



Childbirth, trauma and family relationships

Shani Reshef^a, Daniella Mouadeb^a, Yaron Sela^c, F. Carolyn Weiniger^b and Sara A. Freedman

^aSchool of Social Work, Bar Ilan University, Ramat Gan, Israel; ^bDivision of Anesthesia, Critical Care and Pain, Tel Aviv Sourasky Medical Center, Israel affiliated with the Sackler School of Medicine, Tel Aviv University, Tel Aviv-Yafo, Israel; ^cThe Center of Internet Psychology, Reichman University, Herzliya, Israel

ABSTRACT

Background: Childbirth is a major life event with expected positive outcomes, yet for some women postnatal psychopathological symptoms may harm women's interpersonal relationships. We hypothesized that higher levels of postnatal depression, post-traumatic stress (PTSD) symptoms, and fear of childbirth would be associated with mother-baby bond disorders and relationship dissatisfaction in couples.

Method: A cross-sectional self-report online questionnaire was used to survey partnered women who had delivered in the year prior to the study. We used a convenience sample of 228 women recruited through purposive and snowball sampling. Childbirth experience, PTSD symptoms, attachment style, depression, mother-baby bond disorders, and couple relationship dissatisfaction were measured.

Results: Women with higher PTSD and postnatal depression scores reported higher levels of mother-baby bond disorders—a relationship fully mediated by postnatal depression symptoms. Women who perceived childbirth as fearful or anxiety provoking had higher levels of PTSD and postnatal depression symptoms. Fearful and anxious birth perception was positively associated with mother-baby bond disorders—an association partly mediated by PTSD symptoms. Insecure attachment style was not found to be significantly associated with fearful or anxious perceptions of childbirth.

Limitations: Women who have postnatal PTSD/depression are less inclined to participate in a study of this nature. Also, online surveys prevented the use of clinical diagnoses of PTSD and depression.

Discussion and conclusions: Our results suggest that PTSD and postnatal depression affect women's mental health and family bonding. Women should be assessed for negative traumatic birth experiences, PTSD, and depression, to allow targeted observation for psychopathologies and therapeutic interventions.

Parto, trauma y relaciona familiares

Antecedentes: El parto es un evento vital importante con resultados positivos esperados, sin embargo, para algunas mujeres, los síntomas psicopatológicos postparto pueden dañar sus relaciones interpersonales. Hipotetizamos que los niveles más altos de depresión posparto, síntomas de estrés postraumático (TEPT) y miedo al parto estarían asociados con trastornos del vínculo madre-bebé e insatisfacción en la relación de pareja.

Método: Se utilizó un cuestionario en línea de autorreporte transversal para encuestar a las mujeres en pareja que habían dado a luz en el año anterior al estudio. Utilizamos una muestra por conveniencia de 228 mujeres, reclutadas a través de un muestreo intencional y de bola de nieve. Se midieron la experiencia del parto, los síntomas de TEPT, el estilo de apego, la depresión, los trastornos del vínculo madre-bebé y la insatisfacción en la relación de pareja.

Resultados: Las mujeres con puntajes más altos de TEPT y depresión posparto informaron niveles más altos de trastornos del vínculo madre-bebé, una relación totalmente mediada por síntomas de depresión postparto. Las mujeres que percibían el parto como algo temeroso o que provocaba ansiedad tenían niveles más altos de TEPT y síntomas de depresión postparto. La percepción temerosa y ansiosa del nacimiento se asoció positivamente con los trastornos del vínculo madre-bebé, una asociación mediada en parte por los síntomas del TEPT. El estilo de apego inseguro no se asoció significativamente con las percepciones temerosas o ansiosas del parto.

Limitaciones: Las mujeres que tienen TEPT/depresión postparto son menos propensas a participar en un estudio de esta naturaleza. Además, las encuestas en línea impidieron el uso de diagnósticos clínicos de TEPT y depresión.

Discusión y conclusiones: Nuestros resultados sugieren que el TEPT y la depresión postparto afectan la salud mental de las mujeres y el vínculo familiar. Las mujeres deben ser evaluadas en busca de experiencias traumáticas negativas en el parto, TEPT y depresión, para permitir la observación específica de psicopatologías e intervenciones terapéuticas.

ARTICLE HISTORY

Received 8 February 2022
Revised 28 November 2022
Accepted 30 November 2022

KEYWORDS

Childbirth; postnatal depression; posttraumatic stress disorder; couple relationship; mother-baby bond disorders; attachment style

PALABRAS CLAVE

Parto; depresión postparto; Trastorno de estrés postraumático; relación de pareja; trastornos del vínculo madre-bebé; estilo de apego

关键词

分娩; 产后抑郁症; 创伤后应激障碍; 夫妻关系; 母婴关系障碍; 依恋类型

HIGHLIGHTS

- Depression, not posttraumatic stress disorder (PTSD), is related to increased couple dissatisfaction.
- Both PTSD and depression are related to increased mother-baby bond disorders.
- Fear of childbirth increases as symptoms of PTSD and depression increase.

分娩、创伤和家庭关系

背景: 分娩是一个有积极预期结果的重大生活事件, 但对于一些女性来说, 产后精神病理症状可能会损害女性的人际关系。我们假设较高水平的产后抑郁、创伤后应激障碍 (PTSD) 症状和对分娩的恐惧与母婴关系障碍和夫妻关系不满有关。

方法: 使用横断面自我报告在线问卷调查在研究前一年分娩的有伴侣女性。我们使用了由目的性和滚雪球抽样招募的 228 名女性的便利样本。对分娩经历、PTSD 症状、依恋类型、抑郁、母婴关系障碍和夫妻关系不满进行了测量。

结果: 具有较高 PTSD 和产后抑郁评分的女性报告了较高水平的母婴关系障碍——一种完全由产后抑郁症状中介的关系。将分娩视为恐惧或焦虑的女性有更高水平的 PTSD 和产后抑郁症状。恐惧和焦虑的出生感知与母婴关系障碍呈正相关——这种关联由 PTSD 症状部分中介。未发现不安全依恋风格与对分娩的恐惧或焦虑感显著相关。

局限性: 患有产后 PTSD/抑郁症的女性不太愿意参与这种性质的研究。此外, 在线调查阻碍了对 PTSD 和抑郁的临床诊断。

讨论和结论: 我们的结果表明, PTSD 和产后抑郁会影响女性心理健康和家庭关系。应评估女性的负面创伤性分娩经历、PTSD 和抑郁, 以便有针对性地精神病理学观察和治疗干预。

1. Introduction

Childbirth is traditionally associated with excitement and happiness, however for a small percentage of women, birth can be a trigger for the development of psychopathology, affecting the mother as well as her relationships with her partner and baby.

