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## **INVESTIGATION OF THE IMPACT OF TEACHING STRESS MANAGEMENT SKILLS (COGNITIVE-BEHAVIORAL) ON ANXIETY AND PHYSICAL SYMPTOMS OF INFERTILE WOMEN**

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### **ABSTRACT**

Infertility prone people to depression and anxiety. Psychological interventions can significantly improve the mental health of infertile women. Determine the effects of stress management education on Anxiety and Physical Symptoms of Infertile Women. This study is a semi-experimental survey containing a pre-test and post-test with random replacements. The related statistical groups are consisting of a number of sterile women who visited Shiraz fertility center in summer 1390. For this reason, 24 sterile women having high stress scores were chosen. The chosen women were divided into two groups: 12 persons in the test group and 12 persons in the witness group. The group stress management education (cognitive-behavioral) was performed for the test group during a period of 10 weekly sessions of two hours each. No intervention was conducted for the witness group. The mental health questionnaires in two phases of pre and post tests were filled out. Also, data analysis was done according to descriptive statistical method and (covariance analysis), through using SPSS 18. Covariance analysis showed that the mean scores of anxiety and physical symptoms compared to the control group has found a significant reduction ( $p < .05$ ). The acquired results signify the possibility of stress management education to be employed as a useful intermediary method in dealing with sterile women.

**Keywords:** *Cognitive- Behavioral, Stress Management, Infertility, Anxiety and Physical Symptoms*

### **INTRODUCTION**

Infertility is one of the main stressful factors in individual life (Andrim, 2005). When the ambition of having a baby is not fulfilled and fails, individuals face an ambivalent ambiguity. Psychologically, there is a desire for having baby in women. However, such a desire may not come true and this brings stress for the individual (Ven Den Broeck *et al.*, 2010). 80% of infertile individuals believe that infertility is a very stressful experience (Mahlstedt *et al.*, 1987). Infertility stressful experience is related to many psychological problems, marital problems and sexual performance disorders (Nourbala *et al.*, 2007). When an individual undergoes tense conditions, he or she becomes weaker both psychologically and physically and his or her coping abilities reduce. Therefore, coping skills can be considered as important factors in psychological health (Bultman, 2002). Psychological factors can affect infertility and also infertility can be followed by psychological problems (Wilson, 2007). In spite of the fact that women and men are equally involved in infertility causes, infertility is considered as a feminine problem due to social prejudices and infertile women are usually more involved in social problems (Asgari and AbbasiShwazi, 2005). Infertile women may experience disappointment as a result of long and difficult treatments and this can result in incomplete treatment process and use of inefficient strategies (Aghayousefi *et al.*, 2007). Infertile individuals experience different psychological problems which might be stressful and it seems necessary to find methods for coping with such stresses (Dafei, 2001). Cognitive-behavioral education can reduce depression, anxiety and other psychological problems and helps control emotions in infertile women because it brings proper thinking methods and helps identify negative thoughts (Hamzhepour, 2009). Faramarzi *et al.*, (2008) reported that cognitive-behavioral treatment is not a complete treatment solely but it acts more effectively than Fluoxetine in treating or reducing depression and anxiety in infertile women. Dumar *et al.*, (2000) reported that cognitive-behavioral treatment and reduction in stress in infertile women can help increase the probability of fertility.

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### **MATERIALS AND METHODS**

The present study is a clinical study of semi-experimental with pre-test-post-test and random replacement. The population is consisted of all infertile women (with a diagnosis of Gynecology and Obstetrics) who had referred to infertility center in Shiraz in 1390. The subjects were selected by available sampling and random replacement. Thus, among patients who referred to this center, 24 patients with high stress who had the similar entry criteria in this study were selected and were placed randomly in 2 groups of experimental (n = 12) and control (n = 12).

Entry criteria for this study included: female gender, age of 25-40, education level of diploma and higher, duration of infertility between 2 and 10 years, having high stress based on Cohen stress scale and the exclusion criteria were: history of hospitalization due to mental disorders. Before applying the independent variables, the both groups were asked to complete the written consent form to participate in the study and express their full satisfaction for participating in the study.

The experimental group (during the treatment process) was tested in 10 weekly sessions, each session lasting 2 hours by investigators at infertility center under stress management training, cognitive - behavioral therapy as follows.

First Session: providing a definition of stress and expressing the stressors and stress responses, muscle relaxation training for 16 muscle groups

Second Session: Explaining the impact of stress on body and increasing the awareness of people from physical symptoms of stress, progressive muscle relaxation training for eight muscle groups

Third Session: Explaining the thoughts and emotions, imagery training and diaphragmatic breathing, progressive muscle relaxation training for four muscle groups

Fourth session: Evaluating the effect of negative thinking and cognitive stimulation, training, diaphragmatic breathing with visualization, progressive muscle relaxation, passive learning

Fifth session: Replacing rational thoughts, free education for their heaviness and warmth, relaxation and stress management integration

Sixth session: teaching effective coping, free education for heart rate, respiration, abdomen and forehead

Seventh session: Implementation of effective coping responses, with illustration autogenic training and induction

Eighth session: Teaching Anger Management, Mantra Meditation

Ninth session: expressiveness training, breathe counting meditation

Tenth session: Explaining the Advantages of social support and its utilization, teaching the personal stress management program.

