

Evidence Based Care Journal

<http://ebcj.mums.ac.ir/>

Effect of a Childbirth Psychoeducation Program on the Level of Fear of Childbirth in Primigravid Women

Masoumeh Kordi, Mohaddeseh Bakhshi, Shahed Masoudi, Habibolah Esmaily

The online version of this article can be found at
http://ebcj.mums.ac.ir/article_9346.html

Evidence Based Care Journal 2017 07: 26 originally published
online 01 October 2017

DOI: 10.22038/EBCJ.2017.25676.1575

Online ISSN: 2008-370X

Address: Mashhad Nursing and Midwifery School, Ebn-e-Sina St., Mashhad, Iran

P.O.Box: 9137913199

Tel.: (098 51) 38591511-294

Fax: (098 51) 38539775

Email: EBCJ@mums.ac.ir

EVIDENCE BASED CARE



CLASIFIC. EPUBED CARE

Effect of a Childbirth Psychoeducation Program on the Level of Fear of Childbirth in Primigravid Women

Masoumeh Kordi¹, Mohaddeseh Bakhshi^{2*}, Shahed Masoudi³, Habibolah Esmaily⁴

Received: 16/08/2017

Accepted: 16/09/2017

Evidence Based Care Journal, 7 (3): 26-34

Abstract

Background: Severe fear of childbirth (FOC) is the most important cause of elective and emergency cesarean section and results in an unpleasant experience among women. Implementing a psychoeducational program can promote mothers' knowledge and reduce the FOC.

Aim: the aim of this study was to determine the effect of childbirth psychoeducational program on the FOC intensity in primigravid women.

Method: This randomized clinical trial was conducted on 122 primigravid women with a gestational age of 14 to 28 weeks referred to healthcare centers of Mashhad, Iran, during 2015-2016. The Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ), versions A and B, was used for the data collection. The subjects had the FOC scores of 66 or higher based on the W-DEQ, version A. The women in the intervention group received the psychoeducational program for three weeks (one 90-minute session per week) by a clinical psychologist; however, the control group underwent the routine prenatal care. The FOC intensity was reassessed using W-DEQ, version B, six weeks postpartum in both groups. Data analysis was performed in SPSS, version 20, using Mann-Whitney U and Wilcoxon tests.

Results: The mean age of the subjects was 23.2±3.6 and 24.2±4.4 years in the intervention and control groups, respectively. After the intervention, the Mann-Whitney U test demonstrated a significant difference between the intervention (83.5±21.7) and control (92.6±18.4) groups regarding the mean FOC score (P=0.001).

Implications for Practice: The childbirth psychoeducational program could diminish the FOC in primigravid women with severe FOC. We recommend midwives and expert psychologists to incorporate psychoeducational programs in childbirth classes.

Keywords: Education, Fear, Natural delivery

1. Assistant Professor of Midwifery, Evidence-based Care Research Center, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
2. Instructor of Midwifery, Department of Midwifery, Quchan Branch, Islamic Azad University, Quchan, Iran
3. Assistant Professor of Clinical Psychology, Department of Clinical Psychology Quchan Branch, Islamic Azad University, Quchan, Iran
4. Associate Professor, Department of Biostatistics and Health Sciences Research Center, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran

* Corresponding author, Email: bakhshi.t@gmail.com

Introduction

Childbirth is one of the most important events in every woman's life, which is a natural phenomenon with a spontaneous mechanism and without any need for intervention. However, psychological, emotional, and physical tensions are some of its inevitable consequences, hence fear of childbirth (FOC) (1, 2). About 20% of women experience various degrees of the FOC leading to severe and debilitating consequences in 10.6% of them (3, 4). Severe FOC and the prediction of labor and stress during delivery increase the rate of elective cesarean section (C-section) (5).

Several studies indicated that the FOC is the most common cause of C-section in primigravid women (6). Handzalts et al. demonstrated that the FOC was the only psychological variable affecting mothers' willingness to perform C-section (7). According to a theory proposed by Louis, fear of labor and the related psychological variables play a major role in women's decision regarding elective C-section because they believe that it causes less pain (8).

