

Postpartum Post-Traumatic Stress Disorder symptoms: The Uninvited Birth Companion

Inbal Shlomi Polachek MD¹, Liat Huller Harari MD², Micha Baum MD³ and Rael D. Strous MD^{1,4}

¹Beer Yaakov Mental Health Center, Beer Yaakov, Israel

²Ramat Chen Community Center, Ramat Chen, Israel

³Department of Obstetrics and Gynecology, Sheba Medical Center, Tel Hashomer, Israel

⁴Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

ABSTRACT: **Background:** While many are familiar with postpartum depression, the phenomenon of postpartum post-traumatic stress disorder (PTSD) is less well known and investigated. **Objectives:** To assess the prevalence of postpartum PTSD in a cohort of women in Israel and examine factors affecting its development. **Methods:** Eighty-nine women completed several ratings immediately post-delivery and after a month. Factors examined related to the pregnancy, childbirth expectations, and delivery. Rating scales comprised evaluations of attachment, personality, PTSD, and demographic variables. **Results:** The prevalence of post-partum PTSD was 3.4% (complete PTSD), 7.9% nearly complete PTSD, and 25.9% significant partial disorder. Women who developed PTSD symptoms had a higher prevalence of “traumatic” previous childbirth, with subsequent depression and anxiety. They also reported more medical complications and “mental crises” during pregnancy as well as anticipating more childbirth pain and fear. Instrumental or cesarean deliveries were not associated with PTSD. Most of the women who developed PTSD symptoms delivered vaginally, but received fewer analgesics with stronger reported pain. Women with PTSD reported more discomfort with the undressed state, stronger feelings of danger, and higher rates of not wanting additional children. **Conclusions:** The study results indicate the importance of inquiring about previous pregnancy and birthing experiences and the need to identify at-risk populations and increased awareness of the disorder. The importance of addressing anticipatory concerns of pain prior to delivery as well as respecting dignity and minimizing the undressed state during childbirth should not be underestimated. A short questionnaire following childbirth may enable rapid identification of symptoms relevant to PTSD.

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Controversy remains whether childbirth should be included under the definition of a traumatic event that meets the criteria for post-traumatic stress disorder. While unlike other traumatic events childbirth is not sudden, there are several characteristics indicating traumatic elements. During childbirth, many women experience real threat regarding physical harm or death to themselves or their baby [1]. Boyce and Condon [2] describe that many women during a painful birth believe that their bodies are torn or destroyed irreversibly. Further evidence or support for this emanates from PTSD developing after medical or surgical interventions [3]. However, few studies relate to postpartum emotional distress as associated with the birth process itself. To meet the DSM-IV diagnostic criteria for PTSD, the required criteria include experiencing, witnessing or confronting an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others. In addition, the person's response must involve intense fear, helplessness, or horror. Thus, at least according to these measures, in many women the childbirth experience would indisputably meet the requirements as a qualifying event for PTSD.

It has been suggested that the intense experience of pain can lead to an event perceived as traumatic. In their study of individuals injured in traumatic events, Schreiber and Galai [4] found that the injury itself caused no perception of a traumatic event, but rather the sensation of pain. Melzack [5] reported that the experience of pain in childbirth leads to a traumatic experience long after the birth itself, with others reporting that many prefer to have the next birth by cesarean section due to the memory of painful childbirth even 3 years after the birth [6]. In a survey of 28 women requesting cesarean section, all had memories of a traumatic birth, including 50% who had an emergency cesarean section [7]. The repercussions of post-traumatic symptoms after childbirth are varied, with some reporting avoidance of sex and fear of having further children [8]. Other studies have found an association between PTSD after delivery and impaired mother-child attachment

PTSD = post-traumatic stress disorder

and problems in nursing [9]. While speculative, the baby may function as a trigger for remembering the traumatic birth with subsequent avoidance of the 'trigger'.

