



Evaluation of Group Consulting on Pregnancy Anxiety: A Randomized Clinical Trial

Marjaneh Dayhimi¹ , Nourossadat Kariman^{2*} , Jamal Shams³
Alireza Akbarzadeh Baghban⁴

¹ MSc. In Midwifery, International Branch of Shahid Beheshti University of Medical Sciences, Tehran, Iran

² Associate Professor of Reproductive Health, Midwifery and Reproductive Health Research Center, Midwifery and Reproductive Health Department, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³ Associate Professor of Psychiatry, Department of Psychiatry, School of Medicine, Behavioral Sciences Research Center, Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁴ Professor of Biostatistics, Department of Biostatistics, School of Allied Medical Sciences, Proteomics Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

*Corresponding author: Nourossadat Kariman, Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: n_kariman@sbmu.ac.ir

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Abstract

Introduction: Anxiety is a disorder of mental health in pregnant women reported by 20 percent of health care providers and is accompanied by adverse pregnancy outcomes. This study aimed to determine the effect of obstetric counseling on the anxiety of pregnant women.

Methods: In this randomized, double-blind controlled trial, 90 pregnant women attending to Sheibani Health Care Center in Tehran aging from 18 to 35 years old and with a gestational age of 8 to 18 weeks were evaluated first pregnancy. They were randomly assigned to counseling (group counseling with routine perinatal care) and control (only routine perinatal care) groups. The group counseling was designed according to different needs of pregnancy for five sessions in five weeks (a duration of 60 to 90 minutes for each session). The questionnaires of demographic information, Beck Depression, and Spielberg spiel Berger State-trait anxiety were used. The data analysis was performed by SPSS software version 13 using parametric and non-parametric tests.

Results: According to the results, there was a significant difference between post-intervention scores in state anxiety ($P = 0.014$); however, there was no significant difference in trait anxiety ($P = 0.19$). Also, the changes in trait anxiety were more in the consoling group compared with the control group ($P = 0.002$), which is also seen for the state anxiety group ($P = 0.0001$).

Conclusions: It is concluded from this study that group counseling is effective in the reduction of state anxiety and trait anxiety in pregnant women.

INTRODUCTION

Pregnancy is a physiologic event, as well as a transient crisis involving profound physiologic and behavioral alterations, accommodation to all of which is difficult for pregnant women (1) Anxiety is defined as an unpleasant emotion due to any intrinsic or extrinsic stimulant which can alter the emotional balance and is experienced by the person as the feeling of frightening or fear (2).

Although pregnancy and labor are much safer physically these days and prenatal care are provided regarding physical health and appropriate psychological outcomes, accommodation with the profound alterations in this period is still tricky (3) The initial response of women to pregnancy might be shocking, which includes happiness, anger, or a combination of all

of these feelings. Thus, awareness of pregnancy is a significant event for pregnant women. In Holmes & Rahe's Table of stressful events of life, 40 units are assigned to pregnancy (the highest score is assigned to spouse death by 100 units) (4).

Studies performed in Canada indicate that 9.7% of pregnant women experience severe anxiety, and 40.2% experience moderate anxiety during weeks 34 to 38 of gestational age. Pregnancy anxiety is reported to be 20% in Iran (5). Some stressor events in the pregnancy include communication problems with a spouse during pregnancy, compromised ability to participate in social events for working mothers, fetal health concerns, fear of preterm labor, labor pain, and fetal damage during labor, infection, bleeding, and hospital costs (6). Anxiety can increase the risk of preterm labor 1.5-2 times and cause abnormal fetal heart rate and low Apgar score by increasing the level of cortisol and adrenal corticotropin (7). Jones et al. found a positive correlation between pregnancy anxiety and neonatal colic extension, behavioral disorders in critical growth periods, and abnormal social behaviors in children who have experienced intrauterine stress (8). Anxiety is associated with some irrecoverable complications: severe nausea and vomiting, exacerbated cardiovascular diseases, maternal hypertension, increased risk of premature rupture of membranes, and increased risk of fetal death (9). Also, Tamaki (1996) reported a significant relationship between pregnancy complications, difficult labor, post-partum anxiety, and depression (10).

