

Research Paper: The Relationship Between Post-Traumatic Stress Disorder After Childbirth and Social Support and Marital Satisfaction



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ABSTRACT

Background: Childbirth is among the most significant and pleasant events in a woman's life. This event can be a traumatic event and a threat to the mother's mental health. This study recognizes the relationship between Post-Traumatic Stress Disorder (PTSD) after childbirth and social support and marital satisfaction.

Methods: This Cross-sectional analytical study was performed on a sample of 400 mothers who had delivered at Shohadaye-15-Khordad Hospital in Varamin (in two groups with & without PTSD). The research instruments include the Demographic, Midwifery, Neonatal Factors checklist, Enrich Marital Satisfaction, Weinfeld and Tigman Social Support, and the PTSD Symptoms Scale. We used SPSS to analyze the descriptive and Pearson correlation and logistic regression data. A $P < 0.05$ was considered significant.

Results: The prevalence of PTSD in this study was equal to 16.8%. There was no significant correlation between the mean of the total score of PTSD in all dimensions with social support ($P > 0.05$). Marital satisfaction significantly affected the probability of PTSD after childbirth ($P = 0.001$). There was a significant correlation between PTSD total score and dimension of avoidance symptoms and infant gender ($P = 0.038$). There was also a significant correlation between gestational age and avoidance symptoms ($P = 0.001$) and type of nutrition feeding and motivational symptoms ($P = 0.041$) of PTSD dimensions.

Conclusion: According to the relationship between marital satisfaction and PTSD, it is recommended to design suitable interventions to improve the marital status and promptly diagnose the susceptible mothers to prevent the spread of this complication.

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1. Introduction

Post-Traumatic Stress Disorder (PTSD) is an event that results in the long-term influence of psychological trauma [1].

PTSD is more than simply fear and incapacity. It is in the form of re-experience of trauma, avoidance, and permanent adverse changes in people's cognition, moods, and mental arousal [2]. The concept of PTSD was initially formed with experiences of war, violence, accident, and rape [3, 4]. Bydlowski and Raoul Duvall first introduced PTSD in 1978 after childbirth (PTSD) [5]. Currently, 1.5 to 6% of women worldwide complain of PTSD symptoms [6].

The main symptoms include the following: re-experiencing the event in mind (disturbing thoughts, nightmare, & feeling recurrence of the event), avoidance, negative alterations in cognition and mood, increased arousal and reactivity, anger, disrupted focus, and sleep hypervigilance [7]. Environmental, physical, biological, and genetic factors can affect the creation and constancy disorder [8, 9].

Moreover, the results of different studies showed the stress of infant care [10], marital satisfaction [11], and dissatisfaction with the gender of the baby [12], maternal occupation, low family income, increased duration of labor, undesired gender of the baby by the mother, and breastfeeding less than the infant [13]. We expected an increased risk of PTSD after childbirth. Another study by Schaper et al. in the Netherlands indicated that low-socio-economic status, traumatic childbirth experience, history of mother's mental health problems, infant hospitalization in the ICU, and difficult delivery had a significant relationship with PTSD [14]. Cigoli et al. also referred to the relationship between the lack of adequate social support with PTSD [15] also Dikmen-Yildiz reported that poor social support and the fear of labor were associated with PTSD in 4-6 weeks [16].

Adewuya et al. in Nigeria argued no significant correlation between PTSD after delivery with maternal age and education, marital status, gestational age, maternity care, infant gender, weight, marital satisfaction, social support, and last year stressful happenings [17].

Proper social support and relationships play a significant role in people's health. Supportive relationships can stimulate healthier behaviors. It is more probable that individuals who receive less social support are exposed

to psychological and physical problems and use illegal drugs compared to other individuals [18, 19].

Marital satisfaction is another factor that reduces stress on mothers who give birth [20]. Marital satisfaction generally assesses the status of the marriage relationship or romantic relationship between couples. It reflects the level of individual satisfaction by relationships after marriage and satisfaction with it [21]. This feeling can be damaged because of various conditions such as physical and mental illnesses, social life stresses, and even the birth of a child with deficiency and disability, resulting in PTSD [22, 23].

