



Evaluating the Effect of Mindfulness-Based Cognitive Therapy on Quality of Life and Emotional Self-Efficacy in Infertile Women

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Abstract: *As the phenomenon of infertility has psychosocial aspects in addition to disorder in physiological processes, one of the ways to cope with its psychological responses is mindedness-based cognitive therapy, which can improve quality of life and emotional self-efficacy in various groups of patients. The objective of this study was to evaluate the effect of mindfulness-based cognitive therapy on quality of life and emotional self-efficacy in infertile women of Koohdasht city. For this purpose, in a quasi-experimental study with pre-test and post-test design and a control group, 30 infertile women admitted to the infertility clinic in Koohdasht city were selected by convenience sampling and they were randomly assigned to two groups of experimental and control. First, each group was pre-tested using the World Health Organization's Quality of Life Questionnaire (1996) and Williams' Emotional Control Questionnaire (1997). Then, mindfulness-based cognitive therapy was provided for experimental group based on the treatment protocol of Segal, Williams and Tisdale (2002) for 8 sessions in which each session lasted 90 minutes. After completion of the educational program, they were post-tested. The results of multivariate covariance analysis indicated that group training of mindfulness-based cognitive therapy was effective in quality of life and emotional self-efficacy in infertile women. The mean scores in the experimental group were significantly higher than those in control group ($p < 0.05$). It could be stated that mindfulness-based cognitive therapy is one of the methods for negative emotional catharsis, which can play an important role in improving the quality of life and emotional self-efficacy of the infertile women.*

Keywords: *Emotional Self-Efficacy, Mindfulness, Quality of Life, Infertility*

INTRODUCTION

Infertility is recognized as a stressful and critical threat to individual, marital, family and social stability throughout the world and in all cultures (Covington and Burns, 2007). The wide range of psychological harms of and outcomes of infertility include increased levels of stress, anxiety, depression, anger, feeling inferiority, feeling inefficiency, marital problems, decreased self-esteem, decreased sexual satisfaction and decreased quality of life (Watkins, 2004). Infertility is a chronic disease, which its treatment lasts long time mainly and it is associated with great pain and suffering. Couples suffer from family problems due to frequent visits and procedures (Hochschild et al., 2009; Barack and Novak, 2012). Infertile couples have been hopeful in recent years due to development of medical science and infertile couple own child every year using different fertility

