


# Examining the Effect of Attending Childbirth Preparation Classes on Prepartum and Postpartum Maternal Mental Well-being Index

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## ABSTRACT

**Background & Objective:** Childbirth preparation classes are planned to make the delivery more pleasant and reduce the number of cesarean sections. This study aimed to examine the effect of attending childbirth preparation classes on prepartum and postpartum maternal mental well-being.

**Materials & Methods:** This single-blind clinical trial was conducted in Sabzevar healthcare centers. 120 nulliparous women were selected in 2017, applying a convenience sampling method, and randomly divided into two equal groups, intervention and control. The intervention group (at 20 weeks to 38 weeks of gestation) participated in 8, 90-minute sessions of the childbirth preparation classes; however, the control group only received the routine prenatal care. Before and after the intervention and 14 days after the delivery, the maternal mental well-being questionnaire was completed by the mothers and then analyzed by the repeated-measures ANOVA.

**Results:** Results showed that the mean score of the intervention group's maternal mental well-being index ( $73.7 \pm 1.8$ ) was significantly higher than that of the control group ( $65.5 \pm 2.1$ ) ( $P < 0.001$ ). Moreover, the trend of changes in the scores of this index was different in the two groups and did not change in the intervention group from pretest to posttest and follow-up, while it decreased in the control group ( $P < 0.048$ ).

**Conclusion:** Although maternal mental well-being reduces in the second half of pregnancy until after giving birth, attending childbirth preparation classes stabilizes prepartum and postpartum maternal mental well-being.

**Keywords:** Childbirth, Mental well-being, Postpartum, Prenatal education



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## Introduction

Pregnancy and childbirth are among the most pleasant events and sensitive courses of women's lives. This important experience causes many psychological changes in women (1); for example, the possibility of developing depression and anxiety in prepartum and postpartum periods was around 43% and 26% respectively in a study in Iran (2). Prepartum and postpartum maternal mental health can have significant impacts on the infant's health and can predispose him/her to physical and mental disorders in later years (3). Furthermore, dealing with prepartum and postpartum anxiety is accompanied by stimulating the sympathetic system and increasing the secretion of hormones, such as catecholamines, which may raise the likelihood of preterm delivery (4), disruption in the childbirth process (5), increased total birth duration (6) and requiring medical interventions (7).

Anxiety often originate from the imagination of childbirth pain and fear of childbirth in pregnant mothers (8). Studies show that one in five pregnant

women has a fear of childbirth (9). Fear of childbirth has been associated with increased labor pain, prolonged labor (10), and unpleasant labor experience. Fear of childbirth is also associated with postpartum depression and anxiety, leading to increased surgical interventions (11) and postpartum outcomes (12).

Numerous methods such as hypnosis, yoga (13), music (14), exercise (15) and cognitive-behavioral interventions (16) have been used to reduce anxiety and the fear of childbirth. In one study which was carried out on primiparous women in Mashhad, 2015, the experimental group received 9 sessions of cognitive-behavioral therapy and the results of this study showed that cognitive behavioral therapy training reduced the fear of childbirth, fear of pain, tendency to cesarean and cesarean delivery in the experimental group compared to the control group (16).

Prenatal education is a good opportunity to correct misconceptions about childbirth, which can cause

maternal childbirth fear and anxiety and reduce self-esteem and childbirth self-efficacy. Attending these courses gives pregnant mothers the opportunity to meet with other mothers who have experiences in childbirth, to think and focus on personal needs and goals, to be less afraid and more confident, and to learn how to adapt to the stages of childbirth (17,18). Dick Reed, the leading British researcher, believed that prenatal preparation classes can reduce muscle tension, pain intensity and the possibility of prolonged labor (19). Results of one study shows positive effect of pregnancy preparation classes on duration of delivery and reduction of cesarean (17). The results of a systematic review also showed that participation in childbirth preparation classes had a positive effect on fatigue, postpartum depression and low back pain in pregnancy. Also the duration of active phase and second stage of labor were lower in those who participated in classes. Maternal self-efficacy and normal childbirth were higher too in women who attended in classes comparing to those received routine prenatal care (20).

