

# EFFICACY OF COGNITIVE-BEHAVIORAL TRAINING ON LABOR ANXIETY IN PREGNANT WOMEN

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**ABSTRACT**---The purpose of the present study was to investigate the efficacy of cognitive-behavioral training on labor anxiety in pregnant women. The research method was quasi-experimental (pre-test and post-test) with control group. The study population included all pregnant women who were in late second trimester or early third trimester and had anxiety according to Hartmann labor anxiety questionnaire. Among study population referring to health centers in Tehran, 80 subjects were selected by convenient sampling and were randomly assigned into experimental and control groups. Research data were collected by Hartmann Labor Anxiety Inventory. The experimental group received 12 90-minute sessions of cognitive-behavioral training during pregnancy. Data were analyzed by covariance analysis through SPSS software. The results showed that prenatal cognitive-behavioral skills training was effective in decreasing anxiety in pregnant women and encouraging them to vaginal delivery. The mean score of labor anxiety in pregnant women was lower than the control group after the intervention, and the difference was statistically significant ( $P < 0.05$ ). Prenatal Cognitive-Behavioral Skills Training can be used by specialists as an educational approach to reduce the anxiety of pregnant women, to drive them to prefer vaginal delivery rather than cesarean section, and to help the mothers create a suitable environment for development of children Mental health services.

**Keywords**-- Cognitive-Behavioral Skills Training, Pregnancy Period, Labor Anxiety.

## I. INTRODUCTION

Vaginal delivery is a physiological and natural process that has surprisingly great benefits for the mothers and infants (17). Studies show that despite the benefits of vaginal delivery and the complications, associated with cesarean section, the rate of cesarean section has increased dramatically in recent years (18). Labor anxiety is one of the factors that lead pregnant women to cesarean section. Labor anxiety is one of the major problems of birth and prenatal period. In most women, labor anxiety is associated with increased pain, prolonged labor, and an unpleasant labor experience (1). In fact, although pregnancy and labor are parts of the evolutionary and natural process in women, despite the advances, made in the care and training of women during pregnancy on physiological aspects, the psychological dimensions of pregnant women have rarely been considered (14). From early pregnancy to postpartum period, many

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changes simultaneously occur at the biological, social, and psychological levels, and the way to adapt to these changes can put women and even men at risk of psychological problems (7). Anxiety in pregnancy and labor have hazardous effects, and in case of long term anxiety, uterine-placental smooth muscles arteries undergo vasoconstriction due to the stimulation of autonomic nervous system leading to blood flow reduction and decreased uterine oxygenation, abnormal fetal heart rate pattern, and increased risk of preterm labor (2, 6, 8). In a study, Lee et al. (2007) showed that about 0.54% of pregnant women develop anxiety during at least one of the trimesters before delivery, with less anxiety, observed in the second trimester. In this study, anxiety levels were higher in the first and third trimesters than in the second trimester (6.6% to 15%). As mentioned, there is a non-linear pattern of anxiety for pregnant women and the first and third trimesters have been identified as risky periods. On the contrary, in men, the peak of discomfort apparently is in mid-pregnancy (18%) and steadily decreases in the postpartum period. The prevalence of mood and anxiety symptoms seems to be higher during pregnancy than in other periods of a woman's life (16, 13). In approximately 33% of pregnant women, labor anxiety is present in the last trimester of pregnancy, while 10 to 11% experience severe fear of delivery (15, quoted in 9). Labor anxiety appears mostly in form of the fear of labor process, the fear of the birth of a disabled infant and the fear of pregnancy-related changes in the individuals (10). Educating women during pregnancy has positive effects on them and their infants. For instance, pre-pregnancy specific education has been shown to lead to greater women's use of labor pain control strategies and their partners' greater cooperation (Scott et al., 2005; quoting from Hussein Khanzadeh et al., 2016). Interventions, based on psychological approaches in pregnant women and their partners, are expected to increase their ability to cope with the stress of transition to parenthood and may also lead to their more adaptive function. In the long run, this positive adjustment can affect the physical and mental health outcomes of the parents and their children (4). One of the appropriate programs to reduce the psychological problems of pregnant women is pregnancy training programs, based on cognitive-behavioral approaches. This type of treatment helps the patients identify their distorted thinking patterns and dysfunctional behaviors. With regard to the aforementioned issues, the researcher in this study seeks to answer the question of whether cognitive-behavioral training during pregnancy affects pregnant women's anxiety and encourages them to choose vaginal delivery (12, 16).

