


Prevalence of Traumatic Childbirth and Post-traumatic Stress After Delivery in Iran: A Systematic Review and Meta-Analysis

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ABSTRACT

Background & Objective: Traumatic childbirth, followed by postpartum stress, imposes many psychological consequences on women and their families. Therefore, this study was conducted to determine the prevalence of traumatic childbirth and postpartum post-traumatic stress in Iran using a systematic review.

Materials & Methods: In this review, ISI, PubMed, Scopus, SID, Iranmedex, IranDoc, Magiran, and Google Scholar databases were searched to find relevant studies, by looking for the following keywords, i.e., *prevalence, traumatic childbirth, post-traumatic stress, post-traumatic stress disorder, delivery or birth, Iran*, and their English equivalents, in Persian and English-language journals published from 1981 to November 2018. Data were analyzed by the meta-analysis method using a random-effects model and the studies' heterogeneity was calculated by the I^2 index.

Results: Of a total of 1420 studies, 8 descriptive studies carried out from 2010 to 2017 were finally included after applying the inclusion and exclusion criteria. Among the 800 samples studied, the overall prevalence of traumatic childbirth was 51.3% and the overall prevalence of post-traumatic stress was 29.1% among the total of 2687 samples studied.

Conclusion: The prevalence of traumatic childbirth and post-traumatic stress is high in Iran; hence, it is necessary to carry out further studies to understand this important issue, so that more attention can be paid to mothers' psychological problems to plan and make policies to maintain and improve their health in the postpartum period.

Keywords: Iran, Post-traumatic stress, Prevalence, Systematic review, Traumatic childbirth



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Introduction

Giving birth is a complex and memorable event in every woman's life which can lead to positive or negative psychological responses and, if perceived as an unpleasant memory, can have negative effects on the mother's mental health in the postpartum period (1). Traumatic childbirth is a definition referred to processes during labor and delivery that are felt and perceived by a mother, even though, considering the maternity ward staff's opinion, all maternity care is routinely performed (2). An important feature of traumatic childbirth is the viewer's (mother's) perception of the traumatic event, such that it is defined by the feeling of fear about or threatening and serious damage to the mother or infant and/or their death during labor (3-6). These mothers perceive childbirth as a stressful event for a variety of reasons, such as inadequate support, lack of respect and human dignity, a sense of helplessness, and a feeling of danger to them or their infants' lives (2,4). Using stress coping

techniques causes all those who experience traumatic childbirth not to develop psychological problems, such as post-traumatic stress disorder (PTSD), with a certain percentage of them experiencing postpartum post-traumatic stress (2). PTSD develops when there is an insufficient adaptation to deal with a traumatic event (7-9). Postpartum post-traumatic stress can lead to several problems, like depression, increased alcohol and drug abuse, disrupted mother-infant communication, problems with breastfeeding and attachment with the infant, avoiding having sex, requesting unnecessary cesarean sections, avoiding medical care such as cervical cancer screening and Pap smear in the future (10).

Recently, factors associated with increased postpartum post-traumatic stress disorder have been increasing (11), and studies of its prevalence have shown contradictory and dispersed statistics such that Ayers' found that 2.8% of women experience PTSD in

the first six weeks after delivery and 1.5% of them suffer from PTSD in the next six months (12). By carrying out a study at General Hospital, revealed that 2-5% of women Suffer from PTSD after traumatic childbirth (13). This statistic may be as high as 24.2% in the future, which would have negative psychological impacts on the mother (10). In Iran, its prevalence is very different, ranging from 39% (14) to 54.4% (15).

Considering the drastic difference between the prevalence of postpartum post-traumatic stress disorder in different countries and Iran, it is important to know its prevalence to help health planners. Usually, childbirth is not given much attention psychologically, and the physical maternal aspect is considered more often, so traumatic childbirth and postpartum post-traumatic stress disorder are often overlooked and health professionals working with mothers in various clinics still have very limited knowledge on the issue (2). Maternity care providers also need to confirm their roles in preventing traumatic childbirth and being aware of its prevalence will be a warning to increased risk factors. One of the most important aims of review studies is to provide reliable and accurate results by considering the increased number of samples gathered together by combining different studies, reducing confidence intervals of these sizes, and resolving problems arising from the controversial results of previous studies (16). Accordingly, to validate the results of previous studies, the present review study was conducted to evaluate the prevalence of traumatic childbirth and postpartum post-traumatic stress disorder in Iran using a systematic review.