Prenatal education was also used as a good way to reduce anxiety and fears during childbirth (21). Research findings indicate the effectiveness of education and the use of relaxation techniques in reducing symptoms of psychological stress in pregnant women (22,23). As in the study of Fathi Zadeh *et al.*, attending birth preparation classes reduced maternal anxiety (24). The results of the study by Kansoni *et al.* (25) and Hosseini Nassab *et al.* (26) also confirmed the effect of participation in childbirth preparation classes on reducing anxiety of pregnant mothers. But the study by Bergstrom *et al.* showed no effect of attending classes on maternal anxiety.

One of the ongoing programs in the Health Transformation Program is encouraging pregnant women to give birth by normal delivery through the implementation of Birth Preparation Training Program in Iran. In this program, pregnant women receive education and training in the field of childbirth and prenatal care, nutrition and exercise during pregnancy and lactation, proper breastfeeding and postpartum care (27).

Given the importance of reducing the anxiety and fear levels of pregnant women and the research background on the effectiveness of educational courses on maternal anxiety and fear of childbirth, this study was conducted to investigate the effect of participation in childbirth preparation classes on women's psychological well-being during pregnancy and postpartum.

## Materials and Methods

This single-blind clinical trial was performed on 120 pregnant mothers in Sabzevar from January 2017 to November 2017. Inclusion criteria were being at the 20 to 24 weeks of gestation, willing to participate in the study, being literate enough to read and write, being

nulliparous, being singleton, not experiencing any chronic illnesses, having an intended pregnancy, not dealing with any mental illnesses in recent years, not taking psychotropic drugs, not smoking, and not being addicted to drugs. In case of any pregnancy complications, such as preeclampsia, hemorrhage, intrauterine death, preterm delivery, and absenteeism of more than 3 sessions, the mothers were excluded from the study.

Sampling was initiated after the Ethics Committee of Sabzevar University of Medical Sciences approved the study proposal (the code of ethics: IR.MEDSAB.REC.1396.116). The sample were identified using the Integrated Health System (known as SIB in Persian) at each healthcare center. By contacting pregnant women identified through the SIB system, their willingness to participate in the study was assessed and they were informed that they might be in the control or intervention group. It should be noted that attending these classes was not mandatory. Mothers who agreed to participate in the study were invited to a referral meeting. In this meeting, individuals were divided into two groups of control and intervention. Mothers were free to participate in the study and had the right to leave the study whenever they decided. In this study, 12 subjects of the control group participated in free private prenatal classes and were excluded from the study. After obtaining informed consent from the participants, subjects were randomly assigned to each of the two experimental and control groups. A list of choice A (intervention) and B (control) sequences was prepared on the basis of the 4-permuted blocks and the list was kept secret by same labels for concealment. Participants were assigned to two groups at the time of attending the referral meeting, with each label being opened and the type of group identified.

Sample Size Based on Toohil *et al.*'s (28) Trial results was calculated. To determine a 10-Score difference of childbirth fear scores between the intervention and control groups from pre-Intervention to postpartum with standard deviation of fear in intervention and control groups of 18 and 16, respectively, 46 samples were estimated. Considering 40% loss to follow up, 66 samples in each group were calculated.

The measurement tools used were demographic and obstetrics information questionnaire including items, i.e., maternal age, gestational age, weight, height, marriage age, income, maternal level of education, occupation, marital satisfaction, satisfaction with the support they received from their spouse, description of their pregnancy, physical activity in pregnancy, and perceived health. A mental health questionnaire designed by the World Health Organization which has been translated into different languages including Persian was used to assess maternal well-being. The World Health Organization-5 Well-Being Index (WHO-5) consists of 5 positively worded items about the respondent's feelings during the preceding 2-week period. The 5 items are as follows: 1) I have felt

