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Effect of Dialectical Behavioral Therapy on the Postpartum Depression, Perceived Stress and Mental Coping Strategies in Traumatic Childbirth: A Randomized Controlled Trial

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Abstract

Background: *The aim of the study was to determine the effect of dialectical behavioral therapy in reducing the number of psychological complications following traumatic childbirth.*
Methods: *The study included 210 primiparous women who had natural traumatic childbirth. A standardized protocol was designed to decrease postpartum depression score, perceived stress, and increase mental coping strategies. The intervention group received five counseling sessions, and the control group received routine care. Their questionnaires measured the variables before the intervention and at 6th and 12th weeks postpartum.*
Results: *No significant difference observed between the mean scores of all variables before the intervention (Pvalue>0.05). The results of the repeated measure ANOVA showed, after the intervention, at 6th and 12th weeks postpartum, the mean scores of all three variables, including postpartum depression, perceived stress, and mental coping strategies was a statistically significant difference (Pvalue<0.001).*
Conclusions: *Dialectical behavioral therapy can have substantial effects on reducing postpartum depression, reducing perceived stress levels, and increasing the ability to deal with stress in traumatic childbirth.*

Keywords: Dialectical behavioral therapy, Counseling, Postpartum depression, Perceived stress, Coping strategies, Traumatic childbirth.
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Introduction

Pregnancy and childbirth is a unique experience in every woman's life, with many factors including maternal physical and emotional conditions, and environmental and social conditions that contribute to its formation positively or negatively.[1] For most women, giving birth is an enjoyable experience, but for some others, it is a traumatic experience. In Australia, 33% to 45.5% of mothers were diagnosed with traumatic delivery during a 4-6-week postpartum study. This statistic has been reported in more than 34% in both the United States and the United Kingdom in two separate studies.[1,2] Traumatic delivery has many negative psychological effects, such as an increase in the incidence of postpartum depression, increased perceived stress levels, and reduced ability to adapt and use coping strategies after the traumatic occurrence.[3] Boorman said 30% of women who had experienced traumatic childbirth reported probable depression at eight weeks postpartum.[4] Traumatic birth also increases posttraumatic stress levels in addition to depression that can transform into posttraumatic stress disorder (PTSD) in the event of exacerbation and persistence.[5,6] Perceived stress is an emotional imbalance that in response to stressed and stressed conditions, adds physiological symptoms such as increased heart rate, respiration, and blood pressure. Traumatic birth exposes moms to double stress hazards. These conditions are exacerbated by primiparous mothers who have the first pregnancy and childbirth experience.[7,8] On the other hand, the childbirth experience has a psychological, emotional, and physical impact on the life of the individuals, especially primiparous women, and involve the acquisition of a new role and care-taking tasks with which mothers must cope. Several factors affect both the management of this new experience and the well-being of future mothers such as prenatal stress, anxiety, feeling of parental inefficacy, social support, symptoms of physical unease, and maladaptive coping strategies.[9] A study defined ‘‘coping’’ as the behavioral and cognitive efforts that allow an individual to overcome stressful situations and their negative consequences. However, coping with stress is not a unitary concept.[10]

One of the most effective groups in preventive interventions in the development of postnatal depression and anxiety are midwives, according to the results of various studies. A brief, midwife-led counseling intervention for women reporting a distressing birth experience has been effective in reducing trauma, depression, stress, and self - blame symptoms. The intervention is part of the midwife practice, has not caused any harm to the participants, has been perceived as helpful, and has enhanced the confidence of women in a future pregnancy.[11] Results of various studies show that the use of psychological consulting methods improves the negative consequences of traumatic birth, such as depression and anxiety, develop the self- efficacy and self- confidence of mothers and increase mother-newborn attachment.[12,13] One of the most effective behavioral therapies in this regard is cognitive-behavioral therapy (CBT).[14,15] DBT, as one of the third-wave therapy approaches and complement of CBT, is now used in treating many cognitive disorders which resist against previous methods like CBT. DBT has been associated with reduced suicidal ideation, fewer psychiatric hospitalizations, and an overall significant improvement in functioning in several domains, including interpersonal

relationships and emotion regulation.[16] Although most studies did not recruit specifically participants with depressive symptoms, there is emerging evidence among adults of the beneficial impact of comprehensive DBT on depression symptoms.[17] A brief composite case example is included to illustrate how DBT skills were taught, practiced, and applied. The results of one study show that the DBT-informed skills group is a promising intervention for depressed adolescent perinatal women and points to important directions for clinical practice and research, including treatment engagement and retention.[18]

