

# The Effect of Debriefing and Brief Cognitive-Behavioral Therapy on Postpartum Depression in Traumatic Childbirth: A Randomized Clinical Trial

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## ABSTRACT

**Background & aim:** Childbirth is a stressful event in women's lives, and if a mother perceives it as an unpleasant event, it can influence her postpartum mental health. Depression is a common mental disorder, which can have serious consequences depending on its severity. Therefore, this study aimed to investigate the effect of debriefing and brief cognitive-behavioral therapy on postpartum depression in traumatic childbirth.

**Methods:** This clinical trial was performed on 179 mothers who experienced a traumatic childbirth and were admitted in postnatal ward of Nohom Dey Hospital in Torbat-e Heydarieh, North East of Iran in 2016. The subjects were randomly allocated into three groups, including two intervention groups of debriefing and brief cognitive-behavioral counseling and a control group. The intervention groups received appropriate counseling for 40-60 minutes in the first 48 postpartum hours and the control group received the routine postpartum care. Edinburgh Postnatal Depression Scale was used to evaluate postpartum depression 4-6 weeks and also three months after the intervention. Post-traumatic stress symptoms were compared in three groups using t-test, chi-square test, and repeated measures analysis of variance.

**Results:** No significant differences were observed between the mean depression scores of the two intervention groups and that of the control group 4-6 weeks after childbirth. However, three months after delivery, the mean depression scores of the two intervention groups was lower than the control group ( $P < 0.001$ ); there was no significant difference between the mean depression scores of the two intervention groups.

**Conclusion:** Both methods of debriefing and brief cognitive-behavioral therapy could significantly reduce mean postpartum depression score in high-risk mothers. Thus, these methods could be employed for early identification of depression, which in turn, lowers the rate of postpartum depression.

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## Introduction

Traumatic childbirth is an event occurring during labor, which involves perceived threat of a serious injury or death or dehumanizing behavior

that strips the woman of her dignity (1). Childbirth is a physically and mentally stressful event (1), and over 34% of new mothers have reported traumatic

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childbirth (2).

Stress and anxiety are an individual's responses to external pressures or conditions (3, 4). This fear declines the likelihood of natural delivery, intensifies labor, exacerbates the experience of childbirth, impairs labor progression, and causes mental and psychological problems for breast-feeding (5). Symptoms of postpartum depression start within the postpartum period (6), and they can persist during the first year after delivery (7, 8). Symptoms of postpartum depression disorder (PPD) consist of anxiety (7, 8), severe nervousness, fear of being alone with the infant, and loss of control (9). The prevalence of postpartum depression is about 12-14% (10-12). In Iran, PPD was reported in 25.3% of new mothers, among whom the prevalence rates of unwanted pregnancy, illiteracy, being a housewife, and history of depression were 43.4%, 31.6%, 30.7%, and 45.2%, respectively (13). According to Austin, the prevalence of postpartum depression in Australia among middle-class women aged over 18 years was 26% (14). A large study in the UK showed that the negative impact of maternal depression on mother-infant relationship led to insecure attachment style, impaired mental health in the first 5 years of age (14-16), low self-confidence and childhood IQ (16), inhibited growth and social interactions (17), more baby crying and colic (11), and high anxiety at the age of 13 years (18). These mothers, due to their negative mood and limited interactions, do not have a good understanding of having a baby; therefore, it takes up to three months after childbirth to attach to the baby (19).

In PPD mothers, self-confidence is low, and they feel they do not have sufficient parenting competence and skills (11). Because of their insufficient ability to perform their duties, these mothers accept the parenting role with delay (20). One factor affecting susceptibility to depression is self-efficacy. Due to their sense of competence and determination to prevent damages and due to their cognitive abilities, people with high self-efficacy adapt to adverse and challenging situations and eliminate obstacles quickly to reach their goal (21). Women experiencing traumatic childbirth are predicted to develop post-traumatic stress disorder (PTSD); they are more likely to develop depression and postpartum psychiatric problems (22).

