



Comparing the effect of haptonomy and CBT-based counseling on childbirth experience and postpartum depression of women with high fear of childbirth: A randomized clinical trial

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Abstract:

BACKGROUND: Fear of childbirth (FOC) leads to the perception of more pain and a negative childbirth experience. Negative childbirth experience is related to postpartum depression. This study aimed to compare the effect of haptonomy and cognitive-behavioral therapy (CBT) on the childbirth experience and postpartum depression of women with high FOC.

MATERIALS AND METHODS: This randomized controlled trial was performed on 99 primigravida women referred to health centers in Tabriz, Iran, from January to August 2022. Participants with Wijma score above 65 were assigned into three groups using block randomization. One of the intervention groups ($n = 33$) received eight sessions of CBT from gestational age of 24–28 weeks and the other group ($n = 33$) received haptonomy during five sessions once a week. The control group ($n = 33$) received routine care. The data were collected using the Edinburgh Postpartum Depression Scale, and childbirth experiences questionnaire version 2.0 and were analyzed using ANOVA and ANCOVA.

RESULTS: The mean score of childbirth experience in the CBT and haptonomy groups was 70.67 (13.70) and 70.63 (14.48), respectively, which was more than that in the control group 61.63 (14.11) ($P = 0.01$). However, no statistically significant difference was observed between the intervention groups ($P = 1.000$). There wasn't significant difference in the mean score of postpartum depression among CBT 7.59 (3.03), haptonomy 7.47 (4.49), and control 9.71 (3.05) groups ($P = 0.09$).

CONCLUSIONS: Both CBT and haptonomy improved the childbirth experience, but did not affect postpartum depression. Considering the lack of significant difference between the CBT and haptonomy intervention groups in terms of childbirth experience and given that haptonomy intervention is employed by midwives with no need for CBT counseling skills and can be presented in fewer sessions than CBT, it can be used as a preferred intervention approach by midwives in the care of pregnant women with FOC to improve the childbirth experience.

Keywords:

Childbirth experience, cognitive-behavioral therapy, fear of childbirth, haptonomy, postpartum depression

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Introduction

Fear of childbirth (FOC), as a negative perception, results in the childbirth complications.^[1] Fear is directly associated

with pain and can cause a negative childbirth experience in women.^[2,3] The negative childbirth experience among women with moderate and severe FOC is 3 and 5 times more than other women, respectively.^[2]

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Many factors affect the experience of childbirth, including individual-social characteristics, such as race, age, and parity, expectations of the mother, prenatal education, mother's knowledge, pain perception, self-control ability, mode of delivery, unpredictable complications, and receiving adequate support during labor and delivery from health care providers.^[4,5] A positive childbirth experience can be accompanied by a feeling of control, childbirth satisfaction, and self-confidence of mothers.^[6-8] The negative childbirth experience is related to the unsuccessful breastfeeding and low quality of life, which may lead to a decrease in the desire for subsequent pregnancy and postpartum depression.^[6,9-12]

Postpartum depression is a common and debilitating psychosocial disorder that may begin during the first four weeks after birth.^[13] However, some studies reported its onset up to 12 months after delivery.^[14] Postpartum depression has been noted in 17.22% of the world's population with the highest rate found in Southern Africa (39.96%).^[15] The prevalence of postpartum depression has been reported as 25.3% in Iran^[16] and its symptoms and signs may be mood changes, sleep and appetite disorders, fatigue, decreased concentration, feeling guilty, the lack of enjoyment from work and activities, failure of the woman to fulfill her role as a mother and wife, and in extreme cases, suicide or infanticide.^[14,17,18] Some of the risk factors of postpartum depression include a history of depression in a previous pregnancy, lack of social support, life-threatening events, stress during pregnancy, and family history.^[19-21]

One of the effective ways to improve the childbirth experience and prevent postpartum depression is prenatal education.^[22,23] Meanwhile, CBT-based counseling plays an effective role in pain management during childbirth, greatly reduces the fear of pain in the prenatal period, increases the self-efficacy of women for childbirth, and decreases the rate of cesarean section (CS).^[24] A systematic review and meta-analysis during 1994–2016 revealed that prenatal education can be effective in improving women's childbirth experiences.^[23] Pinheiro *et al.*^[25] reported that CBT is effective in preventing postpartum depression.

