



The Effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) in increasing infertile couples' resilience and reducing anxiety, stress, and depression

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ABSTRACT

The present research aims to study the effectiveness of mindfulness-based cognitive therapy (MBCT) on increasing resilience, and reducing depression anxiety and stress, in infertile couples. The statistical population consisted of all infertile couples referred to health centers in Mashhad in 2015. The sample size of the present study included 30 infertile husbands and wives (15 couples). The participants were selected using convenience sampling. Fifteen participants were placed in the test group and 15 placed in the control group. Having been selected and placed in the intended groups, the participants attended eight sessions of MBCT classes. The control group did not receive any intervention. The tools used in the study were Connor-Davidson Resilience Scale (2003) (CD-RIS) and Depression-Anxiety-Stress Scale (DASS-21). Analysis of covariance was used to analyze the data obtained. The findings showed a significant difference between the total resilience score mean as well as depression, anxiety, and stress mean of the test and control groups in the post-test. In general, based on the findings of the present study, one can say that MBCT has been proved to be effective in increasing infertile women's resilience and reducing depression, anxiety, and stress.

Key Words: Mindfulness-Based Cognitive Therapy, Resilience, Anxiety, Stress And Depression; Infertile Couples.

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94

Introduction

Given the various changes in the attitudes toward sexual matters over recent centuries, fertility has continued to be important, since having children is one of the important factors in consolidating marital life. For this very reason, fertility—being a natural stage in one's life and one of the most important aims of every marriage—is a concept that implies the perpetuation of human life (Monga *et al.*, 2004; Mohammadi, 2007).

There is an opposite aspect of fertility, referred to as infertility. Infertility is defined as not being able to reproduce after one year of continual sexual intercourse despite having unprotected sex (Monga *et al.*, 2004; Mohammadi 2007; Gharekhani & Sadatian, 2002). Infertility is a common problem whose prevalence is estimated to be 10 to 15 percent in different parts of the world (Baharvand, 2003).

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Studies indicate that infertile couples tend to be more anxious and more depressed than fertile ones (Karami Noori *et al.*, 2001). Infertility stress is a group of symptoms that appears when someone suffers from infertility. These are similar to post-traumatic stress disorder symptoms and have to do with thoughts and feelings (Lin, 2002). However, above everything, infertility is a clinical status, whose diagnosis can have numerous effects on the emotional performance of couples dealing with this problem (Abbey, 2000).

The studies indicate that more than 50 percent of women show reduced self-confidence as soon as they find out they are suffering from infertility problems (Meyers, 2001). Moreover, maternal role is one of the reasons that creates stress in infertile women, for it tends to be women's most important role in adulthood. Moreover, most of the infertility tests and treatments conducted on women bring about more stress for women (Gibson, 2000).

In such conditions, one of the mental aspects that can guarantee infertile couples' health against the difficulties and problems is their resilience. Resilience is not a simple element, but has a complicated structure containing interrelated items that need to be studied separately as independent aspects of health. Resilience is defined as one's ability to get through the difficulties and overcome the difficult conditions of life. Resilience includes a state in which positive consequences are recalled, and in dealing with stressful challenges and situations, a successful adjustment is made (Pinquart, 2009). Resilience is not simply passive resistance to the threatening injuries and conditions, but a resilient person is an active participant and creates his/her environment. It is a kind of self-recovery that is followed by positive emotional and cognitive consequences. A resilient person enjoys certain protective resources that are considered his resistance tools against the threats and promote his/her long-term mental health (Luthar, Cicchetti & Becker, 2000).

Over the past decades, numerous studies have indicated that psychological counseling and intervention are greatly required to help infertile women. One of the most recent interventions, which has been highly publicized by psychologists and therapists, is mindfulness training.

Mindfulness requires metacognitive learning and new behavioral strategies for focusing one's attention and preventing rumination and tendency toward worrisome responses. It helps develop new ideas and reduce

undesirable emotions (Azargoon, Kajbaf, Mowlavi & Abedi, 2008).