We develop a skills training approach for women who have traumatic childbirth. these skills are components of dialectical behavior therapy and include mindfulness skills, emotional regulation, tolerance of distress, and effective communication.[19] Moreover, although comprehensive DBT is a multi-component treatment that includes phone coaching, individual therapy, consultation team, and group behavioral skills training Meta-analytic research documents the efficacy of psychotherapeutic interventions for perinatal depression among adults.[20] The behavioral skills taught in DBT may be particularly pertinent to depress perinatal women and more promising for this population than single-component interventions DBT.[21] The mindfulness skills of DBT are considered foundational for all other skills and have potential additional salience for adolescent perinatal women given recent work on the importance of mindfulness in preventing depression among perinatal women and promoting skillful parenting.[22] Thus, there is a strong conceptual and empirical basis for examining the use of DBT skills training with perinatal women, given the match between DBT skills and the developmental challenges of pregnancy and parenting, and the evidence base for DBT for new mothers with depressive symptoms.

In this study, the traumatic experience of delivery as a painful emotional and physical experience is the first and most important condition for the inclusion of mothers in the study. The aim of the study was to use this approach to reduce the adverse physical and psychological effects of traumatic delivery, to prevent and reduce the symptoms of depression and stress, and to strengthen matching strategies and address new conditions and related problems in these mothers.

Materials and Methods

This clinical trial and correlational study were designed to investigate the effect of behavioral therapy (DBT) for the first time in women's fields to improve some psychological complications like postpartum depression and increased perceived stress and reduced coping abilities in traumatic childbirth. Inclusion criteria of mothers were eligible for the study were being primiparous, vaginal delivery, healthy and term newborn, speaking Farsi, the ability of writing and reading, traumatic childbirth based on the evaluation by a standard tool. Exclusion criteria were history of neurological diseases, pharmacotherapy or psychological care before and during pregnancy, stressful events like the death of family members during pregnancy, the need to the hospitalization of mother and infant due to the severe and acute problems before any intervention, and not attending in intervention sessions and more than two session's absence. In this clinical trial, the population comprised all primiparous women who referred to Bahar hospital in Shahroud city and hospitalized for childbirth from March 2017 to July 2018. The sample was selected with convenience sampling. The researcher referred to the hospital every day and received written and informed consent of those who met the inclusion criteria; then, these subjects entered the study. The imbalance in group allocation occurred by chance and have been avoided by using block randomization with the size of 4 and consecutively numbered, with a sealed opaque envelope containing group allocation generated by an experienced researcher not involved in the trial. A person other than the researcher also filled Post-intervention questionnaires, and the analyzer was not aware of the groups.

Criterion A of DSM-IV-TR for posttraumatic stress disorders was used to screen women for traumatic birth. This criterion seeks information about perceived exposure to a traumatic event and initial emotional response. The positive responses to one of the two first questions and one of the two-second questions indicate traumatic childbirth.

The demographic information form was made by the researcher and measured the mother´s average age, education, place of residence, economic status, attitude toward pregnancy, initial intention to exclusive breastfeeding, infant gender and pregnancy, and childbirth side-effects at the beginning of the study.

Postpartum depression questionnaire is a standard screening tool for postpartum depression and consists of 10 questions, each of which answers 0 to 3 items. Points 1 to 9 show a lack of depression and scores of 10 to 12 are likely to be depressed, and scores above 13 indicate depression. The reliability and validity of this questionnaire have been proven in Iranian populations in various studies.[23]

The demographic information form, the standard Cohen perceived stress questionnaire, and the moos and Billings coping with stress questionnaire completed by Mothers in each group during the first 48 hours of the postpartum period.

A perceived stress questionnaire was developed by Cohen et al., 1983. This scale has 14 items with a Likert scale of four degrees (never too much), and each substance has a value between 0 and 4. The minimum score is 0, and the maximum rating is 56, and the score 0 to 18 is low perceived stress, 18 to 36 moderate, and a score of 36 at the high-stress level.[24] The validity and reliability of this questionnaire in Iran has been confirmed in Asghari's study.[25]

The Moss-Blingess coping strategies questionnaire includes 19 sentences. The questions include problem-solving strategies with eight sentences and emotional coping strategies with 11 sentences.[26]