The psychosocial factors affecting the FOC include fear of unknown, desire for analgesia, mental and physical health status, maternal personality traits, and concern about adverse effects on mothers and newborns (9, 10). Wijma et al. in 2002 reported that personality and environmental conditions are effective in increasing the FOC, which negatively affects the quality of life among pregnant women (11). Anxiety and fear during pregnancy may result in the release of catecholamines (12). The FOC leads to ineffective and prolonged labor and insufficient function of the uterine smooth muscles (13).

Some of the treatment modalities for the FOC include internet-based psychoeducation, haptotherapy, and hypnosis. Furthermore, in the early 20th century, childbirth psychoeducational programs were performed to prepare women to cope with stress during pregnancy, parturition, and motherhood and to adopt the maternal role (14). However, the efficiency of these programs in preparing women for the roles of motherhood and newborn care has been widely questioned (15). This educational program is mainly based on providing information about physiological changes during pregnancy, the process of childbirth, care for the neonate, and emotional concerns specifically during the first postpartum week. Additionally, this program is not theory-based (16).

Education is a crucial component of any prenatal care program, which influences self-care decision making and coping with birth events (17). Sahlin stated that women with severe FOC suffer from conflicting feelings about delivery such as intense fear and sense of shame, thus not benefiting from the routine childbirth preparation. Accordingly, providing a group psychoeducational program for these women can attenuate the feelings of humiliation and loss of dignity (18). The women participating in psychoeducational programs receive the necessary preparations for a natural vaginal delivery and dealing with other common problems (19). Moreover, providing group trainings and interactions makes mothers share their experiences and knowledge and support each other (20).

The psychoeducational program based on the Rosenbaum's resourcefulness theory provides a set of mindfulness techniques to increase self-esteem and the ability to cope with stress and reduce the effects of stress on individual performance. Therefore, this program results in satisfactory outcomes and less emotional disorders in comparison to the conventional programs (21).

The therapeutic group psychoeducation and relaxation program was employed in November 1998 in the Department of Obstetrics and Gynecology of Helsinki Hospital for the first time, and it resulted in diminished FOC and accelerated labor and delivery (22). According to the literature, half of the Finnish and Swedish women participating in FOC treatment classes during their pregnancies no longer requested C-section and experienced a successful natural delivery after gaining the ability to express their fears and anxiety and an interview with a trained person (23). The benefits of participating in these training classes entail reducing the FOC and raising awareness regarding the potential risks of C-section, both of which result in improved pregnancy outcomes (17).

Rouhe et al. in 2015 demonstrated that nine therapeutic group psychoeducational sessions could enhance adaptation to the role of motherhood and reduce the FOC (24). Ghazaie et al. in 2016 reported reduced rate of unnecessary C-section by cognitive-behavioral therapy through lowering the FOC and fear of labor and promoting childbirth self-efficacy (20). The C-section rate in Iran is three times higher than those reported by the global statistics, and only 15% of them were necessary. To the best of our knowledge, no studies have been conducted in Iran on the effectiveness of the childbirth psychoeducational program in reducing the FOC intensity. Therefore, we aimed to determine the effect of the childbirth psychoeducational program on the severity of FOC in primigravid women.

Methods

This randomized clinical trial was conducted on 122 primigravid women referred to the healthcare centers of Mashhad, Iran, from January 21, 2016 to February 19, 2017. The inclusion criteria were Iranian nationality, primigravidity, residence in Mashhad, reading and writing literacy, age between 18 and 35 years, singleton low risk pregnancy, gestational age of 14 to 28 weeks, no history of mental illnesses, and FOC score of 66 or higher (25, 26). The exclusion criteria included congenital anomalies in the fetus as confirmed by ultrasonography, abortion, stillbirth, and absence from the educational sessions.

The sample size was estimated to be at least 60 for each group based on the study conducted by Rouhe et al. in 2015, according to the mean and standard deviations of the FOC scores with 95% confidence interval, 80% power, and using the statistical tests comparing the means (24). Finally, 70 people were assigned into each group considering 20% sample attrition.

In this study, the cluster sampling method was performed, and the centers No. 2 and 3 were chosen randomly as clusters among the five healthcare centers in Mashhad, Iran (1, 2, 3, 5, and Samen). Thereafter, two subsets of each center (Vahdat and Shahid Hasheminezhad from center No. 2, and Sahraee and Ahmadi from center No. 3) were selected as the study units. The centers were randomly allocated to the control and intervention groups. To do so, the names of the two centers were written on two separate sheets and placed in a draw bag. The first paper was considered as the intervention group and the other one was the control group. Therefore, the Vahdat and Sahraee Centers were considered to be the intervention group and Shahid Hasheminezhad and Ahmadi centers the control group. Sampling was performed using the convenience sampling method in each center.

