Research Article

Exploring the Effect of Mindfulness-Based Stress Reduction on Childbirth Fear Among Single-Child Mothers in the City of Kerman, Iran (2017): A Clinical Trial Study

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Abstract

Background: Painful memories from previous childbirth can linger and impose negative effects on the mind of a woman throughout her life. They may also create a permanent fear of delivery and turn into a barrier to future pregnancies.

Objectives: The aim of this study was to investigate the impact of mindfulness-based stress reduction (MBSR) on the fear of delivery in single-child mothers with a history of vaginal delivery in the city of Kerman, Iran.

Methods: This is an experimental, interventional study with pretest-posttest design and a control group. The statistical population encompassed all single-child women in the city of Kerman who had had childbirth at least six years earlier and had not become pregnant due to childbirth fear. The sample consisted of 41 participants, 20 of whom received the MBSR group training in eight sessions (each lasting for 90 minutes). Fear of childbirth was evaluated before and after the intervention using Harman's Childbirth Attitudes Questionnaire (CAQ). Data were analyzed by SPSS 22 using a paired *t* test, covariance, independent *t* test, and chi-square test.

Results: The mean scores of childbirth fear in the intervention and control groups were 37.58 ± 5.9 and 33.19 ± 6.55, respectively, before implementing the program and 36.25 ± 5.40 and 33.00 ± 6.47 after that. The level of fear after the intervention was significantly higher in the experimental group than in the control group (P < 0.001). Besides, the greatest effects of the instructions were observed on the fear of painful injections, loneliness, and worry over the hospital environment.

Conclusions: Group training of MBSR is helpful in reducing childbirth fear, and thus it can be deployed as a procedure for encouraging childbearing in women who are not willing to re-experience pregnancy due to the fear of delivery.

Keywords: Childbirth Fear, Mindfulness-Based Stress Reduction, Childbearing

1. Background

Fertility in women is the result of behavior within the family, which is itself the outcome of a couple's decision to have a child (1). One of the most important factors in the decline of fertility is that most families prefer to have one child or at most two children (2). Women today seek their female identity elsewhere than at home and women's attitudes toward marriage and their roles as wives and even doing housework have undergone dramatic changes (3). All of these suggest that the tendency to pregnancy is not just a physical reality, but a mental phenomenon linked to an individual's thoughts and attitudes (1). In fact, psychological personality variations can lead to consequential decisions about pregnancy and childbirth (4).

Childbirth fear (tokophobia) is a major concern during pregnancy and after delivery. It is estimated that one out of five pregnant women fears childbirth and about 6 to 13% of pregnant women are seized by a severe and crippling fear associated with labor (5). This feeling ranges from intense dread to logical fears, which are usually more severe in primiparous women. Usually, after the first delivery, this emotion dies down and becomes more rational (6). However, it is not always the case, and sometimes, this irrational fear remains after the first childbirth and is com-

monly manifested through symptoms such as nightmare and daily anxiety (7, 8).

The extreme fear of re-experiencing delivery can disturb the mother in the future, disrupt her mental health, and provoke symptoms such as panic attacks, hallucination, feelings of guilt and rejection, aggression, and recurrence of stressful incidents in her dream, which itself can be subjected to severe negative effects (9, 10). Such disorders can prompt highly dangerous - and sometimes irreversible - negative repercussions for the baby, as well (11). All of these may have a profound impact on reducing the mother's incentive to get pregnant again (12).

In the same vein, Abbaspour et al. concluded that childbirth fear plays an undeniable role in increasing the choice of cesarean section among Iranian women, which necessitates the use of various methods to lower the fear of delivery in order to prevent unnecessary cesarean sections and their subsequent complications (10). Personality and societal backgrounds of people, frightening folktales and stories about childbearing, fear of labor pain, unfavorable experiences from a previous delivery, bitter psychological backgrounds concerning childbirth, and lack of social support are among the factors that affect the fear of pregnancy or re-pregnancy (13).