Post-traumatic stress disorder (PTSD) is related to a range of comorbid difficulties, including difficulties in interpersonal relationships (Taft et al., 2011). Lack of social support increases the likelihood of developing PTSD following a traumatic event (Nelson et al., 2011 Nov). Relationship satisfaction is lower in couples where one person has PTSD, marital problems are more frequently reported among people with chronic PTSD, and divorce rates are significantly higher (Sevin et al., 2018; Wang et al., 2021). While some studies attributed relationship issues to PTSD, others indicate that the lack of stable relationships predicts PTSD (Freedman et al., 2015). People with PTSD report also more difficulties with parenting, including parenting behaviour and satisfaction with the parent-child relationship (Hershkovitz et al., 2017).

Two main theoretical standpoints have been supported from studies that examined the association between relationship and parenting difficulties. The spill over hypothesis postulates that improved relationship satisfaction is related to greater parent satisfaction and improved relationships with children, while the compensation hypothesis suggests that relationship difficulties are related to better parent-child relationships (Gao & Cummings, 2019; Sutton et al., 2017).

The associations between relationship satisfaction and parent-child relationships in the immediate postpartum period have been rarely studied. This is despite acknowledging the importance of a warm, close, intimate caregiver-baby relationship to promotion of infant mental health development (Bowlby, 1951; Mahler & Yahraes, 1971). This affects relationships in adulthood because individuals who show secure

attachment styles report less conflict in interpersonal relationships. This attachment style is also essential in motherhood. Secure attachments have a meaningful contribution to the baby bonding process (George & Solomon, 2008). Furthermore, an inverse relationship appears to exist between anxious/avoidant attachment styles in mothers and their subsequent provision of consistent, warm, and supportive care for their infant (Mikulincer & Shaver, 2007).

Postpartum depression occurs within the first year following childbirth in approximately 10–15% of women (Haga et al., 2012; Ohara et al., 2017) and can include feelings of low mood, loss of interest in normal activities, feelings of worthlessness, and loss of energy (Iles et al., 2011). It is known that mothers who suffer from depression may express diminished emotional involvement, impaired communication, and reduced synchronicity with their babies (Bailham & Joseph, 2003; Brockington, 2004; McNamara et al., 2019).

Traumatic childbirth experiences can lead to the development of other psychopathologies. Approximately 4% of mothers develop post-traumatic stress disorder (PTSD) (Heyne et al., 2022) characterized by intrusive images of the traumatic event; avoidance of internal and external reminders of the event; negative emotions, and physiological arousal. Traumatic childbirth is also related to postpartum depression. Postpartum depression occurs in between 10–25% of mothers, and is not explicitly linked with a difficult or traumatic birth. While postpartum PTSD and postpartum depression have overlapping symptoms, they are considered comorbid but distinct possible consequences to a traumatic event (Djelantik et al., 2020). The chances of developing PTSD and depression are also related to the subjective experience of the birth (Handelzalts et al., 2021).

The subjective experience of a traumatic event is one of the key predictors of PTSD symptoms (Ozer

et al., 2003). The woman's subjective experience of birth has consistently been demonstrated to determine her emotional state (Ayers et al., 2008; Edworthy et al., 2008). Women who objectively underwent a non-interventional vaginal delivery may nonetheless consider it traumatic (Thomson & Downe, 2008). Many mothers considered their childbirth traumatic where their clinicians considered it routine (Allen, 1998; Beck, 2004a).

Subjective experience of childbirth is linked to a concept known as fear of childbirth (FOC), which may affect women who have never experienced birth, in addition to women who have experienced childbirth. Furthermore, FOC includes both retrospective fear related to the childbirth experienced, as well as prospective fear regarding a future (even theoretical) birth (Asselmann et al., 2021). FOC could be linked to the woman's attachment style. Women's attachment styles moderated the association between women's responses to operative birth and PTSD (Ayers et al., 2014). Women with an avoidant attachment style had more risk of PTSD when responding to operative births. The birth experience can be crucial for mother-baby bonding. Women's perception of the birth experience may be an important factor influencing the development of the maternal caregiving system (George & Solomon, 2008).

The potential impact of PTSD following traumatic childbirth on mother-baby bonding has not been widely investigated, and data are conflicting. Qualitative studies have described difficulties in the formation of the mother-baby bond after traumatic childbirth (Ballard et al., 1995; Beck, 2004b; Nicholls & Ayers, 2007). Quantitative studies are inconsistent, with some suggesting no significant association between postnatal PTSD and the mother-baby bond (Nicholls & Ayers, 2007), while others found a significant association (Davies et al., 2008; Noyman-Veksler et al., 2015; Parfitt & Ayers, 2009). Some studies have suggested that the relationship between PTSD and bonding is mediated by depression (Radoš et al., 2020).

It is to be expected that the transition to parenthood will alter a couple's interpersonal relationship (Daley-McCoy et al., 2015). Most studies reported a dramatic increase in negative interchanges and conflicts between partners (Shapiro et al., 2000). Few studies have examined the effect of traumatic childbirth on couple's relationships (Parfitt & Ayers, 2009). Case studies and qualitative research studies suggest that postnatal PTSD and depression are likely to increase couple relationship dissatisfaction (Elmir et al., 2010). As with PTSD, subsequent quantitative studies present conflicting findings. For some there was no relationship between post-traumatic symptoms consequent to traumatic childbirth and couple relationship issues, while others reported significant negative effects on couple's relationships (Ayers

et al., 2007). As for bonding, it has been suggested that any effect of PTSD was fully mediated by symptoms of depression (Parfitt & Ayers, 2009).

Other areas of inconsistency include psychopathology following traumatic childbirth and mother-baby bonding, the role of the mother's own attachment style. The interdependence of couple relationships and mother-baby bonding has not been studied in the context of traumatic childbirth.

Therefore, there is a need for a study to investigate PTSD, postnatal depression and mother-baby bond disorders and couple relationship dissatisfaction among women within one year of childbirth. Specifically, our primary study hypothesis was that higher levels of postnatal depression and post-traumatic stress symptoms would be associated with higher levels of mother-baby bond disorders (H1 & H2). Furthermore, we hypothesized that FOC would be positively associated with postnatal depression and post-traumatic stress symptoms (H3) and that insecure attachment would be positively associated with FOC (H4). Given the inconsistent results that have been found, we hypothesized a more complex relationship between the study variables—that depression levels would mediate the relationship between PTSD, bonding, and couple satisfaction (H5) and that PTSD would mediate the relationship between FOC, bonding, and couple satisfaction (H6 and H7).