In this study, 10 subjects of the intervention group were excluded due to failure to participate in the training classes, stillbirth, and abortion (1, 2, 7). Furthermore, eight participants of the control group were excluded because of abortion and displacement (2, 6). Ultimately, the current study was conducted on 122 patients (60 cases in intervention and 62 patients in control group). The data were collected using the Demographic-Midwifery Information Inventory and Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ), versions A and B.

The Demographic-Midwifery Information Inventory was consisted of 10 items on personal characteristics (e.g., age, educational level of mother and her spouse, occupation of mother and her spouse, and family income), route of delivery, gestational age at the time of delivery, birth weight, and postpartum complications, such as hemorrhage and infection. The W-DEQ consists of two sections of fear and expectations of mother during pregnancy (version A) and postpartum (version B); each version contains 33 items rated using a Likert scale ranging from 0 to 5. Therefore, total possible scores range from 0 to 165, with higher scores indicating higher FOC (27). Accordingly, the scores lower than or equal to 37, between 38 and 65, and greater than or equal to 66 demonstrated mild, moderate, and severe FOC, respectively. The items number 2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, and 31 were reverse scored (26, 28).

To establish the content validity of the questionnaire, two linguists translated it into Persian, then two other linguists retranslated it into English, and finally, the expert in both languages compared the final Persian and the original versions. The translated and original English versions were presented to 10 faculty members to provide their comments and suggestions for developing the final version. The reliability of the questionnaire was confirmed in the study conducted by Andaroon et al. in 2017 with Cronbach's alpha coefficient of 0.71. In the present study, the reliability of the questionnaire was approved after a pilot study on 20 individuals using internal consistency with Cronbach's alpha coefficient of 0.80.

Sampling was carried out after obtaining approval of the Ethics Committee of Islamic Azad University of Quchan, Iran, explaining the objectives of the study to the participants, and obtaining a written consent from all the study units and by considering the ethical codes.

The members in the control group received the routine prenatal care, while the women in the intervention group were divided into seven groups of 10 members and received the psychoeducational program for three weeks (one 90-minute session per week) by a clinical psychologist. The overall approach was on the basis of the Rosenbaum's resourcefulness theory and the interventions based on cognitive rehabilitation training and problem-solving skills for pregnant women (21).

In the first training session, a midwife described the labor stages and pain relief methods for 15 min. At the end of each session, a clinical psychologist explained the relaxation techniques (i.e., deep,

released, differential, and conditioned relaxation techniques, as well as childbirth-related imagery) as a coping skill to deal with labor. The contents of the psychoeducational sessions are presented in Table 1.

Table 1. Structure and content of childbirth psychoeducational program in the intervention group

Sessions	Trainer	Training method	Session content	Tasks	Duration (min)
First	Researcher (MSc in Midwifery), Psychologist (PhD)	Lecture by using whiteboard and role play	<ul style="list-style-type: none"> - Explaining the delivery stages and pain relief methods - Raising women's awareness regarding prenatal emotional changes - Identifying different ways to deal with prenatal stress and fear - Understanding the sources of prenatal stress and fear - Determining the relationship between behavior, thoughts, and feelings - Explaining the physical changes, process of labor, and pain relief methods - Compatibility with new roles and responsibilities - Teaching motherhood skills - How to communicate with family and friends - Deep, released, differential, and conditioned relaxation techniques, as well as childbirth-related imagery 	<ul style="list-style-type: none"> - Drawing daily mood chart every night by mother before bedtime to exhibit the emotions experienced during a day, scoring between 1 (sad) and 10 (happy) on the graph - Registering pleasant and stressful events - Identifying coping strategies - Recording and performing relaxation exercises 	90
Second	Psychologist (PhD)	Lecture, discussion technique, whiteboard and role play	<ol style="list-style-type: none"> 1- Description of the role of thoughts in women's excitement and behavior 2. Teaching the concept of logical and illogical thoughts 3. Enabling women to challenge the irrational thoughts to accept the maternal role, <ul style="list-style-type: none"> - ABC Model: A (activating event) B (belief system) C (emotional and behavioral consequences) 4. Deep, released, differential, conditioned relaxation techniques, and childbirth-related imagery 	<ul style="list-style-type: none"> - Drawing daily fashion chart - Recording the disturbing events, and thoughts, as well as emotional and behavioral reactions - Identifying irrational thoughts and discussing them - Recording and performing relaxation exercises 	90
Third	Psychologist (PhD)	Lecture, discussion, and role playing	<ol style="list-style-type: none"> 1. Familiarizing the women with problem-solving methods 2. Teaching the principles of problem-solving for women 3. Raising women's self-esteem and ability to cope with child care, defining the problem, goal setting, choosing solutions, and problem-solving 3. Deep, released, differential, and conditioned relaxation techniques, as well as childbirth-related imagery 	<ul style="list-style-type: none"> - Identifying the problem involving mother during the week and practicing problem-solving skills during the prenatal period - Developing a program to deal with new maternal stress - Recording and performing relaxation exercises 	90

