EMDR treatment-program for women with posttraumatic stress disorder after childbirth: a prospective cohort study

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Abstract

Objective To describe the implementation and outcomes of an Eye Movement and Desensitisation Reprocessing (EMDR)-treatment-program for women with Posttraumatic stress disorder (PTSD) after childbirth. Design Prospective cohort-study with pre- and post measurements. Setting A large university hospital in the Netherlands. Population Women who gave birth to a living child at least 4 weeks ago, with a PTSD diagnosis, or severe PTSD-symptoms combined with another DSM-5 diagnosis, who provided written informed consent. Methods The intervention applied was EMDR, an evidence-based psychotherapy for patients with PTSD. Main Outcome Measures The PTSD Checklist for DSM-5 (PCL-5) was administered before and after treatment. Trauma history was assessed before treatment with the Life Events Checklist for the DSM-5 (LEC-5), the Childhood Trauma Questionnaire (CTQ-SF) and the Childbirth Perception Scale (CPS). Results Forty-four women were referred, 26 met the inclusion criteria. After treatment, none of the women met the criteria for diagnosis of PTSD anymore after on average 5 weekly sessions of EMDR-treatment. These outcomes are extra promising, as they were achieved in quite a complex group of women with relatively high psychiatric comorbidity (64%) and high rates of previous mental health treatment (80%). Conclusions Implementing an EMDR-therapy treatment program for women with after childbirth PTSD in the context of a large academic hospital is feasible and effective. Key factors for success include a close collaboration between the relevant hospital departments and a thorough case conceptualisation addressing the aetiology of the PTSD. Funding No external funding. Keywords Posttraumatic Stress Disorder after childbirth, EMDR-therapy, Psychiatry, Implementation.

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Abstract

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Tweetable abstract:

EMDR-treatment for women with PTSD after childbirth leads to successful outcomes after on average 5 treatment sessions.

IntroductionPosttraumatic stress disorder (PTSD) following childbirth occurs relatively frequent. Prevalence rates range from 3% in community samples and 15% in at risk populations [1]. PTSD after childbirth is most typically related to a traumatic delivery[2] and is characterized by the re-experiencing of the traumatic event (intrusion, such as flashbacks and nightmares), avoidance, negative changes in mood and cognition and hyperarousal[3]. PTSD after childbirth not only negatively affects the mother's health and the partner-relationship [4], but also child outcomes. Maternal PTSD has a negative impact on the development and sensitivity of the stress-system in the infant, the mother-child bond, the attachment style of the child, and the child's social-emotional and cognitive development [5-9]. To reduce the mother's disease burden and to prevent transgenerational transmission of mental health problems, treatment is warranted as soon as possible. As starting a new pregnancy with untreated PTSD has shown to be related with unfavourable fetal development and obstetric outcomes, poor maternal well-being, fear of childbirth, avoidance of pregnancy care and maternal requests for caesarean section, treatment should be initiated before a subsequent pregnancy[10-12]. In addition, treating women with severe PTSD symptoms who do not fulfill all diagnostic criteria should also be considered [13, 14] as PTSD symptoms after childbirth may lead to a chronic disorder [12]. Altogether, this makes a strong case for early recognition and referral for evidence-based treatment of PTSD in women after giving birth. So far however, data on treatment programs for this group are limited and indeed recent papers emphasize the need for exploration of effective interventions for perinatal PTSD [15, 16]. Eye Movement and Desensitization and Reprocessing (EMDR)-therapy is an evidence-based treatment for PTSD and recommended in international guidelines, for example those of NICE[17-19]. EMDR is effective in treating PTSD, with large effect sizes compared to control conditions, and comparable effects compared to cognitive behavioral therapies [20]. In a recent review we showed that EMDR- therapy may be a promising intervention for PTSD following childbirth [16]. However, referral for such treatment may be impeded for several reasons[21], including lack of a structure for efficient referral for treatment. Therefore, the aim of this study is to investigate the feasibility of an EMDR-treatment program for women with PTSD following child birth and to evaluate the outcomes of such treatment.

