

Effectiveness of Mindfulness-based Childbirth and Parenting Educational Program on the Self-efficacy of Nulliparous Pregnant Women: A Randomized Clinical Trial Study

Nastaran Khoshayand¹, Abbas Amanelahi², Mohammad Hosein Haghhighizadeh³,
Zahra Abbaspoor^{1*}

¹Department of Midwifery, Reproductive Health Promotion Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

²Department of Counseling, Shahid Chamran University of Ahvaz, Ahvaz, Iran

³Department of Statistics, School of Public Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ABSTRACT

Introduction: Childbirth is a multidimensional process associated with physical, mental and social changes, which is regarded as a critical lifetime experience and affects the life of the pregnant mother. Therefore, the purpose of this study was to determine the effectiveness of mindfulness-based childbirth and parenting educational program on the self-efficacy of nulliparous pregnant women.

Materials and Methods: This study was a semi-experimental design with pre-test and post-test design that was performed on 43 nulliparous pregnant women referred to Ahvaz 17 Shahrivar Health Center. The samples were selected using convenience sampling and then were randomly assigned to two intervention and control groups. Data were collected using demographic information form and childbirth self-efficacy inventory scale (CSEI). For the intervention group, 8 sessions of mindfulness-based childbirth and parenting educational program were conducted. This is while the control group received only prenatal care during this period. Data were analyzed using descriptive statistics (mean and standard deviation), Chi-square, independent t-test and paired t-test by SPSS software version 22.

Results: After the intervention, the results showed that there was a significant difference between self-efficacy after intervention between control group ($p < 0.001$) and intervention group ($p < 0.001$). The statistical difference was that self-efficacy in the intervention group increased and decreased in the control group.

Conclusion: Based on the results, it can be concluded that a Mindfulness-based childbirth and parenting program can be effective in increasing the self-efficacy of nulliparous pregnant women.

Key words: Childbirth and parenting, Mindfulness, Self-efficacy, Pregnant women

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Corresponding author: Zahra Abbaspoor
e-mail ✉: Abbaspoor_z762@yahoo.com
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INTRODUCTION

Each period in life has a set of unique opportunities and challenges for humans [1]. Pregnancy is a natural process for women, which includes a set of physiological and psychological changes that need to be adapted [2,3]. Since pregnancy, childbirth and motherhood are a process with important social and emotional implications, many researchers have come to the fore [4].

The World Health Organization (WHO) reported cesarean deliveries between 10% and 15%, which rates are

increasing in different parts of the world [5]. In Iran, the delivery rate for cesarean delivery between 2010-2013 is between 41.9 and 48.4, which is approximately 3-4 times the global health standard [6]. Normally, lack of confidence in normal delivery, fear of labor pain and incompatibility with it are the main reasons for planned cesarean section, which changes the daily life of pregnant women [7]. The availability of compatibility techniques for nulliparous pregnant women such as respiratory skills, distraction from pain, relaxation, and recognition of the condition and position of the pain can lead to high self-efficacy and reduce stress, anxiety and fear of delivery [8]. There is a close relationship between fear of delivery, ability, self-efficacy and the choice of normal delivery. So self-efficacy as a personal resource makes it easy to adapt [9].

Self-efficacy means one's confidence in his or her ability to deal with a particular behavior and condition [7]. From a behavioral point of view it can be said that self-efficacy is the most important prerequisite for behavior in stressful situations [10]. Bandura states in his social learning theory that self-efficacy involves evaluating his ability to deal with stressful situations [5].

By definition, self-efficacy is the assurance that a person feels about a particular activity and thus can empower a person to receive health promotion behaviors [11]. Therefore, self-efficacy in pregnant women can help them assess their ability to cope with stressful situations and apply proper techniques at delivery [12]. Also, high self-efficacy in pregnant women, especially nursing mothers, reduces the stress, fear and pain of labor, increasing their adequacy and satisfaction with the experience of delivery [7].

The recent research has shown that self-efficacy is one of the important determinants of the behavior of pregnancy and childbirth [10]. For example, Gau *et al.* showed that low self-efficacy in pregnant women leads to inability to tolerate labor and fear of labor pain [13]. To counteract the fear and pain of childbirth as well as increasing the self-efficacy of pregnant women, they can be used to educate and provide guidelines to raise their awareness about childbirth and improve their psychological readiness [14]. It is clear that childbirth education should be based on skills based on an approach that increases the mental health of pregnant women [15].

