

The Effects of EMDR Therapy on Pregnant Clients With Substance Use Disorders: A Narrative, Scoping Literature Review

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This narrative scoping literature review explores a significant clinical population, pregnant women with co-occurring substance misuse, through the lens of adaptive information processing and the potential for eye movement desensitization and reprocessing (EMDR) therapy intervention. A data search was performed in PubMed, PsychINFO, Web of Science, Science Direct, Cochran, and Scopus databases focusing on literature published within the last 10 years. Due to the distinctiveness of the issue, 10 research articles met the required inclusion criteria. The results confirm that EMDR can deliver effective outcomes for women with co-occurring substance use disorder during pregnancy. However, the rationale for using EMDR as a “sole-treatment” intervention appears insufficient. Instead, there is an argument supporting the utilization of integrative approaches. This review highlights the limited research available for this essential population and discusses the need for further study and investigation.

Keywords: EMDR; pregnancy; substance use; PTSD

This narrative-scoping literature review investigates the existing knowledge and research on eye movement desensitization and reprocessing (EMDR) therapy for pregnant women with co-occurring substance use disorders. Given the distinctiveness of these two attributes, literature on the topic was limited. Therefore, the rationale for this review is to enhance awareness and critically consider effective treatment interventions for this significant clinical population with high levels of complexity and vulnerability.

The utilization of substance misuse by women during their pregnancy is a significant issue of concern. Forray (2016) estimates that in the United States, approximately 5.9% of pregnant women use illicit drugs, and 8.5% consume alcohol, with over half of this population engaging in polysubstance misuse. Although many achieve abstinence during pregnancy, relapse rates 6–12 months postpartum are incredibly high. The corollary to this being the

adverse fetal health effects from substance misuse exposure can be substantial. Alcohol use during pregnancy, in its most extreme form, can lead to fetal alcohol syndrome (FAS). According to Popova et al. (2017), 1 out of every 67 women who consume alcohol during pregnancy results in the birth of a newborn child having FAS.

The co-occurrence of substance use disorder (SUD) and posttraumatic stress disorder (PTSD) is high, with samples varying between 11%–41% (Ruglass et al., 2014; Sindicich et al., 2014; Smith & Cottler, 2018). PTSD among pregnant women can also be a result of previous birth trauma (Watson et al., 2021). Clients with concurrent PTSD and SUD show higher symptom severities and worse treatment outcomes than those with either disorder alone. Rates of PTSD among pregnant women range from 6% to 8%, and in lower socioeconomic populations, it can be as much as 29% (Van Dam et al., 2012). Pregnant women are also at higher risk

of experiencing major depressive disorders (MDD) and anxiety disorders than nonpregnant women (Uguz et al., 2019; Zhou et al., 2020). When pregnant women have a prior history of mental health problems, this potentially influences prenatal stress physiology, which can present in offspring with issues such as difficulties with stress regulation, mental health problems, and cognitive development concerns (Hartman et al., 2018; Lautarescu et al., 2020). Risk factors also include preterm birth, lower birth weight, mood disorders, postnatal depression for the mother, and lower maternal-infant bonding (Davis & Narayan, 2020). Therefore, the challenges faced by this population are significant, raising the question of effective treatment interventions, including EMDR therapy.

EMDR therapy is an empirically supported, comprehensive, client-oriented, eight-phase therapy focused on memories of adverse life experiences (De Jongh et al., 2019; Farrell et al., 2020). These adverse memory networks contain images, thoughts and belief systems, sounds, emotions, and physical sensations. A distinctive component of EMDR therapy is its utilization of bilateral stimulation (BLS), a memory taxation device that involves eye movements and auditory and tactile stimuli. The adaptive information processing (AIP) theory provides an explanation and a theoretical framework for the mechanisms involved in EMDR (Shapiro, 2018). According to AIP theory, an innate physiological system is designed to transform disturbing input into an adaptive resolution and healthy integration. Excess arousal may disrupt this system, resulting in the information about traumatic experiences stored in a maladaptive, state-specific form. The procedural steps combined with BLS in EMDR therapy are believed to restore balance and resumption of information processing until reaching an adaptive resolution for the client (Leeds, 2016). Beyond the standard protocol in EMDR therapy treatment, several protocol variations have been developed, including some directly targeting both addiction and perinatal issues.