Six weeks after delivery, the researcher completed the Demographic and Midwifery Questionnaire and W-DEQ (version B) to record the personal data and assess the FOC intensity, respectively.

Data analysis was performed in SPSS software, version 20, using descriptive statistics (e.g., mean, standard deviation, as well as absolute and relative frequencies), Mann-Whitney U, Fisher's exact, Chi-squared, Chi-square exact, and Wilcoxon tests. Moreover, Kolmogorov-Smirnov test was applied to assess the normal distribution of the quantitative variables. The significance threshold was set at 0.05.

Results

The Mann-Whitney U test results reflected no significant differences between the groups in terms of mean maternal age ($P=0.29$) and gestational age at baseline ($P=0.30$) and at birth ($P=0.60$). In the intervention and control groups, mean maternal age, gestational age at baseline, and gestational age at birth were 23.2 ± 3.6 and 24.2 ± 4.4 years, 18.7 ± 4.0 and 19.6 ± 4.6 weeks, and 39.1 ± 1.6 and 39.1 ± 2.0 weeks, respectively.

In addition, there were no significant differences between the groups regarding the educational level of the mothers and their spouses, occupation of the mothers and their spouses, family income, birth weight, and postpartum complications (Table 2). Based on Fisher's exact test, two subjects of the intervention group (3.3%) and one participant (1.6%) of the control group experienced postpartum hemorrhage ($P=0.61$).

According to the results of the Mann-Whitney U test, there were no significant differences between the groups with respect to the mean pre-intervention FOC scores, which were 91.4 ± 20.4 and 88.0 ± 16.1 in the intervention and control groups, respectively ($P=0.49$). However, a significant difference was observed between the intervention (83.5 ± 21.7) and control (92.6 ± 18.4) groups in terms of the mean post-intervention FOC scores ($P=0.007$). Moreover, based on the Wilcoxon test, FOC score significantly diminished in the intervention group in the post-intervention phase ($P=0.001$; Table 3).

The results of Fisher's exact test indicated no significant differences between the groups regarding the route of delivery ($P=0.14$); 40 (66.7%) and 33 (53.2%) women in the intervention and control groups

Table 2. Comparison of demographic characteristics of the subjects in the intervention and control groups

Variables		Intervention group number (%)	Control group number (%)	Test result
Education of mother	Primary school	4 (6.7)	5 (8.1)	* $P=0.80$
	Secondary school	14 (23.3)	10 (16.1)	
	High school	25 (41.7)	27 (43.5)	
	Academic	17 (28.3)	20 (23.3)	
Education of spouse	Primary school	6 (10.0)	3 (4.8)	** $P=0.29$
	Secondary school	14 (23.3)	12 (19.4)	
	High school	25 (41.7)	29 (46.8)	
	Academic	15 (25.0)	18 (29.0)	
Occupation of mother	Housewife	52 (87.6)	50 (80.6)	*** $P=0.46$
	Student or employee	8 (13.3)	12 (19.4)	
Occupation of spouse	Laborer	19 (31.7)	16 (25.8)	** $P=0.77$
	Employee	10 (16.7)	11 (17.7)	
	Self-employed	31 (51.7)	35 (56.5)	
Family income	Less than enough	11 (18.3)	6 (9.7)	* $P=0.19$
	Enough	49 (81.7)	55 (88.7)	
	More than enough	0 (0.0)	1 (1.6)	
Neonatal weight at birth	< 2500 gr	1 (1.7)	4 (6.5)	*** $P=0.36$
	≥ 2500 gr	59 (98.3)	58 (93.5)	
Postpartum complications	Yes	2 (3.3)	1 (1.6)	*** $P=0.61$
	No	58 (96.7)	61 (98.4)	

