

## EVALUATING THE EFFECTIVENESS OF EMPOWERMENT-BASED EDUCATION ON EMPOWERMENT AND ANXIETY IN NULLIPAROUS WOMEN

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### ABSTRACT

**Background:** Anxiety is the most common mental disorder during pregnancy which increases the risk of maternal postpartum depression and anxiety; According to investigations, pregnant women hypothesized that anxiety is a common factor that will improve spontaneously; they are not aware of its side effects on the fetus, baby, and pregnancy outcome, as a whole. Therefore, creating the opportunities of independence through interacting with environment and other people and gaining sustainable mental energy can empower this defect and turn pregnancy into something pleasant. As a result, present study was carried out to evaluate the effectiveness of empowerment-based education on empowerment and anxiety in nulliparous women.

**Methods:** This clinical trial survey was performed on 70 nulliparous women of 20-24 weeks. Subjects were divided into two control and experimental groups of 35 members through random sampling. Both groups completed the demographic questionnaire, Pregnant Women Empowerment questionnaire, and Spielberger State-Trait Anxiety Inventory (STAI) before intervention. Pregnant Women Empowerment questionnaire and Spielberger State-Trait Anxiety Inventory was completed again immediately and eight weeks after intervention by both groups. Data were analyzed by *t* test and Fisher's exact test through SPSS version 16. Significance level of 0.05 was considered.

**Results:** There were no significant differences between control and experimental groups, with whole demographic variables. The results showed that the mean and standard deviation of anxiety in two groups of experimental and control before intervention were  $16.78 \pm 90.91$  and  $16.29 \pm 89.14$  which implies no significant difference ( $P > 0.05$ ); however, post-intervention data analysis immediately and eight weeks after intervention showed a significant difference between two groups ( $P < 0.001$ ). Mean and standard deviation of empowerment before the intervention in control and experimental groups, respectively, were  $6.83 \pm 74.77$  and  $7.76 \pm 76.80$  in which no statistically significant difference between two groups was observed ( $P > 0.05$ ); however, post-intervention data analysis immediately and eight weeks after intervention showed a significant difference between two groups. ( $P < 0.001$ )

**Conclusion:** Empowerment-based education reduces the level of anxiety and increases empowerment of women during pregnancy; since this method is cheap, simple, and risk-free, it is highly recommended for nulliparous women.

**Key words:** Empowerment-based education, empowerment, anxiety, nulliparous pregnant women.

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### Introduction

Pregnancy is a special experience for a woman and her family. Pregnancy period is naturally in line with physical and mental changes in pregnant women; of this group nulliparous women experience these changes more severely because of their first encounter. Pregnant women experience anxiety due to following factors: concerns about the status

of the fetus, fear of childbirth, reduction of daily activities, extreme care, physical changes, commitment and responsibility, and increase in the level of Estradiol in blood<sup>(1,3)</sup>. Physiologic changes impact both body and mind of the pregnant mother and this, in turn, changes the mood and causes anxiety in this period<sup>(3)</sup>. Prenatal psychological problems have been investigated in approximately 90% of the high-income countries, while there is information

for only 10% of countries in the low and moderate income category<sup>(2)</sup>. 70% of women experience anxiety during their first pregnancy<sup>(27)</sup>.

The results of several studies showed that stress disorder prevalence was more than 30%, and that reported in Iran was more than 64%<sup>(2,28)</sup>, mental health problems is considered an issue of crucial importance in the health of pregnant women<sup>(23)</sup>. Pregnancy mental disorders have adverse effects on maternal, fetal and infant outcomes. These disorders cause less attention of the mother towards herself, leading to poor nutrition, increased consumption of drugs and alcohol, and less visit of health centers<sup>(25)</sup>. The incidence of fetal asphyxia at birth exists among anxious women, moreover, other problems that result from stress during pregnancy are, abnormal fetal heart rate patterns, low Apgar scores, increased mortality at birth, and low birth weight<sup>(4)</sup>.

A stressful event in the prenatal period not only affects the child's mental health in childhood, but is also associated with mental health problems in adulthood, which shows that it can have serious effects throughout life<sup>(31)</sup>. The incidence of cleft palate and harelip is more common in infants of anxious mothers<sup>(32)</sup>. Furthermore, anxiety during pregnancy can lead to schizophrenia and affective disorders in the child in future<sup>(34)</sup>. Intrauterine stress causes premature labor and premature infants, and is associated with a greater risk of coronary heart disease in adulthood<sup>(18)</sup>. Nicols and Zwelling believe that there is a direct relation between a mother's stable psychological situation during the pregnancy period and her accepting the maternal role after childbirth<sup>(33)</sup>.