Bloom identified that one of the differences between post-traumatic stress and postpartum depression is that depression can be developed without a sudden traumatic event in the mother and it is not necessarily the result of giving birth, although perinatal complications can be among its risk factors (23). In addition, research showed that few women with postpartum depression receive professional help due to their reluctance to seek out treatment (24). For this reason, it is essential to identify the stage of behavioral change in which women start attending the support groups since it could affect their chances of improvement (25). Examining personal growth, which involves positive changes in women's lives following birth trauma, can provide a complete picture of these psychological reactions, which in turn, sets the path for future research to promote posttraumatic growth in mothers (23). Beliefs, attitudes, and values affect people's mindsets (26). These beliefs can distort the way a person perceived the reality, interacts with other people, and experiences everyday life (26). Cognitive behavioral therapy can help restructure distorted thinking and perceptions, hence changing a person's behaviors for the better (25). Therefore, we aimed to investigate the effects of debriefing and brief cognitive-behavioral therapy on postpartum depression in traumatic childbirths.

## Materials and Methods

This clinical trial was conducted at Postnatal Ward of Nohom Dey Hospital affiliated to Torbat-e Heydarieh University of Medical Sciences, Torbat-e Heydarieh, Iran, during 2016. We evaluated the effectiveness of two counseling methods on postpartum depression after a traumatic childbirth. The study population comprised of women who had experienced traumatic childbirth and were within the first 48 postpartum hours.

The inclusion criteria included giving birth after 22 weeks of gestation, ability to speak, Iranian nationality, no mental diseases, no psychiatric medications, no history of infertility or substance abuse by the mother, not having elective caesarean section, no history of depression, stress, or and anxiety during pregnancy, knowledge of cognitive-behavioral therapy concepts, and the ability to cope with a stressful situation similar to other participants.

The exclusion criteria for the mothers included requiring special care, taking advice from a source other than the researchers, experiencing no stressful life events over the past year, not wanting to continue participation in the project, and having no history of PTSD. Regarding the infants, the exclusion criteria consisted of prolonged hospitalization after the first follow-up and death.

The present study was registered and approved by the Ethics Committee of Shahroud University of Medical Sciences (code no.: IR-SHMU.REC.1394.42) and the Iranian Center for the Registration of Clinical Trails (code No.: RCT2015072522396N2). For mothers who were prone to traumatic childbirth, based on criteria A of DSM\_V\_TR, PTSD was determined according to Gombel's study, that is, the mothers were asked whether they had felt any threat of death or serious injury to themselves or their babies intrapartum (27).

The items of which were validated in several studies (28, 29). The validity and reliability of this questionnaire were established by a group of psychiatrists at Shahrud University of Medical Sciences. This criterion was first filled out for 400 mothers who met the inclusion criteria, of whom 193 mothers who had traumatic childbirth entered the study. For all the enrolled mothers, after obtaining informed consent, Coping Response Inventory of Billings and Moos and Depression, Anxiety, and Stress Scale-21 (DASS-21) were completed to ensure eligibility. In the analysis phase, we excluded those who were not homogeneous with others.

DASS-21 is a 21-item questionnaire measuring the severity of a range of symptoms common to both depression and anxiety (30). The scale was employed in several studies among pregnant women in Iran (31, 32). Coping Response Inventory of Billings and Moos also includes 19 items rated using a four-point Likert scale (ranging from 0 to 3) (33).

The participants were randomly assigned to three groups of debriefing, cognitive-behavioral therapy, and control using block size of six. The intervention groups received appropriate counseling and the control group received the routine postpartum care. In this study, one session of face-to-face counseling for 40-60 minutes in the first 48 postpartum hours was conducted in the Postnatal Ward by the researcher, who had an MSc

in Obstetric Counseling.

The debriefing intervention provided women with an opportunity to discuss their labour, birth, and post-delivery events and experiences. Content of the discussion was determined by each woman's experiences and concerns, and up to one hour was made available for the session, so that they can evacuate their emotions through talking (34). A brief Cognitive behavioral therapy helps mothers think positively about what's happening and focused on improving the information that the women have about healthy lifestyles, techniques for managing anxiety, social skills and problem solving, relaxation, cognitive coping (26). Counseling content was preventive in nature and it was presented when mothers did not have any psychological problems yet, but they were at greater risk of developing psychological problems compared to others. For all the three groups, Edinburgh Postnatal Depression Scale was completed three months after delivery and scores above 13 were considered indicators of depression. In the first phase of follow-up, out of the 193 mothers who had a traumatic childbirth, four women from the control group, six from the cognitive-behavioral counseling group, and three from the debriefing group were excluded. Two mothers had their babies bedridden after the first follow-up, nine subjects could not be contacted for different reasons, one mother was not willing to answer the researcher's questions, and one mother's baby had died.