Delivery and its environment and measures during which it takes place such as intravenous and intramuscular injections, repeated examinations, getting positioned for childbirth, pressure on the abdomen to accelerate labor, cutting and repairing the perineum, and the triggered stress and anxiety during labor - which may cause muscle contraction and thus pain increase - could frighten the mother (14).

Providing appropriate consultation by nurses and midwives can positively affect women who had experienced a painful delivery. Moreover, it can be used to reduce or prevent diseases and symptoms such as depression, fear, stress, and feelings of self-reproach, and increase mothers' courage for pregnancy and future childbirth (11).

In a study on 150 women who had experienced traumatic pregnancy, Taghizadeh et al. found that midwifery counseling to these women was effective in mitigating post-traumatic stress disorder in the long term (15). Moreover, Sercekus and Baskale observed that prenatal education reduces tokophobia and enhances childbirth self-efficacy (16).

As mentioned, developing various methods to minimize stress and fear during pregnancy and childbirth should be one of the fundamental goals of midwifery counseling. In recent years, growing attention has been paid to different approaches that encourage accepting the sense of pain instead of controlling or fighting it. In this regard, one can refer to mindfulness-based stress reduction (MBSR) (17) that, through behavioral interventions and regular exercises, augments moment-to-moment awareness of an individual regarding her emotions and feelings of the body and emphasizes her presence at or consciousness of the current moment (18). This program alerts the person to her negative thoughts and she learns to accept these kinds of thoughts without judgment, and instead of considering them as part of herself or a reflection of reality, she sees them as mere mental events which come and go. In this way, she prevents the emergence of negative thoughts and rumination and allows peace and tranquility to take over (19, 20). In fact, this method leads to pleasant emotions by fixing attention at the present time, preventing negative moods and attitudes, and creating a new perspective in the individual (21). Consequently, nurses, midwives, and mental health therapists should use it to tackle stress, anxiety, psychological distress, and loss of focus and trigger self-awareness and positive moods in their clients (22).

Research has demonstrated the positive effect of MBSR on reducing fatigue and helplessness and improving quality of life in chronic patients (21-23). For instance, Jafskesh Moghadam et al. explored the effect of mindfulness-based psychotherapy on dialysis patients and concluded that their intervention helped decrease stress in these individuals (21). Aherne et al. also used MBSR to optimize and enhance the interaction of medical students and found it an effective way of fostering the interactive spirit in new circumstances (24). Motahari et al. reported that using the MBSR method can diminish marital stress in mothers of children with ADHD (25). Moreover, Khezri-Moghadam et al. suggested that MBRI significantly lessens the anxiety and depression of patients with multiple sclerosis (26).

Notwithstanding the high importance of controlling fear in women, as one of the main goals of nursing and midwifery personnel, and abundant evidence confirming the positive effects of MBRS on various patients in different situations, no research has been undertaken to investigate the impact of MBSR on tokophobia and childbearing.

2. Objectives

Therefore, this study attempted to illustrate the influence of MBSR on the extent of tokophobia among single-child mothers in the city of Kerman, Iran.

3. Methods

This is an experimental, interventional study with a pre-test, post-test design and a control group. The statistical population comprised single-child women with a history of normal delivery who had not become pregnant again after at least six years due to their childbirth fear. The sample size was calculated based on the formula: final sample size = (number of targets × 10) + (initial sample size). Considering a dropout of 20%, the authors finalized 48 people as qualified.

After the study was approved by the Ethics Committee of Kerman University of Medical Sciences under the code IR.KMU.REC.1396.1820, the authors referred to the primary schools of Kerman and picked up single-child students. Then, they were asked to hand over invitation letters to their mothers in order to participate in research. Mothers' tokophobia was measured using Harman's Childbirth Attitude Questionnaire (CAQ).

CAQ has 14 questions that are scored based on a four-point Likert scale, with the minimum and maximum scores of 14 and 56, respectively, so that higher scores indicate greater fear. The validity and reliability of the tool were assessed and confirmed in Iran by Khorsandi et al. using Cronbach's alpha coefficient of 0.85 (27).

