





# Effectiveness of Mindfulness-Based Cognitive Therapy on Psychological Distress Syndromes, Rumination, and Self-Compassion in Students with Psychological Distress

Mahshid. Khavari<sup>1</sup>, Kobra. Haji Alizadeh<sup>2\*</sup>, Eghbal. Zarei<sup>3</sup>, Fariborz. Dortaj<sup>4</sup>

<sup>1</sup> Ph.D. student, Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

<sup>2</sup> Associate Professor, Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

<sup>3</sup> Associate Professor, Department of Psychology, Hormozgan University, Bandar Abbas, Iran

<sup>4</sup> Professor, Department of Educational Psychology, Allameh Tabataba'i University, Tehran, Iran

\* Corresponding author email address: Ph-alizadeh@yahoo.com

## Article Info

### Article type:

Original Research

### How to cite this article:

Khavari, M., Haji Alizadeh, K., Zarei, E., & Dortaj, F. (2024). Effectiveness of Mindfulness-Based Cognitive Therapy on Psychological Distress Syndromes, Rumination, and Self-Compassion in Students with Psychological Distress. *Journal of Adolescent and Youth Psychological Studies*, 5(2), 123-131.

<https://doi.org/10.61838/kman.jayps.5.2.14>



© 2024 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

## ABSTRACT

**Objective:** The current research was conducted with the aim of evaluating the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) on psychological distress syndromes, rumination, and self-compassion in students experiencing psychological distress.

**Methods and Materials:** This study was applied in nature and employed a quasi-experimental design, specifically a pretest-posttest control group design with a three-month follow-up period. The statistical population consisted of all female medical science students in Tehran during the academic year 2020-2021, from which 30 individuals were selected through purposive sampling and randomly assigned into two groups of 15 (15 in the experimental group and 15 in the control group). Data were collected using the Lovibond and Lovibond (1995) Depression, Anxiety, and Stress Scales, the Nolen-Hoeksema and Morrow (1993) Rumination Scale, and the Neff (2003) Self-Compassion Scale. Mindfulness-Based Cognitive Therapy sessions were conducted in 8 weekly 90-minute group sessions. Data were analyzed through analysis of variance.

**Findings:** The results of the data analysis indicated that Mindfulness-Based Cognitive Therapy was effective in reducing rumination, psychological distress syndromes, and in increasing self-compassion among students in the experimental group experiencing psychological distress, compared to the control group students who also experienced psychological distress.

**Conclusion:** Based on the results of this study, health professionals can use Mindfulness-Based Cognitive Therapy to improve rumination, psychological distress syndromes, and self-compassion among students experiencing psychological distress.

**Keywords:** Mindfulness-Based Cognitive Therapy, psychological distress syndromes, rumination, self-compassion.

## 1. Introduction

One of the key indicators for assessing the health of different communities is the mental health of that community. Undoubtedly, mental health plays a significant role in ensuring the dynamism and efficiency of any society. Since students are among the susceptible, elite members of society and the builders of the future of every country, their mental health is of particular importance in learning and increasing scientific awareness (Sokratous et al., 2023). On the other hand, some students may face crises during their academic lives, including financial crisis, mismatch between their field of study and their interests, cultural problems due to being in different cities (place of study), emotional issues, failing in certain courses, and other academic and ethical issues, which have a destructive role in their academic quality and the creation of psychological well-being challenges (Mechraoui, 2023; Moreno-Agostino et al., 2023), leading them to experience psychological distress. Psychological distress is a state of emotional suffering and distress associated with the stresses and demands of life that the individual is unable to cope with healthily and essentially refers to states of depression, anxiety, and stress (Dotti Sani et al., 2023; Ranney et al., 2022). The effects of psychological distress are extensive and cast a shadow over students' lives in cognitive, emotional, and social areas, setting the stage for the emergence of rumination, which worsens the situation (Rahmati et al., 2020).