Based on the mentioned studies, a stressful childbirth experience can encounter mothers to have the potential risk of postpartum psychotic problems, influencing marital satisfaction. Since apt social support can look after a person against stress, consideration of mentioned factors in making PTSD can be helpful. Additionally, since 2013, some changes in the criteria of diagnosis for traumatic childbirth have been made, and DSM-V is applied instead of DSM-IV; however, in the studies for postpartum PTSD, DSM-IV was considered. Furthermore, the prevalence of PTSD in studies worldwide is different with Iran. There also exists a paradox among the results of PTSD-related factors. Thus, the present study aimed to explore the relationship between PTSD after childbirth and social support and marital satisfaction. Health providers can enhance mothers' health after delivery by performing the appropriate intervention.

This research consists of the following hypotheses: There is a relationship between marital satisfaction and PTSD after childbirth. There is a relationship between social support and PTSD after childbirth.

2. Materials and Methods

This was a cross-sectional and analytical study. The study participants included all clients referred to the hospital (Shohadaye 15 Khordad) in Varamin from October 6, 2018, to May 20, 2019.

The inclusion criteria included all Iranian women who gave birth, living in Tehran City, Iran, 20-40 years old, their pregnancy is the result of a legal marriage, without a history of infertility, abortion, high-risk pregnancy (such as hypertension, gestational diabetes, etc.), congenital anomaly, stillbirth, 6-8 weeks after a vaginal delivery with the alive and healthy infant, instrumental delivery, mental disorder (according to the mother and her health record) and substance dependence. Physical illness and

cerebral disease, stressful and disastrous happenings in the past 6 months, including the death of one of the close family members.

The exclusion criteria were reluctant to keep cooperation infant death after discharging or re-hospitalization of the infant.

In this study, the sample size is based on the variable of PTSD with an error of the first type of 5% ($\alpha=0.05$), and regarding similar studies [24]. The postpartum PTSD was equal to 20% ($P=0.2$), and an acceptable error was 0.04 (20%) disorder prevalence percentage ($d=0.04$), was obtained as follows:

$$n = \frac{Z^2 P(1-P)}{(1-\frac{\alpha}{2})^2 d^2}$$
$$n = \frac{1.96^2 (0.2) (0.8)}{(0.04)^2}$$

= 381

Ultimately, 400 samples were calculated for the study regarding the probability of falling.

The following tools were employed to collect the necessary data:

1. Demographic, midwifery, and neonatal characteristics checklist: included questions about age, level of education, the couple's occupation, gestational age, number of pregnancies, deliveries, abortions,

2. DSM-Checklist, PTSD is a self-report scale containing 20 items that evaluate the existence and severity of PTSD symptoms. Five items are related to the signs and symptoms of re-experiencing a traumatic event, 2 items assess avoiding motivators associated with the traumatic event, 7 items are related to unfavorable changes in cognition and mood related to the event, and 6 items concerning arousal and reactivity about traumatic events [25]. This questionnaire is applied to determine the scale and observation of the symptoms, screen individuals for PTSD, help provisional diagnosis. Scores range from 0 to 4 for a 5-answer option. Cronbach's alpha coefficient for reliability and validity of the native version in the study of Sadeghi et al. was more than 0.70 [26]. The reliability of this tool in the present study was 0.896.

3. Enrich Marital Satisfaction Scale: Forz and Elson designed this scale in 1989. It has 4 subscales and 35 items, including marital satisfaction, communication, conflict resolution, ideal distortion, and a general measurement, i.e., scored based on the 5-point Likert-type scale [27]. In

the study of Ghahremani et al. [28], the Cronbach's alpha coefficient for the reliability of the questionnaire, by internal consistency method, was reported 0.85. In a recent study, Cronbach's alpha of the Marital Satisfaction Scale was calculated as 0.622.

4. Weinfeld and Tigman Social Support Scale: It includes two parts that we used the second part (postpartum social support) in this research. This part has 6 questions, in which a score of 0 or 1 is given to them based on the negative or positive responses of individuals. Its localized validity was reported as 0.98 with a correlation coefficient. Moreover, its reliability has been reported as 0.95 [29]. We achieved its reliability at 0.589 in this study.

After explaining the research aim, emphasizing it is optional, and signing the written consent form, samples were entered into the research. All information remained confidential, and the researchers undertook to follow the provisions of the Helsinki Convention (Code: IR.SBMU.PHARMACY.REC.1399.107).

