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The effect of cognitive–behavioral counseling of pregnant women with the presence of a spouse on stress, anxiety, and postpartum depression

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Abstract:

BACKGROUND: Pregnant women are classified as one of the vulnerable groups. Physiological and psychological changes during pregnancy predispose them to serious psychiatric disorders; if not identified and treated in time, it can have a negative and long-term impact on mental health. The aim of this study was to determine the effect of cognitive–behavioral counseling of pregnant women with the presence of a spouse on the level of stress, anxiety, and postpartum depression.

MATERIALS AND METHODS: The present study is a clinical trial that was performed on 40 pregnant women with a gestational age of 32–28 weeks (20 in the intervention group, 20 in the control group) who were randomly assigned to the intervention group and the control group according to the inclusion criteria. Cognitive–behavioral group counseling in the presence of spouses was performed by the midwife and under the supervision of a psychologist, in eight sessions, each session lasting 90 min, once a week for the intervention group. The control group received routine care and a counseling session. Data collection tools were demographic information questionnaire and Depression–Anxiety–Stress Scale 21, which were completed before the intervention, immediately after the intervention, and on the 14th day after delivery in both groups. Data analysis was performed using statistical tests, independent *t*-test, repeated measures test, Bonferroni *post hoc* test, and Kolmogorov–Smirnov test.

RESULTS: The results of this study showed that the mean scores of stress, anxiety, and depression in the two groups in the preintervention stage were not significantly different ($P < 0.05$), but in the postintervention stage and follow-up, the mean scores of stress ($P < 0.001$), depression ($P = 0.010$), and anxiety ($P = 0.029$) in the intervention group were significantly reduced compared to the control group.

CONCLUSION: According to the research findings, cognitive–behavioral group counseling can be effective as an approach in improving the symptoms of stress, anxiety, and depression in pregnant women. Therefore, it is necessary to plan properly to use this counseling approach to manage stress, anxiety, and depression in women during pregnancy.

Keywords:

Childbirth, cognitive–behavioral, counseling, pregnancy

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Introduction

The World Health Organization predicts that depression will be the second most common disease in the world by 2020. The prevalence of depression is higher among women than men, so it is estimated that one in 5 women will experience depression

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during pregnancy or after childbirth.[1] In developing countries, the prevalence of this disorder is reported to be 25%.[2] In the study of Mohammadi *et al*., which was conducted to investigate the prevalence of depression in different populations, the prevalence of depression in the general population was 37.22% and among pregnant women was 27.62%.[3] Similar results have been expressed on the high prevalence of depression during pregnancy and postpartum in various studies, so that its prevalence was 41.22% in Azami *et al*.'s study and was 38.22% in Afshari *et al*.'s study.[4,5] Risk factors for prenatal and postpartum depression include hormonal changes, history of previous illness, physical factors, cultural and social factors, and stressful events during pregnancy and early childbirth.[1] Due to irritability and fear of the unknowns of pregnancy and childbirth, women may experience depressive symptoms for the first time.[6] Because depression occurs as a result of cognitive distortions over time and in susceptible individuals, as a result of cognitive distortions, the individual perceives internal and external data in a modified way.[7] Cognitive distortion is one of the defining and predicting components of anxiety.[8] The prevalence of anxiety disorders in the study of Fawcett *et al*. in an adult was reported to be 30%. This rate is about 20.7% during pregnancy.[9] Lack of timely detection and treatment of anxiety during pregnancy endangers the health of the baby[10] and also damages the relationship between mother and baby.[11] In these people, routine prenatal care is also problematic and exacerbates the problem.[12] Today, various treatment methods have been considered to treat patients. One of these methods, which was studied in the study of Green *et al*., is cognitive–behavioral method. The results of their study showed that cognitive–behavioral therapy is an effective treatment for reducing prenatal anxiety.[13] The mechanism of treatment using this method is based on the fact that if behavioral interventions and reconstruction of distorted beliefs are performed simultaneously, behavioral and cognitive changes can be expected. The most important goal of this method is to teach positive communication and reduce negative communication, so that in behavioral situations the emphasis is on individual reward and mutual support, reducing defensive behaviors, problem-solving skills training, and communication skills. In this way, people are taught to learn to start their sentences with "you" instead of "me." It also teaches problem-solving skills and behavior change to change people's communication patterns in the face of problems such as pregnancy and childbirth.[14] Here, first of all, the emphasis is not on thoughts and correction, but the main purpose of intervention is to change behavior. Due to the low level of happiness in Yazd province,[15] and the close relationship between maternal and child mental health during pregnancy and postpartum[16] and due to the supportive role of maternal health care, the aim of this study was to determine the effect of cognitive–behavioral counseling of pregnant women with the presence of a spouse on the rate of postpartum stress–anxiety–depression.