Materials and Methods

This review study aimed to investigate the prevalence of traumatic childbirth and postpartum post-traumatic stress disorder in Iran, using ISI, PubMed, Scopus, SID, Iranmedex, IranDex, Magiran, and Google Scholar databases. There was no time limit for the search strategy so that all the studies done in this field in Iran could be retrieved. Therefore, all articles published from 1981 and November 2018 were reviewed. The following keywords, i.e., *traumatic childbirth, post-traumatic stress disorder, birth, trauma or PTSD and delivery, childbirth, postpartum, or postnatal, Iran, and prevalence or incidence*, were searched to find the articles. To maximize search comprehensiveness, the reference lists of all related articles found in the above search were manually reviewed. In this systematic review, the main inclusion criteria were descriptive studies conducted in Iranian populations and published in reliable databases in Farsi or English. Exclusion criteria included articles presented at conferences and letters to editors. This multi-stage study was carried out by collecting, analyzing, and interpreting the findings, and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used (17) such that a list of existing articles were prepared by considering the above protocol and the search strategy. The titles of

the articles obtained by the researchers were reviewed and duplicates and those not performed in an Iranian population were excluded. The titles and abstracts of the remaining articles were carefully reviewed. Then, the unrelated articles were removed and finally, the full texts of the related articles were investigated and the final selection of articles was undertaken. To prevent bias, all of the extraction and review procedures were performed independently by two researchers. In cases where there was a disagreement between the two researchers, a third person would review the article. In the next step, data on selected articles, including authors' names, year of study, place of study, sample size, time after delivery, and tools used, and findings were recorded in Table 1. The JBI (Joanna Briggs Institute) checklist, an internationally renowned standard checklist for prevalence studies, was used to assess the articles' qualities (18,19). The checklist consists of 9 sections with a score of 0-9 and the articles are divided into three groups of low (0-3), medium (4-6) and high (7-9) qualities (as shown in Table 2). Since the prevalence of post-traumatic stress disorder in each article was extracted using the number of affected individuals and the sample size, the prevalence rate of each study was calculated and weighted using Comprehensive Meta-Analysis (CMA) software version II. The I^2 index was used to evaluate the heterogeneity of the articles. In this study, the heterogeneity rate was 93%, which can be classified as a study with high heterogeneity. The cause of the heterogeneity between studies is due to the place of the study, year of study, and, most importantly, the different sampling times. Using this software, P -value<0.05 was considered as significant.

Results

Out of the total of 1420 studies, 8 descriptive studies conducted from 2010 to 2017 and 7 meta-analyses were selected applying the inclusion and exclusion criteria (Figure 1). The specifications of these studies are shown in Table 1. All the articles were of good quality and had scores of 8-9. All of these studies have been conducted since 2010, which are new in terms of time, indicating that the issues of traumatic childbirth and post-traumatic stress disorder have become more prominent in recent years in Iran and the mothers' postpartum psychological dimension is important. Most of these studies used the DSM-A criteria for traumatic childbirth and the PSS-1 was used to assess post-traumatic stress. The time to study the variable considered by most of these studies was 6-8 weeks after delivery, with the lowest and highest post-traumatic stress rate being 6.2% and 39% in Tehran and West Azerbaijan, respectively. The overall prevalence of traumatic childbirth was 51.3% (48.3-54.4%). In the meta-analysis performed according to the random-effects model, the overall prevalence of post-traumatic stress disorder was 26.19% among the 2687 studied samples

($P < 0.0001$, heterogeneity $I^2 = 93.7\%$, [95% CI: 0.21-0.37]). The overall prevalence of post-traumatic stress disorder after childbirth trauma in Iran is shown in [Figure](#)

[2](#) using the random-effects model. In [Figure 3](#), a Funnel Plot diagram is shown. The probability of propagation bias is eliminated and without effect using the Duval test.

Table 1. The quality assessment of the articles using the JBI criterion

Study	JBI checklist items									Total score
	Samples representing the target population	Proper selection of the samples	Adequacy of the sample size	Explanations related to the environment and participants	Sufficient sample coverage for analysis	Application of a valid method for measurement	Similarity of the measurement methods used for all samples	Proper statistical analysis	Reporting the number of participants who abandoned the study	
Shaban	1	1	1	1	1	1	1	1	1	9
Modaress	1	1	1	1	1	1	1	1	1	9
Moghadam	1	1	1	1	1	1	1	1	1	9
Abdollahpour	1	1	1	1	1	1	1	1	1	9
Mokhtari	1	1	1	1	1	1	1	1	1	9
Vizeh	1	1	1	1	1	1	1	1	1	9
Mahmoodi	1	1	1	1	1	1	1	1	1	9
Abedian	1	1	-	1	1	1	1	1	1	8