Rumination plays a significant role in the relationship between life's stressful events. It is considered a coping mechanism for negative mood, involving self-focus, self-reflection, and repetitive and passive focus on negative emotions (Ramezani et al., 2023). Rumination is a negative information processing process that maintains the impact of stressful events (Shaaban, 2020). In fact, rumination is defined as a type of coping style where the individual continually focuses on the symptoms, causes, and consequences of the problem and does not benefit from effective action to solve the issue (Feng et al., 2019). Rumination and worry are two forms of repetitive thinking and contain negative content that leans towards the past and future (Kovács et al., 2020; Nikoogoftar & Sangani, 2020). Individuals with high levels of rumination do not analyze bad and negative situations; instead, they blame and cannot find adequate and effective solutions to their problems (Gorini et al., 2018; Pavandi et al., 2022). However, individuals' responses to life stressors depend on their psychological characteristics, including self-compassion.

Self-compassion is defined as being kind to oneself when things are going poorly, essentially considered as a trait and an effective protective factor for fostering psychological resilience, mental health, and social adaptability (John Jamir Benzon et al., 2022; Shin et al., 2023; Soleymany & Sarifi, 2023). Self-compassion means being connected with one's own suffering and pain instead of avoiding or disconnecting from it, creating a desire to alleviate the pain and being kind to oneself. It also encompasses non-judgmental attitudes towards inadequacies, pain, and failures because the individual experience is part of broader personal experiences (Akbarzadeh & Zaharakar, 2022; Campagna, 2022). Moreover, self-compassion does not confront self-threats because in this cognitive process, the individual does not consider others' evaluations and standards in self-assessment (AghaDavoud Marnani et al., 2022; Aliche, 2023; Aminifar et al., 2023). Self-compassion is a process where individuals' goals are to adapt to problems and adopt a compassionate mindset towards themselves. This entails active adaptation, acceptance of flaws, and awareness of thoughts, emotions, and experiences that are emotionally distressing (Abedini et al., 2022; Movahedrad et al., 2023; Noroozi et al., 2021). Compassionate individuals understand and support themselves, maintaining an open and non-judgmental attitude towards themselves. These individuals can recognize that difficult life circumstances are a natural and common experience among all people (John Jamir Benzon et al., 2022).

Considering the characteristics of psychological distress syndromes, rumination, and self-compassion in the research literature, certain clinical interventions appear more appropriate for improving these factors. One of these interventions is Mindfulness-Based Cognitive Therapy (Bao, 2022). One of the reasons for the increase in psychological and medical research around mindfulness is that it can delineate new dimensions of the mind-body relationship. Results have shown that this type of intervention has been effective in treating both psychological and physical symptoms (Emamverdi & Taher, 2020; Foroozandeh & entezari, 2020). Mindfulness is defined as a state of aroused attention and awareness of what is happening in the present moment (Frostadottir & Dorjee, 2019). In John Kabat-Zinn's definition (2003), mindfulness is defined as training attention in a particular way, purposefully, in the present moment, and nonjudgmentally (Kabat-Zinn, 2003). Mindfulness involves training to pay deliberate attention and full awareness to everything that occurs internally (body, heart, and mind) and externally in

the surrounding environment (Borjali, 2013). Mindfulness, by combining the clarity and alertness of experimental experiences, can create positive changes in happiness and well-being. The main goal of Mindfulness-Based Therapy is for clients to become aware of the effects of mental reactivation through self-monitoring, remain in a mindful state through creating and employing the state of presence, and sit in observation of their thoughts, emotions, or bodily sensations through repeated exercises with intentional direction of attention to a neutral object (e.g., the flow of breath). Mindful individuals perceive internal and external realities freely and without distortion; they have a great ability to deal with a wide range of thoughts, emotions, and experiences (pleasant and unpleasant) (Froozandeh & entezari, 2020; Frostadottir & Dorjee, 2019). Studies have shown that Mindfulness-Based Therapy is effective in treating disorders such as chronic pain, depression, and self-compassion. Additionally, Mindfulness-Based Therapy is effective in reducing stress symptoms in women (Borjali, 2013; Cillessen et al., 2022; Froozandeh & entezari, 2020; Frostadottir & Dorjee, 2019; Grensman et al., 2018; Hertenstein et al., 2012; Hervás et al., 2016; Kim et al., 2010; Kocsis & Newbury-Helps, 2016; Tavakoli & Ebrahimi, 2020).