The mindfulness-based education programs and training are generally well-known for everyone in reducing fear, stress and improving mental function [16]. Mindfulness refers to judgment, vigilance, self-awareness and the ability to recognize experiences in order to avoid repetitive behavioral responses [17]. In fact, at the time of childbirth, the conscious mind gives permission to the pregnant mother to react more appropriately to her assessment of the conditions and better acceptance of the situation for what occurs at the cognitive, emotional and behavioral levels [1]. Therefore, studies have shown that mental-awareness programs can enhance the interpersonal relationships and the effectiveness of coping with stress, anxiety and fear among pregnant women [18]. For this reason, the Mindfulness-Based Childbirth and Parenting (MBCP) is designed to utilize mindfulness skills to reduce the perceived risks of childbirth and related stress [1].

The purpose of the MBCP is awareness of the improvement of stress and child-rearing fears using mind-boggling meditation exercises [19]. So that improving the self-efficacy of pregnant women during pregnancy and childbirth can help reduce pain and fear of childbirth [16]. This program will enable parents, in the process of pregnancy and childbirth, to learn and use mind-focused mediations in a manner that is appropriate to the fear of childbirth and to work better with self-efficacy [1]. In this context, there are studies that have examined the use of mindfulness in the delivery and parenting program, and indicated that Mindfulness-

based interventions can be effective in reducing the fear and stress of childbirth and increasing self-esteem and self-efficacy of pregnant mothers [16,20]. For example, Sarbandi *et al.* in their study showed that Mindfulness-Based Childbirth and Parenting programs can be effective in reducing anxiety in pregnancy and increasing marital satisfaction [18].

According to the above, increasing self-efficacy through childbirth interventions based on mind-awareness can help reconciliation during childbirth. This ultimately reduces fear, anxiety, and self-esteem in nulliparous women by focusing on personal needs. Therefore, considering the initial usefulness of this program in the preliminary studies abroad and the psychological, biological and social challenges associated with pregnancy and childbirth, the present study was conducted to determine the effectiveness of mindfulness-based childbirth and parenting educational program on the self-efficacy of nulliparous pregnant women.

MATERIALS AND METHODS

This study is a quasi-experimental research with pre-test and post-test design. The statistical population of this study included prenatal pregnant women (third trimester of pregnancy) referred to 17 Shahrivar health center in Ahvaz for receiving prenatal care. According to Sarbandi *et al.* study [18], based on the values ($S1=36/80$, $S2=19/42$, $S3=30$), 95% confidence interval and 90% strength, the number of prenatal pregnant women per group 21 people were obtained. Considering the probability of falling by 20%, the number of pregnant women was considered to be 25 for each group. Of the pregnant women referred to, 50 people were selected using the accessible method. Finally, the subjects were randomly divided into two groups: intervention (25 people) and control (25 people).

The criteria for entering the study included the age of 18 years-35 years, being in the third trimester of pregnancy, the willingness to participate in research and having literacy in reading and writing. Also, the exit criteria included acute psychiatric problem, acute pregnancy problems (such as bleeding), receiving psychological counseling outside of treatment sessions and drug addiction, narcotics, and other psychotropic drugs. The data gathering tool was a demographic questionnaire and childbirth self-efficacy inventory scale (CSEI). The demographic information form has been made by the researcher for obtaining personal information and pregnancy history of the participants, including age, child sex, pregnancy, ethnicity, father's education, mother's education, father's job, mother's job, last menstrual period, term of marriage, father's age, income and gestational age. The childbirth self-efficacy inventory scale (CSEI) is designed to measure mother's perception of the ability to adapt to labor pain, which measures the expected outcomes and the expected self-efficacy. This scale has 64 questions and consists of two active phase and the second stage of labor, each part having two parts.

The first part consists of 16 questions (Questions 1 to 16) that measures the expected outcomes related to the active phase of labor. The second part contains 16 questions (Questions 17-32) which measure the expected self-efficacy of this phase. The second part is related to the second stage of labor, which includes the expected outcomes (questions 32-48) and the expected efficacy of the second stage of labor (questions 48-64) [7,21]. These questions are measured based on the Likert scale of 10 options (from totally uncertain to highly reliable) and how it is scored, so that each question in each section gets a score of between 1 and 10. With the addition of the expected active phase of the active phase (first stage of labor) and the second stage of labor, the total self-efficacy score is expected. Also, by summing up the expected outcome of the active phase (first stage of labor) and the second stage of labor, the total score of the expected outcome is obtained. The overall self-efficacy score is also calculated from the sum of these two (expected and expected outcome-based self-efficacy). In this questionnaire, the answers to the questions are in the form of a 10-point Likert spectrum (totally uncertain=1 to absolutely sure=10), for each question a response between 1 to 10 is considered. In this way, scores range from 17 to 170.