Methods

A comprehensive search was undertaken using PubMed, PsychINFO, Web of Science, Science Direct, Cochran, and Scopus databases to review salient research. The search dates were between May 1, 2012 and May 1, 2022. In the search, the following terms were used: “EMDR” AND “substance use” (including addiction) AND “pregnancy” (including perinatal) using Boolean connectors.

Additional exclusion criteria were publications over 10 years old, postpartum studies only, clinical protocols, addictive behaviors only, and substance misuse only. Following this criterion, 10 studies met the requirements (Figure 1).

Narrative scoping, which uses textual rather than statistical approaches, was used to identify salient themes from the studies for this paper. Scoping reviews help map the characteristics of the existing literature to identify salient gaps and research needs.

Thematic analysis was chosen as the method of data analysis for this review. According to Braun & Clark (2014), thematic analysis is a distinct method for identifying, analyzing, and reporting repeated patterns within the literature in constructing themes. Two distinct themes were identified concerning EMDR therapy: pregnancy and substance misuse (Table 1).

Findings

Theme 1: EMDR and Pregnancy

In a study by Sandström et al. (2008), EMDR was used to treat women in Sweden who had developed PTSD following traumatic birth experiences. Although the initial aim was to treat pregnant women, the study included four participants, of which only one was pregnant. The traumatic event scale and interviews were used to measure symptoms and changes, and follow-up measures were done 4 months (or after birth) and 1–3 years after therapy. Participants received four to six sessions of EMDR therapy, lasting 50–90 minutes. After treatment, the participants no longer fulfilled the criteria for PTSD. These results remained at follow-up 1 and 3 years after therapy for three of the four participants. The participant who had been pregnant during treatment reported satisfaction with the treatment and her second birth experience as being different in a positive way. Recruitment of and follow-through by the participants was a challenge in this study. The authors acknowledge the limitations of this study as it had a small sample size and no control group. They conclude by advocating the importance of diagnosing PTSD after a traumatic birth, and although EMDR is a possible treatment, caution is needed. The best time for intervention may be some months after childbirth but before the subsequent pregnancy.

Stramrood et al. (2011) investigated the same topic in their study, where three pregnant women received EMDR therapy to treat their PTSD after traumatic deliveries. Studies have found that women with these experiences usually do not recover spontaneously, and subsequent pregnancy may act as a trigger for PTSD