The researcher referred to the postpartum ward of the hospital daily to collect samples and considered mothers who had delivered during the last 24 hours. She introduced herself and explained objects of study to qualified samples who had inclusion criteria. Then, the written consent form was obtained from all study subjects. The researcher completed obstetric and neonatal information from the clinical record, demographic data, and Enrich Marital Satisfaction questionnaire by asking mothers. Mothers were invited to visit the obstetric clinic of the hospital 6 to 8 weeks after delivery. If the mother did not come, they would be phoned. After reaching a peaceful and private environment, the researcher completed a checklist of Post-Traumatic Stress Disorder Symptoms Scale and a social support questionnaire. After completing the questionnaires, the information was analyzed in SPSS.

After coding, the collected data were analyzed using SPSS concerning absolute and relative frequency distribution; of two groups, were compared with and without PTSD by the Independent Samples t-test, Fisher's Exact test, Pearson correlation test, and logistic regression analysis. In all tests, the maximum accepted error was 5%.

3. Results

Among 400 samples, 16.8% (64.2% mild & 35.8% moderate) had PTSD. Motivational symptoms were identified in 95.3% and avoidance symptoms in 71%. Demographic, maternal-neonatal information and the

comparison between both groups are presented in Table 1.

There was also a significant correlation between the total score of PTSD with the dimensions of avoidance symptoms, infant gender, type of nutrition, and motivational symptoms ($P \leq 0.05$). The correlation of PTSD-related factors in the samples is shown in Table 2.

The mean and standard deviation of the total marital satisfaction score in affected women is 11.75 ± 123.71 and 10.65 ± 118.20 in non-affected women. The Independent Samples t-test revealed a significant relationship between the total score of marital satisfaction and the dimensions of marital satisfaction, conflict resolution, and PTSD ($P \leq 0.05$) (Table 3).

Most affected women (69.1%) and non-affected women (70.5%) had poor social support. The Independent Samples t-test data revealed no significant relationship between postpartum social support and PTSD ($P \geq 0.05$) (Table 4).

Furthermore, marital satisfaction significantly affects the odds of PTSD in the logistic regression test. Decreasing one unit change in marital satisfaction increases 1,048 units the potential of the occurrence of PTSD. Besides spouse occupation, individual's education level, the resolving marital satisfaction conflict could explain the changes of PTSD dependent variable. The individual education variable had a more prominent influence on the dependent variable, compared with the other two variables according to the size of the chance ratio and the beta value; accordingly, 1917 units increased the odds of PTSD by increasing 1 unit of changes in maternal education and 1,029 units increase the odds of occurrence of PTSD by changing the spouse's occupation and is increased by 1166 units by increasing the marital satisfaction conflict resolution dimension (Table 5).

The results indicated a significant relationship between marital satisfaction and PTSD after childbirth hypothesis 1; however, the study findings revealed no support for hypothesis number 2.

Table 1. The demographic characteristics of the studied samples in two groups (with vs. without PTSD)

Variables	No. (%)		P	
	PTSD (-) Group	PTSD (+) Group		
Education	Illiterate	5(1.5)	0(0)	0.022
	Primary	45(13.7)	6(9)	
	Middle school	90(27.2)	11(16.2)	
Husband education	Primary	20(6)	8(11.8)	0.030
	Middle school	94(28.3)	23(33.8)	
	Diploma	191(57.7)	35(51.4)	
	University course	27(8)	2(3)	
Gravida	once	84(25.3)	29(42.6)	0.047
	2-4 times	237(71.4)	36(53)	
	More than 5 times	11(3.3)	3(4.4)	
Live children	none	2(0.6)	1(1.5)	0.010
	one	104(31.4)	34(50)	
	Two	163(49)	24(35.3)	
	More than two	63(19)	9(13.2)	
Deliveries	once	105(31.6)	34(50)	0.015
	2-3 times	217(65.3)	32(47)	
	More than 4 times	10(3.1)	2(3)	
Analgesia	none	208(62.6)	52(76.5)	0.028
	Regional	119(35.9)	13(19.1)	
	Inhalation	5(1.5)	3(4.4)	