2. Method

Study participants. We included women who had given birth between two months to one year prior to participating in the study, and who had a partner.

Questionnaire methods. The study was approved by the University Ethics Committee, where the authors are based, before data collection commenced using internet-based questionnaires. It was assumed that the anonymity of this method might be preferred by some participants on account of the sensitivity of the subject. The questionnaire introduction noted that participation was voluntary and could be suspended at any stage. Possible emotional triggers were mentioned, and a list of support-providers was given.

Procedure. This was a cross-sectional study using a convenience sample, combined with purposive and snowball sampling. This entails recruiting participants from sites most likely to be used by relevant participants, and then asking recruited participants to recruit further participants. The study recruits were solicited in a number of ways using online social media. The questionnaire was posted on social network groups and forums; all were closed groups for mothers (the largest had 80,000 members). Social network groups labelled 'birth victims' were considered to be more likely to have members with negative birth

experiences, and were actively followed. A post or message in a group from women with possible negative birth experiences was flagged by the primary investigator who utilized the private messaging system to invite them to participate. An email distribution list was also used for recruitment, including the researcher's contacts and women recruited verbally by the researcher.

Demographic and obstetric data regarding gender, age, country of origin, education, marital status, religious observation, parity, and mode of childbirth were collected. Information was also collected on the last delivery such as childbirth partner, pain management, preparation for birth, and level of satisfaction with treatment during the birth (e.g. 'Did you feel you were in "good hands" during the birth?').

Experience of childbirth was measured using The Wijma Delivery Experience Questionnaire (W-DEQ, Version B) (Wijma et al., 1998). This scale was originally conceptualized to capture fear regarding childbirth; more recent studies have delineated four factors (Negative emotions, Lack of positive emotions, Social isolation, and Moment of birth) (Pallant et al., 2016). The current study used the original format consisting of 33 items measuring the participants' feelings and cognitions surrounding the childbirth experience (e.g. 'How did you feel during the birth?'). Items were scored on a 6-point Likert scale with high scores indicating higher levels of fear in childbirth during the woman's last delivery. Total scores for this questionnaire ranged from 0 to 165. According to diagnostic research, women with a total score of 85 have strong feelings of fear and anxiety regarding their last childbirth, and women who scored 100 and above have a clinical fear of childbirth (i.e. they feel handicapped by fear of childbirth in daily life). Studies indicated high reliability: 0.90 or higher (Wijma et al., 1998). Cronbach's alpha in this study was 0.93.

Post-traumatic stress symptoms were measured using the PTSD checklist from the DSM-5 (PCL-5) (Weathers et al., 2013). This 20-item self-report assessed the 20 symptoms of PTSD listed in the DSM-5 that the participant may have experienced in the past month (e.g. 'How bothered were you by intrusive, recurrent and unwanted memories of the traumatic experience?'). Scoring was on a scale of 0–4 for each symptom. A total symptom severity score (0–80) was obtained by adding the scores of the 20 items. Probable PTSD was calculated using a cutoff of 32 (Bovin et al., 2015). Cronbach's alpha in the study was 0.95.

Mother-baby bond disorders were measured using the Postpartum Bonding Questionnaire (PBQ) (Brockington et al., 2001), a screening instrument that measured parent baby bonding disorders. It consisted of 25 items concerning the quality of the

mother-baby bond (e.g. 'I enjoy playing with my baby') rated on a 6-point Likert scale (0–5); higher scores represented a more pathological parent-baby bond. The questionnaire contained four sub-scales: impaired bonding—12 items; rejection and anger—7 items; infant-focused anxiety—4 items; and incipient abuse—2 items. Total scores ranged from 0 to 125. The four sub-scales showed moderate sensitivity (1.0, 0.89, 0.56, and 0.28 respectively) and high specificity (0.85, 1.0, 0.96, and 1.0 respectively) for mother-baby bonding disorders. Test/retest reliability was 0.95, 0.95, 0.93, and 0.77 respectively for the four sub-scales (Brockington et al., 2001; Brockington et al., 2006). Cronbach's alpha was 0.91.

Couple relationship dissatisfaction was measured using the Hebrew version of the short ENRICH Marital Satisfaction Scale (EMS, (Fowers & Olson, 1993; Lavee, 1995). This scale measured the level of fitness and satisfaction in a couple's relationship and was based on the American version of the EMS (Fowers & Olson, 1993). The scale consisted of 10 items that measure 10 aspects of a couple's relationship: partner's characteristics and behaviour; communication; problem solving; budgeting; leisure and interests; affection and sexual intercourse; parenthood and childcare; relationship with family of origin; workload distribution; and trust (e.g. 'To what extent do you accept your spouse's character and behaviour?'). Each item was rated on a 7-point scale. Internal reliability of the scale measured by Cronbach's alpha ranged between 0.77–0.86. The total score was an average of the scale items. Lower scores indicated greater couple relationship dissatisfaction. The religiosity item in the original version (I feel very good about how we each practice our religious beliefs and values) was excluded from this version since it was previously invalidated in Israel's population (Lavee, 1995). Cronbach's alpha in the study was 0.721. The study included two more items relating to the scale in order to screen for changes in couple satisfaction associated with previous childbirth: 'Has the relationship with your partner changed since the previous childbirth?', 'How did the relationship change?'

Symptoms of depression were measured using the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987). The scale included 10 items describing symptoms of depression in the past week (e.g. 'In the past week I felt so unhappy, I was having difficulties sleeping'), rated from 0–3, with a total score between 0–30. High scores indicated more depressive symptoms. The scale, widely used to screen postnatal depression, yielded a sensitivity of 86%, a specificity of 78%, a high standardized Cronbach's alpha of 0.87, and a split reliability of 0.88 (Cox et al., 1987). Cronbach's alpha in the present study was .955. Probable clinical depression was calculated using a cutoff of 11 (Levis et al., 2020).

Attachment style was measured using the Experience in Close Relationship Scale (ECR) (Brennan et al., 1998). This self-report scale contained 36 items: 18 items related to an anxious attachment continuum (e.g. 'I worry about my relationships'), and 18 items related to an avoidant attachment continuum e.g. 'I would like to get closer to people, but I keep distancing myself from them'. Items were scored on a 7-point Likert scale. The total score was the average of items on each continuum. Higher scores indicated higher levels of attachment avoidance or anxiety. The high reliability of this measure has been validated in many studies (Segel-Karpas et al., 2013). Cronbach's alpha was validated as 0.91 for anxiety and 0.94 for avoidance (Mikulincer & Florian, 2000). Cronbach's alpha in the current study was 0.88 for avoidance and 0.87 for anxiety.