Methods Design The current study was a prospective cohort-study with pre- and post measurements. The study was approved by the medical scientific research Ethical Committee of the Erasmus University Medical Centre and (evaluated as exempt, reference number MEC-2018-1234). Study inclusion took place from

January 2019 to June 2020. All participants gave written informed consent. No external funding was obtained for this study.**Participants** Women suspected of PTSD following childbirth could be referred for this study. We recruited women at three different departments from the Erasmus MC, a large academic hospital in Rotterdam, the Netherlands. These departments were: the department of Obstetrics and Gynecology, the department of Psychiatry and the department of Child and Adolescent Psychiatry. All physicians from those departments could refer women for the current study. In case of doubt or questions about referral, physicians could consult the Psychiatry colleagues by email or direct phone line. Inclusion criteria were: giving birth to a living baby at least 4 weeks ago; a PTSD diagnosis, or severe PTSD-symptoms combined with another DSM-5 diagnosis; and written informed consent. Exclusion criteria were: insufficient understanding of Dutch/English language, $<$ 18 years of age, (other) severe psychopathology that would require immediate treatment first, for example high suicidality risk or active psychosis.**Procedures** Before the start of this study, members of the Psychiatry department (LK, MLvdB and EK) provided clinical lessons on PTSD following childbirth for the colleagues of the department of Obstetrics and Gynecology. During these meetings, attention was paid to recognizing PTSD symptoms in women who recently gave birth. In addition, clinical training was given on how to discuss these symptoms and the possibilities for treatment. Education was given on how to pose the two most important questions in this respect: "Have you experienced any event during pregnancy, delivery or childbed period that you would describe as extremely stressful?" and 2. "If so, are you still suffering from this? For instance, do you have nightmares about what happened, or do you avoid talking/thinking about what has happened? Are you constantly alert as if something bad is about to happen?" To further enhance the screening process on PTSD after childbirth, screening questions were incorporated in the standard Patient Related Outcome Measures (PROMs)-assessment of women in the perinatal trajectory as part of value-based healthcare. In case women answered positive on these screening questions, outcomes were discussed during the following consultation with their gynecologists and obstetricians. Healthcare providers of the departments of Psychiatry received no clinical lessons, but were actively informed about this study during regular weekly team meetings in which treatment advice for women presenting with psychiatric complaints was decided upon. Women who seemed eligible for study participation and treatment could then be referred. The department of Child and Adolescent Psychiatry offers a so-called mother-child treatment program, focusing on mother-child interaction and bonding in women with perinatal psychiatric disorders. As one reason for impaired mother-child interaction is PTSD after childbirth in the mother, this department was informed about the study as well. Referred women were invited for an intake at the outpatient clinic of the Psychiatry department. Intakes were performed by a health care psychologist (LK) and psychiatrist specialized in the field of perinatal psychiatry (MLvdB). During intake, a DSM-5 classification was established and questionnaires were administered (see below, measures). If women met the inclusion criteria and gave informed consent, EMDR therapy was offered (see below, intervention).

Measurements All questionnaires were administered at baseline. The PCL-5 was administered both before and after treatment.*Demographic data* Age, previous and current psychopathology and obstetric data were collected at the moment of intake or were retrieved from the already present patient hospital records.

Trauma history and PTSD symptoms Life events checklist (LEC-5)[22] *and PTSD Checklist for DSM-5 (PCL-5)* [23] *combined version.*The LEC-5 is a self-report questionnaire to screen for 17 lifetime potentially traumatic events. Respondents indicate whether they have experienced one or more of sixteen listed events. The last item consists of an additional question, where respondents can indicate whether they have experienced a stressful event, other than the events mentioned in the previous items. Items are scored with regard to the type of exposure: direct experience; witnessing the trauma; learning that a traumatic event has happened to a close family member or friend and; experiencing a traumatic event as a part of the daily job. The PCL-5 is a widely used and well validated 20-item self-report questionnaire assessing the 20 symptoms of PTSD according to DSM-5. Respondents report the level of PTSD symptoms that they have experienced in the past month. Items are scored on a scale from 0 (not at all) to 4 (extremely). Scores range from 0-80, with higher scores representing more PTSD symptoms. The test-retest reliability of the total score of the PLC-5 is good (r = .82). Convergent and discriminant validity are strong (rs .74 to .85 and .31 to .60,