In the same vein, haptonomy is acknowledged as another effective method in the prenatal period to reduce FOC. Haptonomy refers to the emotional contact, established between mother and fetus through touch,^[26] which simultaneously increases the mother's adaptation to pregnancy and mental preparation for childbirth.^[27] In the literature review, haptonomy intervention is identified to be effective in reducing FOC.^[28-30] However, to the best of our knowledge, no study was found concerning the effect of haptonomy on the childbirth experience and postpartum depression of

women with FOC, and the comparison of haptonomy with CBT. Considering the long-term persistence of childbirth experience in the mind of women^[31] and the relationship between childbirth experience, fear, and postpartum depression,^[2,6,9-12] the present study aimed to compare the effect of CBT and haptonomy on the childbirth experience and postpartum depression of primigravida women with FOC.

Materials and Methods

Study design and setting

This randomized controlled clinical trial was conducted on pregnant women referred to health centers in Tabriz, Iran, from January to August 2022.

Study participants and sampling

The inclusion criteria were primigravida women aged 18–45 years with gestational age of 24–28 weeks and a Wijma delivery expectancy /experience questionnaire (WDE-Q) score above 65.^[32] The exclusion criteria included having a history of mental disorders before and during pregnancy based on the health records, a history of trauma during the last six-month, high-risk pregnancies, such as hypertension, diabetes, cardiopulmonary diseases and other chronic diseases, placenta previa, incompetent cervix, consistent bleeding during pregnancy, multiple pregnancy, unplanned pregnancy, depression score less than 13 based on the Edinburgh Postpartum Depression Scale 'Edinburgh Postpartum Depression Scale' (EPDS)^[33] and having medical indications for CS.

The sample size was calculated based on the childbirth experience variable in the study of Sharegi Oskoui *et al.*^[34] using G Power software. Considering $m_1 = 2.71$, with the assumption of 20% increase, $m_2 = 3.25$, $SD_1 = SD_2 = 0.73$, and two-sided hypothesis, and Power = 80%, sample size was obtained 30 in each group. Based on the study results of Bahari *et al.*^[35] on the postpartum depression variable, considering $m_1 = 7.8$, $m_2 = 4.9$, $SD_1 = 3.65$, $SD_2 = 2.71$, power = 80%, and two-sided hypothesis, the sample size of 21 was obtained in each group. Therefore, considering the larger sample size (30 in each group) and regarding 10% attrition, the final sample size was 33 in each group.

Sampling was done in 11 health centers with different socio-economic levels in Tabriz, Iran.

The researcher (first author) attended the selected centers to make a list of primigravida women aged 18–45 years with gestational age of 24–28 weeks. Then, she called and evaluated them in terms of the inclusion and exclusion criteria and invited the eligible women. In the following, EPDS and WDE-Q (A) were filled out in the face-to-face session and the women with EPDS score less than 13 and WDE-Q (A) score above 65 were explained the objectives

and method of the study. The eligible women signed the written informed consent form to participate in the study and completed the demographic and obstetric form.

Participants were assigned into three groups (33 subjects in each group) with a ratio of 1:1:1 using block randomization using Random Allocation Software (RAS) with a block size of 9. Central randomization by phone was used as the allocation concealment method. Further, participants were not blinded, due to the nature of the interventions. However, the outcome assessors (second and third authors), who collected and analyzed the data, respectively, were blinded.

One of the intervention groups ($n = 33$) received CBT in groups of three people during eight 45–60 minutes sessions from gestational age of 24–28 weeks once a week. The course of CBT usually lasts for between 6 and 20 sessions.^[36] The content of the sessions included providing information, and skills, helped the participants to challenge the thought patterns causing the fear and anxiety about pregnancy and childbirth to manage their thoughts and emotions rationally and consciously, explaining the objectives and model of CBT, the process of pregnancy and childbirth, and the importance of FOC and its causes and effects on the process of pregnancy and childbirth, assisting the mothers to identify the causes of their fear and ineffective and dominant negative attitudes about their childbirth ability, introducing cognitive distortions, training how to cope with cognitive distortions, reconstructing ineffective thoughts and replacing them with positive self-talk, resolving misunderstandings caused by wrong perceptions (cognitive skills), training problem-solving skills, introducing the ABC cycle (thoughts, feelings, and behavior), stating the advantages and disadvantages of vaginal delivery and CS, training the stages of delivery, training distraction techniques, relaxation, breathing techniques, and Kegel exercises, and searching for common mental images of women during pregnancy and training the technique of changing mental images and replacing them with different techniques.^[36] Counseling sessions were held by a clinical psychologist (fourth author).