3. Results

3.1 Data analysis

The data were analysed using SPSS software version 26, and AMOS software version 25.

First, descriptive statistics were performed using means and standard deviations, followed by univariate correlations that were assessed using Pearson correlations. In order to examine the mediation model, structural equation modelling (SEM) that assessed the correlations between the variables was conducted. In addition, quality of fit measures were produced: the goodness of fit index (GFI); the comparative fit index (CFI); the non-normed fit index (NNFI), all with goodness of fit values greater than 0.9; as well as root mean square error of approximation (RMSEA) that was expected to be of a value of 0.08 or less. Significance was considered for a *p*-value lower than 5%. The SEM approach examined both direct and indirect paths, to test the hypotheses regarding mediation.

3.2 Descriptive statistics

Data were collected between 4.8.2014 and 14.1.2015. Six-hundred and fifty-five participants¹ began the questionnaires, half of whom dropped out after completing the demographic questions. Of those who completed the questionnaires, we excluded women who did not meet the inclusion criteria, mainly those who reported having their baby more than a year before the start of the survey. Five women were excluded as they did not have a partner. Thus, 228 women were included in the final cohort analysis. Table 1 shows the demographic characteristic of the final cohort. Most of the participants had a university degree, and were aged between 26–35 years. For most women, it was their first or second delivery. Most women, 84.3%, were Israeli born. Table 2 shows

Table 1. Patient Characteristics.

Characteristics	Values	N	%
Age, years	18–25	5	2.2%
	26–35	186	81.6%
	36+	37	16.2%
No. of children (including last birth)	1	108	47.4%
	2	78	34.2%
	3+	42	18.8%
Income	Below average	52	22.8%
	Average	75	32.9%
	Above average	99	43.4%
Level of Education	12 years and diploma	18	7.9%
	Degree level	210	92.1%

Note: N = number of respondents

characteristics of the birth. As can be seen, most women delivered in hospital, at term, and had had vaginal deliveries. Most felt in 'good hands' during childbirth. In the questionnaire, women could indicate more than one delivery partner, and most reported that their own partner had been with them during childbirth. Half the women took a childbirth preparation course.

Table 3 presents the descriptive statistics and Pearson correlations between study variables. Results are largely as expected.

Postnatal depression is positively correlated with post-traumatic stress symptoms ($r = .46, p < .01$); low quality of couple relationship ($r = -.30, p < .01$); and high mother-baby bond disorders ($r = .56, p < .01$).

High post-traumatic stress symptoms are correlated with low quality of couple relationship ($r = -.14, p < .05$), and high mother-baby bond disorders ($r = .34, p < .01$).

Table 2. Obstetric and Delivery Characteristics.

Characteristics	Values	N	%
Pregnancy Duration	Full term	147	65.6%
	Premature birth	14	6.3%
	Over 40 weeks	63	28.1%
Time following birth	0–3 months	50	21.5%
	4–7 months	84	36.1%
	8–12 months	74	31.8%
	Yes	112	49.3%
Childbirth Classes	No	115	50.7%
	Partner	226	99.1%
Delivery Partner	Friend or family	71	31.1%
	Doula	198	86.8%
	Hospital	207	91.2%
Birth Location	Natural birthing centre	12	5.3%
	Home	6	2.6%
	Other	2	0.9%
	Yes	200	87.7%
Felt in 'good hands'	No	28	12.3%
	Vaginal	165	72.7%
Type of Delivery	Assisted (e.g. forceps)	17	7.5%
	Cesarean	31	13.7%
	Vaginal birth after C-section	13	5.7%
	Vaginal birth after C-section that ended in C-section	1	0.4%
	Probable PTSD	17	7.8%
Probable Diagnosis	Probable Depression	30	12.9%

Table 3. Means, standard deviations, and correlations between study variables.

	M	SD	1	2	3	4	5	6
1. Avoidant attachment	3.04	0.87						
2. Anxious attachment	2.74	1.00	.31**					
3. FOC	56.98	28.22	.07	.08				
4. Postnatal depression	4.92	4.67	.29**	.40**	.41**			
5. Post-traumatic stress symptoms	30.93	14.25	.22**	.26**	.28**	.46**		
6. Quality of couple relationship	56.67	7.31	-.32**	-.28**	-.13*	-.30**	-.14*	
7. Mother-baby bond disorders	13.22	10.09	.11	.31**	.41**	.56**	.34**	-.28**

Note: * $p < .05$, ** $p < .01$

FOC = fear of childbirth; M = mean; SD = standard deviation

Finally, low quality of couple relationship is associated with high mother-baby bond disorders ($r = -.28$, $p < .01$).

4. Testing the study model-SEM analysis

In order to examine the study model and hypotheses, SEM analysis was conducted. The results demonstrate acceptable goodness of fit indices of the model ($\chi^2(1) = 4.75$; $p = .029$; GFI = .99; NFI = .98; CFI = .98). However, level of error of the model was found to be relatively high and not in the acceptable range (RMSEA = .12).

H1: Higher levels of post-traumatic stress symptoms following childbirth will be associated with higher levels of mother-baby bond disorders. No significant association was found between post-traumatic stress symptoms and mother-baby bond disorders ($\beta = .07$, $p = .18$). H1 was not supported.

H2: Symptoms of postnatal depression will be associated with higher levels of mother-baby bond disorders. A significant association was found between symptoms of postnatal depression and mother-baby bond disorders ($\beta = .42$, $p < .01$). More severe symptoms of postnatal depression are related to more severe mother-baby bond disorders. H2 was supported.

H3: Fear of childbirth will be positively associated with post-traumatic and depression symptoms. Results showed that fear of childbirth was positively associated with post-traumatic ($\beta = .23$, $p < .01$) and depression symptoms ($\beta = .24$, $p < .01$). Thus, mothers reporting higher levels of FOC also reported higher levels of post-traumatic and depression symptoms. H3 was supported.

H4: Insecure attachment style (avoidant/anxious) would be positively associated with FOC. Results did not reveal that avoidant ($\beta = .06$, $p = .30$) or anxious ($\beta = .06$, $p = .36$) attachment styles are correlated with FOC. H4 was not supported.