Table 2. The correlation of PTSD related factors in the studied samples

Characteristic	Correlation Coefficient (P-Value)				
	Total Score	Re-Experience Symptoms	Avoidance Symptoms	Cognitive Mood Symptoms	Motivational Symptoms
Gestational age	-0.071(0.642)	0.053(0.289)	0.164(0.001)	0.001(0.983)	0.050(0.318)
Prenatal care	0.040(0.430)	-0.002(0.961)	0.004(0.935)	0.053(0.289)	0.055(0.276)
Hospital history	0.066(0.187)	0.026(0.599)	-0.001 (0.978)	0.078(0.117)	0.012(0.813)
Problems during childbirth	0.163(0.001)	0.098(0.049)	0.133 (0.008)	0.134(0.007)	0.149(0.003)
Attendant	0.034(0.496)	0.053(0.291)	-0.052 (0.304)	0.026(0.599)	0.035(0.489)
Fear of childbirth	-0.023(0.653)	-0.022(0.665)	-0.001 (0.992)	-0.016(0.775)	-0.023(0.649)
Pregnancy status	0.023(0.642)	-0.058(0.250)	-0.057 (0.257)	0.080(0.110)	0.067(0.184)
Gender	-0.071(0.155)	-0.008(0.866)	-0.104 (0.038)	-0.097(0.052)	-0.044(0.376)
Nutrition	0.078(0.121)	0.050(0.315)	0.022 (0.660)	0.044(0.379)	0.102(0.041)
Hospitalization	0.069(0.171)	0.018(0.712)	0.018 (0.720)	0.78(0.121)	0.081(0.106)
Abnormal baby	0.060(0.228)	0.083(0.099)	0.030 (0.549)	0.010(0.845)	0.055(0.275)
Baby weight	0.042(0.406)	0.041(0.414)	0.051 (0.306)	0.024(0.638)	0.068(0.176)
Social support	0.053(0.294)	-0.034(0.500)	0.053 (0.287)	0.093(0.062)	0.061(0.221)
Marital satisfaction	0.072(0.150)	0.117(0.398)	0.015 (0.768)	0.038(0.450)	0.070(0.163)

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Table 3. The dimensions of marital satisfaction in the studied samples

Marital Satisfaction Dimensions	Mean±SD		P (Independent Samples t-test)
	PTSD(+) Group	PTSD(-) Group	
Marital Satisfaction	27.29±3.80	26.19±3.50	0.022
Communication	18.89±5.33	17.81±4.64	0.090
Conflict resolution	19.28±4.13	16.62±4.64	>0.001
Ideal distortion	20.23±2.84	19.56±3.58	0.147
Total score	123.71±11.75	118.20±10.65	>0.001

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Table 4. Social support in the studied samples

Social Support	No. (%)			P (Independent Samples t-test)
	PTSD (+) Group	PTSD (-) Group	Total	
Good	21(30.9)	98(29.5)	119(29.8)	0.559
Poor	47(69.1)	234(70.5)	281(70.2)	

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Table 5. Logistic regression analysis of PTSD related variables

Regression Factors	Coefficient Estimation	Standard Error	Odds Ratio (OR)	P
Social support	-0.056	0.084	0.945	0.503
Marital satisfaction	-0.047	0.014	1.048	0.001
Spouse job	0.029	0.209	1.029	0.002
Mother's education	0.651	0.209	1.917	0.001
Spouse education	-1.012	0.239	0.303	0.692
Gravida	-0.141	0.250	0.869	0.677
Number of deliveries	-0.537	0.354	0.584	0.129
Type of analgesia	-0.206	0.301	0.814	0.494
Baby hospitalization	0.492	0.580	1.635	0.376
Marital satisfaction	0.060	0.066	1.062	0.385
Conflict resolution	0.153	0.060	1.166	0.011

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4. Discussion

This study investigated the relationship between PTSD after childbirth and social support and marital satisfaction.

The prevalence of PTSD after childbirth in this study was measured as 16.8%. Dekel et al. estimated PTSD after childbirth prevalence between 4.65%-6.3% and mentioned that 16.8% experience significant clinical symptoms [30]. Yildiz et al. had a 13.7% prevalence of PTSD after childbirth [31] by surveying the factors associated with postpartum PTSD in London. In a systematic review and meta-analysis in 2017, the overall prevalence of this complication worldwide was reported to be 4% on average [16]. In several limited Iranian research, this complication's prevalence was 26.7% [7], 42.13% [7], and 20%, respectively [24]. Notably, the prevalence of this complication in Iran is relatively higher than in other countries. Moreover, women's lack of access to few health care services (especially in poor & traditional societies), differences in attitudes toward the delivery process, various cultures of countries in defining, the extent and manner of providing social support, trust in medical staff during childbirth, etc. can be mentioned [32].