* Chi-square exact test, ** Chi-squared, *** Fisher's exact test

Table 3. Comparison of mean and standard deviation of pre- and post-intervention childbirth fear scores in the intervention and control groups

Variables	Intervention group	Control group	Mann-Whitney U test result
	Mean±SD	Mean±SD	
Pre-intervention fear score	91.4±20.4	88.0±16.1	P=0.49
Post-intervention fear score	83.5±21.7	92.6±18.4	P=0.007
	-7.9±21.3	+4.5±29.0	P=0.001
Wilcoxon test result	P=0.003	P=0.07	

had natural vaginal delivery, and 20 (33.3%) and 29 (46.8%) subjects in the intervention and control groups underwent C-section, respectively.

Discussion

Given the results of this study, the childbirth psychoeducational program in primigravid women decreased the FOC. In line with the results of the current study, Ghazaie et al. in 2016 in Mashhad, Iran, demonstrated that the levels of FOC and fear of labor in nulliparous women diminished by cognitive behavioral therapy in the intervention group compared to the control group (20). Furthermore, the results of the study conducted by Fenwick et al. in 2013 were in agreement with our findings and indicated a reduction in the level of FOC in women receiving a midwife-led psychoeducation intervention based on Birth Emotions–Looking to Improve Expectant Fear (BELIEF) (25).

Consistent with our results, Masoumi et al. in 2016 revealed that after the implementation of a training program on preparation for childbirth, the FOC level in the intervention group was lower than the control group (29). One of the leading causes of the FOC is incomplete or misleading information (20). Providing psychoeducational program for women to control the causes of FOC and its consequences, such as fear and anxiety, led to the promotion of knowledge and skills in pregnant women, hence reducing the FOC (20).

Khorsandi et al. in 2008, Tehran, Iran, determined that relaxation could reduce the FOC in primigravid women during the third trimester (4), which concurs with our findings. The psychoeducational program including relaxation contributed to the focus on breathing, as well as coping with uterine contractions and various emotions during labor and childbirth (30, 31).

According to the literature, relaxation and imagery both affect pregnancy and childbirth through influencing on the autonomic nervous system and causing comfort (20). The results of this study showed that the childbirth psychoeducational program had no effect on the rate of C-section in primigravid women. In the study of Turkstra et al. in 2017, two sessions of psychoeducational interventions offered by midwives via telephone did not decrease the rate of C-section in primi- and multigravida women (32). The results of the mentioned study were in line with our findings. In the study performed by Saisto et al. in 2006, primigravid women with the FOC, who had the indication for C-section, received five sessions of therapeutic group psychoeducation and relaxation. In that study, the rate of natural vaginal delivery in the intervention group was higher in comparison to the control group (22). Additionally, inconsistent with our findings, Khorsandi et al. in 2008 found that childbirth preparation classes emphasizing on relaxation skills were effective in reducing the rate of unnecessary C-sections (4). This inconsistency might be due to the limited number of therapeutic sessions and unavailability of spousal companionship in the educational classes of this study in comparison to the other studies. As regards the results of Sharghi et al. in 2011, one of the effective factors in mothers' decision on the delivery method was the attendance of husband in educational sessions (33).

This study had several limitations including lack of standardization and normalization of the instrument used to measure the level of FOC, the absence of the spouses in educational classes due to spatial and cultural constraints, and inability to control the confounding factors in the process of childbirth, such as the progression of childbirth, fetal heart rate pattern, pelvic stenosis, and medical interventions. In addition, recording and performing relaxation exercises and tasks during pregnancy and childbirth were in the form of self-report.

Implications for Practice

According to the results of this study, although the psychoeducational program based on Rosenbaum's resourcefulness theory could attenuate the FOC in primigravid women, it had no effects on the rate of C-section. Therefore, midwives and other members of the health care team should have the essential skills in the field of childbirth psychoeducational program. Further studies are recommended to evaluate the effectiveness of the childbirth psychoeducational program for couples with further sessions on the delivery method.