H5: Higher levels of post-traumatic stress symptoms following childbirth would be associated with a poorer couple relationship. This correlation would be mediated by symptoms of depression. No direct effect was found between post-traumatic stress symptoms and the quality of the couple relationships ($\beta = .03$, $p = .73$). However, higher levels of post-

traumatic stress symptoms were positively associated with depression ($\beta = .32$, $p < .01$), which in turn led to poorer quality couple relationship ($\beta = -.21$, $p < .05$). Mediation analysis showed that this indirect effect is significant ($\beta = -.05$, $p = .02$). H5 was supported.

H6: FOC would be associated with higher levels of mother-baby bond disorders. This relationship would be mediated by post-traumatic stress symptoms. Results showed a direct effect between FOC and mother-baby bond disorders ($\beta = .21$, $p < .05$). Testing the mediation process showed that higher FOC led to higher levels of post-traumatic stress symptoms ($\beta = .23$, $p < .01$), which in turn led to higher depression symptoms ($\beta = .32$, $p < .01$). Finally, depression symptoms are positively associated with mother-baby bond disorders ($\beta = .42$, $p < .01$). Mediation analysis showed that this indirect effect is significant ($\beta = .14$, $p = .01$). H6 was therefore not supported.

H7: FOC would be correlated with poorer quality couple relationships. This relationship would be mediated by post-traumatic stress symptoms. No significant direct effect was found between FOC and the quality of couple relationships ($\beta = -.02$, $p = .70$). However, testing mediation process showed that higher FOC led to higher levels of post-traumatic stress symptoms ($\beta = .23$, $p < .01$), which in turn led to higher depression symptoms ($\beta = .32$, $p < .01$). Finally, depression symptoms are negatively associated with couple relationship satisfaction ($\beta = -.21$, $p < .05$). Mediation analysis showed that this indirect effect is significant ($\beta = -.06$, $p = .02$). H7 was not fully supported [Figure 1](#).

To validate the causal relationship between the study variables, and to rule out alternative models, we also examined the reversed model. The reversed model yielded relatively poorer goodness of fit indices ($\chi^2(4) = 32.10$; $p < .001$; GFI = .92; NFI = .89; CFI = .90; RMSEA = .17). Therefore, the original hypothesized model better describes the data in compared with the reversed model.

5. Discussion

This study aimed to characterize the relationships between attachment style, depression, PTSD and

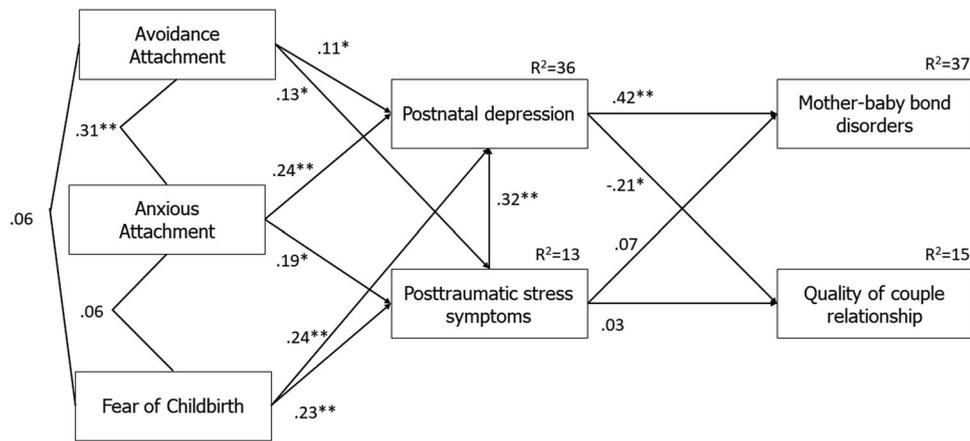


Figure 1. Relationships between avoidance attachment, anxious attachment, fear of childbirth, with mother-baby bond disorders and quality of couple relationship; mediated by postnatal depression and post-traumatic stress symptoms. Note: * $p < .05$, ** $p < .01$.

FOC symptoms, with mother-baby bonding and couple satisfaction. As hypothesized, and consistent with previous studies, problematic mother-baby bonding is correlated with decreased couple satisfaction. Problems in bonding and in couple satisfaction were related to higher levels of depression, PTSD and FOC. These results are intuitive: suffering from higher levels of anxiety related to the birth, feelings of postnatal depression, and symptoms of PTSD negatively affect baby bonding and couple satisfaction.

Avoidant and anxious attachment styles were related to increased reported levels of PTSD and depression, but not to FOC. Anxious attachment was related to both mother-baby bonding and couple relationship satisfaction; avoidant attachment was also related to couple satisfaction. These results, consistent with previous studies, indicate that attachment styles that are formed early in life can have a long-lasting impact on adult functioning in relationships (Ulmer-Yaniv et al., 2022).

Prior studies suggested that depression mediates other PTSD and bonding relationships, and the SEM supports this. The SEM indicates that PTSD, FOC, and depression levels are related, yet have differential effects on interpersonal relationships. Depression levels mediated the relationship between PTSD and couple satisfaction. There was a significant pathway from FOC to depression via PTSD, and from depression to bonding.

This suggests that women who experienced traumatic births were at higher risk of mother-baby bond disorders, partially due to PTSD symptoms. Symptoms of postnatal depression fully mediated the association between PTSD and couple relationship dissatisfaction. This might indicate that depression should be assessed and potentially become a focus of intervention when couple dissatisfaction is found. An alternative model was explored in our cohort, where couple dissatisfaction may have resulted in

higher levels of depression, but this was not found to be significant. Nevertheless it is relevant to test both models in further studies, and to allow for this pathway in clinical formulations.

Interestingly, most participants in the study scored relatively highly in terms of couple relationship satisfaction and most reported an improvement in the couple relationship following childbirth. This was surprising considering prior reports of relationship decline from new mothers, regardless of birth experience, depression, and PTSD (Daley-McCoy et al., 2015; Shapiro et al., 2000). In these studies, women were assessed during pregnancy (Daley-McCoy et al., 2015) and over a six year period (Shapiro et al., 2000). It is possible that the perspective of up to one year postpartum was insufficient for women to fully appreciate changes in the couple relationship. Additionally recent research has identified factors that impact the likelihood of relationship decline, such as shared parenting roles and ideals that may play a part in differences found (Adamsons, 2013).

FOC was found to be positively associated with mother-baby bond disorders; this association was mediated by symptoms of PTSD and then depression. This supports previous studies (Garthus-Niegel et al., 2014; Soet et al., 2003; Wijma et al., 1997). These results suggest that even if a birth seems normal, women can feel traumatized if they fear for their baby's life, or if they perceive the attitudes of the practitioners around them as hostile or negative (Elmir et al., 2010).