Mindfulness helps individuals regulate negative behavioral patterns and spontaneous thoughts. It also helps regulate the positive health-related behaviors (Narimani, Aryan Pooran, Abolghasemi & Ahadi, 2010). It seems that given the stress it lays on the control of emotions, mindfulness can be a helpful treatment to increase infertile couples' resilience and reduce anxiety, depression, and stress. However, there are no studies on the application of this method of treatment on infertile couples.

Given the lack of studies on this issue and the remarkable role of resilience among infertile couples, the present study was conducted to find an answer to the following question: Is Mindfulness-Based Cognitive Therapy (MBCT) effective for increasing resilience and reducing anxiety, stress, and depression among infertile couples?

Method

The design of the present study is quasi-experimental, and is a pre-test, post-test one with a control group. In the present study, Mindfulness-Based Cognitive Therapy (MBCT) is the independent variable, and resilience, anxiety, depression, and stress are considered dependent variables.

The statistical population of the present study included all the infertile couples referred to healthcare and medical centers of Mashhad in 2015. The sample size of the present study comprised 30 infertile men and women (15 couples). These participants were selected using convenience sampling and 15 participants were placed in the experimental group, and 15 in the control group.

The infertile couples were selected after preparing the training schedule as well as the research questionnaire. They were then randomly placed in either the experimental or the control group, and asked to complete the questionnaires. The participants of the experimental group were subjected to an MBCT intervention after measuring the intended variables. As for the control group, no action was taken and no intervention was conducted.

In the second phase, the participants of both the experimental and control groups completed the questionnaires right after the intervention. The tools applied in the present study are as follows:



Resilience questionnaire

The Connor-Davidson Resilience Scale has 25 items prepared to measure one's capability to resist pressure and threats. Each item is rated on a 5-point scale (completely wrong to completely correct), and they are scored from 1 (completely wrong) to 5 (always correct). This scale, though it measures the different aspects of resilience, provides a total score. The validity is obtained using a factor analysis and convergent and divergent validity. The reliability of the scale is checked obtained using re-test and Cronbach's alpha by the test developers in different groups (normal and at risk). The Persian version of this scale has been prepared by Jowkar (2007). Cronbach's alpha and re-test were used to measure the reliability, and factor analysis was used to measure the validity. Cronbach's alpha was 0.78, and reliability was equal to 0.73 using the re-test method. It is worth noting that the interval between the two tests for measuring re-test coefficient was three weeks. The findings of factor analysis using the main components indicate the occurrence of a general factor in the scale. KMO index was equal to 0.88 and Kruit-Bartlett coefficient was 1571. It was significant in the level of 0.001, indicating the adequacy of the items sampling and correlation matrix (Hashemi and Jowkar, 2011). The validity of this construct was confirmed in 2007 by Besharat. Moreover, Mash'alpoor (2010) correlated it with the psychological resilience scale by measuring the correlation coefficient $r = 0.64$ in the significance level of $p < 0.0001$, and showed that this construct enjoyed a high level of validity. Thus, given this coincidence, no revalidation was conducted (Besharat&Abbaspoor, 2011).

Depression Anxiety Stress Scale (DASS-21)

This scale measuring depression, anxiety, and stress consists of 21 questions, each of which is answered as 0 (did not apply to me at all), 1 (applied to me to some degree, or some of the time), 2 (applied to me to a considerable degree, or a good part of time), and 3 (applied to me very much, or most of the time) (Lovibond & Lovibond, 1995). With regard to stress and anxiety, this scale deals with issues such as the person's peace of mind, reaction to different situations, the energy used to perform daily activities, level of disorderliness and confusion, the person's patience, feeling of fear of stressful situations. In this scale, Cronbach's alpha for depression, anxiety, and stress was measured as 0.94, 0.87, and 0.91 respectively (Antony, Bieling & Cox,

1998). In the present study, Cronbach's alpha for depression, anxiety, and stress was measured as 0.82, 0.78, and 0.81 respectively. In the study conducted by Afzaliet al. (2007), the correlation of the depression scale of the test was measured as 0.84 by using Beck's depression scale. The correlation of anxiety scale was measured as 0.83 by the Wang test. The correlation of stress scale and the student's stress was measured as 0.75. The alpha coefficient measured for the depression scale was 0.94. The anxiety scale was 0.85, and the stress scale was equal to 0.87.