The questionnaires were first numbered and then rearranged haphazardly and provided to the participants so that each of the subjects was randomly given one of the questionnaires (from 1 to 48). The participants with even numbers were assigned to the intervention group and those with odd numbers were allocated to the control group. The criteria for entering the study, determined through invitation letters and in-person interviews, included age below 35 (28), fertility, having a husband, the wife's desire for pregnancy, lack of pregnancy risk factors (such as heart disease, kidney disease, and cancer), mental health, lack of substance abuse, ability to attend group therapy sessions, not being pregnant, willingness to cooperate, and completing the consent form (29). On the other hand, the exclusion criteria were absence in more than three training sessions, the occurrence of major life stress and unexpected events at any stage of the program (e.g. the death of a family member), and acute mental illness (e.g. severe schizophrenia or depression) during the intervention (29).

Over a period of one month, the intervention group received eight sessions (each lasting 90 minutes) of MBSR group training twice a week in the hall of the Holy Defense Museum in Kerman. The sessions were conducted by Malihe Pour-Edalati, a midwifery counselor who had taken a 20-hour course in the MBSR workshop. The content of the sessions is presented in Table 1.

After the end of the sessions, 20 subjects in the intervention group (four were excluded due to the absence in more than three sessions) and 21 patients in the control group (three were excluded due to failure in filling out the questionnaire) completed the post-test. Data were analyzed by SPSS 22 using covariance, chi-square, and paired *t* test.

4. Results

The mean and standard deviation of mothers' age was 30.55 ± 3.37 in the intervention group and 30.90 ± 3.71 in the control group. Moreover, the mean age of children was 9.38 ± 2.92 in the control group and 8.75 ± 1.68 in the intervention group. Most of the participants were housewives with a bachelor's degree or higher. There was no significant difference between the two groups in terms of the mother's age, child's age, mother's occupation, and mother's education (Table 2).

The mean score of fear in the experimental group decreased from 37.85 before the intervention to 36.25 after the intervention, which was statistically significant (P < 0.001). Meanwhile, the mean score of fear in the control group also fell from 33.19 before the intervention to 33.00 after the intervention; however, this was not statistically significant (P = 0.46).

According to Table 3, the mean score of fear before the intervention significantly differed between the two groups so that the fear score in the experimental group was higher than that of the control group. However, after the intervention, the fear score reduction in the experimental group significantly exceeded that in the control group so that the score of tokophobia was almost within the same range in the two groups. Comparing the variations in the fear scores of the two groups before and after the intervention (Table 3) suggested that this difference was significantly higher in the experimental group than in the control group (P = 0.001).

5. Discussion

The aim of this study was to illustrate the effect of MBSR on tokophobia among single-child mothers. The results showed that MBSR training was influential in reducing the fear of delivery in the experimental group.

In their work on 112 pregnant women, Baleghi et al. found that relaxation could reduce the fear of childbirth

Table 1. Lesson Plan

Session	Subject	Topic
One	Intuitive guidance	Explaining the nature of the program and the purpose of the treatment, collecting information about problems that have caused disturbances, providing explanations on fear, discussing the need to use mindfulness education and describing automated intuitive guidance, encouraging hope in subjects, and assigning homework
Two	Facing obstacles	Reviewing the first session, practicing body scan and giving feedback to the participants, mindfulness meditation, breathing, and homework
Three	Breathing mindfulness	Reviewing previous instructions and exercises, struggling practice, practicing the three-minute breathing space, and homework
Four	Staying in the present moment	Reviewing previous instructions and exercises, presenting the five-minute seeing or hearing practice, rehearsing mindfulness and body examination, and homework
Five	Permission to attend	Reviewing previous instructions and exercises, rehearsing breathing exercises, presenting sitting meditation, "mindfulness towards breathing, body, sounds, and thoughts," some explanations about stress and its relationship with pain, effects of positive and negative events on feelings, thoughts, and body sensations, and homework
Six	Thoughts are not facts	Reviewing previous instructions and exercises, practicing conscious yoga, explanation on how to look at thoughts or alternative thoughts from a different perspective, discussing the relationship between fear and depression, practicing sitting meditation, and homework
Seven	Effective self-care	Reviewing previous instructions and exercises, explaining sleep hygiene, providing a list of pleasurable activities and exercises from previous sessions, sitting meditation, and homework
Eight	Acceptance and change	Reviewing previous instructions and exercises, practicing walking meditation, outdoor meditation and silence, discussing lessons and persistence on doing the practices

