

## The prevalence of post-traumatic stress disorder among women with normal vaginal delivery in Zahedan city

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**Aim:** The study aimed to determine the prevalence of post-traumatic stress disorder (PTSD) among postpartum women in Zahedan city, Iran.

**Method:** Data in this cross-sectional study were gathered from healthcare centres of Zahedan, a city in south-east Iran. Four-hundred women with childbirth experience over the past few months were selected; between 6 and 24 weeks had passed since their delivery. We used three questionnaires in order to evaluate the demographic data, PTSD symptoms and traumatic childbirth experience.

**Results:** The mean parity was  $3.40 \pm 2.55$  children and the mean duration of pain was  $19.44 \pm 9.16$  hours. Overall, 7.8%, 36% and 0.5% of the subjects had a previous history of curettage, episiotomy and vacuum evacuation, respectively. In total, 32% of the participants showed PTSD symptoms. Prevalence of PTSD was not significantly associated with parity, pain duration, education level or employment status. Significant correlation with PTSD was found with the mode of delivery ( $P=0.013$ ), curettage ( $P=0.005$ ) and length of hospitalization. Also, prevalence of PTSD was substantially associated with the type of pregnancy (planned or unintended) ( $P=0.011$ ).

**Conclusion:** Women with PTSD were not significantly different from those without PTSD in terms of parity, pain duration, education level or employment status. History of curettage, episiotomy and vacuum evacuation increased the incidence of PTSD in postpartum women. Moreover, unwanted pregnancy was more common among women with PTSD compared with normal subjects and length of hospitalization was longer.

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Post-traumatic stress disorder (PTSD) is a debilitating mental condition. This anxiety disorder occurs following exposure to an extremely

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traumatic, terrifying or tragic event and is common among soldiers and veterans returning from war [1]. People with PTSD remember horrible memories and harbour persistent frightening thoughts. PTSD can result from various traumatic incidents including natural disasters, serious accidents, and violent attacks such as rape and mass destruction. Most people with PTSD have repeated traumatic recollections during the day and experience insomnia or nightmares at night. They respond to traumatic experiences with fear and develop high levels of anxiety. People with PTSD may feel more irritable, aggressive, violent or easily startled than they did in the past. In ad-

dition, they may experience sleep disorders, feel depressed, detached or numb, and lose their interest in daily matters. They are also unable to cope with routine activities of daily living?

Patients with PTSD have a lower quality of life compared with patients with other anxiety disorders [2, 3]. Almost half of individuals with PTSD are recovered after 3 months, although in some cases treatment may take. In fact, close and prolonged exposure to traumatic events increases the likelihood of PTSD [4]. Lifetime prevalence of PTSD has been reported to be approximately 8%. It affects 5% of the general population and 75% of high-risk groups [5]. The prevalence of PTSD is substantially higher in women than men. The disorder is more common among divorced, widowed, isolated and economically disadvantaged people. It also seems to have a family pattern [6].

The incidence of mental disorders in women rises during childbearing years and the likelihood of mental disorders increases after childbirth [7]. Therefore, women's mental health is potentially at risk during and after pregnancy [8]. Maternal mental health disorders during the postpartum period disrupt proper communication with children and family.

Childbirth is not always considered a traumatic event; however, in some cases it can lead to distress for mothers [9]. It can trigger emotional trauma, which in turn leads to anxiety among postpartum women [10]. In addition, the type of childbirth is a risk factor for postpartum PTSD. Invasive procedures such as an emergency caesarean section, vacuum extraction and forceps-assisted delivery lead to anxiety among postpartum women [11].

People with lower pain tolerance and less motivation for pregnancy are highly prone to this disorder. Since a traumatic delivery may lead to psychological problems after childbirth, this study aimed to determine the prevalence of PTSD among postpartum women in urban healthcare centres of Zahedan city, located in south-east Iran.

## MATERIALS AND METHOD

Data in this cross-sectional study were gathered from healthcare centres in Zahedan, Iran.