Moreover, differences for identifying the inclusion and exclusion criteria of samples, time of research, and the differences in the applied questionnaires are the other reasons for this difference [17]. The samples were diagnosed as traumatic delivery based on criteria, then PTSD was assessed in this research.

There was a direct relation between PTSD with childbirth avoidance symptoms and some pregnancy variables in this research. This association between the total score of PTSD and the dimension of avoidance symptoms with infant sex and nutrition with motivational symptoms was observed.

Sentilhes et al. regarded the history of abortion, severe postpartum hemorrhage, hemoglobin level less than 9 g/dL, previous bad birth memories, hospitalization during pregnancy and delivery, more than 6 hours, instrumental delivery, and episiotomy in developing PTSD [33]. In a review study, Simpson et al. noted the history of a complicated pregnancy, fear of childbirth, etc., as the factors affecting PTSD. Moreover, in this research, some demographic features (age, education level, low socioeconomic status, access to health insurance, culture, & religion) were also considered factors influencing PTSD

probability [34]. Mousavi et al. considered the variables of income level, pregnancy intention, pregnancy complications, kind of delivery, analgesia, and conformity between the common type of delivery and actual delivery efficiency in treating PTSD [7]. In the research, King et al. indicated that three variables of instrumental utilization in vaginal delivery, observed low level of immunity via labor and low level of spousal support during childbirth, had a significant relation with PTSD [35].

Although Yildiz et al. noted the fear of childbirth as one of the elements influencing PTSD, they did not see any association between demographic features and PTSD [31]. Mokhtari et al. reported no significant relationship among demographic factors, such as age, occupation, education, income level, etc., and PTSD [7], i.e., in line with this research.

Due to identifying the status of social support of mothers associated with PTSD, this research's findings indicated that there was no significant correlation between the mean of the total score of PTSD in all dimensions with social support, i.e., similar to Soderquist [36] and Adewuya [17] research that contradict some other research [37-39]. Differences in cultures, attitudes, and beliefs about social support, also the time of research (existence or the lack of stable conditions for mother and baby), can be the reasons for these contradictions.

According to the marital identification satisfaction of mothers associated with PTSD, logistic regression results indicated that marital satisfaction had a considerable effect on the probability of PTSD occurrence. Furthermore, reduced marital satisfaction is associated with an increased odds of PTSD occurrence.

This result is consistent with some studies [40, 41] and contradicts others. Ahmadnejad [42] and Mokhtari [7] found no significant correlation PTSD with sexual function and marital satisfaction. The time of handling and studying samples, cultural differences, differences in marital satisfaction concept, and the lack of distinction between psychological trauma and PTSD (because not every psychological trauma results in PTSD) are the reasons for this contradiction.

A strong point of this research was using standard questionnaires and utilizing the DSM-V checklist to identify PTSD, while previous research had applied the DSM-IV checklist. Moreover, the homogeneity of samples can be mentioned. The limitations of this research were the location of sampling and, therefore, the inability to generalize the findings to society.

The weak point of this study was that it was carried out merely in the Varamin social security hospital in Varamin city of Tehran Province, which cannot be generalized to the whole of Tehran province. It is suggested that this study be performed on a larger scale.

5. Conclusion

To conclude, it must be mentioned that PTSD after childbirth is an undesirable, disabling, and sometimes life-threatening complication for mother and baby. Hence, it is recommended to design counseling interventions for women with PTSD codified and perform more extensive research.

Because of the high prevalence of postpartum PTSD in Iran, to preclude the increase of PTSD, it is recommended to run counseling classes during pregnancy. Furthermore, the necessary counseling interventions for women with postpartum PTSD be provided.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran (Code: IR.SBMU.PHARMACY.REC.1399.107).

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Author's contributions

Conceptualization and Supervision: Mahbobeh Ahmadi Doulabi; Sedigheh Amir Ali Akbari; Methodology: Mahbobeh Ahmadi Doulabi; Investigation, writing – original draft, and writing – review & editing: Masoumeh Tajik, Mahbobeh Ahmadi Doulab, Sedigheh Amir Ali Akbari, Mohammadali Emamhadi; Data collection: Masoumeh Tajik; Data analysis: Masoumeh Tajik and Parisa Reza NejadAsl; Funding acquisition and Resources: Shahid Beheshti University of Medical Sciences, Tehran, Iran .

