 10.1016/j.drugalcdep.2019.107652. [PubMed: 31704383]

Gielen N, Krumeich A, Havermans RC, Smeets F, Jansen A, 2014. Why clinicians do not implement integrated treatment for comorbid substance use disorder and posttraumatic stress disorder: a qualitative study. Eur. J. Psychotraumatol. 5 (1), 22821 10.3402/ejpt.v5.22821.

Godfrey LB, Cloitre M, Elwy AR, Fortuna LR, Fuchs C, Valentine SE. Study protocol for a hybrid 1 effectiveness-implementation trial of Brief Skills Training in Affective and Interpersonal Regulation (Brief STAIR) and web-administered STAIR (webSTAIR) for posttraumatic stress disorder in integrated primary care. Contemp. Clin. Trials. Published online May 25, 2023:107241. doi:10.1016/j.cct.2023.107241..

Author Manuscript   Author Manuscript   Author Manuscript   Author Manuscript

Goodman D, 2015. Improving access to maternity care for women with opioid use disorders: colocation of midwifery services at an addiction treatment program. J. Midwifery Wom. Health 60 (6), 706–712. 10.1111/jmwh.12340.

Haight SC, 2018. Opioid use disorder documented at delivery hospitalization — United States, 1999–2014. MMWR Morb. Mortal. Wkly. Rep. 67 10.15585/mmwr.mm6731a1.

Hatch SL, Dohrenwend BP, 2007. Distribution of traumatic and other stressful life events by race/ethnicity, gender, SES and age: a review of the research. Am. J. Community Psychol. 40 (3–4), 313–332. 10.1007/s10464-007-9134-z. [PubMed: 17906927]

Hsieh HF, Shannon SE, 2005. Three approaches to qualitative content analysis. Qual. Health Res. 15 (9), 1277–1288. 10.1177/1049732305276687. [PubMed: 16204405]

Lester BM, Twomey JE, 2008. Treatment of substance abuse during pregnancy. Women's Health 4 (1), 67–77. 10.2217/17455057.4.1.67.

LoSavio ST, Worley CB, Aajmain ST, Rosen CS, Wiltsey Stirman S, Sloan DM. Effectiveness of written exposure therapy for posttraumatic stress disorder in the Department of Veterans Affairs Healthcare System. Psychol Trauma Theory Res Pract Policy. Published online 2021:No Pagination Specified-No Pagination Specified. doi:10.1037/tra0001148.

Muzik M, McGinnis EW, Bocknek E, et al. , 2016. Ptsd symptoms across pregnancy and early postpartum among women with lifetime ptsd diagnosis. Depress. Anxiety 33 (7), 584–591. 10.1002/da.22465. [PubMed: 26740305]

Myers US, Browne KC, Norman SB, 2015. Treatment engagement: female survivors of intimate partner violence in treatment for PTSD and alcohol use disorder. J. Dual Diagn. 11, 238–247. 10.1080/15504263.2015.1113762. [PubMed: 26515712]

Nadeem E, Gleacher A, Beidas RS, 2013. Consultation as an implementation strategy for evidence-based practices across multiple contexts: unpacking the Black box. Adm. Pol. Ment. Health Serv. Res. 40 (6), 439–450. 10.1007/s10488-013-0502-8.

Najavits LM, 2015. The problem of dropout from "gold standard" PTSD therapies. F1000 Prime Rep. 7, 43. 10.12703/P7-43.

Neal JW, Neal ZP, VanDyke E, Kornbluh M, 2015. Expediting the analysis of qualitative data in evaluation: a procedure for the rapid identification of themes from audio recordings (RITA). Am. J. Eval. 36 (1), 118–132. 10.1177/1098214014536601..

Nillni YI, Baul TD, Paul E, Godfrey LB, Sloan DM, Valentine SE, 2023. Written exposure therapy for treatment of perinatal PTSD among women with comorbid PTSD and SUD: a pilot study examining feasibility, acceptability, and preliminary effectiveness. Gen. Hosp. Psychiatr. 83, 66–74. 10.1016/j.genhosppsych.2023.04.013.