Materials and Methods

The research design was a quasi-experimental clinical trial that was performed on pregnant women referring to childbirth preparation classes in Ardakan-Yazd city during the summer of 2016. This study was performed on 40 nulliparous pregnant women. In addition, pregnant women in the intervention group participated in the meetings with their husbands. The sample size was calculated based on similar studies and taking into account $\alpha = 0.05$, $\beta\text{-}1 = 0.8$, and 95% confidence level = 20 people in each group. Considering the probability of sample loss of 10%, the final sample size was calculated 22 people in each group. Initially, 44 couples were examined, but 2 people from each group were excluded from the study, and finally, 20 couples remained in the study in each group. Two pregnant women in the intervention group were excluded from the study due to the threat of preterm delivery and unwillingness to participate in the study (because of his brother's leukemia). Two pregnant women in the control group were excluded from the study due to a score of 28 in the pretest depression questionnaire. Initially, sampling was done as a possible quota based on the percentage of patients referred to two centers (from one center 60% = 28 people and from another center 40% =16 people). Subjects were included in the study by available sampling method based on the inclusion criteria. Random allocation of individuals in the intervention and control groups was performed using random allocation software. Inclusion criteria were as follows: age 20–40 years, ability to speak and understand Persian, and having at least a junior high school degree. Specific criteria for not being included in the study were as follows: having a history of serious psychiatric disorders (mood disorders, psychosis, anxiety, major depression, and bipolar), having a history of infertility, using assisted reproductive techniques, using psychiatric drugs, and history of participating in cognitive–behavioral counseling sessions in relation to the treatment of depression. Criteria for noninclusion in the study were as follows: having any complication during pregnancy that is associated with inability to attend counseling sessions, drug dependence, death of first-degree relatives in the last 3 months (mourning), and obtaining the pretest score of the questionnaires for stress–depression–anxiety subscales >33, 28, and 20, respectively. Data collection tools were personal and pregnancy information questionnaire (including name, age, date of last menstruation to determine gestational age, occupation (employed or homemaker), level of education, number of children, and economic status)

and Depression–Anxiety–Stress Scale 21 (DASS-21) questionnaire. The DASS-21 questionnaire is an abbreviated form of DASS-42 which contains 21 questions and a set of three scales of depression, anxiety, and stress. The validity and reliability of the DASS-21 questionnaire in Iran have been investigated by Samani and Jokar. Considering the internal consistency coefficient (Cronbach's alpha), reliability for the whole scale was 0.92, depression was 0.90, anxiety was 0.81, and stress was 0.89.[17] This questionnaire was completed before the sessions, immediately after the sessions, and on the 14th day after delivery for both groups and only by pregnant women. The intervention group with the presence of the spouse in the two groups of 11 people participated in cognitive–behavioral counseling sessions. These sessions were conducted by a trained midwife (researcher). It should be noted that a clinical psychologist was present at the meetings and closely monitored the work process. The place of classes was Ziaei Ardakan Hospital. To reduce travel costs, classes were held once a week in the presence of a gynecologist to attend sessions when receiving prenatal care. It should be noted that none of the research samples expressed any particular concern regarding transportation. To better inform, a group was formed in cyberspace. The purpose of creating a group in cyberspace was to coordinate training of each sessions, place educational files and relaxation music.To present the topics, the lecture method was used using teaching aids, group discussion, and role playing. Rules such as timely presence, confidentiality, and the importance of homework were communicated to the study participants. To facilitate questions and answers, each of the participants in the research was given small sheets to write down possible questions; this action was intended to solve possible problems in expressing questions and problems. The control group continued routine care. To observe ethical considerations, a training and counseling session was held for the control group after the end of the study. Cognitive–behavioral counseling sessions in the intervention group were held for 8 sessions, once a week, and 90 min per session. It should be noted that the first 10 min of each session was devoted to reviewing the tasks of the previous session and the final 20 min was allocated to determine the tasks of the next session and perform muscle relaxation. Muscle relaxation is a technique of contraction and expansion in different muscles of the body that does not require special tools or places or special positions. For this reason, this type of relaxation was performed by sitting on a chair with your eyes closed and focusing on the flow of air during muscle contraction and expansion. The meeting schedule is shown in Table 1.