Conflict of interest

The authors declared no conflict of interest.

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References

- [1] Slade P, West H, Thomson G, Lane S, Spiby H, Edwards RT, et al. STRAWB2 (stress and wellbeing after childbirth): A randomised controlled trial of targeted self-help materials to prevent post-traumatic stress disorder following childbirth. *An International Journal of Obstetrics & Gynaecology*. 2020. [DOI:10.1111/1471-0528.16163] [PMID]
- [2] Weiss NH, Risi MM, Sullivan TP, Armeli S, Tennen H. Post-traumatic stress disorder symptom severity attenuates bidirectional associations between negative affect and avoidant coping: A daily diary study. *Journal of affective disorders*. 2019; 259:73-81. [DOI:10.1016/j.jad.2019.08.015] [PMID] [PMCID]
- [3] Yohannes K, Gebeyehu A, Adera T, Ayano G, Fekadu W. Prevalence and correlates of post-traumatic stress disorder among survivors of road traffic accidents in Ethiopia. *International Journal of Mental Health Systems*. 2018; 12(1):50. [DOI:10.1186/s13033-018-0229-8] [PMID] [PMCID]
- [4] Silove D, Baker JR, Mohsin M, Teesson M, Creamer M, O'Donnell M, et al. The contribution of gender-based violence and network trauma to gender differences in Post-Traumatic Stress Disorder. *PLoS One*. 2017; 12(2):e0171879. [DOI:10.1371/journal.pone.0171879] [PMID] [PMCID]
- [5] Bydlowski M, Raoul-Duval A. Un avatar psychique méconnu de la puerpéra- lité: la névrose traumatique post-obstétricale. *Perspect Psychiatr*. 1978; 4:321-8. <https://afar.info/id=657>
- [6] Ghorbani M, Dolatian M, Shams J, Majd HA. [Compare of post-traumatic stress disorder between parents of term and pre term infants (Persian)]. *Advances in Nursing & Midwifery*. 2015; 24(86):9-16. [DOI:10.12968/bjom.2016.24.2.86]
- [7] Mokhtari F, Nourizadeh R, Ranjbar F, Hakimi S, Mousavi S. Post-traumatic stress disorder following childbirth: A study of prevalence and related factors in Iranian women. *Journal of Clinical and Analytical Medicine*. 2018; 9(2):111-5. [DOI:10.4328/JCAM.5464]
- [8] Ryder AL, Azcarate PM, Cohen BE. PTSD and physical health. *Current psychiatry reports*. 2018; 20(12):116. [DOI:10.1007/s11920-018-0977-9] [PMID]
- [9] Ryan J, Chaudieu I, Ancelin M-L, Saffery R. Biological underpinnings of trauma and post-traumatic stress disorder: Focusing on genetics and epigenetics. *Epigenomics*. 2016; 8(11):1553-69. [DOI:10.2217/epi-2016-0083] [PMID]
- [10] Blenning CE, Paladine H. An approach to the postpartum office visit. *American Family Physician*. 2005; 72(12):2491-6. [PMID]
- [11] Tajvidi M, Wang Y, Hajli N, Love PE. Brand value Co-creation in social commerce: The role of interactivity, social support, and relationship quality. *Computers in Human Behavior*. 2017; 105238. [DOI:10.1016/j.chb.2017.11.006]