The intervention group received one DBT session in the first 48 hours after childbirth in the postpartum ward for 40 to 60 minutes, and after that, they received group counseling sessions each week as one session and a total of 5 sessions (Table 1). The length of sessions was 40 to 60 minutes in each session by considering the comfort of mothers and their special conditions such as the need of the infant to mother, not-stopping breastfeeding and other cares. In the first follow-up

(6th week of postpartum),[27] participants from among 105 participants in the intervention group excluded from the study due to more than two sessions absence and 4 participants from the control group due to not answering the call. In the second follow-up (12th week of postpartum), 3 participants excluded from the intervention group (2 for not answering the call and one for hospitalizing newborn) and 3 participants from the control group due to not answering the call. Finally, 173 participants remained in the study. The control group received routine postpartum care after filling the similar questionnaires. The mean of breastfeeding self-efficacy score was determined in both groups immediately after ending intervention, the end of the 6th and 12th week of postpartum to evaluate the effect of passing the time on the intervention by a phone call or by a person out of the study.

Table 1. Description of the intervention program

Sessions	General goals
First session (individual)	Familiarity with mindfulness, mental control, improving emotional regulation, increasing behavioral control, improving focus and memory and so on. Mindfulness through focusing on five senses, familiarity with a judgmental view, and its disadvantages.
Second session (group)	Familiarity with the primary concept of emotion control, introducing primary and secondary excitements, training positive and negative excitement's concept, those beliefs that prevent participating in positive experiences, instructions for increasing positive emotional experience, acting against negative emotions.
Third session (group)	Using mindfulness to reduce emotional suffering and mindfulness of positive emotions
Fourth session (group)	A general definition of disturbing emotions, educating skills related to the evaluation of loss and profit of troublesome behaviors, explaining how to manage impulses, and steps to manage them practically
Fifth session (group)	Helping client to increase the effectiveness of interpersonal relationships through evaluating the amount of received social support and focus on improving current relationships, educating and explaining all communication ways (inactive, aggressive, inactive-aggressive and definite

After university and hospital ethics were obtained, eligible mothers were recruited in-hospital from the postpartum unit by a research assistant. Among the 294 mothers who had the initial criteria for entering the study after completing the traumatic delivery questionnaire, with an affirmative answer to at least two questions and completing the questionnaire on the Edinburgh postpartum depression with a score of less than 10, finally, 210 people entered the study.

Conditions for intervention based on ethics were consultation based on correct communication with mother, confidentiality commitment, and accepting emotions after a critical experience, active listening, and other related issues in this study. The content of consultation sessions[27-29] recorded and confirmed by the psychologist experimentally through the individual presentation before the principal and group sessions (figure 1).

Data were analyzed using SPSS 16. Repeated measures ANOVA was used to examine the effects of time, and the time-group interaction on variables between the groups and the Chi-square test was applied to compare the qualitative variables such as demographic information.

The research methodology was confirmed by the research ethics committee of Shahroud university of medical sciences with the ethics code of IR.SHMU.REC.1396.14. The study was also registered at the Iranian clinical trials registry with the code IRCT20180108038265N1.

Results

Comparing the demographic and obstetrics of the two groups using the Chi-square test showed that no significant difference existed between the two groups in terms of the average maternal age, education, place of residence, economic status, attitude toward pregnancy, initial intention to exclusive breastfeeding, infant gender, and pregnancy and childbirth side-effects at the beginning of the study between the intervention and control group (Table 2).

The mean score for the postpartum depression perceived stress, and mental coping strategies were measured before the intervention. Based on the results, the mean score of the pre-test of these variables not differs significantly between the two groups (Pvalue>0.05).

The result of the repeated measures ANOVA based on the greenhouse geisser test showed that there was a significant main effect of time on the mean score of postpartum depression, perceived stress, total coping strategies and problem-solving strategies (Table 3).

The comparison of the scores of the study groups for emotion-focused coping strategies three times before the intervention and at 6 and 12 weeks, postpartum was performed using repeated measure ANOVA. The results showed that the sphericity assumption by Muchly test is based on this variable: x^2=52.5, Pvalue=0.6 and F (66.2=342.2), Pvalue=0.7, n^2p=0.15. The effect of time was not significant to this variable but the intervention effect was significant (Table 3). Therefore, we compared the means of postpartum depression, perceived stress, and Coping mental strategies between two groups in terms of the time categories. Post-hoc test using the Bonferroni correction revealed a statistically significant difference between the mean score of breastfeeding self-efficacy between the intervention group and the control group in the 6th week (Pvalue=0.001) and 12th week (Pvalue=0.001) after delivery. Mean score comparisons are presented in table 4.