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methods every year (Askari and Saedi, 2012). However, this situation, as a stressful crisis, affects the various aspects of the lives of infertile couples (Alesi, 2005; Khayata, Rizk, Hasan, Ghazal & Asad, 2013; Monga, Alexandrescu, Katz, Stein & Ganiats, 2004). It also causes depression, hopelessness, sense of guilty and worthlessness (Nelson, Shindel, Naughton, Ohebshalim & Mulhall, 2008). It can be stated that quality of life is one of the variables affected by infertility (Jamasian Mobarakeh and Mobarakeh and Dokanee Fard, 2017). It is a multidimensional concept, which includes one's perceptions and thoughts on the state of his or her life according to the culture and value system in which he or she lives. Association of these perceptions with the goals, expectations, standards and priorities is considered (Saeedi and Khalatbari, 2016). A study conducted by Drosdzol & Skrzypulec (2008) on the quality of life of infertile couples showed that women have a lower quality of life than men and older women with lower education and unemployed women have lower quality of life level than younger infertile women with higher levels of education and employed women. At the same time, poor quality of life can lead to ineffective coping mechanisms and ineffective adjustment in people, leading to increased stress and lack of emotional self-efficacy (Soleimani et al., 2016). Moreover, emotional self-efficacy is also one of the factors affecting the lives of infertile women. Emotions form an essential part of human life, in such a way that life without it cannot be imagined (Abdolmaleki et al., 2016). Emotions are the driving forces that will be destructive, if not controlled. Infertility makes women feel helplessness (experience of negative emotions). Thus, infertility leads to emotional failure, which these negative emotions can affect the health of the individual and cause many problems for himself or herself and relatives (Mousavi et al., 2014). Many infertile couples lack emotional control. Inability to have children leads to feelings of helplessness (experience of negative emotions) (Welle, 2015). People with emotional self-efficacy can learn how to recognize and express their emotions properly in different conditions (Blanco, Salmeron & Perea, 2016). This skill means emotion mastery and control (Robertson, Daffern & Bucks, 2012). Moreover, it is necessary to use new and effective psychological interventions in order to control the negative emotions and to empower the individual in the emotional self-efficacy and improve the quality of life (Taher et al., 2016), since the control of psychological variables can affect marital relationship, leading to increased satisfaction in couples (Shirdel and Namani, 2016). One of these therapeutic interventions is mindfulness-based cognitive education, which includes reminder to re-directing the attention and awareness of the person with regard to the recent experience in an appealing and interesting state (Germer, Siegel & Fulton, 2005). It is one of the third-generation cognitive therapies, which focuses on development of three qualities of refraining from judgment, intentional awareness, and focusing on the present moment in the individual's attention. It is a focused attention on the present time, processing of all immediate experiences, including cognitive, physiological and behavioral activities (Luberto & Jessica, 2016). In studies conducted in this regard (Piet, Wurtzen & Zachariae, 2012; Yang et al., 2013; Lee, Long, Leo & He, 2016; Xiaoli, Mei, Junjun & Shu, 2016; Ghashqaee et al., 2014; Ghasemi Jubneh, , 2016, Nawabi Righi et al., 2016; Mazaheri and Mohsinian, 2016; Nourani, Joneidi, Shakeri, and Mokhber, 2017; Rahmanifard, Kalantar Kousheh and Faramarzi, 2017), results revealed that depression and infertility stress reduced the quality of life of couples and impaired the performance of people and created critical conditions for them. In this regard, mindfulness-based cognitive therapy is a reliable method for improving the quality of life of infertile couples, resulting in negative emotions. It also plays an effective role in reducing psychological distress. Moreover, the results of the studies conducted by Narimani et al (2012), Fili et al (2012), Mousavi, Karimi, Ahmadi, Kokbabi, Forouzan, 2014), Taher, Abolghasemi, Mojarad, Abniki (2016), Shabani, Masdari (2016) and Baer (2012), and Bishop (2014) showed that infertile women suffer from psychological discomforts in comparison with fertile women, and this can negatively affect other aspects of their lives, including social relations and family conflicts. However, mindfulness increases emotional self-efficacy in infertile women, so its education can leave positive impact on psychological flexibility, depression, anxiety and emotional self-efficacy of them. Hence, given the common emotional problems of infertile women, including reduced quality of life and inability to control emotions, compared with fertile women, providing cognitive therapies to them along with medical treatments in order to reduce these problems is considered

crucial. Mindfulness-based cognitive therapy provides a different way of coping with these ineffective thoughts and emotions associated with it (Rahmanifard, Kalantar Koosheh, Faramarzi, 2017). Given the important effect of infertility on the psychological health of women and the importance of what was stated above, this study was conducted to evaluate the effect of mindfulness-based cognitive therapy on quality of life emotions self-efficacy in infertile women.

Methodology

This research was a quasi-experimental study with pre-test and post-test design with an unequal control group. The research population included infertile women admitted to gynecologic and infertility clinics in Koozdasht city in the winter of 2017. Out of this population, 30 people were selected using non-random convenient method. The research inclusion criteria included satisfaction for attending in treatment sessions, no history of admission to psychiatric wards, being in the age range of 21-35 years old with 1 to 4 years of infertility. Then, they were randomly assigned to two groups of experimental and control (each group included 15 subjects). Groups were pre-tested using the World Health Organization's Quality of Life Questionnaire (1996) (quoted by Nejat et al, 2006) and Williams' Emotional Control Questionnaire (1997) (quoted by Koole Marz et al, 2006).