Rates of post-traumatic symptoms post-delivery have been reported to range from 15% to 74% [7,9]. Differences in rates of symptoms are due to varying methodological study approaches, including different assessment tools for PTSD and how much time had elapsed since the birth. More recent studies based on larger samples reported that the incidence of the complete diagnosis of post-traumatic stress disorder ranges from 1% to 6% [10], and 6% to 24% with severe symptoms but with only partial diagnosis of PTSD [3,10]. "Partial PTSD" relates to the reality that many individuals report high levels of post-traumatic symptoms without meeting all the criteria for PTSD, thus many in the field make use of the term "partial PTSD" [11]. This conceptualization of PTSD refers to a disorder that is situated on a continuum, with reference to different intensities and differences in incidence of the disorder.

Several factors have been shown to be associated with the development of PTSD after childbirth. These include factors surrounding the birth, such as use of invasive procedures (cesarean and manual) [7], perception of loss of control during the birth process [10], and fear of losing the baby. Factors prior to birth associated with postpartum PTSD include past sexual abuse [12], previous psychiatric treatment [10], negative expectations of birth [12], and personality structure [12]. Factors protecting against PTSD include social support and a secure attachment style [13].

Since the subject is important, albeit understudied, the objective of this study was to further examine the prevalence of PTSD, complete or partial, among women in the immediate postpartum period and for the first time in Israel. Since PTSD has been associated with the intensity of the traumatic exposure, we were interested in investigating the nature and intensity of various potentially traumatic factors associated with childbirth; some of which may not necessarily be associated with fear of death such as the undressed state. We therefore explore possible risk factors for developing the disorder as well as examine the relationship between traumatic symptom development and request for cesarean delivery for subsequent pregnancies. Other factors examined include association of PTSD symptoms with any discomfort of physical exposure, subjective sense of difficulty getting pregnant, extra-uterine fertilization, types of childbirth preparation, body image, using a private midwife or doula, and breastfeeding.

PATIENTS AND METHODS

STUDY POPULATION

A specially designed package of questionnaires (see below) was presented to women who were hospitalized in the maternity ward after giving birth in the hospital. Criteria

for inclusion were: women of any age who gave birth at the hospital during the study and who were able to sign the informed consent form. The study was approved by the Tel Hashomer Medical Center Helsinki Committee Ethical Review Board.

STUDY DESIGN AND STUDY MEASUREMENTS

Within the first few days after childbirth (2 days for natural delivery and 5 days for cesarean section), the women who volunteered to participate in the study received questionnaires including a study inventory with questions on psychosocial and demographic variables, a relationship questionnaire (Bartholomew and Horowitz, 1991) [14] as well as the International Personality Disorder Examination personality questionnaire [15]. A month later, these women were contacted and requested to complete once again the study questionnaires, consisting of an inventory exploring responses and current mental state after delivery as well as the Post-traumatic Stress Diagnostic Scale [16]. The PDS is a self-administered questionnaire designed to aid in the diagnosis of PTSD according to the criteria of the DSM-IV and for monitoring the intensity of symptoms.

STATISTICAL ANALYSIS

The analysis examined the relationships between the characteristics of post-trauma and demographic characteristics of previous pregnancies, current pregnancy, birth patterns and subjective report of childbirth. Correlations were examined using chi-square test and Student's *t*-test depending on the characteristics of the variables involved in the analysis. All tests were set with a bilateral significance level of 95%. Analyses were performed by SPSS software (version 16).

RESULTS

A total of 102 women agreed to participate and were interviewed. After a month, 89 completed the follow-up interview. Mean age was 32 years (range 20–40 years). For 29% of the study sample this was their first delivery; mean parity was 1.3. Of the women surveyed 85% were married, 3 had partners and 1 was divorced; 84% reported that they work, with 12.4% describing their income as significantly above average, 38.2% as slightly above average, 34.8% average, 9% less than average and 5.6% significantly less than average. Results were analyzed only of those women who completed baseline and follow-up interviews.