Moreover, anxiety is associated with maternal bacterial vaginosis by disturbing the immune system (11). A study on 897 pregnant women at Carolina University in the United States suggested that pregnancy anxiety is an essential predictor of post-partum depression (12).

Some researchers, including Park (1997), believe that positive and productive thoughts during pregnancy are mediators to reduce the anxiety of pregnant women. On that account, midwives can provide appropriate health care in the psychological dimension. Studies show that paying attention to worries and psychological alternations of pregnant women combined with physical prenatal cares is an effective intervention to improve pregnancy outcomes and reduce pregnancy and post-partum complications (13). Considering the aforementioned points and scarcity of studies in this regard, we conducted this study to determine the effect of group counseling on the pregnancy anxiety of women referring to health care centers of Shahid Beheshti University of Medical Sciences during 2010 - 11. We hope that providing required instructions and appropriate counseling regarding understanding pregnancy and delivery combined with routine prenatal cares will reduce pregnancy anxiety and its effects on maternal and fetal outcomes.

METHODS

This experimental double-blind clinical trial was conducted using the roll of a die in pre-test and post-test stages, with a control group to evaluate the effect of group counseling on pregnancy anxiety in Sheybani health care center in Tehran in 2010-11. The study population included pregnant women with 8 to 18 weeks of gestational age based on LMP or first-trimester ultrasonography who regularly referred to this health care center for routine prenatal follow-ups. The inclusion criteria were included 18 - 35 years of age prim gravid pregnant women, with at least elementary school educational level, who were Iranian and spoke Persian with an adverse history of psychological disorders or medical diseases mimicking anxiety symptoms such as hyperthyroidism, as well as lack of severe and pathologic anxiety (based on Spielbergers questionnaire). Moreover, study exclusion criteria included a score of 10 or higher in the Beck depression scale, participation in other classes about pregnancy, and disobeying study protocol (more than one session of absence in the counseling classes).

In addition to the questionnaires of demographic and midwifery information, the following tools were used as well: Beck questionnaire for depression (second edition, 1996): This questionnaire is a revised form of the first version of the Beck Depression Inventory, which includes 21 items on a 4-point continuum, with a range of zero (lack of depression or mild depression) to 3 (Severe depression). The overall score of a person ranges from 0 to 63. The cut-off scores of this questionnaire are 0 - 13 for non-depressed, 14 to 19 for mild depression, 20 to 28 for moderate depression, and 29 - 63 for severe depression. The results of the investigation of Beck, Steer, and Brown showed that the inventory has an internal correlation with Cronbach's alpha of 0.93, and they reported the retest reliability of the scale to be 0.93. During the study of Fata, Birashk, Atefvahid, and Dabson (14), the psychometric properties of this questionnaire in a 94-item sample with an alpha coefficient of 0.91 was reported as the following: correlation coefficient between two halves: 0.89; and coefficient of one - week retest 0.94.

The Questionnaire of Explicit and Hidden Anxiety: The Spielberger Questionnaire includes two sections measuring explicit anxiety and hidden anxiety. In the literature of anxiety, there is a distinction between the questionnaires of explicit and hidden anxiety. The hidden anxiety is defined as the total capacity to respond to many situations with high levels of anxiety. On the other hand, explicit anxiety is more specific and refers to the anxiety of the person at a particular moment (15). This questionnaire includes 40 short questions with positive and negative answers. Each question has four items, and each item has a score of 1 - 4. Questionnaires were completed immediately after labor; at the time, the

condition of the mother became stable to measure women's anxiety, and she had an excellent physical and mental state to cooperate and show consent to the mother in the hospital room using the help of two trained midwives. Mahram (1974) standardized the questionnaire in Iran and calculated its reliability to be 0.91 using Cronbach's alpha (16). The data collection tool in this study consisted of demographic and midwifery information questionnaires, Beck Depression Scale, and Spielberger's anxiety questionnaire. The validity of the questionnaires was approved by five faculty members of the midwifery faculty of Shahid Beheshti University of Medical Sciences, a statistics consultant, and a psychologist consultant. Also, the reliability of Spielberger's anxiety questionnaire was approved with 0.85 and 0.9 of Cronbach's alpha respectively for anxiety mode and anxiety trait. Moreover, this questionnaire was completed by the investigator for 5 pregnant women. The researcher attended the health care center 6 days a week (5 hours every day) and explained the study objectives to pregnant women. After taking informed consent, questionnaires including demographic and midwifery information, Spielbergers and Beck were filled out through midwives.