Quality of Life Questionnaire (WHOQOL-BREF): this 100-item scale was developed in 1996 by a group of experts of World Health Organization (WHO) by integrating a number of domains and removing a number of questions. In Iran, Najate, Montazeri, Halakouee, Mohammad and Majdzadeh (2006) translated it into Persian language and normalized it. This questionnaire examines the quality of life in four domains (physical health domain, psychological domain, social relationship domain, and the environmental domain) of health (Bonomi, Patrick, Bushnell & Martin, 2000; Taghizadeh and Asadi, 2014). Each of these domains has 7, 6, 3 and 8 questions, respectively. The questionnaire contains 26 questions, which its first two questions do not belong to any of the domains and the first question assesses the general quality of life and the second question assesses the general health status. The next twenty-four questions assess the quality of life in the four domains mentioned above (Taqizadeh and Asadi, 2014). Nasiri (2006) used three methods of test-retest method with three-week intervals, split-half, and Cronbach's alpha, which they were calculated to be 0.67, 0.87, and 0.84, respectively. The score for each item is placed in the range of (1 to 5) very bad, bad, neither good nor bad, good, and very good, or very dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied, very satisfied. It should be noted that questions 3, 4 and 26 are scored reversely. **Affection Control Scale (ACS):** it was developed by Williams in 1997. It includes 42 items. By analyzing the factors, 4 scales (anger, depression, anxiety, and positive affection) are determined, which each scale includes different number of items (Tahmasbian, Khazaei, Arefi, Saeedipour, Hosseini, 2014). Rahmani (2014) obtained its reliability by using test-retest method 0.78, 0.73, 0.76, 0.76, and 0.66 for total scale, anger, depression, anxiety, and positive affection, respectively. This questionnaire is scored on a 7-point Likert scale ranging from strongly disagree (1), very disagree (2), disagree (3), neither agree nor disagree, (4), agree (5), very agree (6), very agree (7). The answer to the items of 4-9-12-16-17-18-21-22-27-30-31-38 is scored reversely. Accordingly, score 7 is given for answer of strongly disagree and score 1 is given for the answer of strongly agree. To obtain scores of each dimension, the scores of the the questions related to that dimension are aggregated and to obtain the general score of the questionnaire, scores of all answers are aggregated.

In this research, mindfulness-based cognitive therapy was provided for students in 8 sessions of 90 minutes and one session per week (Table 1).

Table 1: implementing the therapeutic sessions

Session	Measures
First	Greeting and introduction of the members of the experimental group, the introduction of the structure and objectives of the curriculum, the setting of a general policy with regard

	to the confidentiality of the information of individuals and stating the concept of the mindfulness
second	Exercise of thoughts and feelings, explaining the importance of time and being at moment (mindfulness in normal activities)
third	Review of past tasks, realizing the unpleasant thoughts, realizing the effect of mindfulness
fourth	Review of homework, gaining knowledge on mindfulness exercises, knowledge on breathing, sound and thoughts
fifth	Review of past exercises, focus on mind, and physical activities
Sixth	Review of past exercises, focus on mind, and physical activities
Seventh	Review of homework, increasing the mental power
Eighth	Review of whole program, using mindfulness techniques in life

Covariance analysis was used to evaluate the effect of mindfulness-based cognitive therapy on quality of life and emotional self-efficacy of infertile women, by measuring them in two groups before and after intervention. In this research, data were analyzed using SPSS 21 software.

Results

Table 2 presents the descriptive components of quality of life and emotional self-efficacy in the pre-test and post-test for experimental and control groups.

Table 2: Descriptive characteristics of quality of life and emotional self-efficacy components in the experimental and control groups

variable	group	test	mean	SD
Quality of life	control	Pre-test	21/467	3/159
		Post-test	21/067	3/899
	experimental	Pre-test	22/47	4/257
		Post-test	19/200	3/590
Emotional self-efficacy	control	Pre-test	85/067	7/206
		Post-test	79/400	6/936
	experimental	Pre-test	89/800	10/393
		Post-test	61/667	6/582

To compare the scores of quality of life and emotional self-efficacy dimensions before and after mindfulness cognitive-based training, covariance analysis assumptions were examined first. The results of the Levin test (Table 3) show that significance levels obtained for each dimension are greater than 0.05. Thus, data did not question the assumption of the equation of variance error. Thus, the implementation of covariance to test the effects of the main variables of the post-test of quality of life is allowed. Results of multivariate covariance analysis (MANCOVA) with control of pretest and analysis of posttest of quality of life and emotional self-efficacy of the experimental and control groups show that there is a significant difference between the subjects of experimental and control groups, at least in terms of one of the dimensions of quality of life and emotional self-efficacy.

Table 3: Levin test results for analyzing variance homogeneity assumption

variable	df1	df2	Levin test	p-value
Quality of life	1	28	1.027	0.320
Emotional self-efficiency	1	28	0.406	0.503

To examine the difference between the post-test, mean scores of dimensions of quality of life in the experimental and control groups, one-way analysis of covariance test in MANCOVA text was used (Table 4).

As shown in Table 4, mindfulness-based cognitive education has a significant effect in quality of life and emotional self-efficacy of infertile women.