In this research, a demographic questionnaire developed by the researchers at one stage before applying independent variable and Koldberg 28-item general Health Questionnaire and Cohen 14-item stress test at two stages of pre-test (immediately before training) and post-test (one week after completion of training) in the experimental group and control were implemented.

28-item questionnaire of General Health Questionnaire that has been used in this study has four scales of A, B, C, and D. Each scale contains seven questions that measures four categories of non-psychotic disorders including: somatization, 2-, anxiety, sleep disorders, 3-impaired social functioning, 4-depression and tendency to suicide. These subscales show the somatization aspect and are not necessarily equal to psychiatric diagnose. For each material, four-item Likert scale from zero to three scores in the assessment can be graded. Therefore, the test scores will vary from 0 to 84. Low scores on this scale indicate the mental health of a subject. For the total score, cutoff point of 23 and for each of the four subscales the cutoff point of 14 has been reported. This means that the scores of higher than 23 indicate a public health risk and the scores of higher than 14 indicate the deterioration of the subjects.

### **RESULTS AND DISCUSSION**

#### **Findings**

The present research aims to investigate the influence of teaching stress management skills (cognitive-behavioral) on infertile women anxiety.

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Descriptive and inferential results of the research are as follows:

Descriptive indices show the score of anxiety in experiment and control group members in two stages (table 1). The obtained mean values are indicative of reduction in anxiety score in experiment group members and its constant value in the control group. In other words, mean score of experiment group women anxiety was equal to 8.42 in the pretest and it was equal to 4.25 in posttest (after receiving stress management skill training). This is while the control group women anxiety score mean value was equal to 12.50 in the pretest and equal to 12.83 in the posttest (there was no significant change).

**Table 1: Descriptive Findings of Pretest and Posttest Scores for Experiment and Control Groups after Elimination of Pretest Impact of Total Anxiety Score**

N=12

Constructs	Groups	Pretest		Posttest		Posttest after Eliminating Pretest Impact
		Mean	Sd	Mean	Sd	Mean
Anxiety	Experiment	42.8	37.3	25.4	2.01	32.5
	Control	50.12	43.2	83.12	55.2	76.11

Table 2 indicates mean value and standard deviation of physical symptoms dimension in pretest and posttest and mean value in posttest after elimination of pretest impact of experiment and control groups' respondents. Therefore, mean score of physical symptoms of psychological health of experiment group after elimination of pretest impact was equal to 4.07 and is smaller than control group mean score (9.02).

**Table 2: Descriptive Results of Pretest and Posttest Scores of Experiment and Control Groups after Elimination of Pretest Impact of Total Symptoms Score**

Physical (N=12)

Constructs	Groups	Pretest		Posttest		Posttest after Eliminating Pretest Impact
		Mean	Sd	Mean	Sd	Mean
Physical Symptoms	Experiment	17.7	97.4	42.3	88.1	4.07
	Control	10	77.3	67.9	63.3	9.02

Preconditions: 1. Homogeneity of slopes: F: 7.235, significance: 0.014, 2. Homogeneity of variances (Levene) F: 0.510, significance: 0.483.

**Table 3: Results of Covariance Analysis Test on Mean Scores of Posttest in Anxiety of Experiment and Control Groups**

Variable	Source of Variations	Sum of Squares	df	Mean of Squares	F	Significance Level	Eta Square	Statistical Power
Anxiety	Pretest	392.52	1	392.52	320.17	0.000	0.52	0.95
	Group	162.917	1	162.917	53.875	0.000	0.719	0.95
	Error	63.525	22	3.025				
	Total	2309	24					

Table 3 shows the results of covariance analysis test on mean scores of posttest in experiment and control groups in anxiety. Results show that there is a significant difference between estimated mean score of

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anxiety scores of respondents of experiment and control groups if about 45% of anxiety pretest scores ( $p < 0.01$ ) are controlled and considering the calculated F. In other words, the difference between anxiety mean score is significant in experiment and control group after controlling pretest variable. About 72% of covariance of posttest score was due to teaching stress management skill by cognitive-behavioral method. This means about 72% of difference in anxiety score in the two groups in posttest stage is due to group membership factor. Statistical power indicates statistical precision and adequacy of sample size. Therefore, it can be concluded (with 100% of certainty) that teaching stress managing skills by means of cognitive-behavioral method has been effective and it has reduced anxiety score of the respondents of the experiment group in comparison with the control group significantly. Preconditions: slopes homogeneity: F: 27.793, significance: 0.000, 2- variances homogeneity (Levene), F: 0.004, significance: 0.951.