Pregnant women with mild and moderate anxiety levels were included in the study, and those with very low or very high (pathologic) anxiety levels were excluded. Women with scores of higher than 14 in the Beck survey were referred to the psychiatry department of Imam Hossein Hospital, and those with scores of 10-14 who were prone to depression were excluded. Eligible pregnant women with a score of below ten were included in the study. The minimum required sample size was determined to be 90, according to a 95% confidence level based on the study of Vatin. Considering the likeliness of about 10% loss, 50 patients were selected for each group, and a total of 100 samples were selected.

$$n = 2 \left\lceil \frac{\left(\frac{z_{\alpha}}{2} + z_{\beta} \right)^2}{M_1 - M_2} \right\rceil$$

Firstly, participants were divided into two groups based on their anxiety level (code 1 for mild anxiety and code 2 for moderate anxiety). Then, samples were randomly assigned to intervention and control groups. Each group consisted of 5 patients with code 1 and 5 patients with code 2. Counseling sessions started with 10 participants. Sampling was performed from November 2010 to March 2011 simultaneously with the counseling classes. The intervention in this study was group counseling based on a pre-defined protocol, and the counseling group received prenatal care as well. The control group only received prenatal care. Group counseling sessions were held weekly by the investigator for five weeks, and

each session lasted 60 to 90 minutes. These sessions were not intended to treat anxiety and were provided in order to control anxiety through improving maternal awareness on the pregnancy and delivery and prevention of symptoms. The content of these sessions was approved using content validation by five midwifery faculty members and five psychiatrists and psychologists.

The summary of the content of the group counseling sessions was as follows: (1) Understanding the physiology of pregnancy and the nature of pregnancy anxiety: Understanding and expressing the physiological and psychological alternations during pregnancy, defining anxiety and its effects on the mother and fetus during pregnancy. (2) Understanding the importance of good nutrition and identifying negative thoughts: Defining dietary groups and their role in the diet of the mother, defining the suitable and balanced diet during pregnancy, expressing negative feelings, and how to respond to them. (3) Understanding personal hygiene and how to control anxiety: Defining the necessity of personal and sexual health during pregnancy, expressing oral health during pregnancy, daily recording of negative thoughts, and proper response to them and describing the relaxation exercises. (4) Understanding labor symptoms, positive mental image, and relaxation methods: Understanding the jeopardizing symptoms of pregnancy, expressing the symptoms of labor and describing the importance and benefits of natural childbirth, and describing muscle relaxation exercises. (5) Understanding post-partum care and respiratory exercises: Describing the importance of breastfeeding and post-partum birth control methods and describing the essential notes of infant care and breath control techniques.

Counseling strategy included a close relationship between the midwife and pregnant women, allowing to express emotions, extensive informing regarding physiologic alterations during pregnancy, and providing the opportunity to ask questions. Pregnant women in the intervention group were able to reach the investigator via mobile phone. 90 of 100 participants finished the study (44 patients in the counseling group and 46 patients in the control group). Some missing data occurred in this study due to the changing of home address and pregnancy outcomes such as abortion and lack of referring to the health care center. After data extraction, descriptive and inferential statistical methods (chi-square test, Fisher's exact test, independent t-test, and Mann Whitney test) were used in SPSS version 13 for data analysis. [Figure 1](#)

RESULTS

The results of this study indicated that the mean age of participants was 22 years, who were mostly housewives (91.1%) and had high school graduation educational levels (64.4%), with an average of 12 weeks of gestational age. Also, participants in counseling and

control groups did not show statistically significant differences in terms of age, educational level, spouse occupational status, economic level, housing, and gravid according to chi-square and Fisher's exact test. Demographic and midwifery information of both groups are presented in Tables 1 and 2. According to the results of this study, anxiety mode scores of both groups had a significant difference after the intervention ($P = 0.01$). The anxiety trait score did not have any significant difference between the two groups after the intervention ($P = 0.19$). Also, the difference between the anxiety trait before and after the intervention was significantly more prominent in the counseling group compared with the control group ($P = 0.002$) as well as anxiety trait changes ($P = 0.0001$) Tables 3 and 4.