Acknowledgments

This study was a part of a research project approved by the Ethics Committee of Islamic Azad University, Quchan Branch, Quchan, Iran (No. 12965) and Iranian Registry of Clinical Trials (No. 2017071135008N1 IRCT) and funded by Deputy of Research, Islamic Azad University, Quchan Branch, Quchan, Iran. Moreover, the authors would like to thank the Deputy of Research, the staff in the healthcare centers of Mashhad, and those who participated in the study.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

References

1. Anderson CA, Gill M. Childbirth related fears and psychological birth trauma in younger and older age adolescents. *Appl Nurs Res.* 2014;27(4):242-8.
2. Bayrami R, Valizadeh L, Zaheri F. Nulliparous women's childbirth experiences: a phenomenological Study. *Med J Tabriz Univ Med Sci.* 2011;33(3):14-9 (Persian).
3. Toohill J, Fenwick J, Gamble J, Creedy DK. Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy Childbirth.* 2014;14(1):275.
4. Khorsandi M, Ghofranipour F, Hidarnian AR, Faghizaedh S, Vafaei M, Rousta F, et al. The effect of childbirth preparation classes on childbirth fear and normal delivery a mong primiparous women. *Arak Univ Med Sci J.* 2008;11(3):29-36 (Persian).
5. Aksoy M, Aksoy AN, Dostbil A, Celik MG, Ince I. The relationship between fear of childbirth and women's knowledge about painless childbirth. *Obstet Gynecol Int.* 2014;2014:274303.
6. Rouhe H, Salmela-Aro K, Toivanen R, Tokola M, Halmesmäki E, Saisto T. Obstetric outcome after intervention for severe fear of childbirth in nulliparous women—randomised trial. *BJOG.* 2013;120(1):75-84.
7. Handelzalts JE, Fisher S, Lurie S, Shalev A, Golan A, Sadan O. Personality, fear of childbirth and cesarean delivery on demand. *Acta Obstet Gynecol Scand.* 2012;91(1):16-21.
8. Ghooshchian S, Dehghani M, Khorsandi M, Farzad V. The role of fear of pain and related psychological variables in prediction of cesarean labor. *Arak Univ Med Sci J.* 2011;14(56):45-54 (Persian).
9. Akhlaghi F, Mokhber N, Shakeri M, Shamsa F. Relation between depression, anxiety, self-esteem, material satisfaction, demographical factor and maternal complication with fear of childbirth in nulliparous women. *J Fundamrnt Ment Health.* 2012;14(2):122-31 (Persian).
10. Andaroon N, Kordi M, Kimiaei SA, Esmaeili H. Relationship between intensity of fear of childbirth with choosing mode of delivery in primiparous women. *Iran J Obstet Gynecol Infertil.* 2017;20(5):68-75 (Persian).
11. Heimstad R, Dahloe R, Laache I, Skogvoll E, Schei B. Fear of childbirth and history of abuse: implications for pregnancy and delivery. *Acta Obstet Gynecol Scand.* 2006;85(4):435-40.
12. Sydsjö G, Bladh M, Lilliecreutz C, Persson AM, Vyöni H, Josefsson A. Obstetric outcomes for nulliparous women who received routine individualized treatment for severe fear of childbirth—a retrospective case control study. *BMC Pregnancy Childbirth.* 2014;14(1):126.
13. Alipour Z, Lamyian M, Hajizadeh E. Fear of childbirth, trait anxiety and quality sleep in pregnancy and birth outcomes in nulliparous woman. *Iran J Obstet Gynecol Infertil.* 2012;15(28):21-30 (Persian).