Contrary to our hypothesis, insecure attachment style was not found to be significantly associated with FOC, although it was associated with higher levels of postpartum depression and PTSD.

Conclusions and practical and theoretical implications. This study prominently highlights that a woman's subjective childbirth experience plays a clearly significant role in her understanding of the birth, and in her mental health and welfare following

birth, as well as mother-baby bond disorders. This has important implications for practitioners working with women in childbirth, such as midwives, doctors, and other birth assistants. Practitioners should ask about the birth as part of the postpartum monitoring, and suggest support groups and ways to access treatment is needed. When practitioners are aware of the implications of the childbirth experience, they may be able to direct suitable support when required.

Our findings support an association between PTSD and postnatal depression with mother-baby bonding. While PTSD and depression can present separately, they also coincide, and can have an even more significant effect on women's welfare than when they present alone. This has implications for routine screening by community health-service providers who need to be aware that PTSD may be present. Women who show signs of objective/subjective negative or traumatic birth experiences should be identified and observed closely to detect and diagnose psychopathology.

Finally, depression was significantly associated with couple relationship dissatisfaction, implying that treatment for women with postnatal depression should encompass the relationship with her partner. In contrast to prior studies, we do not report an association between couple relationship dissatisfaction and PTSD following childbirth. Thus, PTSD alone may not warrant couple therapy.

Limitations and recommendations for future research. It is possible that women who have postnatal PTSD/depression are less inclined to participate in a study of this nature, making it more difficult to improve our understanding of birth-related PTSD, depression, and their association with the study variables. Recruitment from social media that was focused on birth trauma, rather than postpartum clinics and labour wards may have introduced bias. Also, online surveys prevented the use of clinical diagnoses of PTSD and depression. Women without a partner were excluded, as the study focused on couple relationships, and this group, with less social support, may have higher rates of depression and PTSD. Partners' perceptions were not investigated and this is an important limitation, as no conclusions can be drawn about how this impacted perception of the birth and family relationships. Future studies should assess both partners. Additionally factors such as maternity leave and psychological therapy, should be assessed in future studies. Future studies could examine the emotions surrounding childbirth using the subscales of the WIJMA, as well as other assessment tools (Slade et al., 2022).

This was a cross-sectional study, which examined women at one time frame after childbirth. Women with PTSD or depression may have experienced other adverse events in their lives prior to delivery, and this could influence their childbirth experience

and the level of postnatal symptoms. Therapies that have impacted psychopathologies in the postpartum period were not investigated, and the reported symptoms could have been caused by postnatal events. The model tested was based on previous studies, but given the inconsistent results, other models are equally valid and should be tested in prospective studies. Future research needs to sample women both before and after childbirth in order to ensure more comprehensive results.

Note

1. It is important to note that the software used for the data collection counts how many people opened the questionnaire, even if they did not answer a single question or opened it several times, thus explaining the large number of people who 'began' the questionnaire.

Acknowledgement

The data that support the findings of this study are available on request from the corresponding author, [SAF]. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

The study was not funded.

The study received ethics approval from the School of Social Work Ethics Committee, Bar Ilan University. Since participation was anonymous, no signed informed consent was required.

Disclosure statement

No potential conflict of interest was reported by the author (SAF).

ORCID

Sara A. Freedman  <http://orcid.org/0000-0001-8733-0202>

References

- Adamsons, K. (2013). Predictors of relationship quality during the transition to parenthood. *Journal of Reproductive and Infant Psychology*, 31(2), 160–171. <https://doi.org/10.1080/02646838.2013.791919>
- Allen, S. (1998). A qualitative analysis of the process, mediating variables and impact of traumatic childbirth. *Journal of Reproductive and Infant Psychology*, 16(2–3), 107–131. <https://doi.org/10.1080/02646839808404563>
- Asselmann, E., Garthus-Niegel, S., & Martini, J. (2021). Personality impacts fear of childbirth and subjective birth experiences: A prospective-longitudinal study. *PLoS ONE*, 16(11). <https://doi.org/10.1371/journal.pone.0258696>
- Ayers, S., Jessop, D., Pike, A., Parfitt, Y., & Ford, E. (2014). The role of adult attachment style, birth intervention and support in posttraumatic stress after childbirth: A prospective study. *Journal of Affective Disorders*, 155(1), 295–298. <https://doi.org/10.1016/j.jad.2013.10.022>