Table 2. Demographic Data of Intervention and Control Groups[a]

Variable	Intervention (n = 20)	Control (n = 21)	t Test	P Value
Mother's age	30.55 ± 3.37	30.90 ± 3.71	-0.32[b]	0.75
Child's age	8.75 ± 1.68	9.38 ± 2.92	-0.85[b]	0.405
Occupation			2.73[c]	0.34
Housewife	11 (55)	10 (47.6)		
Employee	9 (45)	8 (38.1)		
Self-employed	0 (0)	3 (14.3)		
Education			3.16[c]	0.38
High school diploma	5 (25)	6 (28.6)		
Associate degree	6 (30)	2 (9.5)		
Bachelor's degree	8 (40)	10 (47.6)		
Postgraduate	1 (5)	3 (14.3)		

[a] Values are expressed as average ± SD or frequency (%).
[b] Independent *t* test.
[c] Fisher's exact test.

Table 3. Distribution of the Mean Score of Fear and Its Comparison in the Two Groups[a]

Stage	Fear Score Before Intervention	Fear Score After Intervention	Paired *t* Test	P Value	Score Variation Before and After Intervention
Control	33.19 ± 6.55	33.00 ± 6.47	-0.75	0.46	-0.19 ± 1.17
Intervention	37.85 ± 5.59	36.25 ± 5.40	-5.62	< 0.001	-1.60 ± 1.27
Statistical test	t = 2.44[b]	t = 1.74[b]			Z = -3.19[c]
P value	0.02	0.09			0.001

[a] Values are expressed as mean ± SD.
[b] Independent *t* test.
[c] Mann-Whitney U test.

(30). In this study, as in the present research, a regular method was adopted to educate people about physiological responses of the body against their present status, and the results were consistent with those of the current study. Similarly, Momeni indicated that psychological counseling is effective in lowering the anxiety of pregnancy and childbirth fear (31). Moreover, Abbaspour et al. in a qualitative study on tokophobia and its impact on choosing the delivery method, proposed that offering consultation to mothers who go for cesarean sections because of childbirth fear could reduce their fear of delivery and, consequently, the incidence of unnecessary cesarean sections (10). Although the strategies for managing fear and stress used in the two mentioned studies differed from the one employed here, the results are consistent. The reason for this finding could be traced to the type of interventions that these two studies employed. Thus, as in the present study, both highlighted women's mindfulness toward their present condition as a major factor in reducing fear; besides, they emphasized that [using MBSR] individuals learn to be cognizant of negative emotions and behaviors, and to adeptly choose meaningful and effective responses instead of reacting to stimuli in a habitual and unintended way.

Ghazaie et al. in line with the present study, inferred that cognitive-behavioral therapy reduces unnecessary cesarean sections by decreasing the fear of delivery and its pain and increasing childbirth self-efficacy (32). The general similarity between the findings of that study and those obtained here could be justified by the cognitive-behavioral nature of the MBSR education applied. In the present study, based on the results of CAQ (diagram 1), the greatest effect of the intervention was observed on the fear of loneliness, painful injections, and hospital environment. In the study by Melender the most important cause of childbirth fear was associated with the prior negative experience of delivery and lack of trust in hospital staff (33). Moreover, in the study by Lee et al. pregnant women attributed their highest fear of childbirth to the severe pain of labor, as well as maternal and fetal risks (34). In the same vein, Taheri et al. linked the most remarkable cause of tokophobia to the fear of loneliness (8). The findings of Jamshidi Manesh et al. showed that the most important reasons for tokophobia and cesarean section are linked to the fear of unknown things, labor pain, adverse experiences, worries about side effects, inappropriate treatment of hospital staff, fear of death, loneliness, and worries about the health of the baby (35). In a study aimed at assessing the fear of childbirth among 216 couples, Szeverenyi et al. found that in more than 80% of cases of childbirth,

tokophobia is related to the fear of congenital disorders, severe pain, the likelihood of delivery through surgery, and staying alone in an unfamiliar environment (36). According to the results of other studies mentioned above and those of the present study, two leading sources of tokophobia are associated with the fear of loneliness and the unfamiliar (hospital) environment. Based on the results of this study, the MBSR approach can significantly mitigate these two kinds of fear.