14. Klabbers GA, Wijma K, Paarlberg KM, Emons WH, Vingerhoets AJ. Treatment of severe fear of childbirth with haptotherapy: design of a multicenter randomized controlled trial. *BMC Complement Altern Med*. 2014;14(1):385.
15. Salomonsson B. Fear is in the air: midwives' perspectives of fear of childbirth and childbirth self-efficacy and fear of childbirth in nulliparous pregnant women. [Doctoral Dissertation]. Sweden: Linköping University Electronic Press; 2012.
16. Ngai FW, Chan SW, Holroyd E. Chinese primiparous women's experiences of early motherhood: factors affecting maternal role competence. *J Clin Nurs*. 2011;20(9-10):1481-9.
17. Hollins Martin CJ, Robb Y. Women's views about the importance of education in preparation for childbirth. *Nurse Educ Pract*. 2013;13(6):512-8.
18. Sahlin M, Carlander-Klint AK, Hildingsson I, Wiklund I. First-time mothers' wish for a planned caesarean section: deeply rooted emotions. *Midwifery*. 2013;29(5):447-52.
19. Salmela-Aro K, Read S, Rouhe H, Halmesmäki E, Toivanen RM, Tokola MI, et al. Promoting positive motherhood among nulliparous pregnant women with an intense fear of childbirth: RCT intervention. *J Health Psychol*. 2012;17(4):520-34.
20. Ghazaie M, Davoodi I, Neysi A, Mehrabizadeh HM, Bassaknejad S. The effectiveness of cognitive-behavioral therapy on fear of childbirth, fear of pain, self efficacy of childbirth and tendency to caesarean in nulliparous women. *Iran J Obstet Gynecol Infertil*. 2016;31(19):1-12 (Persian).
21. Ngai FW. The effects a childbirth psychoeducation programme on learned resourcefulness, maternal role competence and satisfaction, and depressive symptoms in Chinese childbearing women. [Doctoral Dissertation]. Hongkong, Chinese: Chinese University of Hongkong; 2009.
22. Saisto T, Toivanen R, Salmela-Aro K, Halmesmäki E. Therapeutic group psychoeducation and relaxation in treating fear of childbirth. *Acta Obstet Gynecol Scand*. 2006;85(11):1315-9.
23. Najafi F, Abouzari-Gazafroodi K, Jafarzadeh-Kenarsari F, Rahnema P, Gholami Chaboki B. Relationship between attendance at childbirth preparation classes and fear of childbirth and type of delivery. *J Hayat*. 2016;21(4):30-40 (Persian).
24. Rouhe H, Salmela-Aro K, Toivanen R, Tokola M, Halmesmäki E, Ryding EL, et al. Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience-a randomised controlled trial. *J Psychosom Obstet Gynecol*. 2015;36(1):1-9.
25. Fenwick J, Gamble J, Creedy DK, Buist A, Turkstra E, Sneddon A, et al. Study protocol for reducing childbirth fear: a midwife-led psycho-education intervention. *BMC Pregnancy Childbirth*. 2013;13:190.
26. Fenwick J, Gamble J, Nathan E, Bayes S, Hauck Y. Pre-and postpartum levels of childbirth fear and the relationship to birth outcomes in a cohort of Australian women. *J Clin Nurs*. 2009;18(5):667-77.
27. Wijma K, Wijma B, Zar M. Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth. *J Psychosom Obstet Gynecol*. 1998;19(2):84-97.
28. Rouhe H, Salmela-Aro K, Halmesmäki E, Saisto T. Fear of childbirth according to parity, gestational age, and obstetric history. *BJOG*. 2009;116(1):67-73.
29. Masoumi SZ, Kazemi F, Oshvandi K, Jalali M, Esmaili-Vardanjani A, Rafiei H. Effect of training preparation for childbirth on fear of normal vaginal delivery and choosing the type of delivery among pregnant women in Hamadan, Iran: a randomized controlled trial. *J Family Reprod Health*. 2016;10(3):115-21.
30. Fink NS, Urech C, Cavelti M, Alder J. Relaxation during pregnancy: what are the benefits for mother, fetus, and the newborn? A systematic review of the literature. *J Perinat Neonatal Nurs*. 2012;26(4):296-306.
31. Gedde-Dahl M, Fors EA. Impact of self-administered relaxation and guided imagery techniques during final trimester and birth. *Complement Therap Clin Pract*. 2012;18(1):60-5.
32. Turkstra E, Mihala G, Scuffham PA, Creedy DK, Gamble J, Toohill J, et al. An economic evaluation alongside a randomised controlled trial on psycho-education counselling

- intervention offered by midwives to address women's fear of childbirth in Australia. *Sex Reprod Healthcare*. 2017;11:1-6.
33. Sharghi A, Kamran A, Sharifirad G. Factors influencing delivery method selection in primiparous pregnant women referred in to health centers in Ardabil, Iran. *Health Syst Res*. 2011;7(3):364-72 (Persian).