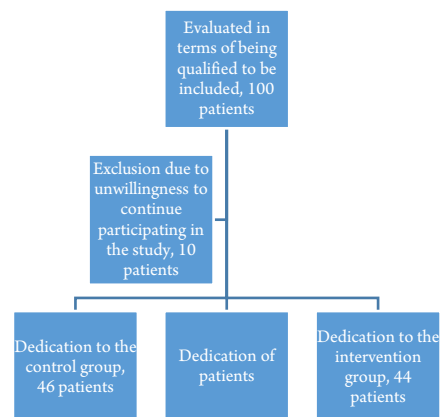


Figure 1. Consortium flowchart of the study

Table 1. Statistical indices of demographic information of pregnant women in counseling and control group referring to Sheybani health care center, Tehran in 2010-11

Quantitative variables	Groups		*P
	Counseling \bar{X} (SD)	Control \bar{X} (SD)	
Age	22.52(2.72)	22.41(2.75)	NS
Spouse age	27.61(3.76)	27.57(3.98)	NS
Marital age	2.11(1.28)	2.13(1.32)	NS
Gestational age	12.34(2.36)	11.8(2.17)	NS

Table 2. Statistical indexes of demographic information of pregnant women in counseling and control group referring to Sheybani health care center, Tehran in 2010-11

Qualitative variables	Groups		P
	Counseling Number (%)	Control Number (%)	
Educational level, Diploma	27(61.4)	31(67.4)	*NS
Job, Housewife	39(88.6)	43(93.5)	**NS
Spouse Educational level, Diploma	25(56.8)	25(54.3)	*NS
Spouse Job, self-employment	39(88.6)	35(76.1)	**NS
Income, less than adequate	23(52.3)	31(67.4)	***NS
Type of housing, rental	29(65.9)	33(71.7)	***NS

* Mann Whitney test

** Fisher's exact Test

*** Chi-square

Table 3. Frequency distribution of anxiety mode and trait in counseling and control group before and after intervention in pregnant women referring to Sheybani health care center, Tehran in 2010-11

Groups	Before intervention			After intervention		
	Counseling, \bar{X} (SD)	Control \bar{X} (SD)	P	Counseling \bar{X} (SD)	Control \bar{X} (SD)	*P
Anxiety variable						
Mode	40.89 (7.59)	40.28 (7.81)	NS	34.48 (12.77)	40.57 (9.84)	P = 0.01
Trait	40.91 (7.32)	39.48 (7.56)	NS	36.93 (10.76)	39.65 (8.74)	P = 0.19

Table 4. Statistical indexes of changes in anxiety mode and trait in counseling and control group of pregnant women referring to Shybbani health care center, Tehran in 2010-11

Groups		Counseling \bar{X} (SD)	Control \bar{X} (SD)	*P
Anxiety variable				
Mode		6.4 (8.66)	- 0.28 (3.25)	P = 0.0001
Trait		3.97 (7.91)	- 0.17 (2.38)	P = 0.002

* Independent t-test

DISCUSSION

This interventional study was conducted to determine the effect of group counseling on pregnancy anxiety based on a scientific guideline by considering course outline principles. The results of this study show that this method may reduce pregnancy anxiety through the improvement of awareness in mothers. Statistical tests showed no significant difference between both groups in

terms of anxiety mode and anxiety trait. At the end of the 5th intervention week, the anxiety mode score was significantly higher in the control group compared with the counseling group. However, the anxiety trait score had a significant difference between the two groups. Moreover, the changes in both anxiety trait and anxiety mode were significantly more prominent in the counseling group compared with the control group.