Participants in the MBSR program are more often focused on problem-oriented coping strategies than their counterparts who are emotion-oriented, while traditional approaches to cognitive-behavioral therapy underscore the person's efforts to reduce or control stress. In a study on the parents of children with autism, Blackledge and Hayes realized that strategies based on mindfulness and acceptance may be the only option available for parents whose children have special cognitive or behavioral needs. They explained it by stating that the painful thoughts and feelings of these parents' experience are not necessarily exaggerated or false and therefore, they do not disappear via problem-solving methods and cannot be cognitively addressed, whereas MBSR is an acceptance-based treatment approach which has proven rewarding in treating, acknowledging, and coping with symptoms associated with various physical and psychological disorders such as stress, anxiety, and depression (37). In the present study, participants learned to cope with the new condition and manage it without making any judgment when they are not apparently in control of the stressful and frightening situation, such as in the face of painful injections, or when they are in a new environment such as a hospital or even when they are alone. They also learned to focus on the present moment. These practices will potentially lead to more appropriate responses to the fear of childbirth.

One of the limitations of the present study is that the effect of its therapeutic intervention is tied to repeated practices and to sustain it, one needs to continue the exercises on a daily or weekly basis in various situations. The lack of perseverance in this regard can lead to forgetfulness and reduce the impact of the method. Thus, the efficacy of the program in women may diminish over the interval between the end of the intervention and the time of delivery.

5.1. Conclusions

This study demonstrated that training mindfulness-based stress reduction is conducive to overcoming the fear of childbirth. Consequently, it may indirectly amplify the rate of childbearing and decrease cesarean sections. It is

suggested that future researchers conduct the MBSR program over a longer period until delivery in order to find out the long-term effects of this approach.

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Footnotes

Authors' Contribution: Malihe Pour-Edalati: Study design, data collection, and drafting of the initial manuscript; Parvin Salehi-Nejad: Collaboration in designing the study and supervising the project implementation; Amrita Shahesmaeili: Data analysis; Nousirvan Khezri Moghadam: Psychology advisor.

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References

1. Kalantari S, Abbaszadeh M, Amin MF, Rakeei BN. [The sociological study of attitude to child bearing and it's some related factors (Case study: Married youth in Tabriz city)]. *J Appl Soc*. 2010;**21**(1):83–104. Persian.

2. Abbasi Shovazi MJ, Khaje Salehi Z. Assessing the impact of independence, social participation, and education of women on the tendency to childbearing (case study of Sirjan city). *Woman Dev Polit*. 2013;**11**(1):45–64.

3. Hosseini H, Bagi B. [Determinant of economic, social, cultural and demographic of childbearing tendencies in married women of referred to health centers in Hamedan City]. *J Kermanshah Univ Med Sci*. 2012;**18**(1):35–43. Persian.

4. Alimoradi H. *Coping styles and anxiety in mothers with one child and mother of several children*. Tabriz University; 2013.

5. Alipour Z, Lamyian M, Hajizadeh E, Vafaei MA. The association between antenatal anxiety and fear of childbirth in nulliparous women: A prospective study. *Iran J Nurs Midwifery Res*. 2011;**16**(2):169–73. [PubMed: 22224102]. [PubMed Central: PMC3249768].

6. Salomonsson B, Wijma K, Alehagen S. Swedish midwives' perceptions of fear of childbirth. *Midwifery*. 2010;**26**(3):327–37. doi: 10.1016/j.midw.2008.07.003. [PubMed: 18774630].