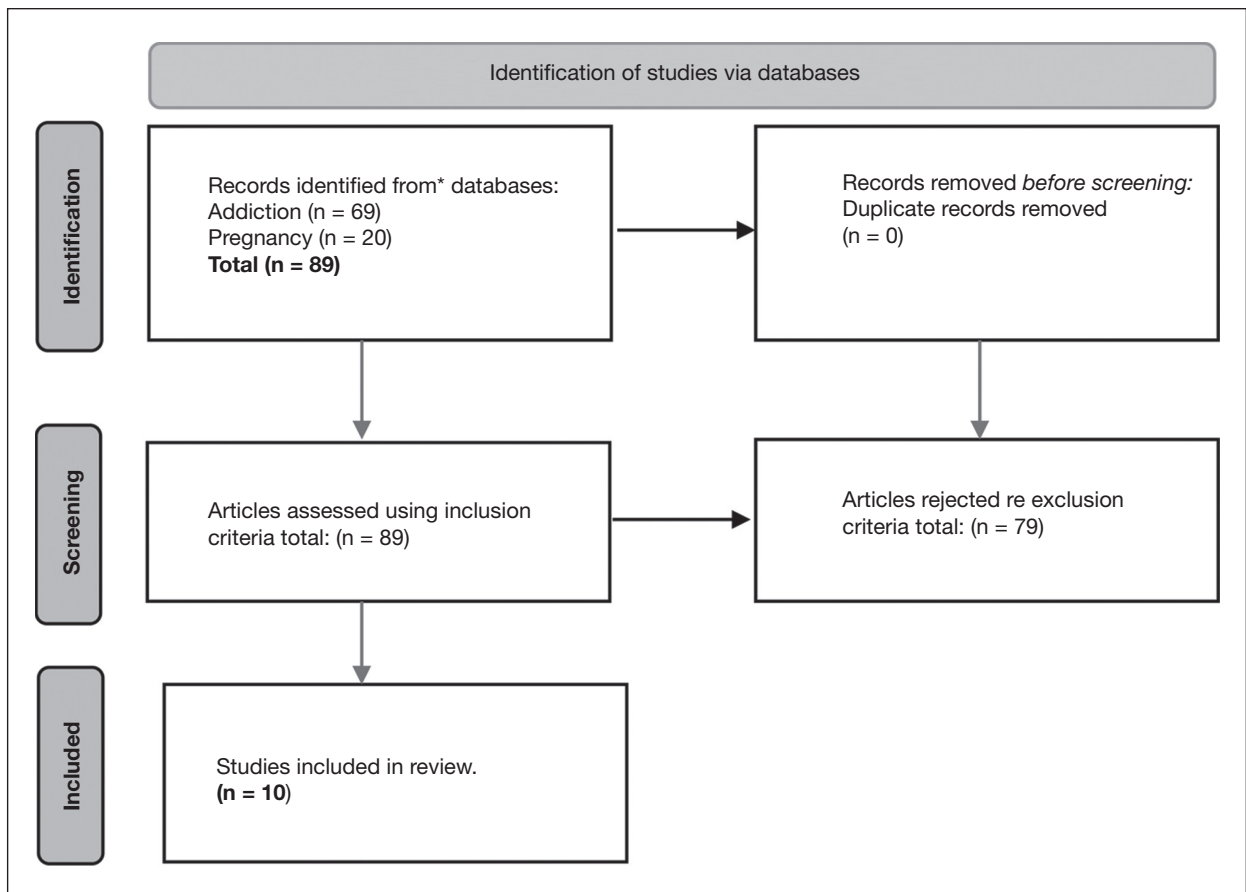


Figure 1. PRISMA 2020 flow diagram for narrative, scoping review (Page et al., 2021).

symptoms. Consequences may be stress influencing the fetal environment, fear of upcoming birth, and more caesarean sections. The participants received between four and six EMDR therapy sessions. Their experiences of previous deliveries included medical traumas, pain, and experiences of not being supported by hospital staff. After treatment with EMDR therapy, all women had fewer symptoms of PTSD. They reported feeling calmer and more confident about the upcoming birth, all wishing to attempt vaginal birth rather than an elective caesarean section. Although one of the women had complications with her birth, all women reported the second birth as a positive experience. The study is limited by a small sample and a lack of structured questionnaires and psychometrics. Stramrood et al. (2011) were also consistent with Sandstrøm et al. (2008), highlighting the need for treatment during pregnancy rather than afterward. However, they point out that women with PTSD following childbirth may not mention their symptoms until their subsequent pregnancy, and the time left for treatment is limited until the upcoming birth. Stramrood et al. (2011) concluded that EMDR therapy appeared to be an effective treatment intervention.

A randomized controlled study (RCT) conducted by Zolghadr et al. (2019) investigated the effect of EMDR therapy on childbirth anxiety among 30 women with previous stillbirths. The women were now pregnant again with a normal pregnancy. They were randomly assigned into two groups. EMDR therapy for the intervention group was performed with a 90-minute session when participants were admitted to the hospital for birth. The control group received only routine care. The Van Den Bergh Pregnancy-Related Anxiety Questionnaire was administered before treatment and 48 hours after birth. A statistically significant reduction in the mean anxiety in the EMDR intervention group compared to the control group was reported, as well as a reduction in the scores of posttests compared with a pretest for the EMDR group ($p < .01$). All participants had uncomplicated deliveries. The authors conclude that one session of EMDR therapy was a practical and valuable method for reducing anxiety among pregnant women and a strategy to encourage normal childbirth. Despite these results' positivity, caution needs to be exercised as the treatment fidelity involved in this study is lacking.