Table 2. The summary of the studied articles related to the prevalence of traumatic childbirth and postpartum post-traumatic stress in Iran

Authors	Year of study	City	Sample size	Sampling	Tools	Results
Shaban (20)	2010	Zahedan	600	6-8 weeks	PSS	PTSD= 17.2%
Modaress (21)	2010	Bushehr	400	6-8 weeks	DSM-IV-A PSS-1	Traumatic childbirth= 54.4% PTSD= 36.7%
Moghadam (22)	2015	Zahedan	400	6-24 weeks	PSS-1	PTSD= 32%
Abdollahpour (23)	2016	Torbat Heidarieh	400	The first postpartum 48 hours	DSM-IV-A	Traumatic childbirth= 48.3%
Mokhtari (24)	2017	Arak	375	6-8 weeks	PSS-1	PTSD= 26.7%
Vizeh (14)	2012	West Azerbaijan	572	6-8 weeks	PSS-1	PTSD= 39%
Mahmoodi (25)	2016	Tehran	240	6-8 weeks	PSS-1	PTSD= 6.2%
Abedian (26)	2012	Mashhad	100	6 weeks	PPQ	PTSD= 26%
PSS-1= PTSD Symptom Scale PPQ= Prenatal Posttraumatic Stress Questionnaire						