After collecting posttest data, data analysis was performed using statistical software package IBM SPSS version 19 (IBM, USA, 2009) and descriptive statistical tests (mean, standard deviation) sand analytic tests such as a independent t-test, repeated measures test, and BenForoni p*ost* h*oc* test. Kolmogorov–Smirnov test was used to evaluate the normal distribution of quantitative variables. $P < 0.05$ was considered statistically significant. This research has the approval of the ethics committee with the code ir.ssu.rec. 1395.57 and is registered on the clinical trial site with the code irct2016081029293n1. In this study, the participants were assured that their information would be kept confidential. Participants were given written informed consent to participate in the study and were assured that they could withdraw from the study at any time.

Table 1: Schedule

Meetings	Description of meetings
First	Introduce yourself, get to know the couple, give a summary of all the sessions, give the phone number for further follow-up, distribute the notebook, emphasize the rules and basic principles of the class (including confidentiality, timely attendance, the importance of homework), psychological training on the nature and symptoms of prenatal anxiety, natural anxiety about pregnancy and postpartum, summary of sessions, muscle relaxation
Second	Provide a summary of the contents of the previous session, explanation of the cognitive-behavioral model and its therapeutic goals, including changes in problematic behavior and thoughts, homework assignment (completing the self-help form: How thoughts create emotions, and the A.B.C technique), summarizing the topics of the session, muscular relaxation
Third	Review of previous session assignments, explaining cognitive errors, types of cognitive errors and reconstructing cognitive distortions, identifying and re-evaluating negative thoughts about oneself/others/world, training to control distorted thoughts, homework assignment (completing the form for registering changes of thoughts and the form for reviewing spontaneous thoughts), summarizing the contents of the session, muscle relaxation
Fourth	Review of previous session assignments, explaining the constructive and destructive worries and how to differentiate them from each other in relation to pregnancy, homework assignment (completing the self-help form: rating emotions and thoughts), summarizing the contents of the session, muscle relaxation
Fifth	Review of previous session assignments, problem solving skills training, homework assignment (completing problem solving skills form), summarizing session contents, muscle relaxation
Sixth	Review of previous session assignments, behavioral activation training, homework assignment (completing the behavioral activation form), session summary, muscle relaxation
Seventh	Assessment of previous session assignments, bold behavior skills training, no assignment, session summary, muscle relaxation
Eighth	Review all sessions, perform the first posttest, emphasize on informing the date of delivery, muscle relaxation

Results

According to the results of the study, the mean age of the research units in the intervention and control groups was 24.5 ± 3.53 years and 27.25 ± 6.64 years, respectively. Based on the results of independent *t*-test, there was no statistically significant difference between the two groups. 80% of women in the intervention group (n = 16) and 60% of women in the control group (n = 12) experienced their first pregnancy. 50% of the intervention group (10 people) and 70% of the control group (14 people) had a diploma or lower. 75% of the intervention and control groups (15 people) expressed their economic situation as average. In this study, 70% of women in the intervention group (n = 14) and 75% in the control group (n = 15) were homemakers. According to the results of Chi-square test, the two groups were homogeneous in terms of type of pregnancy, level of education, and occupation ($P < 0.05$). Of the 40 couples participating in the study, participation in the sessions was as follows: 75% in all sessions (8 sessions) and 25% in 6 sessions. All participants also did at least 70% of their homework during 8 sessions. The normality of data distribution was assessed using Kolmogorov–Smirnov test and the data had a normal distribution ($P < 0.05$).

Based on the results of independent *t*-test, the two groups in the preintervention stage did not differ significantly in terms of mean scores in all three areas of stress, anxiety, and depression ($P < 0.05$). However, in the postintervention and follow-up stages, the mean scores of stress, anxiety, and depression in the intervention group were significantly reduced compared to the control group ($P < 0.05$). In the intragroup study of the intervention group, the results indicate a decrease in the score of symptoms in all three areas in the postintervention and follow-up stages (on the 14th day after delivery). Based on the intragroup comparison of repeated measures test , the results showed that the changes in the mean score in all three areas of stress, anxiety, and depression in the three stages of the study were significant [Table 2].

