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# The Effectiveness of Mindfulness-Based Cognitive Therapy in Resilience, Rumination, and Dysfunctional Attitudes of Infertile Couples

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**Abstract**

**Objective**: In this study, the intervention of mindfulness-based cognitive therapy (MBCT) on resilience, rumination, and dysfunctional attitudes in infertile couples is studied.

**Method:** The research design was quasi-experimental with pre-test-post-test and a one-month follow-up with control groups. The statistical population of the study consisted of infertile couples referred to Ibn Sina Infertility Center in Tehran, where 30 infertile couples aged 24-40 were selected as research samples by using a purposive sampling method based on inclusion and exclusion criteria, who were then randomly assigned into two groups of 15 couples. The research instruments were Connor and Davidson's (2003) Resilience Questionnaire, the Nalen and Huxma (1991) rumination, and the Weissman and Beck (1978) dysfunctional attitude questionnaire that were provided to both groups to collect the required data. The control group stayed on the waiting list, and the mindfulness training was performed for the experimental group during eight weekly sessions (two 90-minute sessions per week), according to Segal, Williams, and Tisdale MBCT Protocol (2018). The sessions were performed online and on Skyroom's platform. The research data were analyzed using descriptive statistics and multivariate analysis of covariance (MANCOVA).

**Results**: The results showed that MBCT treatment improved resilience and reduced rumination and dysfunctional attitudes in the experimental group and the post-test and follow-up phase (P<0/001).

**Conclusion**: According to the results, employing this approach for infertile couples is helpful and it can be suggested for improving their psychological conditions.

**Keywords:** MBCT, Resilience, Rumination, Dysfunctional Attitudes, Infertility.

## Introduction

The international vocabulary of sterility defines infertility as a disease characterized by a lack of pregnancy ability after twelve months of regular sexual intercourse with no protection or due to disruption in the ability of a person or his partner (Zegers-Hochschild, Adamson, Dyer, Racowsky, et al., 2017). Infertility is a topic related to global health. According to the World Health Organisation assessment of demographic and health survey data, the results indicate that 15 % of couples who are at the age of fertility are affected by infertility, most of whom live in developing countries. In addition, infertility will increase in the future so that by 2025, approximately 10 million couples will have difficulty conceiving (Gaitzsch, Benard, Hugon-Rodin, Benzakour, & Streuli, 2020). In Western countries, a fourth of seven couples, and in developing countries, a quarter of four couples experience infertility

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(Nagórska, Bartosiewicz, Obrzut, & Darmochwał-Kolarz,2019).

Estimates of the prevalence of infertility indicate that approximately 13% of women and 10% of men between the ages of 15 and 44 are infertile (Sutton, Zlatnik, Woodruff, & Giudice,2019). The importance of this issue is so great that the Iranian Infertility Research Center (2020), in its report, has pointed out that in Iran, more than three million couples have been identified as infertile, which is higher than the global average. Infertility as a threatening, anxious, and critical factor for individual, marital, family, and social stability is known throughout the world and in all cultures (Mirzaie, Saedi, & Razani, 2018). It includes a wide range of psychological trauma and infertility consequences, including increased anxiety, depression, feelings of inferiority, guilt, worthlessness, rumination, dysfunctional attitude, and marital problems (Li, Ye, Tian, & Zhoui, 2020). Infertility affects various aspects of infertile couples' lives, including the individual, family, and social ones (Zare, Abaspour, & Yousefi, 2015; Shams Mourkani, Fahami, & Naghshineh, 2021).

One of the mental aspects that can ensure the mental health of infertile couples against the consequences of infertility is the couple's resilience. Resilience is the concept that many people do not temporarily become ill despite being exposed to significant mental or physical problems (Chmitorz, Neumann, Kollmann, et al., 2020). In a study, researchers acknowledged that resilience, as a positive psychological resource, is of increasing clinical importance and is strongly and positively associated with mental health in infertile women (Li, Zhang, Shi, Guo, & Wang, 2019). Indeed, resilience is a concept that drives our focus from failure in difficult situations to the growth of individual and social characteristics (Zare & Mehmannavazan, 2015). Researchers have observed that when different people experience the same adversity, some can maintain health due to higher levels of resilience, while people with lower levels of resilience experience mental distress (Yuan, 2020; Mirmahdi & Razaali, 2019).