Fisher exact test was used to compare the percentage of mild, moderate, and severe perceived stress in two groups. There was no significant difference between the two groups before the intervention (Pvalue=0.7). But at the end of week 6 and 12 postpartum, the difference between the two groups was significant (Pvalue<0.001) (Table 5).

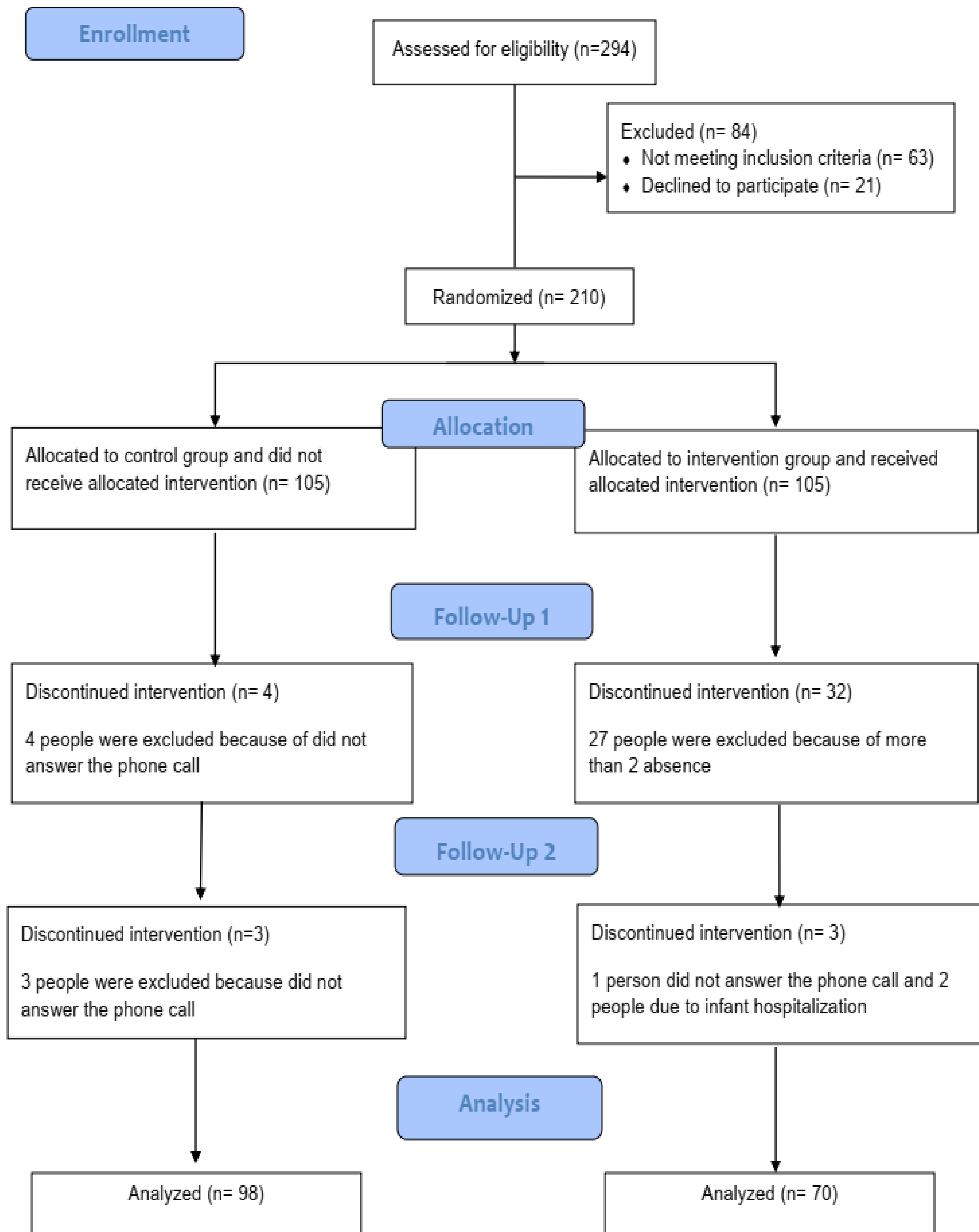

Figure 1. Flow profile for selection of the study population

Table 2. Demographic characteristics studied in both groups before intervention

Demographic characteristics	Intervention group N (%)	Control group N (%)	Pvalue
Age			
−Under 20 years old	3(2.9)	7(6.7)	0.16
−Between 20 and 30 years old	75(71.4)	80(76.2)	
−Over 30 years old	27(25.7)	18(17.1)	
Education			
−Elementary	5(4.8)	10(9.5)	0.15
−Intermediate	20(19.0)	29(27.6)	
−Diploma	39(37.1)	41(39.0)	
−Associated degree	8(7.6)	5(4.8)	
−Bachelor's degree	29(27.6)	19(18.1)	
−Master's degree and above	4(3.8)	1(1.0)	
The economic situation			
−Weak	23(21.9)	32(30.5)	0.36
−Moderate	80(76.2)	71(67.6)	
−High	2(1.9)	2(1.9)	
Residency			
−Live in the city	60(57.1)	58(55.2)	0.78
−Live in the village	45(42.9)	47(44.8)	
Attitude to pregnancy			
−Wanted	76(72.3)	79(75.2)	0.63
−Unwanted	29(27.6)	26(24.7)	
Infant´s gender			
−Girl	53(45.7)	48(50.5)	0.49
−Boy	52(54.3)	57(49.5)	
Diseases and problems during pregnancy			
−Yes	42(40)	54(51.4)	0.09
−No	63(60)	51(48.6)	
Complications of childbirth			
−Yes	57(54.3)	64(61)	0.32
−No	48(45.7)	41(39)	

Table 3. Comparison of the effect of time, intervention and the interaction of intervention and time on the postpartum depression, perceived stress, and mental coping strategies

variable	Time effect		Intervention effect		Time*intervention effect	
	F	Pvalue	F	Pvalue	F	Pvalue*
Postpartum depression	21.19	0.002	9.63	<0.001	13.29	<0.001
Perceived stress	7.79	<0.001	52.14	<0.001	44.64	<0.001
Total coping strategies	6.39	0.003	23.11	<0.001	40.39	<0.001
Problem-solving strategies	9.46	<0.001	19.56	<0.001	18.65	<0.001