TABLE 1. Research Articles Used With the Narrative, Scoping Review

Authors	Year of publication	Title	Type of study
1. Baas et al.	2020	The effects of PTSD treatment during pregnancy: Systematic review and case study	Systematic review and case study
2. Carletto et al.	2018	EMDR as add-on treatment for psychiatric and traumatic symptoms in patients with substance use disorder	Pilot study ($n = 40$)
3. Cortizo	2020	Prenatal and perinatal EMDR therapy: Early family intervention	Discussion paper and single case design
4. Kullack & Laugharne	2016	Standard EMDR protocol for alcohol and substance dependence comorbid with posttraumatic stress disorders: Four cases with 12-month follow-up	Case series study ($n = 4$)
5. Markus et al.	2019	Addiction focused eye movement desensitization and reprocessing therapy as an adjunct to regular outpatient treatment for alcohol use disorders: Results from a randomized clinical trial	Literature review
6. Perez-Dandieu & Tapia	2014	Treating trauma in addiction with EMDR: A pilot study	Pilot study ($n = 12$)
7. Sandstrøm et al.	2008	A pilot study of eye movement desensitisation and reprocessing treatment (EMDR) for post-traumatic stress after childbirth	Pilot study ($n = 4$)
8. Stramrood et al.	2012	The patient observer: Eye movement desensitization and reprocessing for the treatment of posttraumatic stress following childbirth	Case series ($n = 3$)
9. Wise & Marich	2016	The perceived effects of standard and addiction specific EMDR therapy protocols	A qualitative phenomenological design ($n = 9$)
10. Zolghadar	2019	The effect of EMDR on childbirth anxiety of women with previous stillbirth	RCT study ($n = 30$)

Cortizo's (2020) article discusses the integration of EMDR with family therapy treatment. Although not a scientific study, her article describes suggestions for implementing EMDR treatment for pregnant women, illustrated by a case example. The Calming Womb Family Therapy Model proposes that EMDR is recommended to treat most prenatal mothers with few exceptions from the beginning of pregnancy. It is essential to provide multidisciplinary and multiphased treatment to support the expectant mother and her unborn child. Cortizo (2020) points out that high and prolonged concentrations of the stress hormone cortisol have harmful effects on the developing baby and suggest EMDR as well as other trauma-informed treatments are beneficial, especially for women with preexisting histories of trauma. Stabilization techniques are suggested to prevent common maternal fears that trauma processing will negatively affect the fetus. Stabilization and resourcing may also be

beneficial in preparation for birthing, even in cases where the mother is unwilling or not ready to proceed with further trauma treatment. A careful pace, tailored treatment, and shorter reprocessing time are suggested. In describing the steps of the intervention, Cortizo (2020) uses a case example. The woman, in this case, worked on reprocessing traumatic memories of childhood sexual abuse and was surprised at the positive effects as she felt a sense of release. Coming closer to her due date, she wanted to focus on birth fears and birthing resources. Multiple targets were reprocessed, with treatment continuing after birth as well. Cortizo (2020) refers to some common myths about EMDR therapy, for example, that it is best to wait until the second trimester. She will likely be in her second trimester by the time reprocessing starts due to preparation phases. Another myth is that the fetus may be affected by high cortisol levels during reprocessing. However, the goal is to reduce

stress over sessions, and resourcing and self-care are part of the treatment. Determining how much discomfort the mother tolerates is evaluated in active collaboration. A third myth is the need to ask for Obstetrics/Gynecology or the midwife's permission to proceed with EMDR prenatal therapy. However, they often lacked information about how EMDR works, highlighting why this aspect is an essential psychoeducative task to be performed by EMDR therapists. Cortizo (2020) concludes that pre-/perinatal EMDR therapy must be readily available.

Baas et al. (2020) conducted a systematic review of the treatment of PTSD during pregnancy, including a single case study of a woman treated with EMDR. The authors state that although several trauma-focused psychotherapeutic interventions for treating PTSD are available, unfortunately, pregnant women are often excluded or underrepresented in clinical research. As a result, there is a lack of evidence about the effectiveness and potential risks of treating PTSD during pregnancy. Patients and professionals may be reluctant to start therapy, fearing arousal during trauma processing may harm the unborn child and may wish to postpone treatment until after birth. However, no indications have been found supporting that therapy to reduce PTSD symptoms would be harmful. The authors highlight that there is no support for a course of action in which the continued presence of PTSD is preferable to the low chance of short-term physiological arousal during treatment for symptoms of PTSD, referring to studies showing cortisol levels up to 10 times higher for pregnant women with PTSD related to childhood abuse, compared to nontraumatized women. The case example in their review is a pregnant woman who had given birth three times before. Her first birth had been complicated, and she had received one session of EMDR therapy to work on this experience during her second pregnancy. The EMDR intervention was successful, and the birth was uncomplicated. However, in her third pregnancy, intrauterine fetal death occurred unexpectedly.