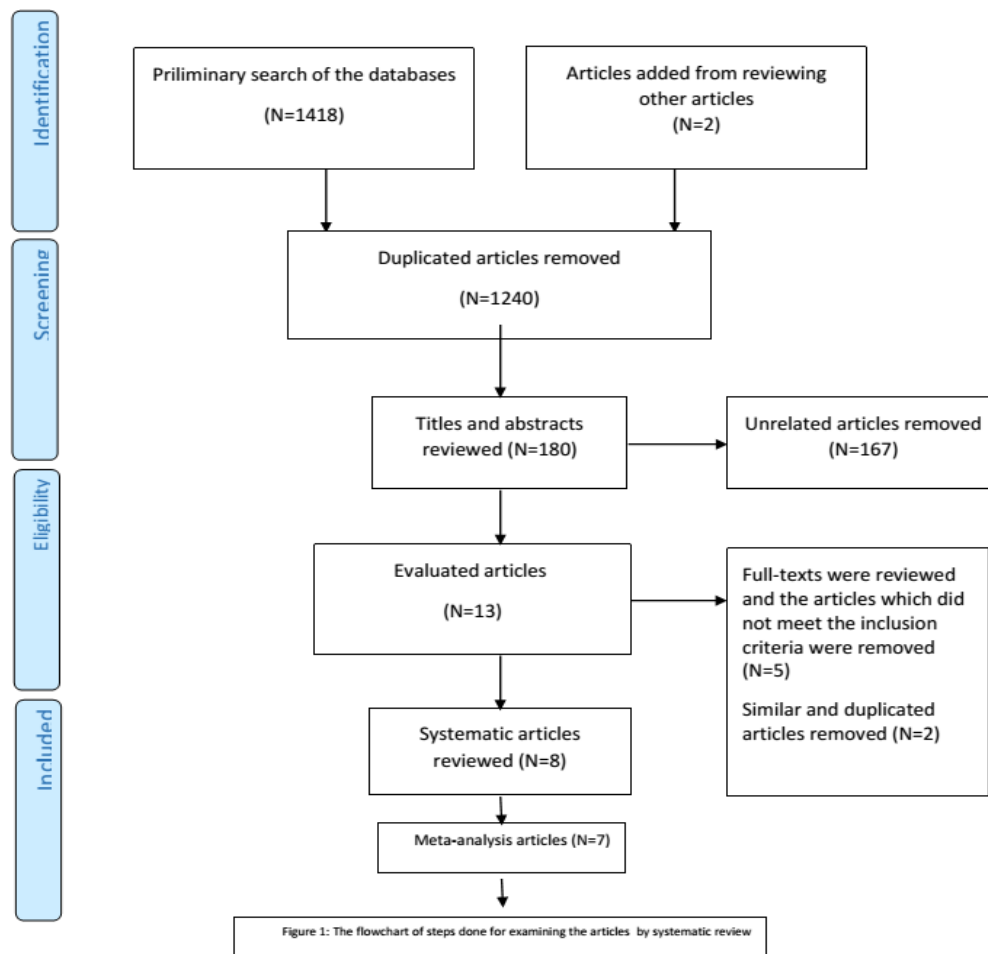


Figure 1. PRISMA diagram for the selection process of the articles

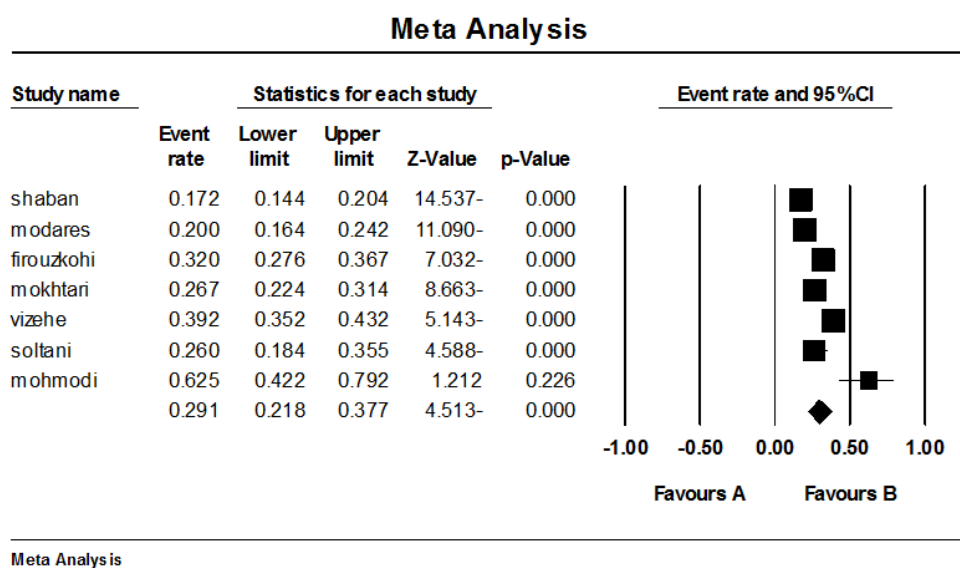


Figure 2. The pooling of overall prevalence of post-traumatic stress disorder after childbirth

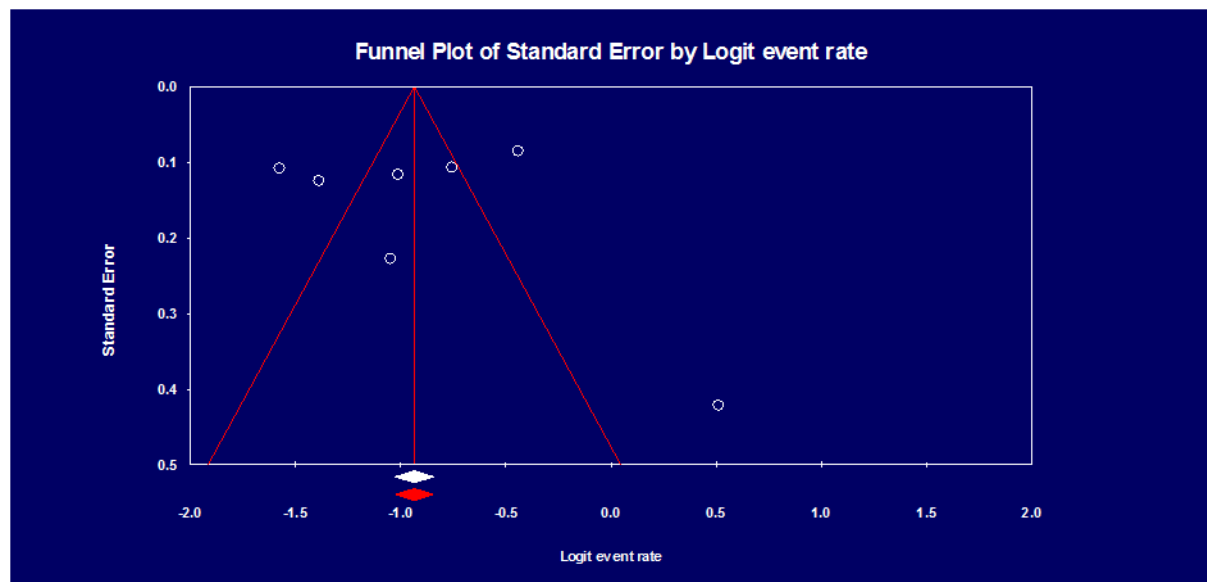


Figure 3. Funnel plot to assess publication bias.