In the intragroup study based on the test of repeated measures in the control group, the results indicate an increase in symptom scores in all three areas in the postintervention and follow-up stages compared to the beginning of the study. The mean score in all three areas of stress, anxiety, and depression in the three stages of the study was significant [Table 2].

Regarding the mean score of anxiety, no significant difference was observed between the beginning of the study and the follow-up stage (p = 0.143) and the post-intervention and follow-up stage (p = 0.141). However, a significant difference was observed between the pretest and posttest stages (P = 0.003), which indicates the need for counseling during pregnancy to reduce maternal anxiety at the end of pregnancy. In the depression dimension, the mean score increased during pregnancy but decreased slightly after delivery. Based on the results of pairwise comparison in the depression dimension, a significant difference was observed between the pre-test and post-test (p = 0.001), and the pre-test and follow-up (p = 0.005). However, there was no significant difference between the postintervention stage and follow-up in this dimension (P = 0.379), which indicates the urgent need to take intervention measures [Table 2].

Table 2: Comparison of mean scores of stress, anxiety and depression symptoms in the intervention and control groups at preintervention, postintervention and postpartum times

Variable	Mean±SD		The significance level*
	Intervention group	Control group	
Stress			
Before intervention	19.3±5.04	17.2±5.9	0.235
After the intervention	12±5.62	24.9±8.76	0.000
After delivery	8.3±4.01	22.9±9.81	0.000
The significance level**	0.000	0.005	-
Anxiety			
Before intervention	12±2.75	11.3±3.32	0.473
After the intervention	6±2.9	19.2±8.95	0.000
After delivery	4±2.59	15.1±9.41	0.000
The significance level**	0.000	0.012	-
Depression			
Before intervention	11.2±4.7	10.2±5.58	0.543
After the intervention	6.3±3.13	19±9.21	0.000
After delivery	3.6±2.39	17.1±7.23	0.000
The significance level**	0.000	0.001	-

*Independent *t*-test, **Repeated measures. SD=Standard deviation

Based on the results of pairwise comparison test, the decrease in the mean score in the three dimensions of stress, anxiety, and depression was significant and had a downward trend ($P < 0.05$) [Table 3].

Discussion

Based on the results of this study, cognitive–behavioral group counseling with the presence of a husband was able to reduce stress, anxiety, and depression in women during pregnancy and postpartum. In the present study in the intervention group, the mean stress score before the intervention was significantly lower than after the intervention and also after delivery. The study of Hofman *et al*.[18] also showed that cognitive–behavioral group counseling has an effect on reducing stress, which is consistent with the results of the present study. Possible reasons for the effectiveness of cognitive-behavioral therapy include the following: Positive thoughts are raised, the level of adaptation is raised, mental health

Table 3: Paired comparisons (Ben Foroni *post hoc* test) to examine the differences in the stages of implementation of the dependent variable: Stress, anxiety and depression in the two groups of intervention and control

Variables	Time (I)*–Time (II)**			
	Intervention group		Control group	
	Difference in averages (I-II)**	The significance level	Difference in averages (I-II)**	The significance level
Stress				
Pretest, posttest	4.9	0.000	−7.70	0.000
Pretest, postpartum	7.6	0.000	−5.7	0.020
Posttest, postpartum	2.7	0.001	2	0.461
Anxiety				
Pretest, posttest	7.3	0.000	−7.9	0.003
Pretest, postpartum	11	0.000	−3.8	0.143
Posttest, postpartum	3.7	0.23	4.1	0.141
Depression				
Pretest, posttest	6	0.000	−8.8	0.001
Pretest, postpartum	8	0.000	−6.9	0.005
Posttest, postpartum	2	0.011	1.9	0.379