In the haptonomy intervention group, the communication techniques were taught in groups of three people during five face-to-face sessions from gestational age of 24–28 weeks for 45–60 minutes once a week. A course of 3 to 8 sessions is possible for haptonomy.^[30,37] The content of sessions includes explaining the process and stages of pregnancy and childbirth, elucidating physiological, anatomical, and hormonal changes during pregnancy and showing the video of the effect of pregnancy hormones on the anatomical changes of the pelvis, encouraging women to express their worries regarding pregnancy

and childbirth and assisting mothers to solve and replace their fears and worries, training different stages of fetal growth and development and communication methods, such as talking to the fetus, observing and touching the abdomen, paying attention to the movements of the fetus in response to the mother's voice and touching or shaking the abdomen (playing with the fetus) and recommending calling the fetus by name, and training dealing with contractions and pain.^[30] All sessions of haptonomy were held by the fifth author with an international certificate for haptonomy intervention.

All counseling sessions were held in the counseling room of the selected health centers. The control group received routine prenatal care. One month after birth, participants were called and asked to complete the WDE-Q (B), EPDS, and childbirth experiences questionnaire version 2.0 (CEQ-2.0) when they attended the health centers for postnatal care.

Data collection tool and technique *Demographic and obstetric characteristics form*

This form included the variables of age, education, occupation, family income, and gender of the fetus, which were completed by the participants before the intervention.

Childbirth experiences questionnaire version 2.0 (CEQ-2.0)

This instrument was developed by Dencker *et al.*^[38] to measure the childbirth experience of women through 23 items on 4-point Likert scale with item scores ranging from 1 to 4. The negative statements, such as experiencing severe pain, feeling tired, fear, and having a bad memory are scored negatively. High mean scores indicate more positive experience of childbirth. Cronbach's alpha coefficient of the instrument was reported ≥ 0.70 . The psychometric properties of the Persian version of the questionnaire have been measured by Ghanbari-Homayi *et al.*^[39] The reliability of the questionnaire was estimated by Cronbach's alpha of 0.93 and intraclass correlation coefficient of 0.97. The questionnaire was completed by the participants one month after giving birth.

Edinburgh postpartum depression scale (EPDS)

This 10-item scale was developed by Cox *et al.*^[33] on a 4-point Likert scale with total score range of 0–30 and item scores ranging from 0 to 3 based on the severity of the symptoms. A lower score indicates a better condition of the person and a score higher than 13 displays the possible presence of depression disorder. Cronbach's alpha coefficient of the scale was reported 0.82. The validity and reliability of this instrument have been confirmed in the study of Montazeri *et al.*^[40] in Iran. The reliability of the questionnaire has been determined by

Cronbach's alpha of 0.77 and the intraclass correlation coefficient of 0.8. Participants completed the scale before the intervention and one month after birth.

Wijma delivery expectancy/experience questionnaire (WDE-Q)

In the present study, FOC was measured using the prenatal (A) and postpartum (B) versions of the WDE-Q developed by Wijma *et al.*^[41] Although the questions of both questionnaires are the same, the verbs used in version A are for future tense and mother's childbirth experience is examined in version B, retrospectively. Mothers specify their feelings and personal knowledge based on a 6-point Likert scale, ranging from 0 to 5. The total score range is 0–165. The higher the score, the greater the FOC and a score greater than 65 illustrates high FOC. Cronbach's alpha coefficient and intraclass correlation coefficient (ICC) of the instrument were reported 0.70 and >0.9, respectively. The validity and reliability of this questionnaire have been confirmed by Mortazavi^[42] in Iran, and Cronbach's alpha has been obtained 0.914. Participants completed the questionnaire at gestational age of 24–28 weeks and one month after birth.

Ethical consideration

This study is the result of a research project approved by the Vice Chancellor for Research of Tabriz University of Medical Sciences, Faculty of Nursing and Midwifery with ethics code IR.TBZMED.REC.1400.678 and registration code of (IRCT20170506033834N9) on the Iranian Registry of Clinical Trials site. The study complies with the World Medical Association Helsinki Declaration regarding the ethical conduct of research involving human subjects. The study protocol was developed following the CONSORT guidelines for clinical trials and included a completed CONSORT checklist. Written informed

consent was obtained from each individual participant. The principles of anonymity and confidentiality were applied, and the participants were provided with the results upon their request.