According to the reviews conducted, so far, no study on a specific population has researched the effectiveness of Mindfulness-Based Cognitive Therapy on psychological distress syndromes, rumination, and self-compassion in students experiencing psychological distress; therefore, the present research has this innovation. Thus, given the stated information, the current research aims to answer the question of whether Mindfulness-Based Cognitive Therapy is effective in improving psychological distress syndromes, rumination, and self-compassion in students experiencing psychological distress.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study is applied in terms of its objectives and quantitative regarding data gathering. The research design is descriptive-correlational, conducted using path analysis. The study population consisted of women experiencing emotional divorce who were attending counseling and psychology centers (both private and public) in District 2 of Tehran during 2020-2021. A convenience non-random sampling method was used for sample selection. In this type of sampling, individuals are selected based on the relative

ease of access to them. Since accurate statistics of women experiencing emotional divorce were not available, those diagnosed with emotional divorce by therapists were selected as samples upon their consent, following visits to counseling and psychology centers in District 2 of Tehran. Considering the correlational nature of the study, the required sample size was estimated at 280 individuals, which increased to 400 to account for a 30% attrition rate. Finally, 368 individuals were selected as the research sample.

Initially, by visiting the website of the Psychology and Counseling Organization, the National Welfare Organization, and the National Youth Organization, and accessing contact numbers and addresses of counseling centers and offices, a telephone contact was established with the centers, and a meeting was requested after discussing with the technical manager and explaining the research objectives. In the meeting, after explaining the ethical principles, technical managers were asked to collaborate by discussing with center counselors and explaining the research goals. Subsequently, by converting questionnaires into electronic formats, they were made available to the centers, and after completion by participants, the questionnaires were collected.

### 2.2. Measures

#### 2.2.1. Psychological Distress

Depression, Anxiety, and Stress Scale (DASS-21) was developed by Lovibond and Lovibond (1995) and measures the severity of psychological problems. It contains three subscales and includes 21 questions with a Likert scale, with 7 questions each related to stress (questions 3-5-10-13-16-17-21), anxiety (questions 2-4-7-9-15-19-20), and depression (questions 1-6-8-11-12-14-18). The respondent must rate the frequency of the mentioned symptoms over the past week using a 4-point scale (ranging from 0 to 3). In Iran, the reliability coefficient of this tool using Cronbach's alpha coefficient in a sample from the general population (1070 people) has been reported as 0.77 for depression, 0.79 for anxiety, and 0.78 for stress, and the criterion validity of the depression subscale with Beck's Depression Inventory was 0.70, the anxiety subscale with the Zung Anxiety Test was 0.67, and the stress subscale with the Perceived Stress Test was 0.49 (Kazemi Rezaei et al., 2023). The Cronbach's alpha coefficient in the current study was found to be 0.98.

2.2.2. *Rumination*

Rumination Response Scale (RRS) was designed and developed by Nolen-Hoeksema and Morrow (1993) to measure rumination. It contains 22 questions and is rated on a four-point Likert scale from never (score 1) to always (score 4), where a score of 33 is the cutoff point for the questionnaire, with scores below 33 indicating low rumination and scores above indicating high rumination. Studies have shown that this questionnaire has appropriate validity and reliability, and apart from content validity, its Cronbach's alpha coefficient is 0.93 (Azizi et al., 2023). The Cronbach's alpha coefficient in the current study was found to be 0.98.

