



# Investigating the Effect of Debriefing Intervention on Postpartum Posttraumatic Stress Disorder

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## Abstract

**Objectives:** The purpose of this study was to determine the effect of debriefing intervention on post-traumatic stress disorder (PTSD) following traumatic childbirth.

**Methods:** This was a randomized clinical trial conducted on 70 postpartum women who experienced traumatic childbirth and referred to health centers of Tabriz, Iran. The participants were assigned into two groups of counselling and control (n=35 per group) using block randomization. The intervention group joined a counselling session with critical incident stress debriefing (CISD) approach 3-5 days after childbirth. Post-traumatic Stress Checklist (PCL-5) and Edinburgh Postnatal Depression Scale (EPDS) were completed by the subjects before the intervention session, and 4-6 weeks after childbirth. ANCOVA was used for data analysis.

**Results:** The mean score of PTSD symptoms showed significant decrease in the intervention group compared to the control group (adjusted mean difference [AMD] = -5.72, 95% CI: -10.47 to -0.96,  $P=0.01$ ).

**Conclusions:** It is recommended to compare the effectiveness of structured and unstructured debriefing in future studies.

**Keywords:** Traumatic childbirth, Debriefing, Post-traumatic stress disorder

## Introduction

Although childbirth is considered as a normal and physiological process, it can be considered as a potentially traumatic incident in women who are less tolerant to stress or have had one of the complications of pregnancy or delivery (1). Most health care providers consider traumatic childbirth as a physical injury, while childbirth can lead to psychological trauma (2).

Generally, many women overcome labor pain, fear, and anxiety, while in some women, consequences of childbirth psychological trauma are very profound (3,4). Some women who experience traumatic childbirth may develop post-traumatic stress disorder (PTSD) after childbirth (5). PTSD is a life-threatening experience for mothers or infants and may be accompanied by the risk of death or serious injury for the mother or her infant (6). One of the most important complications of traumatic childbirth, which is associated with PTSD, is postpartum depression (7). PTSD following childbirth even raises the risk of infant mortality (8).

Many women who experience traumatic childbirth state that there is no opportunity to talk about their worries and stress, and they discharge from the hospital before they can talk about it (9). Consultation by the debriefing approach means a structured conversation with someone who has lately experienced a traumatic or stressful event and focuses on preventing severe psychological complications.

In fact, debriefing provides immediate emotional and psychological support following a traumatic event in which affected people express their thoughts and imaginations about the traumatic event and talk about it (10).

According to the results of a systematic review on seven clinical trials from 2000 to 2015, there was contradictions in whether debriefing intervention could prevent PTSD or not; and evidences of its effectiveness in countries with low and moderate incomes was reported as insufficient (11). Consequently, this study was designed to examine the debriefing intervention effect on postpartum PTSD.

## Materials and Methods

### Study Design and Setting

This study was a randomized controlled clinical trial (RCT). The participants were 70 women aged 18-45 years who experienced traumatic childbirth during 3-5 days before, based on the DSM-5 (A) criteria and referred to Tabriz health centers, Iran.

Exclusion criteria included depression score of 13 or above using Edinburgh Postnatal Depression Scale (EPDS), a history of psychiatric disorders such as depression, and phobias, consumption of antidepressants, a history of postpartum depression, a history of systemic and chronic diseases, history of first-degree relatives death during the last year, illegitimate pregnancy, cases of repeated and elective cesarean, fetal abnormality, stillbirth

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## Key Messages

- ▶ The critical incident stress debriefing seems to be effective in emotional abreaction and reduction of PTSD symptoms.

and neonatal death. Primary outcome was postpartum PTSD, 4-6 weeks after the intervention.

### Sample Size Estimation

In this study, in order to determine the sample size, G\*POWER software was used. According to the study by Azizi et al about postpartum PTSD (12), and regarding  $m_1=7.8$ ,  $m_2=4.9$ ,  $SD_1=3.65$ ,  $SD_2=2.71$ , two-sided  $\alpha=0.05$ , power 90%, and 20% sample drop, the sample size was calculated as 35 participants per group.