respectively)[23]. A cut-off score of 31 is often used as indicator for the presence of PTSD [24] and a 10-20 point change on this scale is perceived as clinically significant[22].*Childhood trauma questionnaire-short form (CTQ-SF)*[25]This widely used self-reported childhood trauma questionnaire of 25 items is the short version of the original CTQ (70 items). It is used to investigate five types of traumatic experiences of neglect (physical and emotional) and abuse (physical, emotional and sexual) in childhood and adolescence. CTQ-SF items are rated on a 5-point scale, ranging from 1 (never true) to 5 (very often true). Items 2, 5, 7, 12, 17, 23 and 25 are scored in reverse. Scores range from 25-125, with higher scores indicating more trauma experiences. Reliability coefficients (Cronbach's alpha) of the subscales range from 0.61 to 0.95 [25].

Childbirth Perception Scale (CPS) [26]The 12-item CPS consists of two dimensions, namely the perception of delivery and the first week after delivery, both measured with six items. Example statements from both categories are: "*My labour was a lot worse than I expected* " and "*I truly enjoyed the first week after delivery* ". All items are scored on a 4-point scale from 0 (fully agree) to 3 (completely disagree). Items 1, 2, 5, 6, 7, 8 and 10 are scored in reverse. Scores range from 0 to 36, with higher scores indicating a more adverse perception towards childbirth. The total scale, as well as both subscales, have a good reliability (Cronbach's alphas $> .75$) [26].

Intervention: EMDR therapy All women received up to eight weekly 90-minute sessions of EMDR-therapy in the context of this study (see also supplementary file S1, "What is EMDR-therapy?"). The first session was allocated for case conceptualization. During this session, LEC-5, CTQ-SF and CPS outcomes were thoroughly discussed. The reason for this is that previous trauma, be it pregnancy-related or not, can influence the development and persisting of actual PTSD symptoms. Based on this case-conceptualization, the course of treatment was designed. In session 2-7, women received EMDR-therapy following the latest version of the Dutch EMDR protocol [27]. During each session, the target images, cognitive domains, the validity of (positive) cognitions (lowest and highest score), the subjective unit of distress (lowest and highest scores) were registered. Targets images refer to specific disturbing memory images of the traumatic event. A cognitive domain refers to the type of cognitions that make that a specific memory image still causes distress in the present, even though the event belongs to the past and even though the event may have had a good ending after all. The cognitive domains as applied in the Dutch EMDR protocol are: powerlessness, safety, self-evaluation and guilt. For instance, a memory image can have high load on the domain "self-evaluation", if negative cognitions about the self are most prominent when a woman is confronted with the disturbing memory image. Session 8 consisted of an evaluation of treatment. If symptoms diminished and there was loss of diagnosis before session 8, treatment ended. If after session 8 symptoms persisted, the treatment plan was adjusted and women were offered appropriate continuation of treatment. Treatment was performed or supervised by a licensed EMDR Europe practitioner.

Data-analysis Data were analyzed by means of descriptive statistics in IBM SPSS statistics (version 25).
Results Forty-four women were referred. For all women referred, psychiatric treatment was indicated and offered. However, for the results presented below, only data from women who met the inclusion criteria are presented. Main reasons for exclusion were based on psychiatric assessment, in that another psychiatric disorder (than PTSD) was more prominent and/or required treatment first. Twenty-six women were included and 25 completed treatment. We had one drop-out due to adverse social and physical events, which made continuation of EMDR therapy not possible for her at the time. Respondent characteristics and main outcomes are presented in Table 1. Mean age was 32, and women were referred on average 10 months after giving birth. In most cases there was a comorbid psychiatric disorder present, most often depression. Most women had received mental health treatment earlier in life. Almost all women had some history of psychotrauma, as is shown by their scores on the LEC-5 and CTQ. The mean PCL-5 score at baseline was 44.84 (SD 15.77), and after treatment, the mean score was 14.58 (SD 11.97).

Table 2 shows the treatment specific characteristics. Average treatment duration was 4.96 (SD 3.67) sessions. All women lost their PTSD diagnosis. Per treatment, on average 3.12 (SD 2.37) "targets" were neutralized. The cognitive domain powerlessness was most common for the selected memory images.