2.2.3. *Self-Compassion*

Self-Compassion Scale (SCS) was created by Neff (2003) to examine individuals' self-compassion, consisting of 26 items and six components: self-kindness (questions 5-12-19-23-26), self-judgment (questions 1-8-11-16-21), common humanity (questions 3-7-10-15), isolation (questions 4-13-18-25), mindfulness (questions 9-14-17-22), and over-identification (questions 2-6-20-24). This questionnaire is scored on a five-point Likert scale from strongly disagree (score 1) to strongly agree (score 5), with higher scores indicating greater self-compassion. Items 1, 2, 4, 6, 8, 11, 13, 16, 18, 20, 21, 24, and 25 are scored in reverse. Khosravi, Sadeghi, and Yabande (2013) have confirmed content validity and reported that the Cronbach's alpha coefficient for self-kindness is 0.81, self-judgment is 0.79, common humanity is 0.84, isolation is 0.85, mindfulness is 0.80, over-identification is 0.83, and the total scale is 0.76 (Soleymany & Sarifi, 2023). The Cronbach's alpha coefficient in the current study was found to be 0.84.

2.3. *Intervention*

2.3.1. *Mindfulness-Based Cognitive Therapy*

Mindfulness-Based Cognitive Therapy (MBCT) involves structured sessions focusing on mindfulness practices,

cognitive behavioral techniques, and discussions to help participants deal with psychological distress, rumination, and self-compassion (Foroozandeh & entezari, 2020; Tavakoli & Ebrahimi, 2020):

Session 1: Introduction and Mindfulness Basics

Introduce MBCT, discuss the concept of mindfulness, and practice mindful breathing.

Session 2: Perception and Creative Responding

Explore the connection between perception and stress, and introduce different mindfulness practices.

Session 3: Mindfulness in Daily Life

Integrate mindfulness into daily activities and routines.

Session 4: Staying Present

Focus on maintaining mindfulness in challenging situations and developing strategies to stay present.

Session 5: Acceptance and Allowing/Letting Be

Discuss acceptance and practice mindfulness exercises that promote letting go of control.

Session 6: Thoughts are Not Facts

Explore the nature of thoughts and practice recognizing and disengaging from unhelpful thought patterns.

Session 7: How Can I Best Take Care of Myself

Discuss self-care and compassion, and explore ways to integrate self-compassion into daily life.

Session 8: Using What Has Been Learned to Deal with Future Moods

Review key concepts, discuss applying mindfulness and cognitive strategies to future challenges, and plan for maintaining mindfulness practice.

2.4. *Data analysis*

Data were analyzed through analysis of variance.

3. **Findings and Results**

The highest percentage of individuals, 17.8%, were aged between 23 and 24 years. The lowest frequencies were for the ages of 18 years at 4.4% and 20 years at 8.9%.

**Table 1**

*Descriptive Statistics*

| Variables              | Minimum | Maximum | Mean    | Standard Deviation | Skewness | Kurtosis |
|------------------------|---------|---------|---------|--------------------|----------|----------|
| Psychological Distress | 1       | 63      | 39.0963 | 19.26364           | -0.455   | -1.414   |
| Stress                 | 0       | 21      | 12.5481 | 6.87274            | -0.447   | -1.366   |
| Anxiety                | 0       | 21      | 12.5111 | 6.34678            | -0.360   | -1.268   |
| Depression             | 1       | 21      | 14.0370 | 6.40476            | -0.475   | -1.369   |

|                     |     |     |         |          |        |        |
|---------------------|-----|-----|---------|----------|--------|--------|
| Self-Compassion     | 61  | 103 | 80.3630 | 5.09552  | 1.182  | 6.141  |
| Self-Kindness       | 5   | 25  | 12.6148 | 5.38930  | 0.434  | -1.128 |
| Self-Judgment       | 5   | 25  | 17.6593 | 5.4937   | -0.424 | -1.167 |
| Common Humanity     | 4   | 20  | 10.8815 | 4.77720  | 0.312  | -1.253 |
| Isolation           | 4   | 20  | 13.6963 | 4.65732  | -0.249 | -1.342 |
| Mindfulness         | 4   | 18  | 10.9407 | 3.39394  | 0.048  | -1.019 |
| Over-Identification | 7   | 20  | 14.5926 | 4.13990  | -0.330 | -1.398 |
| Rumination          | 527 | 88  | 60.8444 | 11.83124 | -0.232 | -1.581 |

Tabachnick and Fidell (1996) believe that if the skewness and kurtosis of the scales are less than |2|, there is no need to transform the scales, and continuing the analysis with these scales does not impair the results. As seen in Table 1, all items of this scale and the total score, in the current sample, had skewness and kurtosis less than |2|.