Postpartum, she had received grief therapy. Her screening for this study showed she scored above the cutoff for PTSD and fear of childbirth (FoC), and was diagnosed with obsessive-compulsive disorder (OCD). EMDR therapy included working on her worst future fears with two sessions of the flash forward technique, and the third session aimed at installing a positive vision in which she constructed her future childbirth. She reported experiencing less tension. After finishing therapy, she scored under the cutoff value for FoC, and the diagnoses of OCD and PTSD were in complete remission. She had an uncomplicated birth

and expressed satisfaction with her experience. Her PTSD and FoC symptoms showed a further decrease at follow-up. The authors conclude that treatment of PTSD during pregnancy is most likely safe and that it seems essential to intervene so that the fetus can grow in a safer environment.

Theme 2: EMDR and Substance Use

Perez-Dandieu and Tapia (2014) investigated the standard EMDR therapy protocol's effects on patients with comorbid PTSD and substance use disorders. Twelve women with alcohol and/or drug dependency in a clinic were randomly assigned to treatment-as-usual (TAU) or TAU plus eight sessions of EMDR (TAU+EMDR). Measures of PTSD symptoms, addiction, depression, anxiety, self-esteem, and alexithymia were used. The study aimed to target the traumatic memories, not the substance use. However, outcomes were measured in both areas to investigate whether reprocessing traumatic memories would lead to changes in addiction. The TAU+EMDR group showed a significant reduction in PTSD symptoms. EMDR treatment was also associated with a significant decrease in depressive symptoms, while patients receiving TAU only showed no improvement in this area. The TAU+EMDR group also showed significant changes in self-esteem and alexithymia posttreatment and a decrease in anxiety.

However, EMDR treatment did not significantly decrease alcohol and drug use. The authors suggest that reprocessing traumatic memories may be insufficient to reduce substance use and propose attending to addiction memories. The study results suggest that PTSD symptoms can be successfully treated with standard EMDR in substance use patients, potentially enhancing overall treatment outcomes.

The standard EMDR protocol was also utilized in the case series by Kullack and Laugharne (2016). Four participants with PTSD attending a clinic in Australia were recruited for the study. Before treatment, three patients met the criteria for alcohol dependence, and one met the criterion for substance dependence. The participants reported a history of increased alcohol/substance use after their traumatic experiences. EMDR therapy focused solely on their trauma history, not the addiction, and no other treatment intervention for addiction was offered. The participants' histories included traumatic experiences from work, adulthood, and childhood. The number of sessions ranged from four to nine. MINI Plus, PCL-C, and client statements were used as measurements. At the 12-month follow-up, three out of four clients did not meet the

diagnostic criteria for current alcohol or substance dependence. One client still met the criteria for alcohol dependence but reported a reduction in craving and consumption since treatment. Participants' mean PTSD symptoms had been 55.25 on initial assessment with PCL-C (scores higher than 44 indicating PTSD) and were reduced to 21.25 at the 12-month follow-up. The authors discuss the positive outcomes of their study concerning the self-medication hypothesis, as a reduction in PTSD symptoms and stress through EMDR therapy may decrease the need to self-regulate by using alcohol or drugs. Although the study had a small sample size and no control group, Kullack and Laugharne conclude that their study suggests that treatment of PTSD with the standard EMDR protocol can positively affect substance use symptoms.