## II. METHOD

The present study is a pretest-posttest quasi-experimental study with control group, designed to evaluate the effect of cognitive-behavioral training on labor anxiety in pregnant women. In this study, experimental and control groups were used. The experimental group was the one in which cognitive-behavioral training was performed during pregnancy while the control group did not receive any training and the pregnant women just underwent prenatal care in a routine process in gynecology center. Both groups, after meeting inclusion criteria and being assigned to their research groups completed Maternal Anxiety Questionnaire once before starting the program and once after completing the training classes. In this study, the study population included all pregnant women who were in late second trimester or early third trimester and had anxiety according to labor anxiety questionnaire. Among study

population referring to health centers in Tehran, 80 subjects were selected by convenient random sampling and were assigned to experimental and control groups. In sampling process, we selected those who experienced higher anxiety. Covariance analysis was used to analyze the data and with regard to the fact that data distribution normality, homogeneity of covariance matrices and group variance homogeneity are the main assumptions of covariance analysis, before presentation of the covariance analysis results, Kolmogorov-Smirnov and Shapiro-Wilks tests were used to test data distributions for normality, and Levene's test was used for the assumption that the variances on the dependent variable are equal across the groups. Training plan and its implementation: The prenatal training package, intended to educate pregnant women, was a combination of cognitive and behavioral practices. This program has two levels of cognitive and behavioral levels. The training sessions were held twice a week for twelve 90-minute sessions. The content of each session consisted of 5 minutes of greetings, 30 minutes of theoretical education, 10 minutes of question and answer, 30 minutes of physical exercises and relaxation. The last 15 minutes were dedicated to the educational film presentation. In order to conduct the program, first, those, who obtained the required score through Labor Anxiety Questionnaire, were randomly divided into experimental and control groups. Then, face-to-face interviews were conducted with those meeting the qualifications to attend the training sessions. After a verbal agreement, the training sessions began. The important criterion for attending the sessions was that the pregnant women had to be in the late second trimester or early third trimester. The experimental comprised of 40 pregnant women (Who Underwent Cognitive-Behavioral Training) and the control consisted of 40 pregnant women who received no training and just participated in completing the questionnaires respectively.

The Training Sessions Were as Follows:

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**Session 1:** A briefing for the mothers, anatomical and physiological changes, and common pregnancy complaints.

**Session 2:** Signs of risks and personal health during pregnancy, stretching and respiratory exercises and relaxation.

**Session 3:** Mental health.

**Session 4:** Nutrition during pregnancy.

**Session 5:** Labor pain and introduction to different methods of pain relief, pain relief techniques film presentation.

**Session 6:** Familiarization with the stages of labor and different delivery conditions, essential interventions during labor, and stretching and respiratory exercises, relaxation, and visiting delivery centers.

**Session 7:** The importance of vaginal delivery and a review on pain reduction and delivery stages, accompanying person's role, planning for delivery, presentation of a vaginal delivery film, stretching and respiratory exercises and relaxation.

**Session 8:** Signs of a risky pregnancy, postpartum care and neonatal care, post-delivery risk signs, breastfeeding education and its educational film presentation, stretching and respiratory exercises, and relaxation.

**Session 9:** The psychological nature of delivery fear and anxiety, and the role of hormones and thought management through distraction and emphasis on breathing.

**Session 10:** Father's session (just fathers' attendance and training).

**Session 11:** Spouses' session (couples' attendance).

**Session 12:** The benefits and disadvantages of vaginal delivery and cesarean section.

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### III. FINDINGS

According to data analysis, 37.5% of pregnant women were housewives, 35% were employees and 27.5% were self-employed. 33.8% of pregnant women were at the high school diploma level, 50% had bachelors' degree and 16.3% had masters' degree. About 2.5% of pregnant women were in the range of 10-20 years, 53.8% were in the range of 20-30 years, and 43.8% were in the range of 30-40 years of age.

**Table 1:** Mean and standard deviation of demographic variables and labor anxiety

Group	Variable	No	Mean	SD	Mean deviation
Occupation	Experimental	40	2.1250	0.790.57	0.12500
	Control	40	2.0750	0.82858	0.13101
Pregnancy age	Experimental	40	30.4500	4.55705	0.72053
	Control	40	29.2000	5.48751	0.86765
Education	Experimental	40	1.7500	0.63043	0.09968
	Control	40	1.9000	0.74421	0.11767
Labor anxiety pre-test	Experimental	40	32.4500	7.53437	1.19129
	Control	40	32.5250	6.81246	1.07714
Labor anxiety post-test	Experimental	40	20.1250	4.09620	0.64767
	Control	40	33.2000	7.50794	1.18711

According to the results in Table 1, the means of occupation and gestational age were higher in the experimental group than in the control group, but the mean level of education in the control group was higher than the experimental group. In addition, as observed in the table, there was no statistically significant difference between the means of labor anxiety in the experimental and control groups in the pre-test while there was a significant difference in the post-test such that the mean in experimental group decreased, compared to the pre-test.

**Table 2:** Comparison of labor anxiety means according to T-test in experimental and control group

Group	Pre-test		Post-test		T	P
	Mean	SD	Mean	SD		
Experimental	32.4500	7.535	20.1250	40.096	12.413	0.001
Control	32.5250	6.812	33.2000	7.050		

According to the results in Table 2, the mean labor anxiety of the experimental group decreased from pre-test to post-test in T-test but no change was observed in the control group. The mean of labor anxiety in the control group at

posttest was not significantly different from the pre-test while it significantly decreased in the experimental group at posttest, compared to the pre-test ( $P = 0.001$ ).