Dunkle Schetter also delineated that anxiety, depression, and stress during pregnancy can cause side-effects in the mother and fetus and lead to low birth weight of the infant, and have negative effects on the child and fetal neural development<sup>(14)</sup>. A high level of pregnancy anxiety not only increases the risk of maternal postpartum depression and anxiety, but also leads to irritability and more crying of the baby, a more unstable condition, and even transferring to the Intensive Care Unit<sup>(8)</sup>. Also there is a relationship between a mother's stress and abnormalities in fetal brain development<sup>(16)</sup>. Severe maternal anxiety during pregnancy and after delivery imposes irreparable damage to the relationship between the mother and child and reduces her ability to play the maternal role and even reduces the production and secretion of breast milk.

Anxiety during pregnancy can cause complications in the mother in various forms, including, nausea and vomiting in early pregnancy and pre-eclampsia, anxiety and negative perception toward labor and birth, unnecessary fears about childbirth and motherhood, self-medication with alcohol, or restricted activity<sup>(17)</sup>.

Nowadays empowerment, as a concept in medical sciences, focuses upon sense of responsibility and protection of individual health<sup>(24)</sup>. One of the objectives of World Health Organization is to emphasis on individual, domestic, and social empowerment towards promotion of the mother and child<sup>(41)</sup>. Self-efficacy is the main component of empowerment and, generally, mutual relationship of self-efficiency and self-care improves self-efficiency and increases self-care behaviors (30). Self-esteem, as an empowerment criterion, impacts mental health and plays crucial role in gradual promotion<sup>(5)</sup>. Protection and support, as well, are empowerment criteria components which play potential roles of moderators between anxiety and aggravation of problems in pregnancy (19) and neutralize all the negative emotions associated with the rigors of pregnancy<sup>(12, 21)</sup> in their study have shown the Creating Opportunities for Parent Empowerment program decreases the anxiety and stress of mothers of preterm infants<sup>(21)</sup>.

Basically, education is primary factor in designing, editing, and implementing empowerment plans. With attention to reciprocal concept of empowerment, due to communal tendency of people to cooperate with each other, group education is one of the most effective educational perspectives<sup>(6)</sup>. Being in contact with other women who are experiencing physical and psychological changes of pregnancy reinforces sense of support and protection<sup>(42)</sup>. With the increase of the awareness of the mother in regard with pregnancy and childbirth, her tendency towards self-care behaviors, which is a fundamental component of empowerment process, increases; consequently, pregnancy and childbirth take their natural forms and fear and risk of C-section seems less overwhelming<sup>(9, 20)</sup> in their study have shown the educating theoretical concepts and practical techniques increase confidence and reduce anxiety of the pregnant women<sup>(20)</sup>.

A close relationship between the mental health and physical health, in terms of pregnancy, shows the necessity of using a process for achieving good mental and physical health. The importance of mental health in this period extends to the fact that

researchers believe that many problems of adulthood originate from poor conditions during the fetus and childhood periods. Thus, particular attention given to the mother's mental health during pregnancy can be a tool to prevent problems in adulthood<sup>(29)</sup>. Mental health professionals have recommended both pharmacological and non-pharmacological methods to cure anxiety. Psychologists believe that medicines control but do not cure anxiety disorders<sup>(28)</sup>. Antianxiety drugs have various side effects, such as lethargy, muscle loosening, headache, and imbalance of the mother<sup>(11)</sup>. The notion that being unaware of the facts of pregnancy and labor can lead to anxiety and fear cannot be exactly exempted. The greater the knowledge of the mother about these facts, the lesser her psychological problems will be<sup>(37)</sup>. Therefore, since pregnant women have high motivation for learning and changing behavior and due to the impact of educating proper behavior in case of stressful pregnancy situations in enhancing mental health of pregnant women<sup>(7)</sup>, present study was carried out to evaluate the effectiveness of empowerment-based education on empowerment and anxiety in nulliparous women.

## Method

This study was carried out under the permission from the Ethics Committee of the Iran University of Medical Sciences and it was registered in the clinical trial database with code IRCT201506042248N16; it included 70 pregnant women who referred to prenatal care clinic of Shahid Akbar Abadi Hospital in Tehran from July to September of 2015.

Sampling was continuous and samples were allocated randomly into two groups of intervention and control each with 35 members. The inclusion criteria included: The first pregnancy, 18 to 35 years, literacy, having gestational ages of 20-24 weeks, not having high-risk pregnancy, no usage of particular drugs, not having history of mental health problems or hospitalization related to mental health problems, Singleton pregnancy. The exclusion criteria included: The presence of known physical and mental illness such as diabetes, heart diseases and psychosis such as schizophrenia and paranoia that require special medication and care, anxiety disorders, pregnancy complications such as hypertension, toxemia of pregnancy, gestational diabetes, intrauterine fetal death and premature labor during

the study, mothers who don't like to continue by any reasons, the mothers who aren't able to attend in these training sessions twice. Tools used in this study included demographic questionnaire, Pregnant Women Empowerment questionnaire, and Spielberger State-Trait Anxiety inventory (STAI).