Statistical analysis

The data were analyzed using SPSS₂₄ software, and the normality of data distribution was evaluated using the Shapiro–Wilk test. Chi-square test and one-way ANOVA were used to compare the sociodemographic characteristics of three groups. Further, ANCOVA was used for adjusting mode of delivery effect to compare the mean scores of childbirth experience among the three groups. One-way ANOVA was applied before the intervention to compare the mean score of FOC and depression among the three groups, and ANCOVA test was employed after the intervention. The *P* values below 0.05 were considered statistically significant. The intention-to-treat (ITT) method was used for data analysis.

Results

The present study was performed on primigravida women referred to health centers in Tabriz from January to August 2022. A total of 253 women were examined, of whom 154 were excluded due to not meeting the inclusion criteria or their unwillingness to participate. Finally, 99 pregnant women participated in the study and were randomly assigned into the CBT, haptonomy, and control groups. One person was withdrawn from the study in the CBT group [Figure 1]. In this study, no statistically significant difference was observed between the groups in terms of demographic and obstetric characteristics [Table 1].

Before the intervention, the mean (SD) score of FOC was 73.84 (11.26), 77.12 (13.00), and 70.18 (6.65) in the CBT,

Table 1: The demographic and obstetric characteristics in the CBT, haptonomy, and control groups

Group variable	CBT (n=33) n (%)	Haptonomy (n=33) n (%)	Control (n=33) n (%)	<i>P</i>
Age (year) [†]	25.82 (6.12)	25.15 (5.19)	23.27 (5.19)	0.15*
Level of education				
Secondary school	4 (12.1)	6 (18.2)	11 (33.3)	0.31**
High school/diploma	15 (45.5)	18 (54.5)	13 (39.4)	
University education	14 (42.4)	9 (27.3)	9 (27.3)	
Occupation				
Employed	6 (18.2)	3 (9.1)	1 (3.0)	0.14**
Housekeeper	27 (81.8)	30 (90.9)	32 (97.0)	
Family income level				
Enough	2 (6.1)	6 (18.2)	4 (12.1)	0.67**
Somewhat enough	17 (51.5)	16 (48.5)	17 (51.5)	
Not enough	14 (42.4)	11 (33.3)	12 (36.4)	
Gender of the fetus				
Male	18 (54.5)	17 (51.5)	14 (42.4)	0.67**
Female	15 (45.5)	16 (48.5)	19 (57.6)	