Due to the failure of medical treatments for infertility and the lack of positive results (19-34% chance of success), most infertile couples fall into the trap of rumination (Zarinara, Zeraati, et al., 2020). Nolen-Hoeksema (2008) introduced rumination as an important cognitive component and predictor of cognitive disorders, loss of thinking, problem-solving, and social relations. Ruminant is a kind of bias in the attention and interpretation of events that is characterized by the process of repetitive thoughts and is not necessarily experienced with a specific content of the thought and increases the risk of psychological harm (Nameni, Keshavarz Afshar, & Bahonar, 2020; Alighanavati, Bahrami, Godarzi & Rouzbahani, 2018).

Another factor that affects the mental health of infertile couples is dysfunctional attitudes. Dysfunctional attitudes are negative thoughts that, given what has happened in the past, lead to biased hypotheses about the individual, the world around them, and the future that will affect the extent to which a person adapts and copes with each condition (Docteur, Mirabel-Sarron, Kaya Lefèvre, et al., 2020).

The use of innovative and effective psychological interventions is essential to control anxiety and empower infertile couples (Mirzaie Moein et al., 2018). One of these therapeutic interventions is MBCT mindfulness-based cognitive therapy, proposed by Tizdell, Segal, and Williams (1992), a short-term, structured intervention requiring strategies to focus the attention process to avoid the generating factors of negative moods, negative thoughts, and rumination, that lead to the growth of new perspectives and the formation of pleasant thoughts and emotions (Kalhori, Masoumi Ghazi Nouri Tabatabai, et al., 2020). In 1982, Kabat-Zayn

defined mindfulness as paying attention to a specific and goal-oriented approach, the present, and without judgment (Docteur et al., 2020; Oraki & Eisazadeh, 2021). Mindfulness as a coping skill causes changes in infertility-related thoughts and feelings. The changing process resulting from mindfulness is in two ways: first, training mindfulness leads to stability in cognitive capacities and emotional regulation. It helps to get out of the vicious cycles of negative thinking and rumination in infertility.

Also, this approach makes people more aware of their thoughts without judgment, and by observing transient thoughts, replacing positive thoughts with negative ones (Shameli, Moatamedi, & Borjali, 2018). Second, mindfulness practice involves coping with the stressful factors of infertility (Galhardo, Cunha, & Pinto-Gouveia, 2019). According to studies in psychology for three decades, mindfulness has led to a wide range of clinical effects and suggests that mindfulness-based interventions have reduced symptoms in clinical groups (Amini, Zare, Agha Yosefi, & Hashemi, 2020). It includes a reduction of mental health problems and psychological distress and an improvement in performance in infertile couples (Gaitzsch et al., 2020). It increases hope, reduces dysfunctional attitudes of infertile women (Ebrahimi, Fakhri, & Hasanzadeh, 2019), reduces rumination, increases acceptance, improves anxiety and depression in adolescents (Yu, Zhou, Xu, & Zhou, 2021), increases resilience and emotional intelligence of adolescents under the Covid-19 epidemic (Yuan, 2020), reduces dysfunctional attitudes, depressive symptoms and anxiety in bipolar patients (Docteur et al., 2020), significantly reduces rumination in depressive patients (Perestelo-Perez, Barraca, Peñate, et al., 2017), and effectively treat psychological and biological problems caused by psoriasis in patients with psoriasis (Mehdizadeh, Nilforoushzadeh, Aliakbari, et al., 2019).

According to what the researcher has studied, there has not been any research on the effectiveness of MBCT on resilience, rumination, and dysfunctional attitudes of infertile couples in Iran. However, the number of infertile people and their psychological problems is increasing every year (Gaitzsch et al., 2020; Nagórska et al., 2019; Sutton et al., 2019; Li et al., 2019). According to the evidence in the mentioned research, the purpose of this research is to determine the effect of MBCT on the resilience, rumination, and dysfunctional attitudes of infertile couples.