In the second phase of the follow-up, one person was excluded from the control group due to failure to contact her and a total of 180 people remained in the study. To blind the researchers, the questionnaires were completed at 4-6 weeks by one researcher and three months after delivery by another. To analyze the data, t-test, chi-square test, and repeated measures analysis of variance (ANOVA) were run in SPSS. The significance threshold was set at 0.05. An overview of the method is shown in Figure 1.

## Results

We sought to determine the effects of brief cognitive-behavioral counseling and debriefing on postpartum depression. In doing so, the Edinburgh Postnatal Depression Scale was completed by the mothers experiencing traumatic childbirth three

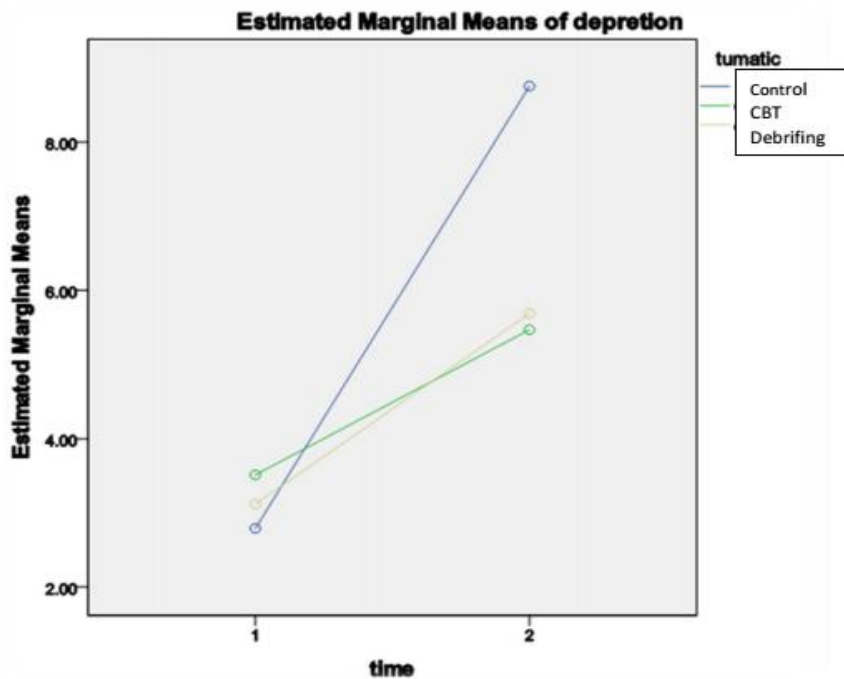


Figure 1. Mean score of depression between the three groups at two time points

months after parturition. The total mean score of depression for traumatic childbirths was 7±4.8 (range: 0-19). The results of one-way ANOVA and chi-square test showed that in terms of demographic variables, history, and pregnancy-

related variables, no significant differences were observed between the three groups (Table 1).

ANOVA reflected that mean scores of depression were significantly different among the three groups after three months; however,

Table 1. Comparison of demographic and pregnancy characteristics of the two groups

Variable	Intervention Group (debriefing)	Intervention Group (CBT)	Control Group	Total	Test
Mother's age (mean±SD)	25.8±7.2	25.5±5.9	27.5±6.1	26.5±6.4	F=1.8 P-value=0.16
Mother's education (mean±SD)	8.05±3.9	8.06±3.6	8.04±3.8	8.05±3.8	F=0 P-value=1
Husband's education (mean±SD)	7.9±3.5	7.8±2.9	8.5±3.5	8.1±3.3	F=0.7 P-value=0.49
Parity (mean±SD)	1.9±1.1	2±1.02	2.17±1.08	2.05±1.08	F=0.9 P-value=0.4
Live birth (mean±SD)	0.76±1.1	0.8±1.05	1.02±1.07	0.89±1.1	F=1.05 P-value=0.34
Abortion (mean±SD)	0.33±0.79	0.25±0.53	0.2±0.46	0.25±0.85	F=0.71 P-value=0.49
Still birth (mean±SD)	0.01±0.14	0.04±0.20	0.01±0.11	0.02±0.14	F=0.63 P-value=0.52
Gestational age (mean±SD)	38.94±1.8	39.1±1.5	39.07±1.8	39.05±1.7	F=0.14 P-value=0.86
DASS Total (mean±SD)	23.2±6.8	23.3±6.6	21.7±7.3	22.6±7.02	F=1.1 P-value=0.33