In the present study, data analysis was done through covariance analysis.

Findings

The findings of the present study are provided in two parts: descriptive findings (including the demographic findings describing the main variables of the study) and the inferential findings. Table 1 indicates the infertile couples' mean age.

Table 1. Mean, standard deviation, lowest, and highest age of infertile couples in experimental group and control group

		Standard deviation	Mean	Lowest	Highest
Age	Experimental group	3.96	29.20	24	37
	Control group	4.72	29.80	21	38

96

Table 2. The infertile women's frequency of sexual status in the experimental group and control group

		Men	Women	Total
Sexual status	Experimental group	7	8	15
	Control group	8	7	15

As can be seen from Table 1, the mean age of the infertile women was 29.20 in the experimental group, in which the age of the participants ranged from 24 to 37 years. As for the control group, the mean age of the infertile women was 29.80 with their ages ranging from 21 to 38 years.

Table 2 indicates the infertile women's frequency of sexual status in the experimental group and control group.

As Table 2 indicates, the infertile women's frequency of sexual status was 8 women and 7 men in the experimental group. As for the control group, it was 7 women and 8 men.

Hypothesis 1. MBCT is effective for the infertile couples' increased resilience.

To test the above hypothesis, given the existence of a categorical two-level independent



variable (experimental group and control group), continuous dependent variable (the resilience questionnaire post-test scores), and co-change variable (the pretest scores of resilience questionnaire) univariate analysis of covariance was used. Covariance analysis is used in both experimental and quasi-experimental studies. Covariance analysis is based on the random division of the participants. This analysis indicates that there is a significant statistical difference between the mean scores of resilience of the experimental group (MBCT interventions) and control group after the adjustment of the primary pretest scores. The findings of covariance analysis on resilience are reported in Table 3.

Table 3. The covariance analysis of resilience questionnaire in experimental group and control group after pretest adjustment

	Dependent variable	Sum of squares	Df.	Mean of squares	F	Significance level	Impact
Group	Pretest	294.252	1	294.252	10.32	0.003	0.277
	Resilience	680.392	1	680.392	23.86	0.000	0.469

As can be seen from Table 3, there is a significant difference between the means of the resilience sum of squares in the experimental group and control group. This table indicates that the removal of the impact of the pretest scores results in a significant difference between the adjusted mean of the resilience scores in the post-test phase in the experimental group and control group. According to these findings, one can say that MBCT has been proved to be effective in increasing the resilience of infertile couples.

Hypothesis 2. MBCT is effective in reducing infertile couples' depression, anxiety, and stress.

In order to explore this hypothesis, a multivariate analysis of covariance was used, given the existence of a categorical two-level independent variable (experimental group and control group), continuous dependent variable (post-test scores of the Depression, Anxiety and Stress Scale), and co-change variable (the pre-test scores of the Depression, Anxiety, and Stress Scale). This analysis indicates that there is a significant statistical difference between the mean scores of depression, anxiety, and stress of both experimental group (MBCT interventions) and control group after the adjustment of the primary pre-test scores. The findings of covariance analysis on are reported in Table 4.