Discussion

In this study, the overall prevalence of traumatic childbirth was 48.3% and the overall prevalence of post-traumatic stress was 29.1%. In a systematic review and meta-analysis conducted by Yildiz in 2017, 59 studies were investigated and this rate was 4% in the general population and it was 18.5% in high-risk pregnancies. Furthermore, since most of the articles in this study examined the 6-8 weeks postpartum phase, this prevalence rate was 5.77% in the general population (27), indicating a high prevalence of post-traumatic stress disorder in Iran. In only two of the articles, i.e., Abdollahpour (23) and Modares (21), the overall prevalence of traumatic childbirth was 48.3% and 54.4%, respectively. These prevalence rates, despite their close proximities, cannot be reliably integrated because they were not examined at the same time. Timing is very important in identifying traumatic childbirth. At the beginning of each traumatic and damaging event that the viewer encounters, the person develops psychological trauma, and the closer he or she is to the event, the greater the likelihood of being diagnosed. If the traumatic event does not resolve in a person's mind within at least one month after its occurrence and remains as a stressor, it leads to post-traumatic stress disorder which is associated with symptoms such as hyperactivity, deliberate avoidance of memories of traumatic events, negative cognition and mood, and unwanted thoughts (28). Therefore, the origin and timing of traumatic childbirth and post-traumatic stress are important in the accuracy of the results. Both of these studies used the DSM-IV-A criterion to identify traumatic childbirth, which has been used as an appropriate criterion for early diagnosis of trauma in various studies conducted to examine this issue (29,30).

In this study, the overall prevalence of post-traumatic stress disorder was approximately 29.1%. Given that this prevalence rate was very open, ranging from 6.2% to 39%, this was probably influenced by different populations, times, and places. For example, in a study performed by Abedian *et al.* (26), post-traumatic stress was measured in the population of mothers with preeclampsia, and since post-traumatic stress was higher in high-risk deliveries than in low-risk and conventional deliveries (31), it is not possible to combine the data with the normal population and conduct its meta-analysis. In a meta-analysis study, Grekin *et al.* reported that the prevalence of post-traumatic stress disorder was 3.1% in ordinary deliveries and 15.7% in high-risk pregnancies (31). In their study (26), the prevalence of post-traumatic stress disorder was 26%, of which 60.6% was confirmed by psychiatric interviews, so it is obvious why the prevalence of post-traumatic stress disorder in this population was lower than some other studies. One important cause may be due to accurate diagnosis and psychiatric approval rather than the low prevalence rate estimated. The other articles considered in this review were very homogeneous in terms of the sampling time, tools, and population and reached similar results in estimating the prevalence. If the Mahmoodi's study (25), which indicated low prevalence, was excluded, other articles would include 17.2% (20), 26% (26), 26.7% (24), 32% (22), 36.7% (21) and 39% (14), respectively. In the study done by Mahmoodi *et al.* (25), mothers who had no history of depression or psychological problems, no history of pregnancy complications or hospitalization, and had live births weighing more than 2500 were only studied. One important reason for the low prevalence of post-traumatic stress disorder in the mentioned study was

the elimination of predisposing factors such as pregnancy and childbirth complications. In a review study of neonatal problems, lack of social support, problems and complications of pregnancy, and midwifery emergencies are always considered as the largest post-traumatic stress risk factors for post-traumatic stress (11,12) which were all excluded from Mahmoodi's study. Among the reviewed articles, the study carried out by Vizeh *et al.* (14) had the largest sample size and was conducted in five cities of West Azerbaijan province. In this study, randomly selected cities and health centers were chosen and all mothers were enrolled after screening for traumatic childbirth, which would be more generalizable when considering and evaluating critically. Finally, to better understand the meaning of the phenomenon of "traumatic childbirth," it is recommended to use qualitative studies on Iranian mothers (32).

One of the limitations of this study was the low number of studies conducted in this field in Iran. Second, the reported prevalence of post-traumatic stress disorder is very broad in Iran. On the other hand, these studies have been conducted in recent years, so it is not possible to examine the prevalence of the problem over time. Moreover, due to the distribution of research locations in the vast country of Iran, it was not possible to aggregate and categorize neighboring cities in this study and to create homogeneity between the articles and the combined data. Moreover, due to the large variations in geographical locations of these studies, it was not possible to examine the socioeconomic status and impacts of culture and ethnicity. Another limitation was the incorrect use of the words *traumatic childbirth* and *post-traumatic stress* in the articles, which were attempted to report correctly. These limitations are recommended to be regarded for future studies.

Conclusion

Given the high prevalence of post-traumatic stress disorder in Iran, further studies are needed to consider this issue. The high prevalence of post-traumatic stress and traumatic childbirth and the limited number of studies in this field are strong reasons for managers and planners to consider mothers' psychological issues to maintain and promote their health during the postpartum period.

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Conflict of Interest

Authors declared no conflict of interests.

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