A higher score indicates the expected outcome and more self-efficacy of the delivery. The validity of this tool is confirmed by Khorsandi *et al*. In their study, they also showed that self-efficacy questionnaire had a high internal correlation of 0.84-0.91 [22]. After receiving the code of ethics by the Ethics Committee and obtaining the necessary permissions from the research deputy, the researcher referred to the Ahwaz Health Care Center with a written reference letter. The researcher distributed questionnaires among pregnant women after receiving written informed consent from the participants and ensuring their confidentiality. Then, 50 pregnant women who were willing to participate in the study were considered as examples. The subjects were randomly assigned to two groups of intervention (25 people) and control (25 people). Of the participants in the study, 4 people of the intervention group and 3 people of the control group were excluded from the study because of their personal problem and reluctance to continue studying. The intervention group completed the demographic information questionnaire, expected outcomes scale and expected self-efficacy in the 37th week of pregnancy (before delivery and in the last prenatal visit). The intervention group (n=21) was educated by a researcher during nine parenting and parenting sessions. The intervention group sessions were held once a week and one day in the pregnancy class room at the Ahwaz 17 Shahrivar health center in a group for 1.5 hours to 2 hours. So that MBCP was taught at each session. Additionally, participants were asked to practice meditation exercises for 30 minutes a day during the 6 days of the week, using handouts that they provided. The mindfulness-based childbirth and parenting education

program based on Nancy Bardacke educational model based on the MBSR program was conducted by a researcher who had previously seen a period of mindfulness under the supervision of a psychologist [18].

The demographic information questionnaire and expected outcome and expected self-efficacy scale (related to the second stage of labor) were assigned to both groups during the first week after delivery (first postpartum visit). During the study period, no intervention was performed for the control group, and they only received the usual care provided during pregnancy at the health center. At the end of the intervention, in order to observe ethical standards, all the training that was done for the intervention group was provided to the control group in the form of face training and a spatula. Figure 1 illustrates the progress of participants through the research period. The descriptive statistics such as mean and standard deviation were used to provide descriptive information about the demographic characteristics of the experimental and control group. To analyze the results, Chi-square test, independent t-test and paired t-test were used. These analyzes were evaluated using SPSS version 22 software.

RESULTS

According to the Shapiro-Wilk test, the data were normal distribution in both groups (intervention and control). The mean age of pregnant women in the study was 23.79 ± 3.36 years. Of all the participants in the study, 27.9% of the unwanted pregnancies (12 people) and 62.8% (27 people) had a moderate economic situation. Also, 37.2% (16 people) were Fars, 39.5% (17 people) Arabs and 23.3% (10 people) Lor. There were no statistically significant differences in child sex, pregnancy, ethnicity, income, father's education, mother's education, father's job and mother's job in both groups (intervention and control) ($p > 0.05$) (Table 1). Also, based on the t-test, the results showed that there was no significant difference between the two groups (intervention and control) in terms of mother's age, last menstrual period, gestational age, marriage and father's age ($p > 0.05$) (Table 2).

Based on independent t-test, the mean of self-efficacy of labor in the intervention and control groups was not significant before intervention ($p = 0.069$). However, the mean of self-efficacy of labor in the intervention and control group was significant after intervention ($p < 0.001$). Also, based on the results of paired t-test, there was a significant difference between the mean of self-efficacy of the delivery before and after the intervention in the control group ($p < 0.001$). This meant that the self-efficacy of the delivery after intervention was reduced compared to the intervention before the control group. There was a significant difference between mean of self-efficacy of labor before and after intervention in intervention group ($p < 0.001$). However, the self-efficacy of labor after intervention was increased in intervention group before intervention (Table 3).