In their qualitative, phenomenological study, Wise and Marich (2016) investigated the subjective experience of EMDR therapy with nine participants in the United States who had co-occurring PTSD and addictive disorders. The research participant's experience with both the EMDR standard protocol and addiction-specific protocols was investigated using structured interviews. All participants reported positive outcomes from the combined EMDR approaches, with the mean length of time in the treatment being 3.6 years. The study identified four themes and two subthemes, with participants recognizing their addictive disorder related to their trauma:

- Participants identified remission of addictive and trauma-related symptoms.
- Treatment was perceived to be effective whether the trauma was treated first or the addiction.
- Integrated treatment (EMDR+other) was optimal for ongoing recovery from addiction and traumatic disorders.
- A safe relationship with the therapist is essential for successful therapy. Participants in the study reported that working on traumatic memories did not increase their desire to use substances or practice addictive behavior.
- All participants in the study received treatment in private practice settings, resulting in a lack of diversity in the sample.

The authors encouraged the conduct of similar studies in public practice settings where most clients do not have access to the number of sessions afforded by the participants in their study.

Carletto et al. (2018) enrolled 40 patients with SUD in their quasi-experimental study to assess the efficacy of a combined trauma-focused (TF) and addiction-focused (AF) intervention. Twenty patients received

TAU, whereas the other 20 received TAU plus 24 sessions of EMDR. Participants were recruited from two settings in Italy: an outpatient service and a residential facility. Participants chose if they wanted assignment of the TAU or the TAU+EMDR group. EMDR treatment included both the standard protocol and addiction-focused EMDR protocols. Several psychometric measures were used at baseline and after the end of treatment, as well as urine drug testing. There were differences between the two groups at baseline, as the TAU+EMDR group had higher PTSD and anxiety symptoms. The results showed a significant reduction of PTSD symptoms in both groups, but in the TAU+EMDR group, the effects were significantly greater than in the TAU group. The TAU+EMDR group also reduced dissociative symptoms, anxiety, and overall psychopathology. The addition of EMDR resulted in posttreatment normal levels from baseline levels above the clinical cutoff. Urine drug testing showed no differences between the groups, and aspects related to craving and abstinence were not explicitly investigated. The differences in the groups at baseline due to the study being a nonrandomized one could impact the conclusiveness of the results. The authors suggest that the difference in results may be impacted by the fact that higher reductions are observed when the starting levels are higher.

Furthermore, EMDR may be more useful in clients with more traumatic experiences due to the high implications of such experiences in treating SUD clients. The authors conclude that EMDR could be an efficient and well-accepted add-on treatment for clients with SUD, showing promising results for combining trauma-focused and addiction-focused EMDR protocols.

An RCT examining addiction-focused EMDR (AF-EMDR) was conducted by Markus et al. (2019). Patients with alcohol-use disorder (AUD) were recruited at six outpatient facilities in the Netherlands and randomly assigned to either TAU or TAU + seven weekly 90-minute sessions of AF-EMDR. The AF-EMDR therapy used a manual called the palette of EMDR interventions in addiction. TAU involved community reinforcement approach (CRA) treatment. N = 109 participants were enrolled, and 76 participants had completed the treatment. Assessments were made at baseline, after therapy (or 8 weeks), and at 1- and 6-month follow-ups. Measurements assessed drinking behavior, craving, and quality of life. Inclusion criteria were a primary diagnosis of alcohol dependence or abuse, whereas clients with current use of alcohol or substances and a current PTSD diagnosis were excluded.

The results showed no add-on effect of AF-EMDR regarding drinking behavior. More TAU-only participants showed improvement in alcohol consumption, whereas more participants in the TAU+AF-EMDR group experienced fewer cravings. These findings were unexpected, as the CRA treatment (TAU) in other studies has proved effective compared to other alcohol treatments, suggesting results may reflect a lack of effect of AF-EMDR therapy and TAU. The authors hypothesize that timing may have impacted the results, as the enrollment period was broadened due to difficulties in recruiting. Consequently, this could have resulted in most of the progress achieved before the commencement of the study.

Additionally, it may have resulted in a selection of more treatment-resistant clients being included since they had not yet reached their treatment goals. Another aspect is that levels of distress and craving targeted in AF-EMDR were low, to begin with, and low emotional arousal may have led to the intervention being less effective. As findings suggest, the intensity of emotional arousal is a prerequisite for the degrading effects of eye movements on negative autobiographical memories. The AF-EMDR study manual differs from the standard procedure in which new targets are to be selected and treated in every session for time efficiency, leading to complete desensitization not always being possible. This component may have influenced the results. The authors suggest focusing on the conditioning response as well. Antecedents and consequences of alcohol use may produce better results than focusing on trigger situations alone.