7. Greathouse K. *The" nightmare" of childbirth: The prevalence and predominant predictor variables for tokophobia in American women of childbearing age*. The Chicago School of Professional Psychology; 2014.

8. Taheri Z, Khorsandi M, Amiri M, Hasanzade A. [Investigating the causes of fear of childbirth in Shahrekord pregnant women, in 2013: A short report]. *J Rafsanjan Univ Med Sci*. 2015;**14**(4):345–50. Persian.

9. Nasiry F, Sharifi S. [Relationship between fear of childbirth and personality type in pregnant women]. *Iran J Obstet Gyn Infertility*. 2013;**16**(66):18–25. Persian. doi: 10.22038/ijogi.2013.1901.

10. Abbaspour Z, Moghaddam Benaem L, Ahmadi F, Kazemzadeh A. [Women's fear of labor and its impact on the choice of delivery method: A qualitative study]. *Payesh*. 2014;**13**(5):575–87. Persian.

11. Karamouzian M, Askarizadeh G, Dareh Kordi A. [The effectiveness of stress management group on maternal anxiety and physiologic parameters]. *Dev Psychol*. 2015;**11**(43):259–71. Persian.

12. Taghizadeh Z, Jafar Beyglou M, Arbabi M, Faghihzadeh S. [The effect of counseling on post traumatic stress disorder after a traumatic childbirth]. *Hayat*. 2004;**13**(4):23–31. Persian.

13. Terhi Saisto EH. *Fear of childbirth*. Finland, Helsinki: University of Helsinki; 2015.

14. Del Aram M, Aien F. [Evaluate the stressors (stress) and the stressful delivery rooms from the perspective of women referred to Hajar Hospital in 2000]. *J Shahrekord Univ Med Sci*. 2000;**2**(2):28–33. Persian.

15. Taghizadeh Z, Jafarbegloo M, Arbabi M, Faghihzadeh S. [The effect of counseling on post traumatic stress disorder after a traumatic childbirth]. *Hayat*. 2007;**13**(4):23–31. Persian.

16. Sercekus P, Baskale H. Effects of antenatal education on fear of childbirth, maternal self-efficacy and parental attachment. *Midwifery*. 2016;**34**:166–72. doi: 10.1016/j.midw.2015.11.016. [PubMed: 26656473].

17. Masumian S, Golzari. M , Shaeeri MR, Momenzadeh S. [Effectiveness of mindfulness-based stress reduction (MBSR) on depression in patients with chronic low back pain]. *Anesthesiol Pain*. 2013;**3**(2):82–8. Persian.

18. Zare H, Zare M, Khalegi Delavar F, Amirabadi F, Shahriari H. [Mindfulness and diabetes: Evaluation of effectiveness of mindfulness based stress reductionon glycemic control in diabetes]. *RJMS*. 2013;**20**(108):40–52. Persian.

19. Fatemeh H, Yousef G. [Effectiveness of group mindfulness based stress reduction consultation of severity of physical symptoms in women with irritable bowel syndrome]. *Med Surg Nurs J*. 2016;**5**(1):32–9. Persian.

20. Habibi M, Hanasabzadeh M. [The effectiveness of mindfulness based art therapy on depression, anxiety, stress and quality of life among postmenopausal women]. *Salmand*. 2014;**9**(1):23–31. Persian.

21. Jafskesh Moghadam A, Shahabizadeh F, Bahrainian A. [Comparative effectiveness of mindfulness-based psychotherapy versus acceptance or commitment therapy on stress level in dialysis patients]. *J Zanjan Univ Med Sci Health Serv*. 2016;**24**(107):84–93. Persian.

22. Nejati S, Rajezi Esfahani S, Rahmani S, Afrookhteh G, Hoveida S. The effect of group mindfulness-based stress reduction and consciousness yoga program on quality of life and fatigue severity in patients with MS. *J Caring Sci*. 2016;**5**(4):325–35. doi: 10.15171/jcs.2016.034. [PubMed: 28032077]. [PubMed Central: PMC5187553].