Table 4. The findings of multivariate analysis of covariance of the posttest scores of Depression, Anxiety, and Stress Scale in the experimental and control group by controlling the pre-test

	Value	F	Hypothesis Df.	Error Df.	Level of significance
Pillai's trace	0.720	19.66	3	23	0.000
Wilks' Lambda	0.280	19.66	3	23	0.000
Hotelling's trace	2.565	19.66	3	23	0.000
Roy's largest root	2.565	19.66	3	23	0.000

As can be seen from Table 4, the significance levels of all tests indicate that there is a significant difference between the experimental group and control group at least in one of the dependent variables (depression, anxiety, and stress). In order to identify the variables in which the two groups differ, two covariance analyses were carried out on MANCOVA text. The findings are presented in Table 5.

Table 5. Covariance analysis of DASS scores in experimental and control group after adjusting the pre-test scores

	Dependent variable	Sum of squares	Df.	Mean of squares	F	Significance level	Impact
Group	Depression	44.15	1	44.15	24.20	0.000	0.492
	Anxiety	21.99	1	21.99	27.65	0.000	0.525
	Stress	72.17	1	72.17	41.70	0.000	0.625

As can be seen in Table 5, the mean scores of depression, anxiety, and stress in the experimental group and control group indicate that the difference is significant. This table shows that the removal of the impact of the pre-test scores results in a significant difference between the adjusted mean of the depression, anxiety, and stress scores in the post-test phase in the experimental group and control group. According to these findings, one can say that MBCT has been proved to be effective in the reduced depression, anxiety, and stress of infertile couples.

Discussion and conclusion

In the present study, we aimed to examine the effectiveness of mindfulness-based cognitive therapy in increasing resilience to depression anxiety and reducing stress of infertile couples. The findings confirm the main hypothesis, the principal point of investigation of the present study. In this section, we discuss the analysis



conducted in the previous section and the findings obtained from this study are explained in detail. In this section, dealing with the final outcome of the study, the findings obtained from the testing of the hypotheses are discussed and compared with the findings of the previous studies conducted in this regard.

Hypothesis 1. MBCT is effective in increasing infertile women's resilience.

The findings of the present study indicated a significant difference between the total score of resilience in the experimental and control groups. These findings indicated that the removal of the impact of the pre-test scores results in a significant difference between the adjusted mean of the resilience scores in the post-test phase in the experimental and control groups. According to these findings, one can say that the MBCT has been proved to be effective in increasing the infertile couples' resilience.

The findings of the present study are consistent with those of the studies conducted by Hayfiliet *al.* (2012), Validi Pak *et al.* (2014), Talaeiet *al.* (2014), Tarabusiet *al.* (2004), Sherratt and Lunn (2013), and Galharoet *al.* (2013).

The findings of the study conducted by Tarabusiet *al.* (2004) indicated the need to provide psychological support in order to reduce tension in the couples; especially those who attended fertility support programs. Moreover, Validi Pak *et al.* (2014) indicated in their study that the MBCT had a significant effect on the infertile women's resilience, and this program can be used as an effective intervention programs for increasing resilience among infertile women.

In explaining these findings, it can said that in MBCT, an individual learns to identify the stressful situations and acquires full awareness regarding them, thereby being able to consciously overcome such challenging situations. As soon as the individuals are capable of controlling their deep-rooted unconscious reactions, they will be able to modify and change their reactions when dealing with stressful situations. They will then offer positive responses, instead of negative ones in those situations. The explanation of this hypothesis indicates that the infertile couples of the experimental group were able to look calm and tension-free and increase their resilience through MBCT, and also by placing emphasis on the factor of living in the moment, focusing on the factor of not being judgmental and being purposeful (the main factors of MBCT), and applying the meditation training imparted in the classes to

promote their meditation and relaxation. The infertile couples of the experimental group were able to promote their own resilience scores. They were able to influence their mental and physical health as well as their social relationships by nurturing positive thoughts and rejecting negative thoughts and emotions. After having participated in the training workshops and performed the duties assigned, these individuals asserted that they were able to deal better with stress and tension. Moreover, they were able to actively avoid stressful events in life. They managed to deal with the stressful events through breathing relaxation exercises, physical relation, and solving the problem with a peaceful attitude free of any sense of hopelessness and stress. The resilience of the individuals receiving the training was much higher in the post-test.