- [12] Goyal D, Murphy SO, Cohen J. Immigrant Asian Indian women and postpartum depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*. 2006; 35(1):98-104. [DOI:10.1111/j.1552-6909.2006.00007.x] [PMID]
- [13] Vizeh M, Kazemnejad A, Afrasiabi S, Hassan M, Rouyhi M, Habibzadeh S. [Prevalence of post-traumatic stress disorder (PTSD) after childbirth and precipitating factors (Persian)]. *Hormozgan Medical Journal*. 2012; 16(4):309 - 16. <https://hmj.hums.ac.ir/Article/81581>
- [14] De Schepper S, Vercauteren T, Tersago J, Jacquemyn Y, Raes F, Franck E. Post-traumatic stress disorder after childbirth and the influence of maternity team care during labour and birth: A cohort study. *Midwifery*. 2016; 32(17):87-92. [DOI:10.1016/j.midw.2015.08.010] [PMID]
- [15] Cigoli V, Gilli G, Saita E. Relational factors in psychopathological responses to childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*. 2006; 27(2):91-7. [DOI:10.1080/01674820600714566] [PMID]
- [16] Dikmen-Yildiz P, Ayers S, Phillips L. Longitudinal trajectories of post-traumatic stress disorder (PTSD) after birth and associated risk factors. *Journal of Affective Disorders*. 2018; 229:377-85. [DOI:10.1016/j.jad.2017.12.074] [PMID]
- [17] Adewuya A, Ologun Y, Ibigbami O. Post-traumatic stress disorder after childbirth in Nigerian women: Prevalence and risk factors. *An International Journal of Obstetrics & Gynaecology*. 2006; 113(3):284-8 [DOI:10.1111/j.1471-0528.2006.00861.x] [PMID]
- [18] Wilkinson RG, Marmot M. *Regional office for Europe. The solid facts: Social determinants of health*. Copenhagen: World Health Organization;1998. <https://apps.who.int/iris/handle/10665/108082>
- [19] Sanaei-Zadeh H, Emamhadi M, Farajidana H, Zamani N, Amirfarhangi A. Electrocardiographic manifestations in acute methanol poisoning cannot predict mortality. *Arhiv za Higijenu Rada i Toksikologiju*, 2013; 64(2):265-271 [DOI:10.2478/10004-1254-64-2013-2285] [PMID]
- [20] Liu S, Wang Z, Lu S, Shi J. Dyadic analysis of childhood emotional maltreatment and marital satisfaction during the transition to parenthood: The mediating effects of emotion regulation strategies and psychological distress. *Journal of Aggression, Maltreatment & Trauma*. 2019; 28(10):1216-31. [DOI:10.1080/10926771.2018.1466381]
- [21] Pakniyat M, Roshan Chesli R. [Predict marital satisfaction based on sensation seeking, intimacy, sexual function, personality characteristics in nurses (Persian)]. *Clinical Psychology and Personality*. 2018; 16(1):159-78. [DOI:10.22070/cpap.2020.2845]
- [22] Tavakol Z, Nikbakht Nasrabadi A, Behboodi Moghadam Z, Salehiniya H, Rezaei E. A review of the factors associated with marital satisfaction. *Galen Medical Journal*. 2017; 6(3):197-207. [DOI:10.31661/gmj.v6i3.641]
- [23] Habibi K, Alimohammadzadeh K, Hojjati H. [The effect of group reality therapy on the coping of spouses of veterans with post-traumatic stress disorder (Persian)].