[†]Mean (SD), *One-way ANOVA, **Chi-square test

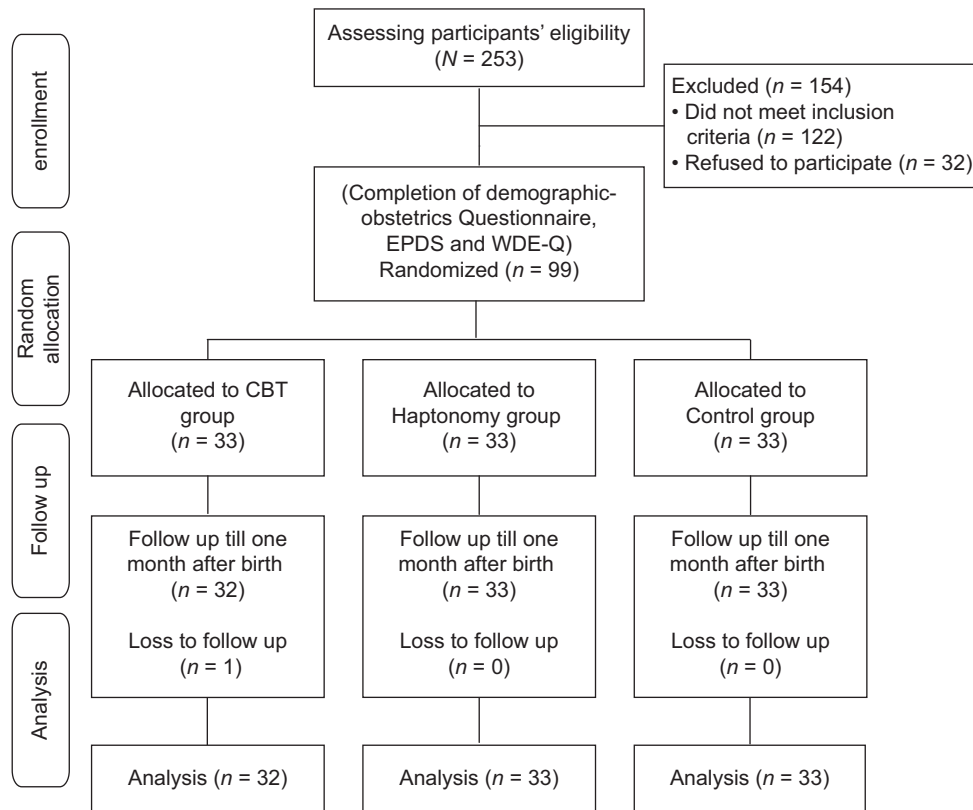


Figure 1: The flowchart of the study

haptonomy, and control groups, respectively ($P = 0.03$). One month after birth and after adjusting the effect of baseline score and mode of delivery, the mean (SD) score of FOC was 48.74 (20.46), 46.85 (23.15), and 70.08 (21.13) in the CBT, haptonomy, and control groups, respectively ($P < 0.001$). After the intervention, no statistically significant difference was observed in terms of FOC between the CBT and haptonomy groups (adjusted mean difference (AMD): 1.89; 95% CI: -11.47 to 15.26, $P = 0.98$). The mean (SD) score of childbirth experience in the CBT group 70.67 (13.70) and haptonomy group 70.63 (14.48) was more than that of control group 61.63 (14.11) ($P = 0.01$). Compared to the control group, the mean score of childbirth experience was significantly higher in the CBT group (AMD: 9.03, 95% CI: 0.70-17.36, $P = 0.02$) and haptonomy group (AMD: 8.99; 95% CI: 0.79-17.19, $P = 0.02$) [Table 2].

The mean (SD) score of depression symptoms among the three groups did not show a significant difference before ($P = 0.90$) and after the intervention, as the mean (SD) score of postpartum depression in CBT, haptonomy, and control groups was 7.59 (3.03), 7.47 (4.49), and 9.71 (3.05), respectively ($P = 0.09$) [Table 3].

Discussion

The results of the present study indicated that CBT

Table 2: The comparison of the mean score of childbirth experience between three groups one month after birth

Groups	Mean (SD)	
CBT (<i>n</i> =32)	70.67 (13.70)	
Haptonomy (<i>n</i> =33)	70.63 (14.48)	
Control (<i>n</i> =33)	61.63 (14.11)	
<i>P</i> *	0.01	
Comparison of groups	Adjusted mean difference (95% CI**)	<i>P</i> *
CBT with control	9.03 (0.70 to 17.36)	0.02
Haptonomy with control	8.99 (0.79 to 17.19)	0.02
CBT with haptonomy	0.04 (-8.09 to 8.17)	1.000

*ANCOVA after adjusting the effect of mode of delivery, **Confidence interval

and haptonomy groups compared to the control group improved FOC and childbirth experience. There was no statistically significant difference in the mean score of FOC and childbirth experience between the intervention groups. In line with the present study, Taheri *et al.*^[23] in their systematic review during 1994–2016 indicated that prenatal education and counseling can be effective in improving women's childbirth experience. Larsson *et al.*^[43] evaluated the childbirth experience of women following counseling by midwives and demonstrated that prenatal counseling improves the participants' self-confidence and experience of childbirth. Ahmed-Khan *et al.*^[44] reported that prenatal counseling can have an impact on empowering childbirth

Table 3: The comparison of the mean score of depression between three groups before intervention and one month after birth

Group	Before intervention Mean (SD)	After intervention Mean (SD)		
CBT (<i>n</i> =32)	8.78 (3.73)	7.59 (3.03)		
Haptonomy (<i>n</i> =33)	8.39 (3.45)	7.47 (4.49)		
Control (<i>n</i> =33)	8.63 (3.58)	9.71 (3.05)		
<i>P</i>	0.90*	0.09**		
Comparison of groups	Mean difference (95% CI) before the intervention	<i>P</i> ***	Adjusted mean difference (95% CI) one month after birth	<i>P</i> **
CBT with control	0.15 (-1.60 to 1.90)	0.86	-12.2 (-4.95 to 0.71)	0.20
Haptonomy with control	0.24 (-1.99 to 1.51)	0.78	-2.24 (-5.05 to 0.57)	0.15
CBT with haptonomy	0.39 (-1.36 to 2.15)	0.65	0.12 (-2.71 to 2.95)	0.99