Continuous of table 1.						
Ability to cope with stress		18.6±9.2	16.8±8.6	18.01±9.9	17.9±9.3	F=0.44 P-value=0.64
Total depression score		3.1±2.06	3.5±2.3	2.7±1.4	3.07±1.9	F=2.1 P-value=0.12
Total anxiety score		9.3±3.5	9.19±3.1	8.2±3.5	8.7±3.4	F=1.9 P-value=0.15
Total stress score		10.8±3.3	10.6±3.4	10.7±4.3	10.7±3.8	F=0.23 P-value=0.97
Occupation(%)	Housewife	51(100)	46(97.9)	81(98.8)	178(98.9)	$\chi^2=1.02$ P-value=0.59
	Working	0(0)	1(2.1)	1(1.2)	2(1.1)	
Infant's gender(%)	Girl	21(41.2)	23(48.9)	45(54.9)	89(49.4)	$\chi^2=3.9$ P-value=0.41
	Boy	27(52.9)	22(46.8)	36(43.9)	85(47.2)	
	Twin	3(5.9)	2(4.3)	1(1.2)	6(3.3)	
Pregnancy acceptance(%)	Wanted	44(86.3)	40(85.1)	61(74.4)	145(80.6)	$\chi^2=3.6$ P-value=0.15
	Unwanted	7(13.7)	7(14.9)	21(25.6)	35(19.4)	
Satisfaction with gender(%)	No	6(11.8)	5(10.6)	13(15.9)	24(13.3)	0.85□= P-value=0.65
	Yes	45(88.2)	42(89.4)	69(84.1)	156(86.7)	
Pregnancy complications(%)	No	28(54.9)	32(68.1)	51(62.2)	111(61.7)	$\chi^2=1.8$ P-value=0.4
	Yes	23(45.1)	15(31.9)	31(37.8)	69(38.3)	
Delivery complications(%)	No	31(60.8)	23(48.9)	49(59.8)	103(57.2)	$\chi^2=1.7$ P-value=0.4
	Yes	20(39.2)	24(51.1)	33(40.2)	77(42.8)	
Type of delivery	Vaginal	35(68.6)	27(57.4)	53(64.6)	115(63.9)	$\chi^2=1.3$ P-value=0.5
	Cesarean	16(31.4)	20(42.6)	29(35.4)	65(36.1)	
Gestational age at the time of delivery	34 weeks or less	2(3.9)	1(2.1)	3(3.7)	6(3.3)	$\chi^2=0.42$ P-value=0.98
	34 - 36/9	3(5.9)	3(6.4)	4(4.9)	10(5.6)	
	37 weeks or more	46(90.2)	43(91.5)	75(91.5)	164(91.1)	
Birth weight	Less than 2500 g	8(15.7)	5(10.6)	11(13.4)	24(13.3)	$\chi^2=0.75$ P-value=0.94
	2500 - 4000 g	39(76.5)	39(83)	66(80.5)	144(80)	
	More than 4000	4(7.8)	3(6.4)	5(6.1)	12(6.7)	
Husbands' history of substance abuse	No	48(94.1)	41(87.2)	73(89)	162(90)	$\chi^2=5.6$ P-value=0.46
	Cigarette	3(5.9)	4(8.5)	6(7.3)	13(7.2)	
	Hookah	0(0)	2(4.3)	1(1.2)	3(1.7)	
Mother's residential location	Urban	13(25.5)	10(21.3)	22(26.8)	45(25)	
	Rural	38(74.5)	37(78.7)	60(73.2)	135(75)	

P-value<0.05

CBT: cognitive-behavioral therapy

4-6 weeks after delivery no significant differences were noted among the three groups (Table 2).

A significant difference was noted in the mean depression scores between the two intervention groups and the control group, but there was no statistically significant difference between the two intervention groups (Table 3).