Time I=The first time comparing the two time intervals of the intervention, Time II=The second time comparing the two time intervals of the intervention

indicators are improved due to the reconstruction of cognitive distortions.[19] Various studies have examined the effect of this type of treatment on stress reduction independently of other factors. In the present study, the existence of environment, effective communication, and behavioral activation were among the most important influential factors for improving mental health components. Behavioral activation training is a simple way to engage the patient in the process of change and gives hope and movement. Automatic or spontaneous thoughts pass through the mind in times of subconscious stress and are mostly expressed negatively. For example, the sound of the fetal heart is not found in the clinic by the midwife for any reason. At the moment when the prop is moving, this sentence passes in the mother's mind, whether something has happened, whether the fetus is dead, and so on. By deviating from spontaneous thoughts and focusing on behavioral activation, stress levels are reduced. Various studies have also examined the effect of this type of treatment on reducing anxiety.[13,20,21] Untreated maternal anxiety during pregnancy adversely affects fetal growth and pregnancy outcomes. The presence of the spouse in counseling sessions causes more knowledge of the pregnancy and can involve the man in the pregnancy process. This can reduce marital conflict and improve feelings for the fetus and better understanding of pregnancy. Therefore, cognitive–behavioral counseling with the presence of the spouse can be an effective way to improve the anxiety of the pregnant mother. Most studies have shown the effectiveness of couple therapy with the aim of improving marital relationships and increasing the intimacy of couples. The existing research is similar to the mentioned researches in using couple therapy. Some research suggests that this treatment may not reduce anxiety. In the study of Gamble *et al*.,[22] counseling was effective in reducing stress in the 3 months after delivery, but the level of anxiety was not statistically significant between the intervention and control groups. It can be said that the difference between the results of the study and the present study is due to the following reasons: (1) differences in the inclusion criteria, (2) counseling technique, and (3) how to follow up 3 months after delivery. Other possible reasons for the impact of cognitive–behavioral therapy were to create positive thinking in oneself and to replace past negative behaviors with positive behaviors, so that clients could identify and control what causes them to have difficulty recognizing their surroundings and their pregnancy. What helped improve the counseling process was that people were able to identify and process new situations in life. Man constantly evaluates events outside of himself. Having a healthy style of thinking can reduce anxiety. What disturbs man is not the occurrence of events; rather, their views are related to the incident. During counseling sessions, people learned to think for themselves.[23] According to great psychologists such as David Burns, anxiety occurs precisely when a person constantly sees himself in danger.[24] A midwife and a psychologist were present at the meetings. This led to the scientific and accurate answers to the questions of pregnant women and their husbands about pregnancy and its issues while cognitive–behavioral counseling is performed. Finally, the anxiety of pregnant women was effectively reduced.[25] Another finding of the study was the reduction of depression in women during pregnancy and postpartum, which is consistent with the results of studies conducted by Bittner *et al*., Sockol, and O'Mahen *et al*.[21,26-28] In the study by Sockol,[26] the results showed that CBT interventions significantly reduced depressive symptoms. The results also showed that the effect of intervention on reducing postpartum depression is more pronounced than during pregnancy. Other studies have examined the role of spouse attendance

at counseling sessions and have reported that couple therapy can be one of the methods used to reduce depression.[29] Possible reasons for the effect of this type of treatment on the depression component can be interpreted as follows. Feelings of depression are caused by the following issues: (a) feeling unable to deal with problems, (b) inability to manage problems, and (c) lack of enjoyment of daily activities. Depression is more likely to occur when people have difficulty resolving their problems. Inability to solve a problem can be due to two reasons: either the person has a skill defect or the person has a performance defect. By teaching problem-solving skills in meetings, people were able to avoid thinking and feeling lost about the issues that had happened to them. In addition, familiarity with barriers to problem solving, such as lack of social support, insufficient social support, criticism, and humiliation of family members for how to solve the problem, could play an effective role in improving the mental health of individuals and reducing their depression. One of the limitations of this study is the consideration of inclusion criteria that make it impossible to generalize the results to other samples. Due to the fact that various studies have mentioned stress levels in nulliparous women more, in this study, nulliparous and multiparous women were not considered as inclusion criteria. This was done to reduce the possible loss of samples. Sampling site for this study was childbirth preparation classes. The reason for this was the choice of similar social contexts. Due to the fact that there are two psychological sessions in childbirth preparation classes, the samples were considered to have the same basis in terms of awareness. Items such as birth defects, type of delivery, and hospitalization problems after birth were not considered. This was because it was beyond the control of the researcher. Among other cases, there were individual personality differences and mental psychological status of the client at the time of completing the questionnaires, which could not be blinded due to the sessions conducted by the researcher.

Conclusion

The findings of the present study showed that group counseling of pregnant women with the presence of a husband and cognitive–behavioral method is effective in reducing stress, anxiety, and depression. Therefore, this counseling approach can be used to reduce stress, anxiety, and depression in pregnant women.

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Conflicts of interest

There are no conflicts of interest.

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