The study population included all postpartum women referred to healthcare centres for infant vaccination. The study sample was selected from among women with childbirth experience over the past few months; between 6 to 24 weeks had passed since the birth. Cases where more than 24 or less than 6 weeks had passed were excluded from the study. Overall, 400 women were selected via available sampling.

## Instruments

Three inventories were used in this study for gathering demographic information and PTSD symptoms: the PTSD Symptom Scale-Interview (PSS-I) [12], a demographic questionnaire and a questionnaire to determine whether the childbirth experience was a traumatic event.

### PSS-I

PSS-I is a flexible, semi-structured interview for PTSD diagnosis. It consists of 17 items, covering all criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) for PTSD [13]. The severity of PTSD symptoms in PSS-I is graded using a Likert scale. PTSD diagnostic symptoms include re-experiencing (4 items), avoidance (7 items) and arousal (6 items). A person is diagnosed with PTSD when they experience one (or more) re-experiencing symptom, three (or more) avoidance symptoms and two (or more) arousal symptoms.

### Questionnaire for traumatic childbirth experience

Since PTSD is likely to be caused by other factors, maternal attitudes toward traumatic childbirth were evaluated. Traumatic childbirth was determined based on the DSM-IV criteria for a diagnosis of PTSD. DSM-IV specifies that primary factors indicating a traumatic event include a sense of threat and emotional response. On this basis, four questions were designed and divided into two categories; two questions were concerned with the sense of threat and two questions were related to the mother's emotional response. If the respondent's answer to one of

these questions was “yes”, her delivery was considered a traumatic event.

Scientific validity of this questionnaire was assessed by Taghizadeh and colleagues [14].

**Method**

The study was approved by the deputy of health and education. First, healthcare centres from four regions of Zahedan city (north, south, east and west) were selected using the clustering method. In total, 16 healthcare centres were randomly selected. Then, in cooperation with experts in the field, all eligible women in their 6<sup>th</sup>-24<sup>th</sup> postpartum week who were referred for infant vaccination were included in the study.

Three questionnaires were completed by the interviewer: a demographic questionnaire including 9 items, the PSS-I consisting of 17 items and a questionnaire for traumatic childbirth experience. Informed consent was obtained from all participants and ethical standards were observed throughout the study.

Finally, *t*-test,  $\chi^2$  and Pearson’s correlation coefficient were performed using SPSS version 19.

**RESULTS**

As the results indicated, the mean parity was 3.40±2.55 children (minimum 1, maximum 14). The mean duration of pain was calculated as 19.44±9.16 hours. The information relating to participants’ education level showed that 22.3% of women had a high school diploma, 15.8% had a university degree and 62% received primary school education. The equivalent numbers for the women’s spouses were 21.8%, 16.5% and 61.8% for each category respectively.

Overall, 7.8%, 36% and 0.5% of the participants had a history of curettage, episiotomy and vacuum extraction, respectively. In addition, 71.3% of the participants had planned pregnancy and 28.8% had experienced unwanted pregnancy. The mean length of hospital stay was 2.99±2.07 days.

In total, 32% of the participants showed PTSD symptoms. Prevalence of PTSD had no significant relationship with parity or pain duration. However, there was a significant relationship between the length of hospital stay and the prevalence of PTSD (Table 1). No significant relationship was observed between the prevalence of PTSD and women’s or their spouses’ education level (Table 2).

**Table 1:** Prevalence of PTSD based on parity, pain duration, and length of hospital stay

	Women with PTSD		Women without PTSD		P-value
	Mean	SD	Mean	SD	
Parity	3.29	2.20	3.45	2.71	0.554
Pain duration	20.14	9.36	19.12	9.06	0.300
Length of hospital stay	3.49	2.22	2.76	1.95	0.001

**Table 2:** Prevalence of PTSD based on the education level of women and their spouses

	Women with PTSD		Husbands of women with PTSD	
	Number	Percentage	Number	Percentage
High school diploma	29	32.6	27	31
University graduates	18	28.6	17	25.8
Under high school education	81	32.7	84	34
P-value	0.817		0.432	

Among women with PTSD, 25.7% were in employment and 34.4% were housewives. According to the  $\chi^2$ -test, there was no significant relationship between employment status and the prevalence of PTSD ( $P=0.098$ ).