Three months after delivery, results of repeated measures ANOVA (Figure 2) revealed that the mean depression scores of the two intervention groups and the control group were not significantly different (Figure 2), and the P-value based on Greenhouse-Geisser correction was less than 0.001. (Group \* Time; Greenhouse = P<0.001).

**Table 2.** Mean depression scores of the three groups of traumatic childbirth

Time	Control	CBT**	Debriefing	Total	F	P-value*
after 4-6 week	2.7±1.4	3.5±2.3	3.1±2.06	3.06±1.9	2.1	0.12
after three months	8.7±4.1	5.4±5.1	5.6±4.9	7±4.8	10.3	0.001

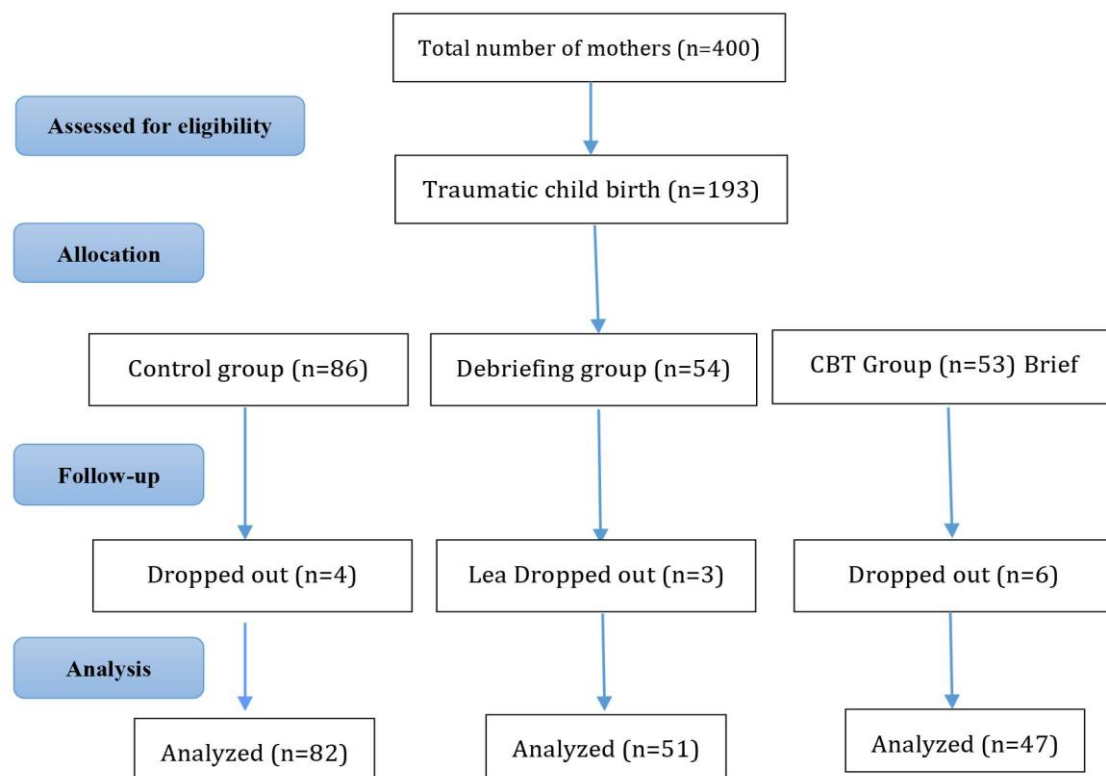
\*P-value<0.05

\*\*CBT: cognitive behavioral therapy

**Table 3.** Comparison of mean depression scores between the three groups three months post-intervention

Comparison between groups	Group name	Mean±standard deviation	Difference mean±standard error	P-value
Total postpartum depression score	Control	8.7±4.1	3.2±0.85	0.001
	CBT*	5.4±5.1		
	Debriefing	5.6±4.9	0.2±0.94	0.81
	CBT*	5.1±4.1		
	Control	8.7±4.1	3.06±0.83	0.001
	Debriefing	5.6±4.9		

\*CBT: cognitive behavioral therapy

**Figure 2.** Consort flow Diagram of the study

## Discussion

Among the women experiencing traumatic childbirth, both early brief cognitive-behavioral counseling and debriefing significantly lowered the mean depression scores three months after delivery. These mothers were screened with standard A-DSM-5 and were more prone to psychological problems compared to other parturient mothers. Wiklund showed that in women who were screened with the Edinburgh scale, brief cognitive-behavioral counseling gradually led to significant differences between the two groups (Group \* Time), and he recommended

brief cognitive-behavioral interventions for the treatment of mothers at risk for postpartum depression (35).