The sampling was performed in 15 primary health centers in Tabriz, Iran with different socioeconomic status. In the selective health centers, in order to do the sampling, the researcher - evaluated the postpartum women who had given birth during 3-5 days before, in terms of having a traumatic childbirth based on the DSM- 5 (A) criteria by asking the following questions:

Did you feel threat for yourself or your baby' life during labor or childbirth? And were you afraid of a serious injury to your baby or yourself during labor or childbirth? If there was a positive response to one of the questions, the birth was considered as traumatic (13). Women who were eligible to be involved in the study were invited to participate. In case of their willingness to participate, a written informed consent was obtained. Then, the participants designated through convenience sampling were entered a counselling and a control group by blocked randomization method using Random allocation software with block sizes of 4, 6 and the allocation ratio of 1:1. The assignment type was written on paper and based on the allocation sequence put in opaque envelopes (allocation concealment). A person uninvolved in the sampling process prepared the envelopes. Finally, 35 women were assigned to each of the intervention and control groups.

### Questionnaire Description

The demographic and obstetric-neonatal characteristics questionnaire included age, education, occupation, income, number of pregnancies and childbirths, history of pregnancy complications, pregnancy status in terms of planning, type of delivery, and infant's gender, illness and hospitalization.

The EPDS contains 10-item multiple-choice questions. Each question receives a score of 0-3. The total score is in the range of 0 -30. Scores of 13 and over indicate depression with a sensitivity of 86%, specificity of 78% and a positive predictive value of 73% in clinical diagnosis (14). Cronbach's  $\alpha$  for the Persian version of this tool was 0.70 (15).

The postpartum PTSD score was measured using the PCL5 checklist with 20 multiple-choice items scored from

zero to four. The total score is ranged from zero to 80. Respondents may choose the answers they have felt over the past month (16,17). Cronbach's  $\alpha$  for the tool was 0.91 and test-retest reliability coefficient was 0.82 (18).

### Data Collection

Before the intervention, the demographic and obstetric-neonatal characteristics questionnaire, PCL-5 and EPDS were completed in the two groups using interviews. Then, group counseling with critical incident stress debriefing (CISD) approach, consist of 3-6 people, was held 3-5 days after childbirth in a session for 90-180 minutes in the intervention group. This counseling consisted of seven phases (19):

1. The first phase included an introduction in which counselor introduced herself, described the session, outlined the main aims of the process and emphasized on the confidentiality of discussion.
2. The second phase included the expression of the facts that women had seen and experienced during the traumatic childbirth.
3. The third phase included the recalling of thoughts that, after confrontation with traumatic birth, had first come to mind and was the most important part of counseling.
4. The fourth phase was the reaction phase, the point at which women could describe the worst part of the event for them and why it bothered them.
5. The fifth phase of the debriefing was asking the participants to describe stress symptoms felt during the incident.
6. The six phase of the debriefing process included teaching. At this phase, the counselor explained to group about stress-reduction information, and how to deal with it (seeking and gaining support, as well as promoting communication skills with others, especially with the spouse).
7. At the seventh or re-entry phase, the counselor reviewed and summarized the information that came from the mother and the information she provided, in order to ensure that the counselor and the client understood each other and also was responded to the patients' questions.

The first author held all the counseling sessions and completed the questionnaires through interview. The control group in this study only received routine postpartum care which include check of vaginal bleeding, and screening for postpartum depression. The participants of both groups were called and invited by researchers to attend their own health centers in order to fill out PCL-5 and EPDS questionnaires, 4-6 weeks after childbirth. Since the continuation of post- traumatic stress symptoms for more than a month leads to the diagnosis of PTSD, the score of PCL-5 above 33 (16, 17), and in the case of depression score of 13 or above (14) cause referring mothers to a psychiatrist.

### Statistical Analysis

SPSS-24 software was used to analyze the data. The data normality was examined using Shapiro–Wilk test. ANCOVA was used to compare the mean scores of postpartum PTSD and depression in the study groups by controlling for the baseline scores. Analyses were done based on intention to treat.

### Results

This study was done from December 2018 to July 2019. In this clinical trial, 130 postpartum women with traumatic childbirth were assessed for eligibility and finally 70 mothers were included in the research. In this study, there was no loss in any of the groups due to the one-session counseling that was held and also because of the informed consent of the participants to participate in the study (Figure 1). There were no significant differences between the two groups in the case of their demographic and obstetric-neonatal characteristics (Table 1).

Prior to intervention, regarding postpartum PTSD symptoms, there were no significant differences between the two groups ( $P=0.88$ ). The postpartum PTSD symptoms mean score in the counseling group was reduced from 18.5 (8.3) before to 4.76 (1.81) after the intervention. This value reached from 19.3 (7.1) before to 10.48 (1.55) after the intervention in the control group. According to the results of the ANCOVA by controlling baseline scores,

the PTSD mean scores showed a significant decrease in the intervention group compared to the control group (adjusted mean difference = -5.72, 95% CI: -10.47 to -0.96,  $P=0.01$ ).