- Ayers, S., Joseph, S., McKenzie-McHarg, K., Slade, P., & Wijma, K. (2008). Post-traumatic stress disorder following childbirth: Current issues and recommendations for future research. *Journal of psychosomatic obstetrics and gynaecology*, 29(4), 240–250. <https://doi.org/10.1080/01674820802034631>
- Ayers, S., Wright, D., & Wells, N. (2007). Symptoms of post-traumatic stress disorder in couples after birth: Association with the couple's relationship and parent-baby bond. *Journal of Reproductive and Infant Psychology*, 25(1), 40–50. <https://doi.org/10.1080/02646830601117175>
- Bailham, D., & Joseph, S. (2003). Post-traumatic stress following childbirth: A review of the emerging literature and directions for research and practice. *Psychology, Health & Medicine*, 8(2), 159–168. <https://doi.org/10.1080/1354850031000087537>
- Ballard, C. G., Stanley, A. K., & Brockington, I. F. (1995). Post-traumatic stress disorder (PTSD) after childbirth. *British Journal of Psychiatry*, 166(4), 525–528. <https://doi.org/10.1192/bjp.166.4.525>
- Beck, C. T. (2004a). Birth Trauma: In the Eye of the Beholder. Vol. 53, nursing research. Beck, Cheryl Tatano: University of Connecticut, School of Nursing, 231 Glenbrook Road, Storrs, CT, US, 06269-2026, Cheryl.beck@uconn.edu: Lippincott Williams & Wilkins; p. 28–35.
- Beck, C. T. (2004b). Post-traumatic stress disorder due to childbirth: The aftermath. *Nursing research*, 53(4), 216–224. <https://doi.org/10.1097/00006199-200407000-00004>
- Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2015). Psychological assessment psychometric properties of the PTSD checklist for diagnostic and statistical manual of mental disorders – Fifth Edition (PCL-5) in veterans statistical manual of mental disorders – Fifth Edition (PCL-5) in Veterans.
- Bowlby, J. (1951). *Maternal care and mental health*. Penguin Books LTD. p. 179.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. S. W. S. Rholes (Ed.), *Attachment theory and close relationships* (pp. 46–76). Guilford Press.
- Brockington, I. (2004). Postpartum psychiatric disorders. *Lancet*, 363(9405), 303–310. [https://doi.org/10.1016/S0140-6736\(03\)15390-1](https://doi.org/10.1016/S0140-6736(03)15390-1)
- Brockington, I. F., Oates, J., George, S., Turner, D., Vostanis, P., Sullivan, M., Loh, C., & Murdoch, C. (2001). A screening questionnaire for mother-infant bonding disorders. *Archives of Women's Mental Health*, 3(4), 133–140. <https://doi.org/10.1007/s007370170010>
- Brockington, I., Fraser, C., & Wilson, D. (2006). The postpartum bonding questionnaire: A validation. *Archives of Women's Mental Health*, 9(5), 233–242. <https://doi.org/10.1007/s00737-006-0132-1>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987 Jun). Detection of postnatal depression. Development of the 10-item Edinburgh postnatal depression scale. *The British Journal of Psychiatry*, 150(6), 782–786. <https://doi.org/10.1192/bjp.150.6.782>
- Daley-McCoy, C., Rogers, M., & Slade, P. (2015). Enhancing relationship functioning during the transition to parenthood: A cluster-randomised controlled trial. *Archives of Women's Mental Health*, 18(5), 681–692. <https://doi.org/10.1007/s00737-015-0510-7>
- Davies, J., Slade, P., Wright, I., & Stewart, P. (2008). Posttraumatic stress symptoms following childbirth and mothers' perceptions of their infants. *Infant mental health journal*, 29(6), 537–554. <https://doi.org/10.1002/imhj.20197>
- Djelantik, A. A. A. M. J., Robinaugh, D. J., Kleber, R. J., Smid, G. E., & Boelen, P. A. (2020). Symptomatology following loss and trauma: Latent class and network analyses of prolonged grief disorder, posttraumatic stress disorder, and depression in a treatment-seeking trauma-exposed sample. *Depression and Anxiety*, 37(1), 26–34. <https://doi.org/10.1002/da.22880>
- Edworthy, Z., Chasey, R., & Williams, H. (2008). The role of schema and appraisals in the development of posttraumatic stress symptoms following birth. *Journal of Reproductive and Infant Psychology*, 26(March), 123–138. <https://doi.org/10.1080/02646830801918422>
- Elmir, R., Schmied, V., Wilkes, L., & Jackson, D. (2010). Women's perceptions and experiences of a traumatic birth: A meta-ethnography. *Journal of Advanced Nursing*, 66(10), 2142–2153. <https://doi.org/10.1111/j.1365-2648.2010.05391.x>
- Fowers, B. J., & Olson, D. H. (1993). ENRICH marital satisfaction scale: A brief research and clinical tool. *Journal of Family Psychology*, 7(2), 176–185. <https://doi.org/10.1037/0893-3200.7.2.176>
- Freedman, S. A., Gilad, M., Ankri, Y., Roziner, I., & Shalev, A. Y. (2015). Social relationship satisfaction and PTSD: Which is the chicken and which is the egg? *European Journal of Psychotraumatology*, 6, Article 28864. <https://doi.org/10.3402/ejpt.v6.28864>
- Gao, M. M., & Cummings, E. M. (2019). Understanding parent-child relationship as a developmental process: Fluctuations across days and changes over years. *Developmental Psychology*, 55(5), 1046–1058. <https://doi.org/10.1037/dev0000680>
- Garthus-Niegel, S., Knoph, C., von Soest, T., Nielsen, C. S., & Eberhard-Gran, M. (2014). The role of labor pain and overall birth experience in the development of posttraumatic stress symptoms: A longitudinal cohort study. *Birth (berkeley, Calif)*, 41(1), 108–115. <https://doi.org/10.1111/birt.12093>
- George, C., & Solomon, J. (2008). The caregiving system: A behavioral systems approach to parenting. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research, and Clinical Applications (2nd Edition)* (pp. 833–856). Guilford Press.
- Haga, S. M., Lynne, A., Slinning, K., & Kraft, P. (2012). A qualitative study of depressive symptoms and well being among first time mothers. *Scandinavian Journal of Caring Science*, 26(3), 458–466. <https://doi.org/10.1111/j.1471-6712.2011.00950.x>
- Handelzalts, J. E., Levy, S., Molmen-Lichter, M., Ayers, S., Krissi, H., Wiznitzer, A., & Peled, Y. (2021). The association of attachment style, postpartum PTSD and depression with bonding- a longitudinal path analysis model, from childbirth to six months. *Journal of Affective Disorders*, 280(PA), 17–25. <https://doi.org/10.1016/j.jad.2020.10.068>
- Hershkowitz, M., Dekel, R., & Fridkin, S. F. S. (2017). Posttraumatic stress disorder, parenting, and marital adjustment among a civilian population. *Frontiers in Psychology*, 4(8), 1655. <https://doi.org/10.3389/fpsyg.2017.01655>
- Heyne, C.-S., Kazmierczak, M., Souday, R., Horesh, D., Lambregtse-van den Berg, M., Weigl, T., Horsch, A., Oosterman, M., Dikmen-Yildiz, P., & Garthus-Niegel, S. (2022). Prevalence and risk factors of birth-related posttraumatic stress among parents: A comparative systematic review and meta-analysis. *Clinical Psychology Review*, 94, 1–18. <https://doi.org/10.1016/j.cpr.2022.102157>
- Iles, J., Slade, P., & Spiby, H. (2011). Posttraumatic stress symptoms and postpartum depression in couples after