In Chabrol's study, which aimed at preventing postpartum depression, mothers who scored higher than 9 on Edinburgh scale immediately after parturition were screened and re-evaluated after 4-6 weeks of cognitive-behavioral counseling. His results showed that cognitive-behavioral counseling caused a significant difference between two groups in terms of mean postpartum depression score (36). In a study by Milgrom

conducted using a notebook that provided cognitive-behavioral information, mothers who were prone to postpartum depression were followed-up through phone calls 12 weeks after delivery. It was found that the mean scores of depression and anxiety in the intervention and control groups were significantly different (37). In a study by Tandon, significant differences were observed in the mean scores of depression between the intervention group who received cognitive-behavioral counseling and the control group who received only the routine care at home (38).

In a study by Carta, cognitive-behavioral counseling was used to prevent postpartum depression, and two days after the delivery, at-risk mothers were screened using the Edinburgh Postnatal Depression Scale. Mothers with a score higher than 10 were assigned to the intervention group and those with a score less than 10 were assigned to the control group. The intervention group received cognitive-behavioral counseling, and follow-up was performed during 40 days, and 3, 6 and 12 months after delivery. After 12 months, women who had not received counseling obtained higher depression mean scores than the other group. This study showed that early identification of at-risk women and early treatment with cognitive-behavioral counseling are essential (39). Recent studies showed that early counseling, cognitive behavioral therapy, and identification of mothers who were at increased risk of postpartum depression should be performed by health care providers to deal with this problem and prevent its complications (40-43).

The other result of the present study was that debriefing counseling in the first 48 postpartum hours decreased the mean score of depression in the women who had experienced traumatic childbirth. Review of six studies showed that in two studies debriefing could reduce depression scores, whereas four studies showed no effects. In a study by Lavender, one debriefing session immediately after delivery had a positive impact on reducing depression scores three weeks after delivery (44). In a study by Gambel, which was similar to the present study in terms of procedure, mothers in the first 24-48 postnatal hours were screened using the standard DSM\_IV\_A. Mothers were asked whether they had a feeling of fear and threat to their lives or their babies' lives and

whether they had experienced physical harm. The mothers were divided into two groups; the experimental group received debriefing counseling and the control group received the routine care. After 4-6 weeks, the mothers were followed up through phone calls, and Edinburgh scale was completed for the mothers. It was found that there was a significant difference between the two groups. The two groups were compared three months after delivery, and the results demonstrated that the depressive symptoms of the mothers had diminished. In that study, it was recommended to continue the intervention for a longer period (27).

In the studies by Small in 2000 and 2006, mothers prone to depression due to caesarean section, forceps, or vacuum were divided into two groups, and the intervention group received debriefing. Edinburgh scale was employed to follow up the mothers 6 months and 6 years afterwards, and the results showed no significant differences between the two groups (45, 46). In a study by Tam, in the first 48 postnatal hours, mothers who had a highly morbid pregnancy and childbirth were screened and then divided into two groups; the intervention group received debriefing. General Health Questionnaire was completed for them before the intervention and six weeks after childbirth. However, debriefing did not significantly reduce depression scores in the two groups (47).

In a study by Priest, which was conducted 24-72 hours after delivery, debriefing was used in the intervention group. Edinburgh scale was completed after 2 weeks and 2, 6, and 12 months. Mean depression scores were significantly different between the two groups (48). The results of the last four studies were not consistent with our findings probably because the effect of debriefing decreases as time passes.

### Limitations of the Study

The limitation of this study was difficulty in accessing the mothers after delivery. For future studies, longer follow-ups and postpartum counseling interventions seem to be beneficial.

### Conclusion

Both brief cognitive-behavioral counseling and debriefing had a significant impact on the reduction of mean postpartum depression scores

in mothers experiencing traumatic childbirth. In the brief cognitive-behavioral counseling, the mean postpartum depression scores decreased more effectively compared to the debriefing group.

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### Conflicts of interest

The authors declare no conflicts of interest.

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