Emotional focused strategies	0.35	0.700	6.60	0.010	2.66	0.070

Table 4. Comparison of adjusted means of postpartum depression, perceived stress and mental coping strategies using repeated measure ANOVA

variables	Intervention group Mean±SD	Control group Mean±SD	Bonferroni post-Hoc test Pvalue
Postpartum depression			
−Before intervention	6.90(0.22)	6.74(0.19)	0.58
−6th week postpartum	5.73(0.36)	7.80(0.21)	<0.001
−12th week postpartum	4.82(0.38)	6.25(0.34)	0.006
Perceived stress			
−Before intervention	22.67(5.82)	22.82(6.13)	0.72
−6th week postpartum	15.93(10.70)	27.96(8.91)	<0.001
−12th week postpartum	14.76(8.81)	25.43(10.10)	<0.001
Total coping strategies			
−Before intervention	28.48(6.58)	29.44(5.74)	0.87
−6th week postpartum	32.45(9.77)	25.29(6.85)	<0.001
−12th week postpartum	34.69(7.74)	26.57(9.07)	<0.001
Problem-solving strategies			
−Before intervention	16.08(3.97)	16.23(3.73)	0.79
−6th week postpartum	18.23(5.57)	14.92(2.86)	<0.001
−12th week postpartum	19.65(4.69)	15.70(5.36)	<0.001
Emotionally focused strategies			
−Before intervention	14.81(4.11)	14.63(3.72)	0.76
−6th week postpartum	15.63(4.92)	13.93(2.68)	0.004
−12th week postpartum	15.76(3.00)	14.26(4.71)	0.01

Table 5. Comparison of severity of perceived stress in two groups, before the intervention and 6 and 12 weeks after delivery

Perceived stress degree	Intervention group N(%)	Control group N(%)	Fisher exact test Pvalue
Before intervention			
−Mild	29(27.6)	25(23.8)	
−Moderate	75(71.4)	78(74.3)	0.72
−Severe	1(1.0)	2(1.9)	
6th week postpartum			
−Mild	55(70.5)	21(20.8)	
−Moderate	17(21.8)	55(54.4)	<0.001
−Severe	6(7.7)	25(24.8)	
12th week postpartum			
−Mild	52(69.3)	33(33.7)	
−Moderate	22(29.3)	44(44.9)	<0.001
−Severe	1(1.3)	21(21.4)	

Discussion

According to the results of this study, the mean depression score, perceived stress, and coping strategies between the two intervention and control groups, after the intervention, showed a significant difference, and this difference was observed during the follow-up period between the two groups.