## Method

### Participants

The current research was a quasi-experimental design with a pretest-post-test, a control group, and a one-month follow-up. The statistical population of the study consisted of infertile couples referred to Ibn Sina Infertility Center in Tehran in 2021. The couples were selected using a targeted sampling method. The sample size was based on the average sample size in the research history. Couples who met the inclusion and exclusion criteria of the study were contacted and given preliminary explanations about the research objectives, the content of meetings, and the method of holding the meetings. Of the couples willing to participate in the study, 30 were selected and randomly assigned to the experimental and control groups (15 couples in each group (with no subject drop). The inclusion criteria were informed written consent to participate in the study, no history of psychiatric disorders (recognized by a psychiatrist), diagnosis of primary infertility, age range of 24-40 years, a history of 3-10 years' infertility, with at least a bachelor's degree, and regular and jointly presence in meetings. The exclusion criteria were the absence of one meeting, non-participation of couples in meetings with each other, and positive pregnancy tests.

**Ethical Statement**

Before the implementation of the study, all couples completed the form of conscious satisfaction. The necessary information about the purpose of the research, the method of evaluation, and the meetings were explained to the participants before conducting the research. The participants took part in the study freely and without pressure. The informed consent and all information obtained from the subjects were confidentially archived with the researcher, and the data were analyzed in coded form. For ethical purposes, after the termination of the study, the control group was trained in the mindfulness approach. The study was approved by the ethics committee of the Research Institute for New Technologies Jahad Daneshgahi-Avicenna (IR.ACECR.AVICENNA.REC.1399.032).

**Procedure**

Both control and experimental groups answered the questionnaires before the intervention sessions (pre-test), after the end of the mindfulness training sessions (post-test), and one month after the end of the training sessions (follow-up). The experimental group underwent mindfulness training during eight weekly sessions (two sessions per week) and 90 minutes per session, and the control group stayed on the waiting list. The sessions were performed online on the Skyroom platform. Data were analyzed using SPSS software version 26.

**Measures**

*Connor and Davidson Resiliency Scale (CD-RIS)*:

The scale was created by Connor and Davidson in 2003. It is a 25-item tool that scores on a 0 to 5 Likert scale (Ahangarzadeh Rezaei & Rasouli, 2015). This scale has five components: competence/ personal strength, confidence in instincts/ tolerance of negative emotions, positive acceptance of change/ safe relationships, control, and spirituality. Using Cronbach's alpha coefficient, the reliability coefficient of the questionnaire was reported to be 0.89 (Mohammadi, Jazayeri, Rafie, Joukar, & Pourshahbaz, 2006). The content validity of this scale was reported as 0.98 by the method of determining the content validity index (Ahangarzadeh Rezaei & Rasouli, 2015). The questionnaire was also used by Bigdeli, Najafy, and Rostami (2013), who reported its Cronbach's alpha from 0.8 to 0.89.

*Nolen-Hoeksema Rumination Questionnaire (1991):* This questionnaire has 22 items and consists of three subscales: distraction, meditation, and contemplation (Khanipour, Borjali, Mohammadkhani, & Sohrabi, 2013). It is scored based on a 1 to 4 Likert scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). The reliability of this scale in the Iranian sample is 0.88 to 0.90 through Cronbach's alpha coefficient, which indicates high internal consistency (Bagherinezhad, Salehi Fadardi, & Tabatabayi, 2010). Cronbach's alpha coefficient ranges from 0.88 to 0.92 (Bagherinezhad et al., 2010; Taimory, Ramezani & Mahjob, 2015). The test-retest validity coefficient of 0.78 is also one of the criteria confirming the validity of this tool (Farrokhi, Seyed Zadeh, & MostafaPour, 2018).

*Dysfunctional Attitudes Scale (DAS-26):* Weissman and Beck (1978) developed this scale based on Beck's theory of the content of cognitive structure in depression. The scale consists of 26 terms that measure four factors: perfectionism, the need for others' approval, the need to satisfy others, and vulnerability, rated based on a 7-option Likert scale (Weissman & Beck, 1978). In Ebrahimi and Moosavi's (2013) research, Cronbach's alpha was above 70%, and its internal consistency through Cronbach's alpha was 0.92. The validity of this questionnaire was reported as 0.65 using convergent validity, and the reliability was 0.88 using Cronbach's alpha method.