Pregnant Women Empowerment questionnaire contained 27 items divided in 5 main categories of self-efficiency (six items), future vision (six items), self-esteem (seven items), understanding protection and support from others (four items), and pleasure of addition of one member to family (four items). Items were answered based on Likert's four alternatives and rates included totally disagree<sup>(1)</sup>, disagree<sup>(2)</sup>, agree<sup>(3)</sup>, and totally agree<sup>(4)</sup>. Jahdi and et al (2014) have reported that Cronbach's alpha coefficient for reliability of Pregnant Women Empowerment questionnaire was determined 0.84. Reliability of each component of questionnaire, including self-efficiency, future vision, self-esteem, understanding protection and support from others, and pleasure of addition of one member to family was respectively, as 0.8, 0.74, 0.79, 0.81, 0.8<sup>(22)</sup>.

Spielberger State-Trait Anxiety inventory was a standard questionnaire containing 40 questions with Likert scoring; 20 questions were related to state anxiety subscale; i.e. the feeling of the subject at the moments, and 20 questions were related to the trait anxiety subscale; i.e., liability of the subject for underlying, chronic anxiety. Questions were measured in 1-4 Likert spectrums in a range of 20 to 80. Validity and Reliability have been confirmed in Iran's researches and studies; Dareshouri Mohammadi and et al (2012) in their study have shown reliability of the present research was 0.91<sup>(13)</sup>.

In this study, after providing necessary explanations regarding the purpose of the study and obtaining written consent from the study subjects and completion of demographic questionnaire, Pregnant Women Empowerment questionnaire, and Spielberger State-Trait Anxiety inventory, experimental group attended educational sessions in the presence of researcher. Empowerment-based education was implemented in four training sessions in four groups for the experimental group. Each session lasted 90 minutes. Education was conducted by using lectures, group discussions, question and answer sessions, Power Point presentations, role play, and training manuals. In the first session, after becoming familiar with each other, explaining physical, psychological, and hormonal changes dur-

ing pregnancy and their impacts on body of mothers, solutions to gain higher adoptability with pregnancy changes (appropriate nutrition, individual health, mental health), and familiarity with growth and development of the fetus during different months of pregnancy. Emotional responses of mother in 3 three-months of pregnancy, definition, symptoms, importance of anxiety during pregnancy, and non-pharmacologic methods of coping with anxiety were explained in the second session. Third session included explanations on the process of parenting, education of attachment behaviors of mothers with fetus, time and symptoms of formation of mother’s attachment with the fetus, focusing on fetus and recognizing it as an independent creature, and how of performing attachment behaviors.

In the fourth session, explanations regarding parenting and management of expectations, duties of the husband during pregnancy and postpartum, dangerous signs during pregnancy, planning for childbirth, and different stages and methods of childbirth were presented. Protection and education of pregnant women include in the control group was carried out clinically, without intervention of specialists or researcher. Pregnant Women Empowerment questionnaire and Spielberger State-Trait Anxiety inventory were conducted immediately and eight weeks right after the last session of educational plan in two groups. A booklet was prepared for the control group at handed to them at the end of the study. The collected data were entered into the SPSS (Ver. 16) software and analyzed using the t test and Fisher’s exact test at the significance level of less than 0.05.

**Results**

There was no significant difference between two groups in term of age average and gestational age ( $P>0.05$ ) (Table 1).

Variable	Case	Control	p-value
Age	55/4±91/23	36/5±49/25	0.191
Gestational Age	42/1± 76/21	27/1±51/21	0.436

**Table 1:** Characteristics of women in terms of intervention and control groups’ variables.

In both groups 33 of subjects (94.3) had no history of infertility. Fisher’s exact test showed no significant difference between two groups in terms of history of infertility ( $p>0.05$ ).

In intervention group 27 of subjects (77.1) and in the control group, 29 (82.9) had a wanted pregnancy ( $P>0.05$ ).

The results of T test showed that there was no statistically significant difference between two groups in terms of average total anxiety, state anxiety, and trait anxiety before intervention ( $P>0.05$ ); while difference between two groups became statistically different immediately and eight weeks after intervention. ( $P<0.001$ ) (Tables 2, 3, 4).

time	Case	Control	p-value
Before the intervention	90.91±16.78	89.14±16.29	0.58
Immediately after the intervention	56.00±8.66	92.31±18.76	<0.001
8 week after the intervention	63.57±8.94	92.83±21.78	<0.001

**Table 2:** Total anxiety scores before, immediately and 8 weeks after the intervention.

time	Case	Control	p-value
Before the intervention	46.49±8.32	46.00±7.90	0.803
Immediately after the intervention	29.49±5.18	48.69±9.31	<0.001
8 week after the intervention	33.60±5.82	48.03±11.19	<0.001