Nillni YI, Mehralizade A, Mayer L, Milanovic S, 2018. Treatment of depression, anxiety, and trauma-related disorders during the perinatal period: a systematic review. Clin. Psychol. Rev. 66, 136–148. 10.1016/j.cpr.2018.06.004. [PubMed: 29935979]

Ortega G, Rodriguez JA, Maurer LR, et al. , 2020. Telemedicine, COVID-19, and disparities: policy implications. Health Pol. Technol. 9 (3), 368–371. 10.1016/j.hlpt.2020.08.001.

Patton MQ, 2014. Qualitative Research & Evaluation Methods: Integrating Theory and Practice. SAGE Publications.

Pietrzak RH, Goldstein RB, Southwick SM, Grant BF, 2011. Prevalence and Axis I comorbidity of full and partial posttraumatic stress disorder in the United States: results from wave 2 of the national epidemiologic survey on alcohol and related conditions. J. Anxiety Disord. 25 (3), 456–465. 10.1016/j.janxdis.2010.11.010. [PubMed: 21168991]

Powers A, Woods-Jaeger B, Stevens JS, et al. , 2020. Trauma, psychiatric disorders, and treatment history among pregnant African American women. Psychol. Trauma Theory Res. Pract. Pol. 12 (2), 138–146. 10.1037/tra0000507.

Proctor E, Silmere H, Raghavan R, et al. , 2011. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm. Pol. Ment. Health 38 (2), 65–76. 10.1007/s10488-010-0319-7.

Rheingold AA, Acierno R, Resnick HS, 2004. Trauma, posttraumatic stress disorder, and health risk behaviors. In: Trauma and Health: Physical Health Consequences of Exposure to Extreme Stress. American Psychological Association, pp. 217–243. 10.1037/10723-009.

Roberts AL, Gilman SE, Breslau J, Breslau N, Koenen KC, 2011. Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. Psychol. Med. 41 (1), 71–83. 10.1017/S0033291710000401. [PubMed: 20346193]

Rutman D, Hubberstey C, Poole N, Schmidt RA, Van Bibber M, 2020. Multi-service prevention programs for pregnant and parenting women with substance use and multiple vulnerabilities: program structure and clients' perspectives on wraparound programming. BMC Pregnancy Childbirth 20 (1), 441. 10.1186/s12884-020-03109-1. [PubMed: 32746789]

Saia KA, Schiff D, Wachman EM, et al. , 2016. Caring for pregnant women with opioid use disorder in the USA: expanding and improving treatment. Curr. Obstet. Gynecol. Reprod. 5, 257–263. 10.1007/s13669-016-0168-9.

Sanjuan PM, Pearson MR, Poremba C, Amaro H, Leeman L, 2019. An ecological momentary assessment study examining posttraumatic stress disorder symptoms, prenatal bonding, and substance use among pregnant women. Drug Alcohol Depend. 195, 33–39. 10.1016/j.drugalcdep.2018.11.019. [PubMed: 30572290]

Sauer-Zavala S, Ametaj AA, Wilner JG, et al. , 2019. Evaluating transdiagnostic, evidence-based mental health care in a safety-net setting serving homeless individuals. Psychotherapy 56 (1), 100–114. 10.1037/pst0000187. [PubMed: 30475054]

Sayer NA, Friedemann-Sanchez G, Spoont M, et al. , 2009. A qualitative study of determinants of PTSD treatment initiation in veterans. Psychiatry 72 (3), 238–255. 10.1521/psyc.2009.72.3.238. [PubMed: 19821647]

Seng JS, Low LMK, Sperlich M, Ronis DL, Liberzon I, 2009. Prevalence, trauma history, and risk for posttraumatic stress disorder among nulliparous women in maternity care. Obstet. Gynecol. 114 (4), 839–847. 10.1097/AOG.0b013e3181b8f8a2. [PubMed: 19888043]

Sloan DM, Marx BP, 2019. Written Exposure Therapy for PTSD : a Brief Treatment Approach for Mental Health Professionals. Available from: https://www.apa.org/pubs/books/4317524.