POST-TRAUMATIC SYMPTOMATOLOGY

Results as expressed in the PDS questionnaire analysis indicated that three women fulfilled the criteria of PTSD one month after birth (3.4%), with two other women lacking one

PDS = Post-traumatic Stress Diagnostic Scale

Table 1. Clusters of PTSD symptomatology in study group

	Frequency
No. of patients with full PTSD	N=3 (3.4%)
No. of patients with partial PTSD*	N=7 (7.8%)
No. of patients with PTSD symptomatology**	N=23 (25.9%)
One or more symptoms of re-experiencing	35 %
One or more symptoms of avoidance	29.2 %
One or more symptoms of arousal	44.9 %
Symptoms lasting longer than 1 month	40 %
Functional impairment	21.3 %

* Patients with partial PTSD = lacking one or two symptoms

** Patients with PTSD symptomatology = partial PTSD (n=7) and patients who met all criteria except for 1 month duration of symptoms (n=2) were without functional impairment (n=7) or experienced partial symptoms with some functional impairment (n=7)

symptom (2.2%), a further two lacking two symptoms (2.2%), and two other women meeting all criteria except for at least one month duration of symptomatology (2.2%) (criterion E of the DSM-IV). Seven other women experienced significant symptoms in the three groups of symptoms but without functional impairment (7.9%), and seven experienced partial symptoms but with some functional impairment (7.9%). Altogether, these 23 women, who constitute 25.9% of those evaluated, exhibited significant post-traumatic symptoms [Table 1].

For processing the data we needed to select a group large enough to be statistically significant but homogenous enough to offer meaningful results. Thus, the results analyzed included women with full PTSD criteria and women missing one or two criteria, providing a total of seven women (7.8%). Precedent exists in several analyses for the inclusion of partial or subsyndromal PTSD in this manner together with full PTSD criteria [11].

DEMOGRAPHIC DATA

No relationship was found between the development of postpartum PTSD symptoms and any demographic data including level of education (as expressed in years of schooling). There was no statistical correlation between symptoms of PTSD and religion.

BARTHOLOMEW RELATIONSHIP QUESTIONNAIRE RESULTS

No correlation was found between communication style and development of postpartum PTSD symptoms. Of the women who developed full or partial PTSD, five chose the “secure” pattern as most suitable for them, one chose the “fearful-avoidant” pattern, and one failed to answer.

IPDE PERSONALITY QUESTIONNAIRE RESULTS

None of the women recruited for the study exhibited personality disorder and, therefore, no statistical correlation was found with any of the personality disorders according to the IPDE. Following analysis of individual items on the IPDE, only item 14 suggestive of “paranoid traits” (“Most people are fair and honest with me”) was significant (chi-square < 0.014).

PRIOR HISTORY

There was a higher incidence of previous psychiatric or psychological treatment in the subgroup of women who developed PTSD than those who did not (60% vs. 29.8%, $P = 0.157$). There was no increased incidence of substance abuse or family psychiatric history between the groups. There were no previous reported traumatic events reported by the women who developed postpartum PTSD symptoms, and there was no difference in reported stressful or traumatic events in the histories between the two subgroups. There was no difference between the two subgroups in reported sexual abuse in the past (14.8% vs. 9.8%).

FACTORS ASSOCIATED WITH DEVELOPMENT OF PTSD

- *Body image.* Eighty percent of women who developed PTSD symptoms reported that they feel very uncomfortable in the undressed state compared with 27.7% of women in the group that did not develop PTSD symptoms ($P = 0.014$).
- *Previous pregnancies.* Sixty percent of women who developed PTSD symptoms defined their previous birth experience as particularly difficult (traumatic), compared to 15.5% of women in the control group ($P = 0.012$). Fifty percent of the women who developed PTSD symptoms requested help from a mental health care practitioner after a previous pregnancy compared with 8.3% of women in the control group ($P = 0.01$). Eighty percent of women who developed PTSD symptoms reported sadness, blues or anxiety during or after the previous pregnancy compared with 33% of women in the control group ($P = 0.038$). No difference was found between the groups in the description of the previous birth experience in a Likert scale of 1–5, where 5 reflects a very difficult experience. However, approximately 50% of those who developed PTSD symptoms rated the previous birth as 5, compared with 26.7% in the control group.
- *Current pregnancy.* There was no significant difference in the percentage of non-planned pregnancies between the groups. All pregnancies of women who developed PTSD were planned, compared with 8.3% of unplanned pregnancies in the control group (non-significant). There was no difference between the groups with respect to time waiting for pregnancy, incidence of fetal medical problems, or use of fertility treatments. However, 80%