Mauchly's test of sphericity tests the null hypothesis that the error covariance matrix of the transformed dependent variables is an identity matrix. In this test, if the significance level is less than 0.05, the null hypothesis is rejected, and the

alternative hypothesis is confirmed. If the null hypothesis is rejected, the sphericity of the variance-covariance matrix of the dependent variable cannot be accepted, and it is necessary to use one of the other three tests: Greenhouse-Geisser, Huynh-Feldt, or the lower-bound, which correct the degrees of freedom. In this study, given that the probability value is 0.045, the null hypothesis is rejected. Based on the next three tests, the probability value is higher than 0.05, and the null hypothesis is accepted.

**Table 2**

*Analysis of Variance Results for Psychological Distress*

| Effect             | Value  | F-Value | df | Error df | p        | Partial Eta Squared |
|--------------------|--------|---------|----|----------|----------|---------------------|
| Pillai's Trace     | 0.984  | 396.277 | 2  | 13       | p < .001 | 0.984               |
| Wilks' Lambda      | 0.016  | 396.277 | 2  | 13       | p < .001 | 0.984               |
| Hotelling's Trace  | 60.966 | 396.277 | 2  | 13       | p < .001 | 0.984               |
| Roy's Largest Root | 60.966 | 396.277 | 2  | 13       | p < .001 | 0.984               |

Based on Table 2 and the probability column, the null hypothesis (i.e., the equality of means across pre-test, post-test, and follow-up times) can be rejected because the probability value is less than the minimum first type error probability (0.05). Hence, all test statistics, including Pillai's trace, Wilks' lambda, Hotelling's trace, and the largest root,

also vote to reject the null hypothesis. Therefore, it can be concluded that Mindfulness-Based Cognitive Therapy has an effect on changing psychological distress syndromes in students with psychological distress up to the follow-up stage.

**Table 3**

*Analysis of Variance Results for Rumination*

| Effect             | Value  | F-Value | df | Error df | p        | Partial Eta Squared |
|--------------------|--------|---------|----|----------|----------|---------------------|
| Pillai's Trace     | 0.958  | 147.861 | 2  | 13       | p < .001 | 0.958               |
| Wilks' Lambda      | 0.042  | 147.861 | 2  | 13       | p < .001 | 0.958               |
| Hotelling's Trace  | 22.748 | 147.861 | 2  | 13       | p < .001 | 0.958               |
| Roy's Largest Root | 22.748 | 147.861 | 2  | 13       | p < .001 | 0.958               |

Regarding the variable of rumination, in this study, given that the probability value is 0.682, the null hypothesis of Mauchly's test of sphericity is accepted. Based on the Table 3 and the probability column, the null hypothesis (i.e., the equality of means across pre-test, post-test, and follow-up times) can be rejected because the probability value is less

than the minimum first type error probability (0.05). Therefore, all test statistics, including Pillai's trace, Wilks' lambda, Hotelling's trace, and the largest root, also vote to reject the null hypothesis. Therefore, it can be concluded that Mindfulness-Based Cognitive Therapy has an effect on

rumination in students with psychological distress up to the follow-up stage.

**Table 4**

*Analysis of Variance Results for Self-Compassion*

| Effect             | Value | F-Value | df | Error df | p        | Partial Eta Squared |
|--------------------|-------|---------|----|----------|----------|---------------------|
| Pillai's Trace     | 0.537 | 7.551   | 2  | 13       | p < .001 | 0.537               |
| Wilks' Lambda      | 0.463 | 7.551   | 2  | 13       | p < .001 | 0.537               |
| Hotelling's Trace  | 1.162 | 7.551   | 2  | 13       | p < .001 | 0.537               |
| Roy's Largest Root | 1.162 | 7.551   | 2  | 13       | p < .001 | 0.537               |

Also, regarding the sphericity assumption for the self-compassion variable, in this study, given that the probability value is 0.682, the null hypothesis is accepted.