Among all people working in the field of women's health, midwives have an essential role in health counseling and education due to their continuous and long-term relationship with women throughout pregnancy and after that, especially along with pregnancy to postpartum.[30]

The results of this study are in agreement with the effect of midwifery counseling interventions on the improvement and reduction of post-traumatic depression symptoms with the results of another study. In this study, the mean scores of depression in 4 to 6 weeks postpartum and the end of 3 months after the traumatic childbirth, showed a significant difference between the two groups of control and intervention, under the influence of counseling.[21] The results of another research showed no difference in the mean scores of depression in the follow - up of 6 months postpartum.in 162, women who had an emergency cesarean delivery and received two group counseling sessions after childbirth.[31] The findings of a study on the impact of a midwife-led debriefing after surgical birth explained that despite a hint of adverse effects at six months postpartum, the maternal health status was not positively or adversely affected by the experience of debriefing.[32] The dialectical approach can be very practical, especially in cases where the client has suddenly suffered from an event, such as a traumatic delivery experience.[18]

This study aims to use this method to reduce the suffering of mothers involved in the emotional problem, and it is believed that teaching skills such as distress tolerance and emotional regulation are beneficial.[32] Emotion regulation skills can reduce the symptoms of people with depression and anxiety in psychiatric clinics.[33]

The findings of a study suggest that a DBT-informed skills group for depressed adolescent perinatal women is credible, acceptable, and associated with positive change in depression.[18] The results of another study indicate that dialectical behavioral therapy can use in partial hospital programs and reduce patient symptoms like depression, anxiety, hopelessness, and the degree of suffering from intake to discharge.[34]

In our study, four of the dialectical behavioral therapy skills have been used, which can be more effective. The results of a study indicate teaching dialectical skills on emotional processing in patients with major depression and declare it to be quite useful.[35] The teaching of mindfulness is fully integrated with the current knowledge of the psychobiological processes of pregnancy, labor, birth, breastfeeding, postpartum adjustment, and the psychobiological needs of the infant. A wide variety of mind-body pain coping skills for childbirth and awareness skills for dealing with stress in daily life also includes.[36] The experience of motherhood is associated with several positive and negative emotions, and the emotion regulation strategies can be used by the women to manage these emotions may influence her well-being and better attachment with the baby.[37] Intervention approaches that target distress tolerance as a mediator of emotion regulation may improve new parents' abilities to stay calm and in control of their affect and to be better able to engage in positive dyadic interactions with their infant over time.[38]

The results of a study regarding the levels of perceived stress among mothers by the two groups before any interventions indicate that a high percentage of mothers in both groups are within the average perceived stress range.

The difference between the mild to moderate percentages of this study can be due to screening for the traumatic nature of delivery, which increases the perceived stress score of mothers in the current study and a higher percentage of cases of moderate than that study.[39]

Coping strategies are divided into problem-focused coping and emotion-focused coping. Problem-solving is the person's actions to change the stressful situation. Emotional-focused strategies are the actions to regulate the emotional consequences of a stressful event that both of them can help to reduce the mental burden of the incident, but the results of the research show that problem-based coping is more effective in creating adaptive stressors compared to emotional coping.[40] Mathew's study showed that a higher percentage of mothers use problem-focused strategies as a more effective way to reduce postpartum stress, which is consistent with the results of our study.[41] In the present study, the problem-focused coping score

in both groups and all three times before and after the intervention during follow-up is higher than the emotional-coping score. Terry points out that mothers who use more problem-focused than emotion-focused strategies experience less emotional stress than those who only use an emotional-focused approach.[41] In another study, the researcher said that the use of problem-focused skills are weaker than expected, as the possible reason is the low number of measured items for this kind of skill.

The approach's theory is that some people are likely to react more intensively and out of the ordinary manner toward a particular emotional situation like traumatic childbirth. Thus in DBT, the mother and therapist are working to resolve the seeming contradiction between self-acceptance and change to bring about positive changes in the patient.

With DBT, the mother learns how to focusing on the present and learn to accept oneself and the current unpleasant situation more specifically. Mothers learn how to tolerate or survive crises using four techniques, including distraction, self-soothing, improving the movement and thinking of pros and cons. How to be an assertion in a relationship but still keeping that relationship positive and healthy and recognize and coping with a negative opinion (pain, fear, anger and so on) and reducing one's emotional vulnerability by increasing positive emotional experiences.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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