- Journal of Health Promotion Management. 2018; 6(6):1-7. [DOI:10.21859/jhpm-07041]
- [24] Modarees M, Mirmolaie S, Rahimikian F, Afrasiabie S. [An epidemiologic assessment of post-traumatic stress disorder following childbearing (Persian)]. Journal of Hayat. 2011; 16(3):66-76. <http://hayat.tums.ac.ir/article-1-80-en.html>
- [25] Wortmann JH, Jordan AH, Weathers FW, Resick PA, Dondanville KA, Hall-Clark B, et al. Psychometric analysis of the PTSD Checklist-5 (PCL-5) among treatment-seeking military service members. Psychological Assessment. 2016; 28(11):1392-403. [DOI:10.1037/pas0000260]
- [26] Sadeghi M, Taghva A, Goudarzi N, Rah Nejat AM. [Validity and reliability of persian version of "post-traumatic stress disorder scale" in war veterans (Persian)]. Iranian Journal of War and Public Health. 2016; 8(4):243-9. <http://ijwph.ir/article-1-596-en.html>
- [27] Fowers BJ, Olson D. ENRICH marital satisfaction scale: A brief research and clinical tool. 1993; 7(2):176. [DOI:10.1037/0893-3200.7.2.176]
- [28] Ghahremani F, Doulabi MA, Eslami M. The correlation between marital satisfaction and childbearing characteristics in women in Tehran. International Journal of Adolescent Medicine and Health. 2021; 33(5). [DOI:10.1515/ijamh-2019-0018] [PMID]
- [29] Pazande F, Toomians J, Afshar F, Valaei N. [Prevalence of depression in parturients referring university hospitals in Tehran in 1999 (Persian)]. Feyz. 2002; 6(1):66-70. <http://feyz.kaums.ac.ir/article-1-335-en.html>
- [30] Dekel S, Stuebe C, Dishy G. Childbirth induced post-traumatic stress syndrome: A systemic review of prevalence and risk factors. Frontiers in psychology. 2017; 8:1-10. [DOI:10.3389/fpsyg.2017.00560] [PMID] [PMCID]
- [31] Yildiz PD, Ayers S, Phillips L. The prevalence of posttraumatic stress disorder in pregnancy and after birth: A systematic review and meta-analysis. Journal of Affective Disorders. 2017; 208:634-45. [DOI:10.1016/j.jad.2016.10.009] [PMID]
- [32] Mousavi S, Nourizadeh R, Mokhtari F, Hakimi S, Babapour J, Mousavi S. [Determinants of postpartum post-traumatic stress disorder: A cross-sectional study (Persian)]. Crescent Journal of Medical and Biological Sciences. 2020; 7(2):254-2599. <http://www.cjmb.org/text.php?id=350>
- [33] Sentilhes L, Maillard F, Brun S, Madar H, Merlot B, Goffinet F, et al. Risk factors for chronic post-traumatic stress disorder development one year after vaginal delivery: A prospective, observational study. Scientific Reports. 2017; 7(1):1-9 [DOI:10.1038/s41598-017-09314-x] [PMID] [PMCID]
- [34] Simpson M, Schmied V, Dickson C, Dahlen HG. Postnatal post-traumatic stress: An integrative review. Women Birth. 2018; 31(5):367-79. [DOI:10.1016/j.wombi.2017.12.003] [PMID]
- [35] King L, McKenzie-McHarg K, Horsch A. Testing a cognitive model to predict posttraumatic stress disorder following childbirth. BMC Pregnancy Childbirth. 2017; 17(1):1-12. [DOI:10.1186/s12884-016-1194-3] [PMID] [PMCID]
- [36] Söderquist J, Wijma B, Thorbert G, Wijma K. Risk factors in pregnancy for post-traumatic stress and depression after childbirth. An International Journal of Obstetrics & Gynaecology. 2009; 116(5):672-80. [DOI:10.1111/j.1471-0528.2008.02083.x] [PMID]
- [37] Van Heumen MA, Hollander MH, van Pampus MG, van Dillen J, Stramrood CA. Psychosocial predictors of postpartum posttraumatic stress disorder in women with a traumatic childbirth experience. Frontiers in Psychiatry. 2018; 9:348. [DOI:10.3389/fpsyg.2018.00348] [PMID] [PMCID]
- [38] Aftyka A, Rybojad B, Rosa W, Wróbel A, Karakula-Juchnowicz H. Risk factors for the development of post-traumatic stress disorder and coping strategies in mothers and fathers following infant hospitalisation in the neonatal intensive care unit. Journal of Clinical Nursing. 2017; 26(23-24):4436-45. [DOI:10.1111/jocn.13773] [PMID]
- [39] MacKinnon AL, Houazene S, Robins S, Feeley N, Zelkowitz P. Maternal attachment style, interpersonal trauma history, and childbirth-related post-traumatic stress. Frontiers in Psychology. 2018; 9:2379. [DOI:10.3389/fpsyg.2018.02379] [PMID] [PMCID]
- [40] Garthus-Niegel S, Horsch A, Handtke E, von Soest T, Ayers S, Weidner K, et al. The impact of postpartum posttraumatic stress and depression symptoms on couples' relationship satisfaction: A population-based prospective study. Frontiers in Psychology. 2018; 9:1-10. [DOI:10.3389/fpsyg.2018.01728] [PMID] [PMCID]
- [41] Galanakis M, Kallianta M-D, Katsira C, Liakopoulou D, Chrousos PG, Darviri C. The association between stress and sexual dysfunctionality in men and women: A systematic review. The Journal of Psychology. 2015; 6(14):1888-92. [DOI:10.4236/psych.2015.614186]
- [42] Ahmadnejad R. [The relationship between post-traumatic stress disorder following childbirth with sexual dysfunction and marital satisfaction in the postpartum period in women referring to health centers of Baneh (Persian)]. [MSc. Theses]. Tabriz University of Medical Sciences; 2018. <http://dspace.tbzmed.ac.ir/xmlui/handle/123456789/59004>