**Table 4: Results of Covariance Test on Mean Scores of Posttest in Experiment and Control Groups in Physical Symptoms Score**

Variable	Source of Variations	Sum of Squares	df	Mean of Squares	F	Significance Level	Eta Square	Statistical Power
Physical Symptoms	Pretest	980.89	1	980.89	187.20	0.000	0.490	95.0
	Group	153.132	1	153.132	649.29	0.000	0.585	95.0
	Error	604.93	2	457.4				
	Total	1445	1					

Table 4 indicates results of covariance analysis test on mean scores of posttest in control and experiment groups in physical symptoms variable. Results show that there is a significant difference between estimated mean scores of physical symptoms variable in control and experiment groups by controlling relationship between 49% of the scores of pretest in physical symptoms ( $p < 0.01$ ) and considering the calculated F coefficient. In other words, the difference between mean values of physical symptoms is significant in experiment and control groups after controlling pretest variable. Differences show that 58.5% of covariance of posttest scores is due to teaching stress management skills by means of cognitive-behavioral method. In other words, 5835% of difference between mean scores of physical symptoms variable in the two groups is due to group membership factor in posttest stage. 99.9% of statistical power is indicative of statistical precision and adequacy of sample size. Therefore, it can be concluded (with 99% of certainty) that teaching stress management skills by means of cognitive-behavioral method was effective and reduced physical symptoms score in experiment group members significantly in comparison with the control group. Therefore, the subsidiary hypothesis number 1 is supported and we can conclude that teaching stress management skills by means of cognitive-behavioral method reduces physical symptoms of psychological health of women.

### RESULTS AND DISCUSSION

The present research aimed to investigate the influence of cognitive-behavioral therapy stress management on anxiety and physical symptoms of infertile women. Results showed that stress management by means of cognitive-behavioral method reduced anxiety in the experiment group in comparison with the control group. The results of this research conform to the previous similar studies. Hamid conducted a research to investigate the influence of teaching stress management skills on anxiety and depression in infertile women. He found that depression and anxiety levels in experiment group reduced significantly in posttest and follow-up stages in comparison with the control group. On the other hand, 9 women of the infertile women group became pregnant after 6 months to 1 year (Hamid, 2011). In another research conducted by Shirbim *et al.*, (2008) the authors aimed to investigate the influence of teaching stress management skills on reducing physical symptoms and anxiety in students. Their results supported their hypothesis. Further, they found that higher levels of stress control skills in students resulted in higher psychological health. Gharayee *et al.*, (2006) conducted a semi-empirical clinical study

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in order to specify the influence of cognitive-behavioral interventions on reducing infertile women anxiety who received GIFT and ZIFT treatments. They found that cognitive-behavioral trainings were effective in reducing anxiety in primary infertile women who received ART treatments. Further, they showed that infertile women who received cognitive-behavioral interventions and had lower levels of anxiety at the end of the test were significantly more successful than the control group.

Furthermore, ZarifGolbarYazdi *et al.*, (2012) showed that rehabilitation treatment reduces stress in infertile women. Stress management by means of cognitive-behavioral method was also found to be effective in reducing stress in infertile women in Habibi *et al.*, (2013) research. Results of the research conducted by Hashemi *et al.*, (2013) titled "influence of teaching stress management on happiness in infertile women" also conformed to the results of the present research (Hashemi *et al.*, 2013). Furthermore, result of the research also conformed to the results of Nowton, (2009) and Dumar, (2001). This method not only improves psychological conditions of infertile women but also increases fertility possibility.

Stress management skill helps individuals identify stressful and anxious situations, find better recognition of them and identify their weak points/strengths and learn about coping strategies. Teaching relaxation, illustration, diafragmic respiration, adjustment of cognitive evaluations and improvement in coping skills and integration of techniques learnt can result in anxiety reduction. Since anxiety is accompanied by muscular tension increase and muscular tension increase can be accompanied by stress and anxiety, stress management program can reduce stress and anxiety by means of relaxation techniques.

Since evaluation of situations as being threatening and negative thoughts bring anxiety, identification and solution of negative thoughts can reduce anxiety.

Some part of influence of group stress management skills teaching by means of cognitive-behavioral method can be explained in order to reduce stress and improve social relations. Anxiety and stress are also effective in increasing bad thoughts and the individual enters a vicious circle (increase in stress and bad thoughts). Teaching relaxation technique reduces tension in body and prevents from intensification of symptoms. Self-expression and teaching relationship skills are important techniques used for increasing social relations.

Since infertile women experience gradual social isolation, teaching self-expression technique helps them with establishing active relations (and not aggressive and passive) with others in fact, teaching relational methods increases self-confidence in such patients. This creates a sense of pleasure and relaxation in human relations and increases mutual social relationships which in part increases life quality of patients. Furthermore, proper knowledge about infertility helps patients with reducing unreal nervousness and eliminates isolation and increasing emotional welfare and happiness and individual/social activities. One of the other factors in increasing psychological health and reducing stress in patients is a sense of mental control on illness.

In general, the results of the present research showed that group teaching of stress management skills by means of cognitive-behavioral method is a non-pharmaceutical method for reducing anxiety and increasing psychological health in infertile women. Change in inefficient automatic thoughts and cognitive reconstruction which is emphasized in group teaching of cognitive-behavioral stress management helps individuals with understanding stressful events, automatic thoughts and emotional/behavioral reactions and helps individuals with changing the event.

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