Table 1 presents a summary of mindfulness based cognitive therapy sessions (The content is similar to the foreign sample).Results

**Table 1.** Summary of Mindfulness Based Cognitive Therapy Sessions (Segal, Williams, & Tizdale ,2018)

| Session | Purpose | Content of session | Assignment |
|---|---|---|---|
| First | Introducing the concept of mindfulness | Definition of the concept of mindfulness, Training eating consciously (eating raisins), training exercise 30 - 45 minutes of body scanning | Doing body scan exercises at home, doing a daily activity with awareness, examining the obstacles to doing exercises |
| Second | Exploring the barriers to mindfulness, more familiar with being in the moment | Review the lessons of the previous session, do body scan exercises, get acquainted with the connection of feelings and thoughts, sitting meditation training, get acquainted with pleasant events | Daily sitting meditation, daily body scans, being in the moment during daily activities, daily pleasant event notes |
| Third | Use breathing as a fulcrum to be in the moment | Review of the previous session, performing sitting meditation, training to see and hear consciously, training the breathing space of three-minute | Individual feedback notes about the exercises, daily conscious breathing practice, daily practice of sitting meditation, practicing the breathing space three-minute |
| Fourth | Stay in the moment, the expansion of attention | Reviewing the previous session and homework, receiving feedback on homework, practicing three-minute breathing, sitting meditation, doing breathing exercises and being awareness to the body, sounds and thoughts | Practice three minutes of breathing space, sitting meditation, conscious breathing and focusing on sounds, thoughts and body |
| Fifth | Acceptance without judgment | Review of previous assignments and exercises, breathing space of three-minute, sitting meditation, awareness of breathing, body, thoughts and sounds, discussion about accepting thoughts, feelings and reality as it is, without judgment | Practice breathing space of three-minute while dealing with unfortunate events and accepting them without judgment, daily sitting meditation |
| Sixth | Understand that thoughts are not reality and are just thoughts | Review assignments and get feedback, practice alternative thoughts, practice of breathing in the first step when knowing thoughts, teaching solutions to thoughts are just thoughts, not reality | Using solutions when occur negative thoughts, breathing for three minutes during unpleasant emotions, controlling thoughts and unfortunate events with conscious breathing, sitting meditation |
| Seventh | Take care of yourself and pay attention to the symptoms | Performing four-component breathing meditation practice, teaching the practice of compassionate meditation and self-compassion, teaching open awareness of everything that comes to consciousness in the moment, the discussion on "What is the best way to take care of yourself?" | Breathing meditation with body scan, Compassionate meditation, regular planning for daily exercises |
| Eighth | Review all previous sessions, apply the exercises in other positions and generalize to other situations | Review previous sessions, examine whether individuals' personalities have grown during the sessions, and plan for the future. lifestyle awareness of the every moment, generalize what you have learned to everyday life | Special attention to committing to doing exercises and execution daily plans |

The descriptive findings indicated that the mean, standard deviation, and maximum and minimum age for the experimental group were 34.07, 3.982, 39, and 24, and in the control group were equal to 33.47, 3.540, and 27.40. Level of education was a bachelor's degree (90%), master's degree (6.7%), professional doctorate (1.7%), and specialized doctorate (1.7%). Of them, 40% were from Tehran and 60% from other cities. The mean, standard deviation, maximum, and minimum infertility period for the experimental group were 6.33, 1.543, 9, and 4, and for the control group were 6.00, 2.035, 9, and 3. Also, the highest percentage of infertility duration in both groups was between 3-7 years (66.7%).

Table 2 shows the mean and standard deviation of pretest, posttest, and follow-up scores for study variables in experimental and control groups. The correctness and validity of the results of multivariate analysis of covariance require the examination of assumptions such as normality distribution of scores, homogeneity of variance, and homogeneity of variance-covariance matrix. According to Table 3, to examine the normal distribution, the Kolmogorov-Smirnov test shows the significance level is higher than 0.05, confirming the normal distribution of the scores.