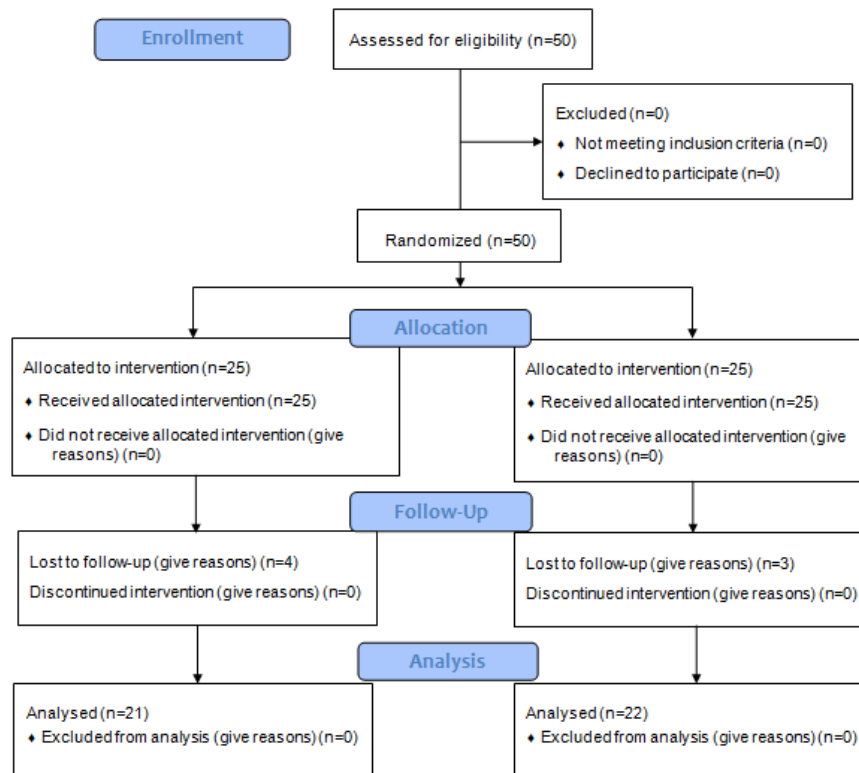


Figure 1: Flow diagram of subject progress through the phases of the randomized trial

Table 1: Study of qualitative variables between intervention and control groups

Variables		Control Group	Intervention Group	p-value Chi-square
		Number (%)	Number (%)	
Child sex	Girl	10 (45.5%)	9 (42.9%)	0.554
	Boy	12 (54.5%)	12 (57.1%)	
Pregnancy	Wish	16 (72.7%)	15 (71.4%)	0.569
	Unwanted	6 (27.3%)	6 (28.6%)	
Ethnicity	Fars	6 (27.3%)	10 (47.2%)	0.268
	Arab	9 (49.9%)	8 (38.1%)	
	Lor	7 (31.8%)	3 (14.3%)	
Income	Medium	12 (54.5%)	15 (71.4%)	0.213
	Good	3 (13.6%)	4 (19.1%)	
Father's Education	Under the Diploma	7 (31.8%)	6 (28.6%)	0.199
	Diploma	8 (36.4%)	7 (33.3%)	
	Higher than Diploma	7 (31.8%)	8 (38.1%)	
Mother's Education	Under the Diploma	6 (27.3%)	4 (19.1%)	0.231
	Diploma	11 (50%)	7 (33.3%)	
	Higher than diploma	5 (22.7%)	10 (47.6%)	
Father's Job	Non-employee	4 (18.2%)	1 (4.8%)	0.911
	Employee	2 (9.1%)	5 (23.8%)	
	Free	16 (72.7%)	15 (71.4%)	

Mother's Job	Housewife	19 (86.4%)	17 (80.9%)	0.473
	Employed	3 (13.6%)	4 (9.1%)	

Table 2: Evaluation of quantitative variables between intervention and control groups

Variables	Control Group	Intervention Group	p-value
	Mean \pm SD	Mean \pm SD	t-test
Mother's Age (years)	23.81 \pm 4.4	23.76 \pm 4.5	0.967
Last Menstrual Period	27.81 \pm 1.0	27.85 \pm 0.85	0.892
Gestational Age	27.77 \pm 0.61	27.52 \pm 0.74	0.232
Term of Marriage	1.63 \pm 0.78	1.61 \pm 0.91	0.947
Father's Age (years)	28.4 \pm 3.04	27.28 \pm 3.7	0.287

Table 3: Comparison of self-efficacy variable before and after intervention between the control and intervention groups

Variables	Control Group	Intervention Group	p-value Independent t-test
	Mean \pm SD	Mean \pm SD	
Self-efficacy	Before	87.45 \pm 13.50	0.069
	After	52.40 \pm 9.46	<0.001
p-value Paired t-test		<0.001	<0.001