IPDE = International Personality Disorder Examination

Table 2. Mode of childbirth among study subjects

		Natural	Elective cesarean	Emergency cesarean	Instrument	Total
		No PTSD	No. 41	19	22	2
	%	48.8%	22.6%	26.2%	2.4%	100.0%
PTSD	No. 4	1	0	0	5	
	%	80.0%	20.0%	0%	0%	100.0%
Total	No. 45	20	22	2	89	

of women who developed PTSD symptoms reported complications during pregnancy compared with 28.6% of women in the control group ($P = 0.016$). In addition, 80% of women who developed PTSD symptoms reported emotional crises during pregnancy compared with 23.8% of women in the control group ($P = 0.06$). While women who developed PTSD spent less time in preparation for birth (birthing course, conversations, books, etc.), the difference did not reach significance. However, there was a significant difference between the groups in number of methods utilized to prepare for childbirth (0.4 in PTSD group vs. 1.5 methods in the control group, $P = 0.05$).

- *Birth expectations.* Women who developed PTSD symptoms expressed that for them a rapid birth with support and more control was most important to them compared to the group without PTSD symptoms who had hoped for a birth without pain. Eighty percent of women who developed PTSD symptoms reported a high fear of birth compared with 30% of women in the control group ($P = 0.021$).
- *Pain expectation.* Women who developed PTSD symptoms reported an expected intensity of pain on a Likert scale that was higher than that expected in the group that did not develop PTSD (t -test, $P = 0.056$).
- *Delivery.* Women in the control group gave birth on average a week later than those who developed PTSD symptoms (t -test, $P = 0.009$). There were more natural births (non-interventional) in the PTSD group than in the control group [Table 2]. A significantly smaller number of women who developed PTSD symptoms received analgesia during delivery compared to the control, group (chi-square $P = 0.000$). While women who developed PTSD reported higher levels of pain during delivery (Likert scale 4.2 vs. 2.8), this did not reach significance due to the numbers involved.
- *Feelings during childbirth.* Of the women who developed full or partial PTSD, 71.4% reported that they felt danger to their lives or health during labor compared with 20.7% of the control group ($P = 0.001$). A significant number of women who developed PTSD felt there was a danger to the life or health of the fetus during labor (40% vs. 3.6%, $P = 0.021$). The level of severity of this fear when present on a Likert scale was also significant ($P = 0.021$). There was no difference between the groups regarding feelings of lack

Table 3. Relationship of undressed state during childbirth with PTSD symptoms

		Undressed state during delivery		
		Mild discomfort	Major discomfort	Total
No PTSD	No. 71	10	81	
	%	87.7%	12.3%	100.0%
PTSD	No. 4	3	7	
	%	57.1%	42.9%	100.0%
Total	No. 75	13	88	
	Frequency of discomfort	85.2%	14.8%	100.0%

of control during labor. However, those who developed PTSD symptoms did report less self-confidence in their ability to deal with labor on their own ($P = 0.013$). None of the women who developed PTSD reported any amnesia during delivery compared to nine women in the control group. Similar to previous childbirth experience, women who developed PTSD reported greater discomfort with the undressed state during childbirth ($P = 0.029$) [Table 3].

- *Support during labor.* No relationship was found between the development of PTSD symptoms after childbirth and being accompanied by someone during labor or the extent to which the accompanying person gave support.
- *Postpartum factors.* While women who developed PTSD symptoms experienced more complications after birth compared to the control group (40% vs. 20%), this did not reach significance. In addition, no relationship was found regarding complications in the baby or to Apgar scores. Women who developed PTSD symptoms felt less pain postpartum ($P = 0.018$). More women who developed PTSD after birth replied that they do not want more children due to the birth experience ($P = 0.054$). Women who breastfed immediately after childbirth appeared to be at less risk to develop PTSD ($P = 0.167$).

QUESTIONNAIRE ONE MONTH AFTER BIRTH

Women who developed PTSD symptoms reported that they did not have enough help postpartum (chi-square $P = 0.036$). There were no differences between the two groups with respect to reported quality of relationship with their husband after birth or with desire for more children. Finally, one month postpartum, none of the women who developed PTSD reported that they would prefer or request cesarean section for future childbirths.