Discussion

Main Findings All women in our study showed a major and clinically relevant decrease in PTSD symptoms after on average 5 weekly sessions of EMDR. The average decrease was 30 points on the PCL-5, whereas a decrease of 10-20 points on this scale is already considered clinically significant[22]. All women lost their PTSD diagnosis. These outcomes are extra promising, as they were achieved in quite a complex group, in women with relatively high psychiatric comorbidity and high rates of previous mental health treatment.

Strengths and limitations One strength of the study is that it is driven by both current literature and clinical practice. Both perspectives acknowledge the need for adequate referral-and treatment lines for women with PTSD after childbirth. In this respect, our study fits within the current *Zeitgeist* by starting to fill a gap in literature. A second, related strength of this study it its practical character. Just because we were strongly motivated by the wish to further improve treatment, we took a naturalistic approach with an open attitude towards possible questions and referrals. An important recommendation for the clinical field in this respect is that even though not all referrals from the Department of Obstetrics and Gynaecology resulted in an EMDR-treatment offer, the referrals were all relevant in the fact that psychiatric treatment was warranted for all women referred. These findings are encouraging and reassuring for other hospitals to set up comparable programs. A limitation of the study is the lack of a control group. Future research should apply more advanced research designs and preferably also include outcome-measures for child outcomes and cost-effectiveness.

Interpretation In many women in our sample a comorbid depressive disorder was present. PTSD and depressive disorder often co-exist and interfere, and depression both during pregnancy and after childbirth influence the trauma response [2, 28]. There is an overlap in symptoms between depression and PTSD [3, 15], which may make it sometimes difficult to disentangle both disorders. King et al.[28] found that negative cognitions about the self in relation to the birth were the strongest cognitive behavioral predictors of PTSD. These findings underscore the need to explicitly address feelings of shame, self-blame, guilt and responsibility in making an adequate plan for treatment. We indeed found that these types of emotions were common, next to feelings of powerlessness. These emotions could relate to the delivery itself, but could also be associated with the pregnancy or the puerperium period. This is also reflected in the CPS-scores, which showed negative perceptions of both the delivery and of the first week after childbirth. Furthermore, it is important to pay close attention to previous trauma, as we did in our study by administering the CTQ and LEC-5-questionnaires. Although PTSD after childbirth can be the direct result of a pregnancy, birth or childbed-related event, pregnancy-related experiences can also trigger the memories of previous trauma, such as adverse sexual experience[2, 28]. In this study, we started treatment with a thorough case conceptualisation in collaboration with the women. In general, women were well able to indicate which symptoms were most burdensome, how these related (or not) to previous traumatic experiences, and consequently which complaints needed treatment first. In all but one case of this study sample, EMDR-therapy was started directly after establishing treatment plan. Furthermore, one woman in our study received EMDR-therapy while admitted to our inpatient perinatal psychiatry clinic. Her traumatic experiences were related to her psychiatric decompensation in her first days after childbirth at home, after which she had been admitted to our clinic. She was afraid of discharge, because she feared to lose control again upon return to home. EMDR-therapy helped her to process the memories of what had happened at home and contributed to a successful discharge.

We found that the cognitive domain of "powerlessness" was by far the most prevalent cognitive domain in explaining why certain memory images were still disturbing. This high prevalence of the cognitive domain "powerlessness" is in line with findings on the treatment of non-childbirth related PTSD [29]. So, in this respect, PTSD following childbirth is comparable to "other PTSDs". Furthermore, the high prevalence of the cognitive domain "powerlessness" makes sense conceptually, as pregnancy and childbirth are by definition situations where a certain unpredictably and loss of control are rather rule than exception.

Women were referred on average 10 months after they gave birth, however there was a wide range in the period between delivery and referral. Long-time intervals can be explained by the fact that women sometimes were referred when they came to the Obstetrics and Gynaecology department with a wish for a next pregnancy, or