**Table 3:** State anxiety scores before, immediately and 8 weeks after the intervention.

time	Case	Control	p-value
Before the intervention	44.43±9.84	43.14±9.50	0.656
Immediately after the intervention	26.51±5.14	43.63±10.59	<0.001
8 week after the intervention	29.97±4.59	44.83±11.48	<0.001

**Table 4:** Trait anxiety scores before, immediately and 8 weeks after the intervention.

time	Case	Control	p-value
Before the intervention	76.80±7.67	74.77±6.83	0.247
Immediately after the intervention	71.80±7.80	88.71±5.72	<0.001
8 week after the intervention	71.86±6.19	85.17±5.16	<0.001

**Table 5:** Empowerment scores before, immediately and 8 weeks after the intervention.

Mean and standard deviation of empowerment item were, respectively,  $6.83±74.77$  in intervention group and  $7.67±76.80$  in the control group and this did not show any statistically significant difference between two groups ( $P>0.05$ ); however, this difference became statistically significant immediately and eight weeks after intervention. ( $P<0.001$ ) (Table 5).

## Discussion

Pregnancy physiologic changes affect both body and mind of pregnant women, changes their behavioral patterns, and originates anxiety in them<sup>(3)</sup>. At the beginning stages of pregnancy, when mother is in hesitant phase, midwife or specialist doctor must help her control anxiety and anger. Generally, family and midwife play crucial roles in accepting pregnancy and reducing anxiety of the mother<sup>(32)</sup>. Nowadays, multiple educational interventions are carried out by midwives which can be effective ways in controlling anxiety disorders<sup>(26)</sup>.

The findings of the present study showed that there was no statistically significant difference between two groups in terms of average anxiety, state anxiety, and trait anxiety before intervention; while immediately and eight weeks after intervention were significantly lower in intervention group in comparison with control group. This decrease in anxiety level is a result of empowerment-based education which can control psychological disorders during pregnancy and promote physical and psychological health of the individual mother<sup>(36)</sup>.

Hosseininasab and Taghavi in their study have shown the educating theoretical concepts and practical techniques increase confidence and reduce anxiety of the mother<sup>(20)</sup>, this was consistent with the findings of the present study. Teixeira and et al, in a study on 58 pregnant women, showed that education in pregnancy a significant role in controlling and decreasing anxiety during pregnancy<sup>(40)</sup>. Also the study result of Bastani and et al indicated that the effect of relaxation training based on self-efficacy theory on mental health of pregnant women<sup>(7)</sup>; this result was consistent with what we got at in the present study. In the study of Gamble and et al midwife's consultation had no role in controlling anxiety after a traumatic childbirth. The results of this study were not consistent with mentioned research which could be due to differences in study population<sup>(15)</sup>.

Based on the findings of the present study, average score of pregnant women in terms of empowerment had no statistically significant difference among two groups; while just immediately and eight weeks after intervention average score of pregnant women empowerment was significantly higher in the intervention group than the control group. In the study of Jahdi and et al, showed that the empowerment average score of intervention group just four weeks after intervention was significantly higher in comparison with control group<sup>(22)</sup>.

Jafari Mianaei and et al in their study have shown the Creating Opportunities for Parent Empowerment program decreases the anxiety and stress of mothers of preterm infants<sup>(21)</sup>; this was consistent with the findings of the present study. The results of Stang and Mittelmark's study, entitled "Intervention to enhance empowerment in breast cancer self-help groups"<sup>(38)</sup> and that of Chang and et al which aimed at determining the effects of an empowerment-based education program for public health nurses in Taiwan<sup>(10)</sup> showed that education increases empowerment in intervention group; this was consistent with the finding of the present study and the similarity might be due to implementing empowerment strategies such as performing group education programs an proving protection and support for others.

The results of this study was consistent, as well, with study Taghdisi and et al which aimed at determining the effectiveness of education and its influential factors on empowerment of the health volunteers in the west of Tehran Center<sup>(39)</sup> and with that Alhani and et al entitled "Investigating the impact of family-based empowerment plan on preventing Anemia lack iron in young girls"<sup>(1)</sup>; main reason for this consistency of results was the role of educational role on enhancement of self-efficiency among subjects.

## Conclusion

Our findings showed that empowerment-based education has the potential of increasing empowerment and decreasing anxiety of nulliparous women during pregnancy period. It seems that due to weak conditions of health centers and facilities in our country, empowerment-based education is a simple, cheap, risk-free method to increase empowerment and decrease anxiety and negative consequences of pregnancy in nulliparous pregnant women. Empowerment-based education is recommended in prenatal medical clinics to decrease anxiety and increase empowerment among nulliparous pregnant women.

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