DISCUSSION

Results from this study indicate a similar prevalence of postpartum PTSD to that of previous studies (3.4%). However, to our knowledge this is the first study that has examined

the prevalence of full or partial postpartum PTSD in general, and the phenomenon of postpartum PTSD in Israel in particular. As in prior studies, we found a significant percentage of women who suffered partial symptoms of the disorder with or without dysfunction, which lasted over or under one month. With this broader definition of postpartum PTSD, it appears that 25.9% of the women suffered from some additional aspect of PTSD after childbirth. This is a remarkable figure and indicates the importance of further research of the subject and increased resources and attention to the issue.

Changes to the current diagnostic DSM-IV criteria for PTSD have been recommended, since it has been suggested that the current criteria are too strict and exclude many who suffer. Our findings indicating the significant prevalence of partial PTSD appear to support these changes.

In this study we examined personality using the IPDE questionnaire. Since the questionnaire was conducted orally it appears that the women tended to view themselves in a more positive light. However, one item in particular that was significant was paranoid traits. Our findings thus confirm those of others who demonstrated an association between the development of PTSD symptoms and paranoid personality traits/features. In a study of 572 men who served in the United Nations Peacekeeping Force in the former Yugoslavia, those who rated highest on personality traits such as negativism and paranoia before deployment also tended to show more signs of PTSD later [17]. While speculative, it has been suggested that an individual with paranoid personality traits may see more personal menace in events than others do, which would predispose them to the development of PTSD. These associations are important since, as suggested by the cognitive-motivational-relation theory [1], the interaction between person and environment determines the appraisal of and meaning attributed to the situation. These factors influence coping ability following trauma. Thus, within the context of a dynamic interaction, various preexisting personality traits may influence appraisal of stress as well as subsequent coping responses which may predispose to PTSD if not optimal.

As in other studies of PTSD symptoms after birth, we found no relationship with socioeconomic status, marriage, and number of children [18]. However, unlike Maggioni et al. [18], we noted no increased predisposition to postpartum PTSD in first-time mothers. While no relationship was found with past traumas, we did note a significant association between previous traumatic experiences in previous births and postpartum PTSD symptoms in subsequent births. Moreover, fear of dying in childbirth was noted to be a risk factor for PTSD, a factor that has been noted in previous studies. An association has been found between previous maternal experiences of childbirth complications and development of postpartum PTSD. Two out of three women with PTSD who reported that they had requested mental health

care in the past had requested this assistance for the management of previous birth trauma.

Similar to others [18], we noted an association between the development of postpartum PTSD symptoms and a difficult pregnancy, which may include medical complication both during pregnancy and during the childbirth process itself. In our study this was noted in shorter average pregnancies, more complications during pregnancy, and associated with more mental health crises. We also replicate previous findings indicating that postpartum PTSD is associated with a greater fear of pain and childbirth [8]. Interestingly, in our study, women who developed PTSD tended to prefer a quick birth. This may be reflected in a similar fashion in the findings of Maggioni et al. [18], who noted that women who preferred fast delivery were also women who had characteristics of anxiety traits. While the difference did not reach significance probably due to the numbers involved, women who developed postpartum PTSD in our study spent on average less time preparing for birth. The possibility therefore remains that better preparation and subsequent alleviation of anxiety may have lessened the risk for postpartum PTSD development.

Bailham and Joseph [19] noted that delivery with the aid of instruments as well as those requiring episiotomy were at higher risk for development of postpartum PTSD. We did not notice any association between type of birth end PTSD. However, we observed that fewer women who developed PTSD symptoms received an epidural and there was a greater incidence of PTSD symptoms among women who did not receive an epidural. While speculative, it is possible that an epidural may have protected against PTSD development by decreasing the experience of childbirth-associated pain. Similar to other studies, we found an association between the fear of acute danger to self and the baby and subsequent PTSD. However, this was not associated with a fear of loss of control as in other studies [10], and the presence of a doula or birth assistance did not affect PTSD occurrence.