**Table 3:** Levene's test results for equality of variances

Variable	df1	df2	F	Sig
Labor Anxiety	1	78	0.107	0.745

As observed in Table 3, the significance level of Levene's test is greater than 0.05 showing no significant difference between the groups variance such that the homogeneity of the variances is confirmed.

**Table 4:** Kolmogorov-Smirnov test and Shapiro-Wilks test for scores distribution normality

Variable	Kolmogorov-Smirnov test			Cronbach test		
	DF	F	Sig	DF	F	Sig
Labor anxiety	80	0.87	0.200	80	0.980	0.228

As it can be seen in Table 4, the level of significance for labor anxiety is  $P > 0.05$ . Therefore, the assumption of normality of the dependent variable distribution is confirmed.

**Table 5:** Skewness and kurtosis test to check for normality of scores distribution

Variable	No	Skewness		Kurtosis	
		Statistic	Standard error	Statistic	Standard error
Pre-test	80	0.208	0.269	- 0.698	0.532
Post-test	80	0.805	0.269	0.113	0.532

According to the results of Table 5, skewness and kurtosis values are in the interval -2 and 2, and this indicates that the distribution of the scores is symmetric and normal.

**Table 6:** Covariance analysis test results to determine the efficacy of cognitive-behavioral training on labor anxiety in pregnant women

Source	SS	DF	MS	F	Sig	Eta-squared
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Pre-test	1707.937	1	1707.937	114.87	0.000	0.599
Group	3393.510	1	3393.510	228.24	0.000	0.748
Error	1144.838	77	14.868			
Total	63143	80				

The results of Table 6 show that by eliminating the effect of the pretest variable and with the calculated coefficient F (228.24), a significant difference is seen in the adjusted means of participants' anxiety scores, based on their study group (experimental or control) in post-test ( $P < 0.05$ ). Therefore, it can be concluded that the null hypothesis is rejected. That is, prenatal cognitive-behavioral training had a greater effect on reducing anxiety and encouraging mothers to experience a vaginal delivery in the experimental group, compared to control.

#### IV. CONCLUSION

The purpose of this study was to investigate the effect of cognitive-behavioral training on pregnancy anxiety in pregnant women and encouraging them to have vaginal delivery, which was proved by data analysis and comparison of pre-test and post-test. Based on our results, it can be concluded that this method is effective in reducing labor anxiety of the pregnant women and encouraging them to choose vaginal delivery. The results of this study are in line with the findings of other researchers such as Hossein Khanzadeh et al. (2017) (9), Ghahramani and Valizadeh Behrouz (2016), Imanparast et al. (2014), Khorsandi et al. (2013), Hosseini Nasab et al. (2009), Delaram and Soltanpour (2012) (3), Duncan et al. (2014) (5), Joanna (2014) (11), and Sally Ferguson et al. (2013). Anxious women identify potential threats to their health and worsening their anxiety during pregnancy and develop constant and automatic response patterns, thoughts, feelings and anxious behaviors. The persistence in anxious thoughts, feelings, and behaviors eventually leaves this vicious cycle completely out of their consciousness. Teaching cognitive-behavioral skills such as progressive muscle relaxation exercises, respiration training, and mental imagination can have a significant impact on pregnant women's mental health through regulating physiological body functions, and thereby, reducing psychological problems including anxiety as well as enhancing personal control of impulses, emotions, or attitudes leading to their relaxation. Relaxation can have a wide range of cognitive effects. According to John Stone and Puyler's (1986) study, relaxation increases the likelihood of accessing positive information in memory, and consequently, makes it easier to access other alternatives to replace risky thoughts. This helps to properly implement other cognitive-behavioral techniques such as cognitive reconstruction and behavioral testing that emphasize on correct attitudes and ways of thinking through identifying and reconstructing the cognitive distortions and negative thoughts, as well as reconsideration of the judgments. (Quoting from Hossein Khanzadeh, Rostampour, Nedae, and Khosrojauid (2016). Cognitive-behavioral therapy can provide greater control over the individuals by emphasizing the interpersonal assumptions such as belief, emotion, and behavior. Thus, factors such as being structured and short-termed, high adaptability to different therapies, improved self-control over one's mood changes, objectivity, and task orientation

have made cognitive-behavioral therapy effective in reducing anxiety in pregnant women. Implementation of such psychological interventions can prevent mental problems, caused by the adverse conditions and play an effective role in coping with the problems. Since cognitive-behavioral skills include a set of abilities that enhance adaptive power and positive and efficient behavior, learning them can also be used as an approach to improve mothers' postpartum quality of life. One of the limitations of this study was the low sample size and the inability to follow up the results making the generalization of the results to others through caution. Finally, it is suggested that since cognitive-behavioral training, like other psychological trainings, is low-cost and has no complications, it can be conducted parallel to routine prenatal care to reduce labor anxiety and encourage the pregnant women to choose vaginal delivery.

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