There was no significant difference between the groups regarding the postpartum depression mean score before the intervention, ( $P=0.76$ ). The postpartum depression in the counseling group decreased from 11 (4.4) before to 4.32 (.88) after the intervention. This value reached from 12.5 (6) before to 6.96 (0.82) in the control group after the intervention. The results of the Analysis of covariance (ANCOVA) while controlling for the baseline scores showed that the mean scores of postpartum depression was not significantly different in the intervention group compared to the control group (adjusted mean difference = -2.64, 95% CI: -5.98 to .30,  $P=0.17$ ) (Table 2).

### Discussion

Based on the findings, counseling with CISD approach could significantly decrease PTSD symptoms. In accordance with our findings, in the study in Iran, with a face-to-face debriefing and a telephone counseling after discharge from hospital, PTSD symptoms showed a significant decrease 4-6 weeks and 3 months after childbirth compared to the control group (12). Though, according to a study in Australia, a consultation session with debriefing approach in the first 72 hours after the

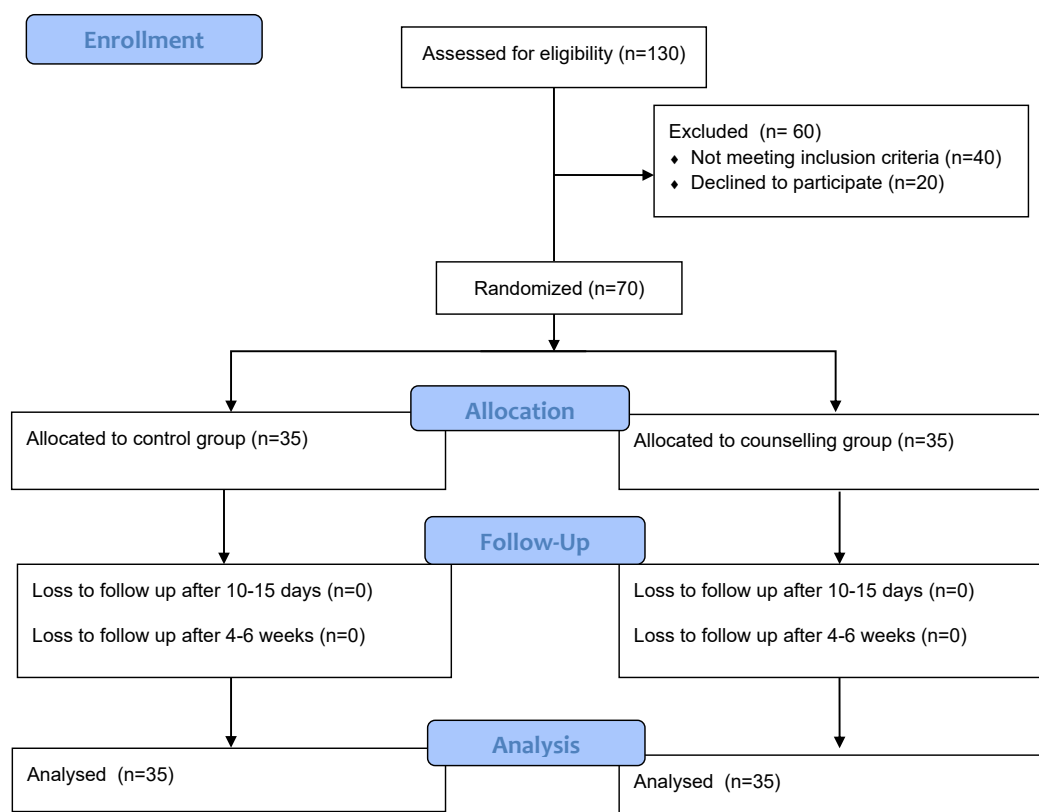


Figure 1. Flowchart of the Study.