*One-way ANOVA, **ANCOVA after adjusting the baseline value, ***Independent t-test

experience by providing knowledge, developing coping strategies, establishing support networks, and offering early identification and intervention. In another study, Tata *et al.*^[45] examined primigravida women with FOC from the gestational age of 30 weeks and reported that following six sessions of Beck's group cognitive therapy, no statistically significant difference was found in the FOC and childbirth experience of women in the intervention and control groups about 24 hours after birth, which was inconsistent with the results of the present study. The difference between the results of the aforementioned and present study can be attributed to the difference in the time of measuring the outcomes, the content of the intervention, and the number of their sessions. In addition to the cognitive strategies used in the study of Tata *et al.*,^[45] the present study employed the behavioral techniques, such as distraction, relaxation, breathing techniques, and Kegel exercises. Inconsistent with the findings of the present study, Hildingsson and Rubertsson^[46] in their clinical trial reported no significant difference in childbirth experiences of women with FOC between the intervention and control groups a year after birth following eight prenatal cognitive therapy sessions. This discrepancy is probably due to the measurement of the childbirth experience one year after birth, influencing the attrition of a large number of samples and the recall and perception of their experiences. To the best of our knowledge, no study was found in the literature review concerning the effect of haptonomy on the experience of childbirth, and most of the studies were conducted on investigating the effect of haptonomy on FOC.^[28-30]

In the present study, there was no statistically significant difference among the three groups in terms of postpartum depression one month after birth. In line with the results of the present study, Austin *et al.*^[22] indicated insignificant difference in the postpartum depression of women who received six prenatal sessions of CBT compared to the control group two and four months after birth. In another study by Hildingsson and Rubertsson^[47] after assigning the pregnant women with FOC into three intervention groups including, eight internet-based cognitive therapy

sessions, three sessions of consultation with midwife, and continuous care by a midwife during pregnancy and birth, the findings showed no statistically significant difference between the intervention groups in terms of postpartum depression.

In the study of Pinheiro *et al.*^[25], a significant difference in postpartum depression was observed between the intervention and control groups using the Beck's Depression Inventory-II following six sessions of individual CBT during pregnancy, which is inconsistent with the findings of the present study and the discrepancy can be justified by the difference in the measurement instrument and the implementation of counseling individually in their study. In another study, Amani *et al.*^[48] revealed a significant decrease in the symptoms of postpartum depression in the intervention group compared to the control group following nine group CBT sessions for mothers in the postpartum period. The results of a study in Iran demonstrated that the app-based CBT could decrease the mean score of depression of all mothers with postpartum depression in the intervention group compared to the control group two months after baseline,^[49] which could be due to the difference at the time of intervention. Based on the results of Dafei *et al.*^[50] study, eight sessions of antenatal cognitive behavioral counseling compared to the control group were able to reduce the mean score of depression in women two weeks after birth. Furthermore, the results of a systematic review illustrated that interventions started in the postpartum period are more effective in reducing depression symptoms than prenatal interventions and individual counseling is more effective than group interventions in this regard.^[51] To the best of our knowledge, in the literature review, no study was found that investigated the effect of haptonomy intervention on postpartum depression.

Limitation and recommendation

The present study for the first time compared the effect of CBT and haptonomy interventions on the childbirth experience and postpartum depression of primigravida

women with FOC. Due to the nature of the study, blinding of the participants was impossible. Given that the present study was conducted on primigravida women, the results cannot be generalized to multigravida women.

Conclusions

The results of the present study indicated that CBT and haptonomy interventions improved childbirth experience of primigravida women with FOC compared to the control group. However, there was no difference in postpartum depression among the three groups. Considering the lack of significant difference between the CBT and haptonomy intervention groups in terms of the FOC and childbirth experience and given that haptonomy intervention is employed by midwives with no need for CBT counseling skills and can be presented in fewer sessions than CBT, it can be used as a preferred intervention approach by midwives in the care of pregnant women with FOC to improve the childbirth experience. Considering that this method is being investigated for the first time on the childbirth experience and postpartum depression of primigravida women with FOC, it is suggested to conduct more studies with larger sample sizes and also among multigravida women.

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Conflicts of interest

There are no conflicts of interest.

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