We found no increased rate of medical complications post-childbirth in those who developed postpartum PTSD. Surprisingly, those who developed postpartum PTSD reported less post-childbirth pain than those who did not develop PTSD. Also, in contrast to other studies we did not find any association with Apgar scores [20]. As expected, those who developed postpartum PTSD reported that they did not wish further pregnancies, most likely due to their most recent traumatic birth experience. However, unlike observations of others [6], women who developed postpartum PTSD did not report that they would prefer cesarean section in future pregnancies to diminish the traumatic experience. Study findings also indicated that perceived social support was a significant protective factor against the development of postpartum PTSD. However, this was not expressed in perceived strength of connection

with the husband. Reported lack of help was also associated with PTSD. Another interesting difference between those who developed PTSD and those who did not was the observation that in addition to pain, the entire PTSD group also experienced anger, fear and emotional detachment compared to only 55% of those who did not develop PTSD. This finding may also be important in the prediction of later PTSD.

To the best of our knowledge, this is the first study to examine and indicate a relationship between the development of postpartum PTSD and discomfort with the undressed state during childbirth. While in a completely different context, studies have noted that female victims of aggression are at more risk for PTSD when experiencing humiliation during the event [21]. It is suggested that some women felt intensely uncomfortable when exposed to the extent that they were during childbirth, increasing their risk for PTSD.

While the sample size was adequate for study, further studies should consider investigating larger numbers of individuals in the context of multisite investigation. In addition, further studies should follow subjects for a longer period in order to monitor the development and/or progression of postpartum PTSD, including suggestions for optimal treatment which may incorporate psychotherapy, various modes of support and even psychopharmacological regimens. Since up to a quarter of participants had some post-traumatic symptoms, it is possible that the questionnaire was too sensitive, with false positives, and this should also be addressed in further investigation. Thus, while several other studies have also made use of the concept of partial PTSD and full PTSD on a continuum [11,22,23], any such investigation must be taken with caution. Finally, although the finding that 3.4% of subjects with postpartum PTSD is not all that different from the 2.3% PTSD described in a recent large European epidemiological study of 12 month prevalence rates of mental disorders [24], the finding of 3.4% PTSD in this study is more than that of the 0.5% 12 month prevalence rates of PTSD described in the 2004 Israel National Health Survey [25]. This may be accounted for by the specific trauma unique to women (childbirth) in this study group, with the knowledge that PTSD prevalence in general is higher in women. Interestingly, our findings are almost precisely in line with another study describing partial (3.4%) and full PTSD (2.7%) prevalence rates in a community survey following trauma exposure [11].

In conclusion, although childbirth is a natural and widespread experience, it is a challenging event that often has long-term emotional repercussions. While PTSD is diagnosed in only a few percent of postpartum women, there are significant partial symptoms in a quarter of women, and over 50% of women define at least one of their childbirth experiences as difficult. These high percentages indicate a population at risk and the importance of early detection, diagnosis and management if

necessary. Study findings also indicate the critical importance of previous birth experience in the development of PTSD. Both previous and current pregnancies were perceived in this group of women to be traumatic and thus should be an important potential predictive factor of future PTSD to be screened for. It may be proposed that experiencing pregnancy in a negative light during pregnancy and birth may be addressed at a cognitive level at an early stage and thus mitigate the risk of developing PTSD later in those predisposed. Similarly, appropriate analgesia may help to mitigate the incidence of postpartum PTSD. The importance of addressing anticipatory concerns of pain prior to delivery as well as respecting the woman's dignity and minimizing the undressed state should not be underestimated. As a result of our findings, other factors that may be included in a simple screening of those at risk for postpartum PTSD, such as whether the woman would desire future pregnancies and whether she felt discomfort with the undressed state during delivery. It appears that more of a focus on the subjective experience during childbirth is indicated in order to predict later PTSD development. While the findings of this study are interesting and important, further investigation is mandated to clarify the phenomenon.

Corresponding author:

Dr. I. Shlomi

Beer Yaakov Mental Health Center, P.O. Box 1, Beer Yaakov 70350, Israel

Fax: 08-9258224

email: inbalshlomi@gmail.com

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