According to Table 4, to examine the homogeneity of the variance-covariance matrix, the Box'M test was applied, and since the significance level was higher than 0.05 in both the post-test and follow-up phases, and the covariances of the variables were equal in both groups, which confirms the assumption of equality of the variance-covariance matrix. According to Table 5, to examine the homogeneity of variances, Levene's test was used, and the significance level was obtained higher than 0.05, confirm-

**Table 2.** Mean and standard deviation of resilience, rumination and dysfunctional attitudes of study groups in pre-test, post-test and follow-up

| Variable | Group | Pretest | | Posttest | | Follow up | |
|---|---|---|---|---|---|---|---|
| | | M | SD | M | SD | M | SD |
| Resilience | experimental | 45.267 | 9.924 | 60.000 | 9.616 | 65.633 | 8.574 |
| | Control | 46.167 | 9.428 | 45.233 | 9.106 | 45.767 | 7.627 |
| Rumination | experimental | 94.867 | 3.916 | 79.200 | 4.920 | 75.333 | 4.894 |
| | Control | 78.133 | 4.224 | 79.167 | 4.662 | 79.500 | 4.961 |
| Dysfunctional Attitudes | experimental | 81.767 | 3.982 | 79.967 | 3.921 | 73.800 | 3.644 |
| | Control | 78.933 | 4.671 | 80.700 | 3.830 | 81.200 | 3.913 |

**Table 3.** Results of Kolmogorov-Smirnov test in examining the normal distribution

| Variable | Group | Pretest | | Posttest | | Follow up | |
|---|---|---|---|---|---|---|---|
| | | F | Sig | F | sig | F | sig |
| Resilience | Experimental | 0.103 | 0.200 | 0.145 | 0.200 | 0.213 | 0.065 |
| | Control | 0.140 | 0.200 | 0.166 | 0.200 | 0.154 | 0.200 |
| Rumination | Experimental | 0.147 | 0.200 | 0.169 | 0.200 | 0.139 | 0.200 |
| | Control | 0.201 | 0.104 | 0.151 | 0.200 | 0.160 | 0.200 |
| Dysfunctional Attitudes | Experimental | 0.138 | 0.200 | 0.197 | 0.120 | 0.173 | 0.200 |
| | Control | 0.215 | 0.061 | 0.131 | 0.200 | 0.163 | 0.200 |

**Table 4.** Results of homogeneity of variance-covariance matrix

| Phase | Box' M Test | F | Df1 | Df2 | Sig. |
|---|---|---|---|---|---|
| Post-test | 1.335 | 0.196 | 6 | 5680.302 | 0.978 |
| Follow-up | 2.883 | 0.424 | 6 | 5680.302 | 0.863 |

**Table 5.** Results of Levene's Test in homogeneity of variances

| Variable | Phase | F | Df1 | Df2 | Sig |
|---|---|---|---|---|---|
| Resilience | Posttest | 1.321 | 1 | 28 | 0.260 |
| | Follow up | 0.803 | 1 | 28 | 0.378 |
| Rumination | Posttest | 1.658 | 1 | 28 | 0.208 |
| | Follow up | 0.849 | 1 | 28 | 0.365 |
| Dysfunctional Attitudes | Posttest | 0.211 | 1 | 28 | 0.649 |
| | Follow up | 0.144 | 1 | 28 | 0.708 |

**Table 6 .**Tests of Between-Subjects Effects

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Research Group * Pretest Resilience | Resilience | 1.167 | 1 | 1.167 | .236 | .632 | .011 |
| | Rumination | 38.109 | 1 | 38.109 | 4.262 | .051 | .162 |
| | DysfunctionalAttitude | 7.221 | 1 | 7.221 | 3.414 | .078 | .134 |
| Research Group * Pretest Rumination | Resilience | 13.791 | 1 | 13.791 | 2.790 | .109 | .113 |
| | Rumination | 2.404 | 1 | 2.404 | .269 | .609 | .012 |
| | Dysfunctional Attitude | 3.816 | 1 | 3.816 | 1.804 | .193 | .076 |
| Research Group * Pre-Test Dysfunctional Attitudes | Resilience | .673 | 1 | .673 | .136 | .716 | .006 |
| | Rumination | 21.783 | 1 | 21.783 | 2.436 | .133 | .100 |
| | Dysfunctional Attitude | 3.750 | 1 | 3.750 | 1.773 | .197 | .075 |

**Table 7.** Results of multivariate analysis of covariance

| Test | Value | F | Sig | Effect Size |
|---|---|---|---|---|
| Wilks' Lambda | 0.149 | 18.966 | 0.001 > | 0.851 |

ing the assumption of equality of variance.