Sloan DM, Marx BP, Resick PA, et al. , 2022. Effect of written exposure therapy vs cognitive processing therapy on increasing treatment efficiency among military service members with posttraumatic stress disorder: a randomized noninferiority trial. JAMA Netw. Open 5 (1), e2140911. 10.1001/jamanetworkopen.2021.40911. [PubMed: 35015065]

Stone R, 2015. Pregnant women and substance use: fear, stigma, and barriers to care. Health Justice 3 (1), 2. 10.1186/s40352-015-0015-5.

Thompson MP, Kingree JB, 1998. The frequency and impact of violent trauma among pregnant substance abusers. Addict. Behav. 23 (2), 257–262. 10.1016/s0306-4603(97)00032-4. [PubMed: 9573429]

Yonkers KA, Smith MV, Forray A, et al. , 2014. Pregnant women with posttraumatic stress disorder and risk of preterm birth. JAMA Psychiatr. 71 (8), 897–904. 10.1001/jamapsychiatry.2014.558.
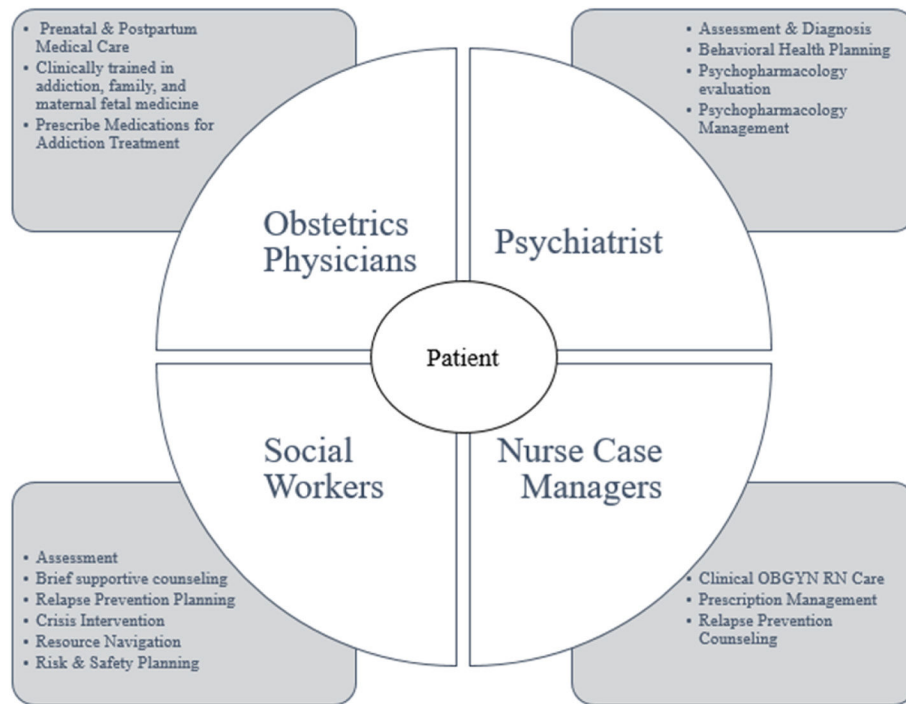
Fig. 1.
Project RESPECT collaborative care model.

Table 1

Interview guide.

Please tell me how you have been involved in the WET treatment and/or its evaluation.

What do you think of WET and its use in Project RESPECT?

What were the best/worst things about using WET?

What did you find surprising unexpected, or challenging when implementing or evaluating WET? How did you address it?

How feasible was it for patients to participate in WET?

In what ways did the treatment fit or not fit the needs of Project RESPECT Patients?

How satisfied do you think patients have been with WET?

Overall, what impact do you think providing this type of treatment has had on the clinic?

How can we make WET more effective at reducing symptoms and improving functioning?

How can we make WET more useable and sustainable in the clinic?

What do you think about treating PTSD within an obstetrics clinic?

How likely are you to want to continue to participate in efforts to provide PTSD treatment in Project RESPECT? What would make you more/less likely to participate?

Is there anything else that we should know about what it was like to deliver this treatment in Project RESPECT?