cheerful and in good spirits; 2) I have felt calm and relaxed; 3) I have felt active and vigorous; 4) I woke up feeling fresh and rested; 5) My daily life has been filled with things that interest me. Each item is rated on a 6-point Likert-type scale of 0-5, with 0 indicating the lack of positive feelings during the preceding 2-weeks and 5 indicating consistent positive feelings. The raw scores are transformed into a scale ranging from 0 to 100. Scores  $\leq 50$  are indicative of a poor emotional state and the need for further testing (29). The validity and reliability of the Persian version of this questionnaire were evaluated and confirmed in pregnant women in Iran. Cronbach's alpha coefficient for WHO-5 was 0.85. Exploratory and confirmatory factor analyses confirmed the 1-factor structure with an eigenvalue of 3.15, explaining 63.1% of the total variance of WHO-5 in the study population. The correlation coefficients between the WHO-5, and the 28-Item General Health Questionnaire (GHQ-28) and the World Health Organization Quality of Life, Brief Version (WHOQOL-BREF) were  $-0.64$  and  $0.60$ , respectively, indicating moderate correlation and confirmed the concurrent validity of the scale (30).

Ministry of Health and Medical Education and conducted by midwifery experts who had completed the modular course. These classes included theoretical discussions on the physiological, physical, and mental changes of the mothers during pregnancy and methods of adapting to them and focused on practicing proper postures during delivery and teaching proper breathing exercises for relaxation. After the last session and 14 days after the delivery, the researcher completed the personal information questionnaire and the mental health questionnaire designed by the World Health Organization. Data was analyzed using SPSS 22 (SPSS Inc., Chicago, Illinois, USA). A t-test was used to compare the two groups in terms of demographic variables and a repeated-measures ANOVA was used

to analyze variances and compare the mental well-being of the mothers assigned to these two groups in three measures.

## Results

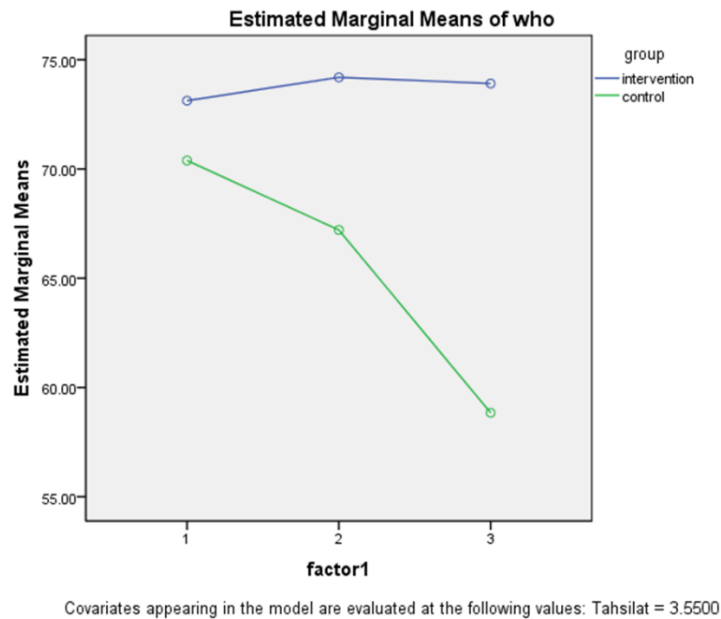
The present study initially included 120 mothers; however, 4 women in the intervention group and 16 women in the control group were excluded due to having a preterm delivery, not filling out the questionnaires thoroughly, and taking part in private classes. The mean age of the studied women was 24 years and their gestational age was 23 weeks. Most of these women were housewives (81.2%), had high school diplomas (56.4%), and had sufficient or more than sufficient incomes (84%). The quantitative data distribution included age, gestational age, marriage age, weight, and body mass index (BMI) in both intervention and control groups ( $P > 0.05$ ).