According to Table 6, to check the homogeneity of the regression slope, the interaction effect of the covariate variable and group is not significant, which confirms the assumption of non-significance of the interaction effect between Covariate and independent variables. Since the assumptions of analysis of covariance have been confirmed in this study, the analysis of covariance test was used to test the research hypotheses. According to Table 7, the research hypothesis, stating that MBCT is effective in resilience, rumination, and dysfunctional attitudes of infertile couples, is confirmed. Multivariate analysis of covariance and Wilks' Lambda were used, and the results showed a significant difference between groups in terms of at least one of the variables (p

**Table 8.** Results of univariate analysis of covariance (with control pre-test)

| Variable | Phase | Change esource | Df | Mean squares | F | Sig | Effect Size |
|---|---|---|---|---|---|---|---|
| Resilience | Posttest | Pretest | 1 | 2326.473 | 487.085 | 0.001< | 0.947 |
| | | group | 1 | 1824.306 | 381.948 | 0.001< | 0.934 |
| | | error | 27 | 4.776 | | | |
| | Follow up | Pretest | 1 | 1679.589 | 276.388 | 0.001< | 0.911 |
| | | group | 1 | 3171.283 | 521.856 | 0.001< | 0.951 |
| | | error | 27 | 6.077 | | | |
| Rumination | Posttest | Pretest | 1 | 351.086 | 32.447 | 0.001< | 0.546 |
| | | group | 1 | 286.184 | 26.449 | 0.001< | 0.495 |
| | | error | 27 | 10.820 | | | |
| | Follow up | Pretest | 1 | 323.566 | 24.522 | 0.001< | 0.476 |
| | | group | 1 | 446.641 | 33.849 | 0.001< | 0.556 |
| | | error | 27 | 13.195 | | | |
| Dysfunctional Attitudes | Posttest | Pretest | 1 | 356.478 | 150.024 | 0.001< | 0.847 |
| | | group | 1 | 247.433 | 104.133 | 0.001< | 0.794 |
| | | error | 27 | 2.376 | | | |
| | Follow up | Pretest | 1 | 335.688 | 140.276 | 0.001< | 0.839 |
| | | group | 1 | 628.220 | 262.519 | 0.001< | 0.907 |
| | | error | 27 | 2.393 | | | |

<0.001), so the research hypothesis is confirmed.

According to Table 8, univariate analysis of covariance was used to determine how the experimental intervention affects the dependent variables. There is a significant difference between the effectiveness of MBCT on resilience in experimental and control groups in the post-test and follow-up phases ($p < 0.001$). According to the mean of resilience of the experimental group in pre-test, post-test, and follow-up, it is observed that MBCT training has increased the average scores in post-test and follow-up. Furthermore, there is a significant difference between the effectiveness of MBCT on rumination and dysfunctional attitudes of the experimental and control groups in post-test and follow-up ($p < 0.001$). Considering the mean of rumination and dysfunctional attitudes of the experimental group in the pre-test, post-test, and follow-up stages, it is observed that MBCT training has reduced the mean scores in the post-test and follow-up.

## Discussion and Conclusion

This study aimed to evaluate the effectiveness of MBCT on resilience, rumination, and dysfunctional attitudes of infertile couples. Findings indicated that MBCT intervention affects resilience, rumination, and dysfunctional attitudes of infertile couples. Based on the results, MBCT increases the resilience of infertile couples. This finding is consistent with the results of the research of Javedani Masroor, ArabSheybani, and Ramezani (2018), Sedghi and Cheraghi (2018), Jabbarifard, Solati, Sharifi, and Ghazanfari (2019), Zale EL, Pierre-Louis, Macklin, et al. (2018), Hosseini Tabaghdehi (2022), Nasirnejhad, Poyamanesh, FathiAgdam, and Jafari (2020), and Faghani, Choobforoushzadeh, and