even were already pregnant again. Although so far only few studies have reported on the EMDR outcomes in pregnant women [30], our results with this subgroup were promising. In fact, the maximum number of treatment sessions for the pregnant women in our study (n=4) was three sessions. Another reason for a delay in referral may be that we started with a new treatment program and that it takes time before referrals get running. Our hypothesis is that the favourable results of the first women increased awareness for PTSD following childbirth and readiness for recognition and referral for suspected PTSD. Overall, the practices and outcomes described above have led to the implementation of a specialized outpatient EMDR-treatment program for women with post-partum PTSD. Although we started with only one psychiatrist and health care psychologist with limited timeslots, we now have three health care psychologists regularly treating women with PTSD after childbirth with EMDR. Referrals are continuous and seem to have stabilized in numbers. In our experience it is important to ensure bi-directional low-key options for consultation and advice, including regular interdisciplinary meetings. Moreover, we noticed that informing women on these lines of collaboration between Psychiatry and Gynaecology and Obstetrics departments adds to the trust of the women in their treatment. Although women's trust in treatment may increase the chance for successful treatment outcomes in general, trust is especially important in this specific group whose trust, in themselves or others, may have been violated.

Conclusion Implementing an EMDR-therapy treatment program for women with PTSD after childbirth in the context of a large academic hospital is feasible and effective. Treatment led to clinically significant decrease of symptoms and loss of PTSD diagnosis in all cases. Results can be achieved in a short time-span, even in pregnant women and women with comorbid psychiatric disorders and/or a history of previous mental treatment. Key factors for success are incorporating standardized screening for PTSD into regular follow-up consultations, close collaboration between the relevant hospital departments and a thorough case conceptualisation addressing the aetiology of the PTSD after childbirth.

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Disclosure of Interests None.

Contribution to Authorship Kranenburg LW: study design, providing treatment, data collection, data analysis, writing of the paper.

Bijma HH: supervision implementation in the obstetrics department, data collection, revised and critically reviewed the paper.

Eggink AJ: study design and revised and critically reviewed the paper.

Knijff EM: study design, coordination study implementation in the psychiatry department, revised and critically reviewed the paper.

Lambregtse van den Berg MP: study design, providing treatment, data collection, revised and critically reviewed the paper.

Details of Ethics Approval

The study was approved by the medical scientific research Ethical Committee of the Erasmus University Medical Centre and evaluated as not falling under the scope of the Dutch act for medical scientific research with humans (reference number MEC-2018-1234).

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Tables

N = 25 women

Age (mean, SD)	32.36 (4.56)
Months since delivery (mean, range)	10 (2-42)
Number of children	Number of children
1	13
2	5
3	2
4	1
Pregnant (2^{nd} or 3^{rd} child)	4

Previous mental health problems (%, n)	80% (20/25)
Psychiatric comorbidity (%, n)	64% (16/25)
Depressive disorder (%, n)	52% (13/25)
LEC-5 no. of events (mean, SD)	5.08 (2.41)
CTQ-total score (mean, SD)*	33.61 (10.29)
CTQ-emotional abuse (%,n above cut-off)**	26% (6)
CTQ-physical abuse(%,n above cut-off)	9% (2)
CTQ-sexual abuse(%, n above cut-off)	9% (2)
CTQ-emotional neglect (%,n above cut-off)	39% (9)
CTQ-physical neglect (%,n above cut-off)	17% (4)
CPS-total score (mean, SD)*	24.32 (6.58)
CPS-delivery (mean, SD)	10.73 (4.47)
CPS-1st week postpartum (mean, SD)	13.59 (3.29)
PCL-5 score baseline (mean, SD)	44.84 (15.77)
PCL-5 score after treatment (mean, SD)*	14.58 (11.97)

Table 1: Respondent characteristics and main outcomes

*Missings were excluded. There were 2 missings for the CTQ, 3 for the CPS and 1 for PCL-score after treatment. **The CTQ-cut-off scores for low severity abuse were used[31].

N = 24 women

Number of sessions *(mean, SD)*	4.96 (3.67)
Number of targets during treatment *(mean, SD)*	3.12 (2.37)
Cognitive domain	Cognitive domain
Powerlessness *(%), (+flashforwards* (%))*	59%, (21%)
Self-evaluation *(%)*	15%
Safety *(%)*	1%
Guilt *(%)*	4%

Table 2. EMDR-therapy specific characteristics.

* "Flash-forwards" are a special technique associated with the cognitive domain of powerlessness. Within the flash-forward-technique, it is not the adverse memory that is targeted, but anxious expectations of what may happen in the future, so-called "disaster fantasies".