23. Reich RR, Lengacher CA, Alinat CB, Kip KE, Paterson C, Ramesar S, et al. Mindfulness-based stress reduction in post-treatment breast cancer patients: Immediate and sustained effects across multiple symptom clusters. *J Pain Symptom Manage*. 2017;**53**(1):85–95. doi: 10.1016/j.jpainsymman.2016.08.005. [PubMed: 27720794].

24. Aherne D, Farrant K, Hickey L, Hickey E, McGrath L, McGrath D. Mindfulness based stress reduction for medical students: Optimising student satisfaction and engagement. *BMC Med Educ*. 2016;**16**(1):209. doi: 10.1186/s12909-016-0728-8. [PubMed: 27535243]. [PubMed Central: PMC4989331].

25. Motahari ZS, Ahmadi K, Soleimani AA, Behzadpour S. [The effectiveness of mindfulness-based stress reduction marital mothers of children with attention deficit - hyperactivity]. *Psychol Res*. 2013;**5**(17). Persian.

26. Khezri-Moghadam N, Ghorbani N, Bahrami-Ehsan H. Efficacy of mindfulness-based stress reduction (MBSR) on the psychological symptoms of multiple sclerosis patients. *J Res Behav Sci*. 2013;**10**:597–608.

27. Khorsandi M, Ghofranipoor F, Heidarneia A, Fagheihzade S, Akbarzadeh A, Vafaeei M. [Perceived self-efficacy of delivery in pregnant women]. *J Med C Iran*. 2008;**26**(5):89–95. Persian.

28. Baezzat F, Ahmadi Ghozlojeh A, Marzbani Y, Karimi A, Azarnioshan B. [A study of psychometric properties of persian version of attitudes toward fertility and childbearing scale]. *J Nurs Midwifery Urmia Univ Med Sci*. 2017;**15**(1):37–47. Persian.

29. Vala M, Razmandeh R, Rambol K, Nasli Esfahani E, Ghodsi Ghasemabadi R. [Mindfulness-based stress reduction group training on depression, anxiety, stress, self-confidence and hemoglobin A1c in young women with type 2 diabetes]. *Iran J Endocrinol Metabol*. 2016;**17**(5):382–90. Persian.

30. Baleghi M, Mohammadian AE, Zahed PY. [The effect of relaxation on childbirth and an increase in natural childbirth]. *J Babol Univ Med Sci*. 2016;**18**(8):14–9. Persian.

31. Momeni E. [*Effectiveness of group psychological counseling on the level of pregnancy anxiety and fear of vaginal delivery in pregnant women attending clinics in the city of Kerman 2016] [dissertation]*. Kerman, Iran: School of Nursing, Kerman University of Medical Sciences; 2017. Persian.

32. Ghazaie M, Davoudi I, Neissi 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 Gyn Infertility*. 2016;**19**(31):1–12. Persian.

33. Melender HL. Fears and coping strategies associated with pregnancy and childbirth in Finland. *J Midwifery Womens Health*. 2002;**47**(4):256–63. doi: 10.1016/S1526-9523(02)00263-5. [PubMed: 12138933].

34. Lee LY, Holroyd E, Ng CY. Exploring factors influencing Chinese women's decision to have elective caesarean surgery. *Midwifery*. 2001;**17**(4):314–22. doi: 10.1054/midw.2001.0274. [PubMed: 11749064].

35. Jamshidi Manesh M, Oskouie F, Jouybary L, Sanagoo A. [The process of women's decision making for selection of cesarean delivery]. *Iran J Nurs*. 2009;**21**(56):55–67. Persian.

36. Szeverenyi P, Poka R, Hetey M, Torok Z. Contents of childbirth-related fear among couples wishing the partner's presence at delivery. *J Psychosom Obstet Gynaecol*. 1998;**19**(1):38–43. doi: 10.3109/01674829809044219. [PubMed: 9575467].

37. Blackledge JT, Hayes SC. Emotion regulation in acceptance and commitment therapy. *J Clin Psychol*. 2001;**57**(2):243–55. doi: 10.1002/1097-4679(200102)57:2<243::AID-JCLP9>3.0.CO;2-X. [PubMed: 11180150].