There were no significant differences between the two groups in terms of maternal age, gestational age, weight, BMI, and marriage age. In addition, the two groups were not different in variables such as marital satisfaction, satisfaction with the support they received from their spouse, description of their pregnancy, physical activity in pregnancy, and perceived health ( $P > 0.05$ ). At the beginning of the study, the mean score of the mental well-being index was  $74.3 \pm 14.8$  and  $69.9 \pm 15.0$  in the intervention and control groups, respectively (Table 1). The intervention group's mean scores of the mental well-being index examined after the intervention ( $74.6 \pm 15.0$ ) and 14 days after the childbirth ( $74.1 \pm 21.0$ ) were significantly higher than those of the control group ( $66.7 \pm 18.3$  and  $58.5 \pm 27.7$ , respectively) ( $P < 0.001$ ) (Figure 1). Moreover, the trend of changes in the scores of this index was different in the two groups and did not change in the intervention group from the pretest to the posttest and follow-up, while it decreased in the control group ( $P < 0.048$ ).

**Table 1.** The distribution of the mean scores of maternal mental well-being in the intervention and control groups

Factors	Group	Pretest		Posttest		Follow-up		Group effect	Time effect	The interactive effect of group and time	The interactive effect of education and time
		M	SE	M	SE	M	SE				
Mental well-being score	Intervention	74.3	2.0	74.6	2.2	74.1	3.1	13.3	0.33	3.22	0.81
	Control	68.9	2.2	66.7	2.5	58.5	3.5	<0.001	0.69	0.048	0.43

Mauchly's W = 0.835 ,  $P < 0.001$ ,



**Figure 1.** The distribution of the overall scores of mental well-being obtained by the intervention and control groups

## Discussion

The findings of the present study demonstrated that although the mental well-being of women in the control group decreased in the second half of pregnancy until after the childbirth, attending childbirth preparation classes stabilizes prepartum and postpartum maternal mental well-being. The differences between the intervention and control group are the result of the training given in the childbirth preparation classes, which activated the teaching and learning process, created a sense of control over the situation, and ultimately contributed to the stability of maternal mental well-being. According to a theory proposed by the American Midwifery Association, childbirth education creates a positive attitude towards childbirth and delivery staff and enhances mothers' self-confidence (25).

In line with the results of the current study, other studies have applied various interventions and helped pregnant women increase their mental well-being. One study provided stress management training with the cognitive-behavioral group therapy approach and helped the study participants reduce anxiety and increase mental health (31). Another study carried out on infertile women receiving relaxation training and breathing exercises for relaxation, showed a reduction in anxiety in the intervention group by decreasing sympathetic system activities (11).

The results of the current study are not consistent with those obtained by some studies. In a study conducted by Fenwick in Australia, telephone counseling provided by midwives for pregnant women at 24 and 34 weeks of gestation showed no effects on the postpartum depression rate (32). This may be due to the difference

in the type of intervention in this study and our study. It seems that the effects of childbirth preparation classes on women may be stronger than a short-term telephone counseling intervention.

In the present study, giving the same training in pregnancy stabilized the intervention group's mental well-being, the effect of which continued to the postpartum period. One of the benefits of this program was the opportunity for participants to engage these young women in social connections through connection with other pregnant women in sessions which in turn enhanced their psychological state and well-being. Results of a trial on pregnant women indicates all interview respondents who participated in the yoga sessions reported feeling psychologically better even after one session. They also prepared for labor better than their counterpart (13).

The main limitation of this study is that the study was conducted in a traditional childbirth setting in which all women are admitted and managed in one labor room. That may have negative effects on women's well-being during childbirth. We recommend future studies to be conducted in settings with modern delivery rooms where every woman is labored in her own room. The second limitation of the study is the small study sample size which limits the generalization of the study results to a larger group of primiparous women. Another weak point of this study is that 12 women in control group attended private childbirth preparation classes and were excluded from the study and we had to analyze the data through per protocol analysis. That happened because of the ethics principals which permitted participants to leave the study whenever they wanted.

## Conclusion

Childbirth preparation classes may prevent the decreasing trend of prepartum and postpartum maternal mental well-being. Improving antenatal emotional well-being may have more positive social and maternal implications which improve women's childbirth experiences. We recommend future qualitative research be conducted to investigate other implications. Attending the childbirth preparation classes are currently available to all pregnant mothers. Based on the results of this study, all pregnant women are advised to get familiar with normal childbirth to prevent the reduction in their mental well-being.

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## Conflict of Interest

Authors declared no conflict of interests.

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