Sharbafchi (2022). To explain the finding, it can be concluded that MBCT leads to cognitive changes in the person's thinking and behavior (Patel, Sharma, & Kumar, 2020). Mindfulness by using attention control training enables people to consciously become aware of how the mind automatically functions in reviewing past or future, and to make them conscious and controllable using the basic rules of mindfulness (Luzarraga et al., 2020). Over time, as the degree of awareness and acceptance of life events increases, people's resilience increases (Yuan, 2020). Generally speaking, mindfulness teaches people to accept their emotions and thoughts as they are without judging and engaging with them (Foroozandeh & Entezari, 2020).

In addition, the results show that MBCT reduces the rumination of infertile couples. This finding is consistent with the finding of the research done by Heidarian, Zahrakar, and Mohsenzade (2016), Abbasi and Khademloo (2018), Razavizadeh Tabadkan and Jajarmi (2019), Mohamadpour, Tajikzadeh, and Mohammadi (2020), Zemestani and Fazeli Nikoo(2019), Soltani and Mohammadi Forod (2019), Foroughi, Sadeghi, Parvizifard, et al. (2020), Chesin, Benjamin-Phillips, Keilp, et al. (2016), Perestelo-Perez, Barraca, Peñate, et al. (2017), Cladder-Micus, Speckens, Vrijsen, et al. (2018), Frostadottir and Dorjee(2019), and Shariyati and Karimi(2020). Explaining this finding, it can be acknowledged that during MBCT sessions, people learn to focus on only one activity at a time, consciously and intentionally, and during this focus, they also observe their body and the pattern of deep breathing (Mohamadpour et al., 2020). Using the skill they acquire in MBCT sessions, people can identify and exit fruitless cycles of their thoughts (Segal et al.,2018). by using strategies that teach people, such as not judging, correcting attitudes, moving away from repetitive patterns, engaging with thoughts, and focusing on the present moment, MBCT intervention helps people identify their negative thoughts and their triggers and pay less attention to them and also make them less likely to ruminate on these thoughts (Foroughi et al., 2020).

Based on the results, it is shown that MBCT reduces the dysfunctional attitudes of infertile couples. This finding is in line with the results of the research of Kaviani, Javaheri, and Bahiray (2005), Ghassem Boroujerdi, Safa, Karamlou, and Masjedi (2014), Ebrahimi et al. (2019), Moghtader(2016), Tarkhan (2018), Mohamadpour et al. (2020), Sadeghi, Sajjadian, and Nadi (2020), and Docteur et al. (2020). Explaining this finding, it can be concluded that people view dysfunctional attitudes as transient thoughts before assuming them a fact. MBCT empowers people to review their thoughts and feelings without judgment, and instead of considering them as part of themselves, consider them as measurable and simple subject matter that can change them (Hasanpour Dehkordi, Ganji, Kaveh Baghbahadrani, and Omidi (2020). MBCT techniques teach new ways of coping and responding to different situations and conditions through a decisive view of current issues, reducing judgment, and practicing accepting the contents of the mind instead of magnifying them (Docteur et al., 2020). MBCT helps people process situations realistically, understand internal and external events without distortion, deal with past events more rationally, and strengthen their ability to control negative thoughts and emotions (Segal et al., 2018), which consequently, reduces the individuals' dysfunctional attitudes (Jabbarifard et al., 2019).

**Limitations and Suggestions**

Among the limitations of the present research, we can mention the couples' age range of 24-40 years and also the period of infertility of 3-10 years.

In future studies, it is suggested that a larger sample size, multiple infertility centers, and a long-term follow-up period be applied. Due to the effectiveness

of MBCT on resilience, rumination, and dysfunctional attitudes of infertile couples, it is recommended to use this treatment to reduce the psychological problems of infertile people. Infertility treatment centers and related organizations can also use the results of this study to promote the mental health of infertile people. In future research, the effectiveness of MBCT on other psychological aspects of infertile couples such as marital satisfaction, quality of life, sexual satisfaction, emotion regulation, interpersonal relationships, problem-solving, etc. should be evaluated. The effectiveness of MBCT should be compared with other third-wave approaches.

## Resources


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