DISCUSSION

This research was conducted to achieve the general purpose of studying the effect of mindfulness-based childbirth and parenting educational program on the self-efficacy of nulliparous pregnant women in Ahvaz city. In the present study, there was no significant difference between the two intervention and control groups in terms of demographic variables. This is consistent with the study by Hamzekhiani *et al.* [21]. Based on the results of this study, self-efficacy scores increased in the intervention group compared to the pre-study after the mindfulness-based childbirth and parenting educational program. However, there was no significant difference between the scores of self-efficacy in the control group before and after the intervention. According to the results of this study, the self-efficacy scores in the control group were similar before and after the study, but after delivery, the scores of self-efficacy were significantly reduced. This could be due to the lack of readiness of mothers to deal with critical conditions such as labor pain. The results of study by Ip *et al.* [23] showed that there was a significant increase in the level of self-efficacy of pregnant women after training, which is consistent with the results of this study. In explaining this, one can say that raising factors such as knowledge, attitude and skill in individuals can be considered as factors in increasing the self-efficacy of individuals, especially pregnant women. Therefore, the implementation of prenatal scheduled training programs and the availability of adaptive techniques for nulliparous pregnant women such as respiratory skills, distraction from pain, sedation and recognition of pain status can lead to high self-efficacy and reduction Anxiety about delivery [13,22]. In a study by Ip *et al.* [23], the intervention group received two 90-minute sessions of

the educational program between 33 weeks to 35 weeks of gestation and follow-up evaluations were performed after 48 hours. However, in the present study, the pregnant screw received 9 sessions of the training program until 35 weeks of gestation and a re-evaluation of the results was made after one month. The results of Howharn *et al.* [24] and Rastegari *et al.* [25] showed that there was no significant difference between the perceived self-efficacy of labor in the post-intervention period in the control group. These results are not consistent with the findings of this study. The contradiction in these results may be due to the fact that in the first study, the sample size was low, and secondly, the friendly relationship of the staff in the room could help pregnant mothers adapt themselves to the labor. As Melender concluded in his study, most subjects were feared because of their previous experience of childbirth, lack of prior knowledge and knowledge about childbirth, and uncertainty for midwifery and obsessive-compulsive labor [26]. The results of Khan-Jeihooni *et al.* [27] study showed that there is a significant difference in knowledge, evaluation of behavioral outcome, behavioral beliefs, and reinforcement of pregnant women's intentions and their performance, which shows the effectiveness of educational interventions during pregnancy. Therefore, the findings of this study are consistent with the results of the study. The results of this study showed that there was a significant difference between the expectation of delivery outcome and the self-efficacy expectation of labor in the active phase of labor. In the study of Khorsandi *et al.* similar results were obtained that may indicate the distinction between the concept of outcome and the expectation of self-efficacy in terms of women. In the sense of the expected outcome

(believing that the expected behavior results in a particular outcome) and the expectation of self-efficacy (the belief that one can do the necessary behaviors in a particular situation). Individuals may believe that specific behavior will contribute to the desired results, but they still have little belief in being able to behave [28]. In addition, the results are similar to those of Ip *et al.* which show that perceived self-efficacy questionnaire is between self-efficacy and the expected outcome of differentiation [29]. In explaining this, it can be said that in childbirth classes it should be noted that only the usefulness of coping skills and the usefulness of labor is not enough, but the belief in the person's ability to do so should be investigated [25]. The limitations of this study include the lack of cooperation of some of the pregnant mothers and the high distance of participants to educational classes. In addition, the fact that choosing a delivery method is not just a personal issue, and other factors, such as doctor's opinion, social conditions, and the status of hospitals, can also be considered as a major constraint in increasing or decreasing cesarean section. Therefore, it is recommended to minimize these factors that cause restrictions.

CONCLUSION

Regarding the findings of this study, it can be concluded that the mindfulness-based childbirth and parenting educational program is effective in increasing the self-efficacy of nulliparous pregnant women. Considering the effectiveness of MBCP about the self-efficacy of pregnant women, it is suggested that more studies be done on this issue and their results compared with the present study. If the results of this study are confirmed in other studies, it is recommended that this training method be used by health professionals in health centers. Using this method can increase the level of knowledge and knowledge of mothers about the efficacy of childbirth, as well as helping them with the mental support they need to make them more compatible with delivery conditions. In fact, holding childbirth classes with mindfulness-based childbirth and parenting can be a powerful tool for improving the quality of life of pregnant women during labor and future pregnancies.

ETHICAL CONSIDERATIONS

This paper was one part of the master's thesis of the Nastaran Khoshayand. The research project number was RHPRC-9711 and the Ethical code was IR.AJUMS.REC.1397.714.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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