WET, written exposure therapy; PTSD, posttraumatic stress disorder.

Table 2

Overview of coding scheme.

Appropriateness

Perceived fit for patients' needs

PTSD symptom reduction

Functional improvement

Patient complexity (poor fit)

Patient

Therapy Process

Difficulty selecting an index trauma/switching during WET

Recent trauma (ongoing violence/risk) interferes with accessing distal events

Initial selection of Non-Criterion A (grief, custody loss)

Unable to label emotions

Written exposure fails to activate patient distress

Misconceptions of WET

Concerns that exposure therapy will be harmful to baby

Concerns that exposure therapy will lead to substance use relapse

Engagement barriers/facilitators

Transportation

Childcare

Motivational Factors

Provider

Acceptability (satisfaction)

Adoption (future plan to continue use)

Provider discomfort with exposure-based methods

Perception of treatment mechanism

Therapy Process

Evaluation of loss experiences for Criterion A

Application of exposure for shame-based (v. fear-based) traumas

Training Gaps

Prior experience with manualized treatments [style]

Maintaining directive style

Adherence to session length/number of sessions

Prior experience with treating PTSD [content]

Additional evidence-based techniques (e.g., Socratic questioning)

Additional metaphors for treatment rationale and concepts

Misconceptions of WET

Concerns that exposure therapy may lead to substance use relapse

System

Care coordination and communication

Outside providers may actively discourage engagement

Education to other providers on the care team

	Residential programs and shelters pose challenges to engagement
	Historically poor access to PTSD treatment; women get siloed into SUD treatment
Covid-19-related challenges	
Therapist burden, capacity, and turnover	
	Therapy provision is not central to job roles/responsibilities
	Time
Obstetrics Context	

PTSD, posttraumatic stress disorder; SUD, substance use disorder; WET, written exposure therapy.

Table 3

Recommendations for enhancing WET and improving sustainability.

Level	Problem	Recommendation	Exemplar Quote
Patient	Difficulty selecting index event; switching during WET	Additional sessions to account for switching events and ensure habituation Engage patient in conversation and aim to link event to most prominent PTSD symptoms (selecting "worst")	"Maybe leaving more of the wiggle room for 5 [sessions]. Maybe more sessions too just to think about trying to get that Criterion A event down. Picking the right one can take a session, or two, or maybe even three. So ... kind of making the time frame looser I think would be beneficial."
	Motivational challenges	Use of MI to support engagement Enhance collaboration across care team to ensure consistent positive messaging and treatment support Use psychoeducational materials to enhance PTSD literacy (e.g., address beliefs about nonrecovery, treatment expectations) Incentives to engage (e.g., certificate of completion)	"I wish all of our patients could have the opportunity to engage in WET therapy or that we could do the motivational interviewing to get all of our patients to engage." "I think obviously if our only coping skill is avoiding I think there's gotta be, yeah, just some sort of middle. But I think if the patient is sort of enveloped in care, um, with providers who sort of get that, then I think that it increases their chance of staying in [the therapy]." "I feel like PTSD treatment in theory could be a motivation, but I think once you start doing it that could be more challenging. So it's ... I think that's also kind of the benefit of really keeping things integrated. Because, you know, things like ultrasounds are often very reinforcing, and medications, and showing up." "I think they have the knowledge of PTSD as like a concept that like people just throw out there, right, like the words 'PTSD.' But I don't think many of the women had insight into how trauma can impact like, neurobiology, and how trauma can impact their mental health beyond just the depression, anxiety. And so I think that deeper understanding of PTSD ... they had the word, but not really what that meant for them." "I find our women respond pretty well to psychoeducation, so I think some sort of visual aid or psychoeducation piece when we're trying to enroll them in the therapy versus just the telephone call. I found when [the RA] came to the clinic to meet the patients it was a little bit more successful. But I also think like, beefing up some sort of visual psychoeducation piece to get buy-in." "Even if we're not doing specific gift cards for them but like, 'okay if you complete this you'll get a pack of diapers.' Something to incentivize them to come in might be helpful. It's also like a form of contingency management, which we know works for substance use." "I do think that offering a certificate of completion would be another incentive to continue to do it. Because the biggest –the first two questions t always get asked are 'is my baby going to be safe?' and 'is DCF going to take my kid?' So I think that having a certification of completion and a latter explaining that we will give it to you and if you lose it we'll give you another one would be really helpful. Because, you know, it's something they can present at delivery, it's something they can give to a court, you know, that can help."
	Difficulty labeling emotions	Visual aid	Obtained from consultation field notes
	Transportation Barriers	Hybrid delivery of WET Consistent schedule for WET	"I also see the appeal of doing it remote for women who are not leaving as much and who can then fit it into their schedules more easily if it's just hopping on a phone call for 30 min, or for an hour." "I think in terms of [scheduling therapy sessions], having the consistent schedule. Not saying that patients might be able to make that schedule, but for us to be able to offer that to the patients with consistency. That's part of the stability we can create."
Provider	Evaluation for Criterion A	Training on PTSD assessment tools	Obtained from consultation field notes
	Training gaps (new to manualized and PTSD treatments)	Use consultation/supervision to address training gaps (e.g. training in emotional and cognitive processing, metaphors for treatment rationale, orientation to natural recovery, identifying and	"One barrier could be access to the training and then trying to schedule time for that and keep up with the consultation. I think that one thing that was really helpful too was the consultation and having you listen to my sessions and giving me feedback."