- childbirth: The role of partner support and attachment. *Journal of Anxiety Disorders*, 25(4), 520–530. <https://doi.org/10.1016/j.janxdis.2010.12.006>
- Lavee, Y. (1995). Marital quality inventory: Research and clinical uses. In: Scientific conference of the psychologists association Ben Gurion university, Beer Sheva, Israel.
- Levis, B., Negeri, Z., Sun, Y., Benedetti, A., & Thombs B, D. (2020). Accuracy of the edinburgh postnatal depression scale (EPDS) for screening to detect major depression among pregnant and postpartum women: Systematic review and meta-analysis of individual participant data. *BMJ*, 371. <https://doi.org/10.1136/bmj.m4022>
- Mahler, M. S., & Yahraes, H. (1971). How the child separates from the mother. *The Mental Health of the Child: program reports of the national institute of Mental Health*, 2168, 211–221.
- McNamara, J., Townsend, M. L., & Herbert, J. S. (2019). A systemic review of maternal wellbeing and its relationship with maternal fetal attachment and early postpartum bonding. *PLoS ONE*, 14(7), e0220032. <https://doi.org/10.1371/journal.pone.022>
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of personality and social psychology*, 79(2), 260–273. <https://doi.org/10.1037/0022-3514.79.2.260>
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood structure, dynamics, and change*. Guilford.
- Nelson, C., Cyr, K. S., Corbett, B., Hurley, E., Gifford, S., Elhai, J. D., & Richardson, J. D. (2011 Nov). Predictors of posttraumatic stress disorder, depression, and suicidal ideation among Canadian Forces personnel in a National Canadian military health survey. *Journal of psychiatric research*, 45(11), 1483–1488. <https://doi.org/10.1016/j.jpsychires.2011.06.014>
- Nicholls, K., & Ayers, S. (2007). Childbirth-related post-traumatic stress disorder in couples: A qualitative study. *British journal of health psychology*, 12(4), 491–509. <https://doi.org/10.1348/135910706X120627>
- Noyman-Veksler, G., Herishanu-Gilutz, S., Kofman, O., Holchberg, G., & Shahar, G. (2015). Post-natal psychopathology and bonding with the infant among first-time mothers undergoing a caesarian section and vaginal delivery: Sense of coherence and social support as moderators. *Psychology & Health*, 30(4), 441–455. <https://doi.org/10.1080/08870446.2014.977281>
- Ohara, M., Okada, T., Aleksic, B., Morikawa, M., Kubota, C., Nakamura, Y., Shiino, T., Yamauchi, A., Uno, Y., Murase, S., & Goto, S. (2017). Social support helps protect against perinatal bonding failure and depression among mothers: A prospective cohort study. *Scientific Reports*, 7(1), 1–8. <https://doi.org/10.1038/s41598-016-0028-x>
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological bulletin*, 129(1), 52–73. <https://doi.org/10.1037/0033-2909.129.1.52>
- Pallant, J. F., Haines, H. M., Green, P., Toohill, J., Gamble, J., Creedy, D. K., & Fenwick, J. (2016). Assessment of the dimensionality of the Wijma delivery expectancy/experience questionnaire using factor analysis and Rasch analysis. *BMC Pregnancy and Childbirth*, 16(1), 361. <https://doi.org/10.1186/s12884-016-1157-8>
- Parfitt, Y., & Ayers, S. (2009). The effect of postnatal symptoms of post-traumatic stress and depression on the couple's relationship and parent-baby bond. *Journal of Reproductive and Infant Psychology*, 27(2), 127–142. <https://doi.org/10.1080/02646830802350831>
- Radoš, S. N., Matijaš, M., Andelinović, M., Čartolovni, A., & Ayers, S. (2020). The role of posttraumatic stress and depression symptoms in mother-infant bonding. *Journal of Affective Disorders*, 268(February), 134–140. <https://doi.org/10.1016/j.jad.2020.03.006>
- Segel-Karpas, D., Bamberger, P. A., & Bacharach, S. B. (2013). Income decline and retiree well-being: The moderating role of attachment. *Psychology and aging*, 28(4), 1098. <https://doi.org/10.1037/a0034672>
- Sevin, C. M., Bloom, S. L., Jackson, J. C., Wang, L., & Ely EW, S. J. L. (2018). Comprehensive care of ICU survivors: Development and implementation of an ICU recovery center. *Journal of Critical Care*, 46, 141–148. <https://doi.org/10.1016/j.jcrc.2018.02.011>
- Shapiro, A. F., Gottman, J. M., & Carrère, S. (2000). The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *Journal of family psychology: JFP: journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 14(1), 59–70. <https://doi.org/10.1037/0893-3200.14.1.59>
- Slade, P., Balling, K., Houghton, G., & Sheen, K. (2022). A new scale for fear of childbirth: The fear of childbirth questionnaire (FCQ). *Journal of Reproductive and Infant Psychology*, 40(6), 602–612. <https://doi.org/10.1080/02646838.2021.1928615>
- Soet, J. E., Brack, G. A., & Dilorio, C. (2003). Prevalence and predictors of women's experience of trauma during childbirth. *Birth (berkeley, Calif)*, 30(1), 36–40. <https://doi.org/10.1046/j.1523-536X.2003.00215.x>
- Sutton, T. E., Simons, L. G., Simons, R. L., & Cutrona, C. (2017). Psychological distress, couple interactions, and parenting: A dyadic analysis of African American couples. *Family Relations*, 79, 850–864. <https://doi.org/10.1111/jomf.12352>
- Taft, C. T., Watkins, L. E., Stafford, J., Street, A. E., & Monson, C. M. (2011). Posttraumatic stress disorder and intimate relationship problems: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 79(1), 22–33. <https://doi.org/10.1037/a0022196>
- Thomson, G., & Downe, S. (2008). Widening the trauma discourse: The link between childbirth and experiences of abuse. *Journal of Psychosomatic Obstetrics & Gynecology*, 29(4), 268–273. <https://doi.org/10.1080/01674820802545453>
- Ulmer-Yaniv, A., Waidergoren, S., Shaked, A., Salomon, R., & Feldman, R. (2022). Neural representation of the parent-child attachment from infancy to adulthood. *Social Cognitive and Affective Neuroscience*, 17(7), 609–624. <https://doi.org/10.1093/scan/nsab132>
- Wang, Y., Chung, M. C., Wang, N., Yu, X., & Kenardy, J. (2021). Social support and posttraumatic stress disorder: A meta-analysis of longitudinal studies. *Clinical Psychology Review*, 101998. <https://doi.org/10.1016/j.cpr.2021.101998>
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The PTSD Checklist for DSM-5 (PCL-5). Scale available from the National Center for PTSD at www.ptsd.va.gov. 2013.
- Wijma, K., Söderquist, J., & Wijma, B. (1997). Posttraumatic stress disorder after childbirth: A cross sectional study. *Journal of anxiety disorders*, 11(6), 587–597. [https://doi.org/10.1016/S0887-6185\(97\)00041-8](https://doi.org/10.1016/S0887-6185(97)00041-8)
- Wijma, K., Wijma, B., & Zar, M. (1998). Psychometric aspects of the W-DEQ; A new questionnaire for the measurement of fear of childbirth. *Journal of psychosomatic obstetrics and gynaecology*, 19(2), 84–97. <https://doi.org/10.3109/01674829809048501>