Discussion

Synthesis from a review of these 10 papers suggests the effects of EMDR therapy in reducing PTSD symptoms with pregnant clients resorting to substance misuse. Treating traumatic experiences with EMDR therapy appears to have good outcomes for pregnant clients and those with substance use disorders. However, the effectiveness of EMDR therapy in treating substance misuse on its own is less conclusive. More research is needed to offer the best EMDR therapy interventions to these clients. As Wise and Marich (2016) suggest, most clients prefer an integrative treatment approach that addresses trauma and addiction elements.

In the academic literature, there appears to be more research on EMDR and the postpartum period than during pregnancy. Research tends to focus on previous traumatic birth experiences, even with pregnant clients. From an AIP perspective, the origins of current trauma symptomatology are often historical,

yet evidence suggests that this is frequently ignored. From a comprehensive EMDR therapy perspective, a thorough assessment and treatment of the entire trauma landscape should be considered. Additionally, the literature suggests that EMDR would be beneficial in treating traumatic experiences in pregnant women regardless of the origin of the trauma. Furthermore, the literature suggests the benefits of using EMDR therapy with PTSD and Complex PTSD and that vulnerability is not a contraindication.

In pursuing this issue further, the issue of safety is an essential consideration for pregnant women. Sandström et al. (2008) and Stramrood et al. (2011) concur with Shapiro's (2018) initial assertion to exercise some caution with this client group. As Shapiro (2018, p. 89) writes, "The potential effects of aroused emotion in pregnant women should also be considered. While there have been no reports of serious physical side effects, it is always better to use caution." This raises an interesting ethical question—is it better to do something or nothing? Each intervention needs to be considered on its merits. What the literature seems to suggest is the potential for "proof of concept" in that there appears to be a clinical benefit in using EMDR therapy with pregnant women with, or without a history of substance misuse, whether past or current. Although the optimal time for treatment interventions may be before pregnancy and after a period of abstinence from drugs, this may not be a viable clinical option on certain occasions. Shapiro (2018) highlights that EMDR is a client-centered flexible approach and that both clinician and client should participate in collectively determining the goals of therapy. This tailoring may be essential when working with more complex and vulnerable client groups.

What this exploration highlights is the paucity of available research in this area. To address deficits in the academic literature, current RCT studies in operation include the OptiMUM study; a multicenter trial carried out in the Netherlands (Baas et al., 2017) with pregnant women with a pathological FoC. Additionally, a further study explores the effects of EMDR on PTSD in inpatient clients with substance use problems (Schäfer et al., 2017). Another study by Valiente-Gomez et al. (2019) with outpatient clients explores the utilization of EMDR with substance misuse and comorbid trauma. In Norway, a study plans to investigate the effects and implementation of EMDR as trauma treatment in outpatients with trauma symptoms and substance use disorders (Oslo Universitetssykehus, 2020). These upcoming RCT studies will provide more contemporary insights into this much-needed area of

investigation. However, within the EMDR community, there appears to be no studies planned to explore the utilization of EMDR therapy specifically for pregnant mothers engaged in substance misuse.

Conclusion

This narrative-scoping literature review has limitations in highlighting the paucity of research available in this area. In addition, a mixture of research methodologies was used in the 10 studies reviewed, which dramatically limits true cross-comparisons between the studies. As with many popular movements within psychotherapy, EMDR needs to continue in its push to pursue and extend current knowledge and application to maximize the operationalization and implementation of this treatment approach safely and effectively.

As Davis and Narayan (2020) point out, the pregnancy period is a window of opportunity to identify risks to both the fetus and the mother. It also represents a possibility to nurture better mental health and promote recovery. Pregnant women are more in contact with the medical system, giving opportunities for interventions. The upcoming birth may motivate change, and evidence points to increased plasticity in the maternal and the fetal brain during the prenatal period.

Although the population of pregnant substance users is limited and specific, research on this complex group is a substantial investment. It will not only have implications for the individual client but may make a difference for future generations.

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