Level	Problem	Recommendation	Exemplar Quote
		responding to avoidance, shame vs. fear based traumas)	
	Managing discomfort and vicarious trauma	Use consultation/supervision to process responses to WET (e.g. reading accounts of rape or incest, sitting with distressed patients)	*"Maybe peer support [from other clinicians] or more supervision around the vicarious trauma. I think the pandemic makes us a little bit more vulnerable to everything."*
System	Outside providers may discourage engagement due to misconceptions that exposure therapy may be harmful	Education/collaboration with external providers to ensure that care team is knowledgeable about WET and supportive	*"I think it would be beneficial to do a better job of explaining what the treatment is to other people that are on their teams. We have the flyer, but even just sending that out universally to all the treatment programs that women are in, even the outpatient ones. All these different referral bases that we use all the time just to kind of explain what [WET] is, about what the research is and what the function of it is, so that way there can be this continuity of what the message is behind it. Because we saw that some patients would get a message of 'you can absolutely not do this, like, this isn't a good time for you,' and then they would disappear. So, that would be something that might make it easier to get buy-in from people."*
	Residential programs pose challenges to engagement	Embed WET in residential SUD treatment programs	*"I know there was a conversation about even doing [WET] in a residential treatment setting. Taking this to [residential SUD treatment program name]. I think that would be good because you're going to them – you don't have to rely on them to show up to you."*
	PTSD treatment not prioritized (SUD focus)	Conceptualize PTSD as part of SUD recovery	*"While trauma is a commonly used word, I don't know that programs isolated that piece of mental health outside of the substance use. And ... with the WET therapy approach, it's like, 'you had this really hard thing happen, and one way to cope with the hard thing that happened is to numb out with substances.'"*
	Therapist burden (therapy provision is not central to job roles)	Protected time for WET delivery	*"It's easier for me to know what I'm doing at the same time every week. Whoever's in my role it's easier to know 'okay, well I have this standing time that I need to block'."*
	Telehealth (responding to insession avoidance, adequate privacy, obtaining writings)	Schedule WET alongside prenatal visits Technology advancements to obtain writings	*"What I've observed is that people try to get out of [engaging with the trauma memory] whether they're making a bowl of cereal, or talking on the phone, it does take a lot of redirection. I think being in the room ... makes it easier to redirect someone back to the task."* *"I think it would be helpful to use technology in some way where they're writing it and you can see it at the same time."*
	Women arrive late to prenatal care, have complicated pregnancies, and deliver early	Need to study optimal treatment window	Obtained from consultation field notes

WET, written exposure therapy; PTSD, posttraumatic stress disorder; MI, motivational interviewing; SUD, substance use disorder.