In this method, the reduction of stress is not the only intended purpose. To put it in simple terms, "living the moment" is aimed to be achieved. In this way, one can look at mindfulness as two processes: sensitization and desensitization. In fact, mindfulness desensitizes against irritating and negative emotional aspects through reduced avoidance. Mindfulness creates sensitization in individuals by giving attention to the relationship between emotional moods and the automatic response experiences. The nature of mindfulness sensitization and desensitization promote the individual's mental flexibility and give the individuals the possibility of increasing emotional and behavioral responses. Thus, mindfulness promotes the resistance skills and gives the emotions and negative attitudes the "permission to exit" the mind. Many researchers have concluded that mindfulness is effective in fostering a feeling of relaxation and hope in individuals, increasing capabilities in dealing with stress, raising self-confidence, internal control, and resilience (Kabat-Zin, 2003).

Hypothesis 2. MBCT is effective in reducing depression, anxiety, and stress in infertile couples.

The findings related to this hypothesis indicate that there is a significant difference between the depression, anxiety, and stress total score of the experimental group and control group. The findings indicated that the removal of the impact of the pre-test scores resulted in a significant difference between the adjusted mean of the depression, anxiety, and stress scores in the post-test phase in the experimental group and control group. According to these findings, one can say that MBCT has been proved to be effective in

reducing depression, anxiety, and stress among infertile couples.

The findings of the present study are consistent with results of studies conducted by Talaeiet *al.* (2014), Fili *et al.* (2012), Sherratt and Lunn (2013), and Galhardoet *al.* (2013).

In explaining the findings obtained, one can say that instead of changing the content of thoughts, MBCT can change the individual's relationship with his/her thoughts (Hayes *et al.*, 2006). The aim of this technique is not to eliminate depressive thoughts and get rid of them, but to prevent the strengthening of these thoughts. Attaining mindfulness through breathing and using different organs, awareness of events, awareness of physical status, and accepting thoughts without making any judgments about them leads to a change in the special emotional meanings, helping the individual conclude that unlike reflections on situations, their thoughts were now simply "thoughts" and nothing more. Thoughts such as "I am a failure" or "I won't succeed" are not necessarily correct. This approach will help individuals realize their natural activities and habitual behaviors; they will manage to acquire an increasing awareness and consciousness about their daily activities (Paterniti, 2007).

In MBCT, the individual learns to move his/her mind from one approach to another in the present moment. In this respect, the individuals learn how to communicate with their inefficient thoughts and negative emotions and feelings (such as anxiety) in a different way. The main purpose of MBCT, just like the traditional cognition therapy, is not to change the content of the thoughts but to create a different attitude and relationship with thoughts, feelings, and emotions. This entails having a complete and continuous attention as well as enjoying an attitude of acceptance free of being judgmental.

This new therapeutic method reduces the illogical vulnerabilities and sensitivities in stressful situations by creating intellectual and emotional eruptions and outbursts. It seems that the main mechanism of MBCT is self-control involving a continuous emphasis on a neutral stimulus such as breathing, which creates a proper environment (Semple, Reid & Miller, 2005). Kabat-zin (2003) maintains that mindfulness techniques are effective in achieving muscular relaxation and reducing depression, stress, and anxiety through meditation.

The researchers hope that the findings of the present study would be used effectively in infertility treatment clinics.

Given the terms and criteria of all scientific studies, the present work, like all others, has some limitations that can be taken into consideration and removed in future research. One of the limitations of the present study was the lack of continuous cooperation by some infertile couples, making the explanation of the findings difficult. Moreover, since no study was conducted in the follow-up phase, it seems that we cannot come to a definite conclusion on the long-term effects of this therapeutic method. Hence, since conducting a follow-up study will help making a better estimation of the therapeutic findings, it is recommended that this phase be taken into serious consideration for similar studies.

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