The results showed that 54.7% and 30.1% of the patients with and without curettage had PTSD, respectively. According to the  $\chi^2$ -test, there was a significant relationship between PTSD and evacuating corpus luteum ( $P=0.005$ ).

It was revealed that 38.2% of the patients with episiotomy experienced PTSD and 28% of the patients without episiotomy suffered from PTSD. Two women who had a history of vacuum evacuation suffered from PTSD.

The results showed a significant difference between the mode of delivery and PTSD ( $P=0.013$ ). Overall, 28.4% of the participants with planned and 40.9% with unwanted pregnancies showed signs of PTSD. In fact, comparison between the prevalence of PTSD and type of pregnancy showed a significant difference ( $P=0.011$ ).

## DISCUSSION

According to the obtained results, education level of the majority of participants was less than high school diploma. Also, the majority of participants who experienced PTSD were housewives and had experienced unplanned pregnancy. The evaluation of the prevalence of PTSD among women referred to urban healthcare centres showed that women with PTSD were not significantly different from those without PTSD in terms of parity, pain duration, mode of delivery, education level or employment status. However, a history of curettage, episiotomy and vacuum evacuation was associated with increased incidence of PTSD. Also, in women with PTSD, length of hospitalization was longer and unwanted pregnancy was more common than in women without PTSD.

Consistent with our results, a study by Soderquist *et al*, entitled "Risk factors in pregnancy for posttraumatic stress and depression after childbirth" showed that 1.3% of women who had experienced childbirth were suffering from postpartum PTSD [15]. According to this study, an extreme fear of childbirth was reported as a risk factor for postpartum depression.

A study by White *et al* showed that the prevalence of PTSD was 2% among the evaluated subjects 6 weeks after childbirth [16]. Their results revealed that 12 months after childbirth the prevalence of PTSD was relatively stable: 2.6% after 6 months and 2.4% after 12 months post-childbirth. However, in our study the prevalence of postpartum PTSD was higher than the rate reported by White and colleagues.

The present study was consistent with the research by Schwab and colleagues [17]. According to their study, prevalence of PTSD was reported as 21.15% in women with multiple pregnancies, and 8% after excluding cardiac patients. The prevalence of postpartum PTSD in Schwab's study was lower than the rate estimated in our study or other similar research in Iran. Contrary to our results, Schwab indicated that the prevalence of postpartum PTSD was associated with parity; this difference in results may be rooted in ethnical and geographical variations between the study populations.

Modaress *et al* showed that 54.4% of women had experienced childbirth as a traumatic event [18] and 37.7% suffered from postpartum PTSD; their results were in accord with our findings. They also indicated a significant relationship between PTSD, education level and family income. The discrepancy between the significance of these variables in the Modaress study and in ours might lie in the difference between the two studies' sample sizes.

In a study by Vije *et al*, the prevalence of postpartum PTSD was reported at 39% among the evaluated subjects [19]. Also, parity, duration of labour, mode of delivery and the desired gender of the infant (mother's preference) were predictors of postpartum PTSD [19].

According to a descriptive study by Soltani *et al*, the prevalence of PTSD was 35.7% in women with vaginal delivery and 15.8% in women with an emergency caesarean section. However, none of the participants with an elective caesarean section experienced PTSD [20].

Another study by Modaress *et al* showed that the risk of postpartum PTSD was 3.5 times greater in women with an emergency caesarean section than in women with vaginal delivery [21]. They found that delivery time of less more than 3 hours was associated with the risk of postpartum PTSD [21].

In addition, according to one retrospective study, PTSD could occur as a result of sexual trauma and anxiety history [22].

## Conclusions

In total, this study showed that women with PTSD were not significantly different from those without PTSD in terms of pain duration, parity, mode of delivery, education level or employment status. However, variables such as a history of corpus luteum evacuation, episiotomy and vacuum evacuation were associated with increased incidence of PTSD. Since a traumatic delivery may lead to psychological problems for the mother, recognition and provision of guidelines and techniques that would reduce perinatal stress could be an important step toward overcoming anxiety problems.

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