It can be stated that group counseling provides practical information for mothers and helps them to make choices with more awareness that best suits them. Counseling on maternal issues requires good listening skills and a sense of companionship to increase the confidence of pregnant women. Using group counseling and giving a chance to pregnant mothers to talk about their feelings and providing support for them makes it possible to identify the cause of anxiety and encourage pregnant mothers to focus on their abilities. Also, providing relevant information and education on relaxation exercises can help them cope with their destructive thoughts and prevent undesirable effects. It also excels in their mental health, which significantly reduces their anxiety (17). The results of this study are consistent with the findings of Ayman's study (2008) that was about the evaluation of behavioral counseling in improving pregnancy outcomes (18). Ramazani et al. (2008) assessed the effect of group instruction of prenatal care on the awareness, attitudes, and function of pregnant women in experiment and control groups for 6 to 8 weeks. ANOVA showed the effectiveness of these instructions on the function of women and led to a significant difference between experiment and control groups in each trimester (14).

Also, the results of this study are in line with the findings of Park et al. study (1997) on the evaluation of the role of positive thoughts and optimism on the psychological and behavioral adjustment during pregnancy. Taghizadeh et al. (2007) conducted a clinical trial to assess the role of counseling on post-traumatic stress disorder (PTSD) in traumatic labor. Their intervention included 40 to 60 minutes of face-to-face individual counseling 72 hours after traumatic labor. Anxiety level at 4 to 6 weeks after labor did not show a significant difference between the two groups. This might be attributed to the short counseling period, which was only in the first 72 hours after the labor (15). Ryding et al. (2003) proved that pregnant women who were consulted for pregnancy fear did not achieve considerable positive outcomes (16).

This study was conducted to assess the effect of midwifery counseling on the fear of fetal birth, post-partum anxiety, and the satisfaction of pregnant women of the provided prenatal care. Psychotherapy-trained midwives did the counseling sessions in 6 to 37 weeks of gestational age. Statistical analysis showed no significant difference in fear of labor and a range of PTSD in the intervention group compared with the control group. However, the anxiety level was reduced in the counseling group, which was almost significant. Interventional design and stratified random patient assignments are strong points of this study, which improves the accuracy and representativeness of the samples. This is beneficial in learning information of a reasonably small sample size. Sample matching and random assignment are very effective methods to

control confounding variables. Another of this study includes the advantages of group counseling compared with individual counseling in improving the learning process. Also, shortening the intervention duration prevented the effect of concurrency factor in the internal value of the controlled study. Also, the separation of referring dates of pregnant women in the two groups prevented participants in the control group to get aware of counseling sessions. The other strength point of this study was that it provided the same counseling content for all pregnant women in the counseling group by the investigator. According to the findings of this study, the most important mechanism of effectiveness of counseling on reducing pregnancy anxiety is findings the root factors and providing persuasive answers to them.

Most psychotherapy approaches believe that the formation of trust and confidence, encouragement and support, desensitizing and strengthening knowledge and attitude are the most important points in the effectiveness of counseling. Reduced anxiety level may occur due to the effect of cognitive reconstruction, i.e., the person achieves a logical awareness on the situation and thus interprets the situation as less threatening and risky. Cognitive therapists believe that childhood experiences can form basic schema and beliefs. In the presence of an anxiety stimulant, counseling may affect these beliefs, activate cognitive outcomes, including automatic thoughts, and affect behaviors, emotions, and physiologic responses (17, 19).

CONCLUSION

This study showed that group counseling reduced pregnancy anxiety. Midwifery education authorities may use the results of this study in curriculum development for medical sciences faculties, hospitals, and educational clinics and educational workshops. They must pay attention to the assessment of pregnancy anxiety and its management since early diagnosis of pregnancy anxiety will considerably reduce the costs of inappropriate outcomes in health care centers

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Ethics Consideration

This research was carried out with the approval of the ethics committee of the International Branch of Shahid Beheshti University of Medical Sciences (Ethical code, 89:116/343). Meanwhile, the participants were provided with details on the study objectives and asked to sign an informed consent form.

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Authors' Contributions

MD, N.K., JSH, and A.A. all made substantial contributions to the conception and design of the paper, were involved in drafting the manuscript and revising it, and have given final approval of the version to be published. M.D. participated in the preparation of the information and data collection.

Conflict of interest

There are no conflicts of interest associated with this study.