Table 4: Multivariate covariance analysis (MANCOVA) on post-test scores of quality of life and emotional self-efficacy in two experimental and control groups

Variable	source	Sum of squares	df	Mean sum of squares	F	p-value	n2
Quality of life	pretest	138/212	2	692/606	8/058	0/002	0/275
	group	878/263	1	878/262	10/218	0/004	0/374
Total	error	232/654	27	85/950	-	-	-
Emotional self-efficacy	pretest	355/821	2	177/910	12/611	0/000	0/447
	group	284/839	1	284/839	21/816	0/000	0/502
total	error	352/340	27	130/088	-	-	-

The results of Table 4 show that by controlling the post-test score, there is a significant difference between the quality of life and the emotional self-efficacy scores of the two experimental and control groups. The descriptive indices of Table 2 show that the difference between the mean scores of the experimental group in the quality of life and emotional self-efficacy in the post-test stage, compared to pre-test, was greater than the mean difference of scores of the control group in the post-test, compared to the pre-test. Hence, mindfulness-based cognitive therapy affects the quality of life and emotional self-efficacy of infertile women. Thus, the research hypothesis was confirmed. To realize that whether there is a significant difference between the means of the sub-scales of quality of life (including two sub-scales of quality of life and emotional self-efficacy) between the two experimental and control groups, the multivariate analysis of covariance is used. Before performing multivariate covariance analysis, its assumptions should be examined. The homogeneity assumption of variances by Levine's test showed that this assumption was observed for three sub-scales. After examining these assumptions, MANCOVA test was used in order to compare the scores of two sub-scales in two experimental and control groups. The results of the multivariate tests are presented in Table 5.

Table 5: Results of multivariate statistics

Source of variations	Source of variation	value	F value	df	Df error	p-value	Eta square
The effect of groups	Pilayi effect	0/61	12/31	4	11	*0/001	0/811
	Wilks Lambda	0/32	12/31	4	11	*0/001	0/811
	Hoteling effect	3/4	12/31	4	11	*0/001	0/811
	Roy's largest root	3/01	12/31	4	11	*0/001	0/811

0.05 ≤ p*

As shown in Table 5, all multivariate tests indicate that the effect of the group on the combined scores of the dependent variables is significant. In other words, the results of multivariate tests show a significant difference between the two experimental and control groups in the linear combination of dependent variable scores (including two subscales of quality of life and emotional self-efficacy) (P < 0.05).

Discussion and Conclusion

This research was conducted to examine the effect of mindfulness-based cognitive therapy on quality of life and emotional self-efficacy in infertile women. The results of the table showed that mindfulness-based cognitive education is effective in enhancing the quality of life and emotional self-efficacy of infertile women. The results of this study are consistent with the results of studies conducted by Piet, Wurtzen & Zachariae, 2012; Yang et al., 2013; Lee, Long, Leo & He, 2016; Xiaoli, Mei, Junjun & Shu, 2016; Ghashqae et al., 2014; Ghasemi Jubneh,

2016, Nawabi Righi et al., 2016; Mazaheri and Mohsinian, 2016; Nourani, Joneidi, Shakeri, and Mokhber, 2017; Rahmanifard, Kalantar Kousheh and Faramarzi, 2017. In explaining this result, it could be stated that quality of life is a set of emotional and cognitive responses of individuals to their physical, psychological and social status. As the physical, psychological, and social conditions are disrupted for any reason, people show different responses to the problems based on their emotional and cognitive capacities, which in many groups, these reactions tend to be negative, and as a result, quality of life of people is affected. Infertile women are mainly exposed to undesired social and psychological conditions due to their infertility status, despite their good general physical health. In many cases, they suffer from depression, anxiety, and state of hopelessness and their general quality of life is affected by the issue of infertility and the therapeutic consequences resulting from it. Mindfulness exercises make people more aware of their thoughts and feelings, and consider them merely as mental events rather than aspects of "self". As a result, their relationship with their thoughts changes and they respond to negative and unpleasant events, leaving negative effects on the quality of life in general, more realistically and without judgment. With mindfulness exercises, individuals leave their past positions in relationships with others, and cope with the events, which are not necessarily with realities, regardless of mental processes. It should also be stated that as a result of the mindfulness exercises on thoughts and the way of information processing, they would have positive view to their surrounding environment and continuous performing of these exercises makes people aware of various feelings in the body and even breathing. Emotions are also important in infertile women. Inability of women to have children leads to feelings of helplessness (experience of negative emotion). Moreover, new and effective psychological interventions are required in order to control the negative emotions and improve their emotional self-efficiency. Accordingly, by educating infertile women to control the emotions, we can help them enhance their interpersonal relationships and, subsequently, increase emotional self-efficiency and improve their health. This method causes the people have more control on his or her emotions and have better self-efficiency.

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