**Table 1.** Demographic and Obstetric-Neonatal Characteristics of Participants

Variables	Intervention Group (n=35)		Control group (n=35)	P Value
	No. (%)	No. (%)	No. (%)	
Age (y), Mean (SD)	30 (6.2)	30.3 (6.1)		0.86 <sup>a</sup>
The baby's age, Mean (SD)	36.14 (4.2)	37.71 (2.66)		0.06 <sup>a</sup>
Birth (wk)				0.4 <sup>a</sup>
The baby's weight, Mean (SD) at birth (g)	3386 (928)	3117 (823)		
Occupation				0.49 <sup>b</sup>
Housekeeper	33 (94.3)	35 (100)		
Employed	2 (5.7)	0 (0)		
Level of education				0.4 <sup>b</sup>
Elementary/guidance	12 (34.3)	16 (45.7)		
High school/diploma	17 (48.6)	14 (40)		
Academic	6 (17.1)	5 (14.3)		
Family income level				0.6 <sup>b</sup>
Not enough	6 (17.1)	8 (22.8)		
Somewhat enough	26 (74.2)	23 (65.7)		
Enough	3 (8.57)	4 (11.4)		
Number of pregnancies				0.83 <sup>c</sup>
One	12 (34.28)	12 (34.28)		
Two	8 (22.85)	10 (28.57)		
Three and more	15 (42.85)	13 (37.14)		
Number of deliveries				0.68 <sup>b</sup>
One	16 (45.7)	12 (34.28)		
Two	13 (37.14)	10 (28.57)		
Three and more	6 (17.14)	13 (37.14)		
Type of deliveries				0.81 <sup>b</sup>
Cesarean section	17(48.6)	16 (45.7)		
Vaginal	18 (51.4)	19 (54.3)		

<sup>a</sup> Independent *t* test, <sup>b</sup> Chi-square.

**Table 2.** Comparison of PTSD Following Childbirth and Postpartum Depression by the Study Groups

Variable	Intervention Group (n=35)		Control Group (n=35)		AMD (95% CI)	P Value
	Mean (SD)		Mean (SD)			
	Before the Intervention	After 4-6 Weeks	Before the Intervention	After 4-6 Weeks		
PTSD following childbirth	18.5 (8.3)	4.76 (1.81)	19.3 (7.1)	10.48 (1.55)	-5.72 (-10.47 to 0-0.96)	0.01 <sup>a</sup>
Postpartum depression	11 (4.4)	4.32 (0.88)	12.5 (6)	6.96 (0.82)	-2.64(-5.98 to 0.30)0	0.17 <sup>a</sup>

AMD, adjusted mean difference; CI, confidence interval.

<sup>a</sup> ANCOVA.

traumatic birth, in addition to a telephone counseling after discharge from hospital, could not reduce post-traumatic stress symptoms, 4-6 weeks after childbirth (20). The probable reason for the observed difference can be due to different population and measurement tool. In that study, the MINI-PTSD questionnaire was used. Moreover, in other study in Iran, after a midwife-led (unstructured) debriefing within first 72 hours postpartum, there was no significant decrease in posttraumatic stress symptoms after 4- 6 weeks follow up (21). The probable reason for the observed difference may be due to difference in counseling structure. Future studies to compare the effectiveness of

CISD with unstructured debriefing (postnatal discussion) is warranted.

In this study, there was no significant differences in the mean scores of depression between the two groups 4-6 weeks after traumatic childbirth. In line with our study, in a study by Small et al. in Australia, with a debriefing session in the intervention group, it was reported no significant differences in depression mean scores between two groups after 6 months follow up (22). Postpartum depression is a multifactorial psychiatric illness. Etiology and risk factors related to postpartum depression include biological factors such as decline in

the levels of hormones after childbirth, obstetric factors such as premature contractions, emergency caesarean, and unplanned pregnancies, clinical factors such as having previous psychiatric symptoms, a family history of psychiatric disorder, and prenatal anxiety, social factors like social support and life events, socioeconomic status and deprivation, infant variables such as higher levels of childcare-related stressors and marital relationship (23-30).

### Practice Implications

Considering the simplicity of debriefing, health care providers are recommended to utilize CISD to decrease PTSD symptoms.

### Strengths and Limitations

Using PCL-5 based on DSM-5, and designing the study based on clinical trials principles such as random allocation and allocation concealment to eliminate the selection bias in addition to having no attrition rate were among the strengths of this study. This study limitation was the short follow-up and self-reported data.

### Conclusions

The CISD seems to be effective in emotional abreaction and reduction of PTSD symptoms. Additional research to compare the effectiveness of structured and unstructured debriefing is warranted. Furthermore, a similar study scheme in other populations with a preferably longer follow-ups (3-6 months) is recommended.

### Authors' Contribution

SSM and RN: concept and design. FM and SM: data collection and interpretation of the data. JB and SH: performing of the study and writing of the draft. All authors read and approved the study.

### Conflict of Interests

Authors declare that they have no conflict of interests.

### Ethical Issues

Sampling was carried out when the ethics code was assigned to the study by the Ethics Committee of Tabriz University of Medical Sciences (TBZMED.REC.1395.547) and the study was registered in the Iranian Registry of Clinical Trials website (identifier: IRCT201509283027N27).

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