The test results are shown in [Table 4](#). Based on this table and the probability column, the null hypothesis (i.e., the equality of means across pre-test, post-test, and follow-up times) can be rejected because the probability value is less than the minimum first type error probability (0.05). Therefore, all test statistics, including Pillai's trace, Wilks' lambda, Hotelling's trace, and the largest root, also vote to reject the null hypothesis. Therefore, it can be concluded that Mindfulness-Based Cognitive Therapy has an effect on mindfulness in students with psychological distress up to the follow-up stage.

#### 4. Discussion and Conclusion

The present research aimed to evaluate the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) on psychological distress syndromes, rumination, and self-compassion in students experiencing psychological distress. The first finding of the research indicated that MBCT was effective in reducing psychological distress syndromes in students experiencing psychological distress. Mindfulness not only significantly reduces stress in individuals but also decreases physiological (reduction in cortisol) and psychological levels of stress and anxiety concurrently. This has led to MBCT being considered one of the evidence-based treatments in the area of stress reduction. MBCT can assist individuals in releasing themselves from automatic thoughts, habits, and unhealthy behavioral patterns, and thus plays a significant role in behavioral regulation ([Borjali, 2013](#); [Frostadottir & Dorjee, 2019](#)). MBCT is effective in increasing muscle relaxation and reducing worry, stress, and anxiety. The primary mechanism of mindfulness is attention regulation because focusing attention repeatedly on a neutral stimulus like breathing creates a suitable attentional environment ([Foroozandeh & entezari, 2020](#); [Hertenstein et](#)

[al., 2012](#); [Tavakoli & Ebrahimi, 2020](#)). Mindfulness-based training, by correcting negative cognitions, allows for dialogue and engagement with life's problems and decision-making, reducing negative emotions, pressure, stress, anxiety, and consequently, feelings of energy depletion, fatigue, and sadness, meaning a reduction in depression ([Cillessen et al., 2022](#); [Tavakoli & Ebrahimi, 2020](#)).

The second finding of the research showed that MBCT was effective in reducing rumination in students with psychological distress. This finding is consistent with the results previous studies ([Cillessen et al., 2022](#); [Foroozandeh & entezari, 2020](#); [Frostadottir & Dorjee, 2019](#); [Grensman et al., 2018](#); [Hervás et al., 2016](#); [Kocsis & Newbury-Helps, 2016](#); [Tavakoli & Ebrahimi, 2020](#)). Regarding the effectiveness of MBCT, the primary focus is on present moment mental events in a non-judgmental state, helping individuals to recognize and perceive their negative emotions without avoidance or punishment and without drowning in those emotions, but instead considering mental events as transient and passing ([Foroozandeh & entezari, 2020](#); [Frostadottir & Dorjee, 2019](#); [Grensman et al., 2018](#); [Kocsis & Newbury-Helps, 2016](#)). Researchers believe that MBCT reduces rumination by directing individuals' attention to the present moment, preventing them from putting themselves under the stress and pressure of dealing with negative thoughts, thus reducing rumination ([Cillessen et al., 2022](#); [Tavakoli & Ebrahimi, 2020](#)). This is particularly important as rumination is prevalent across a wide range of psychological issues. Studies showed that MBCT not only reduces rumination in individuals but is also effective in other mood disorders and individuals with high levels of stress, potentially leading to a reduction in rumination, suggesting that rumination is a general and similar construct across psychological disorders with no significant differences in its operational mechanism ([Grensman et al., 2018](#); [Hervás et al., 2016](#); [Kocsis & Newbury-Helps, 2016](#); [Tavakoli & Ebrahimi, 2020](#)).

The third finding of the research showed that MBCT was effective in enhancing self-compassion in students experiencing psychological distress. This finding aligns with the results of previous studies (Abedini & Joibari, 2023; Aliche, 2023; Chan et al., 2022; Conversano et al., 2020; Hollis-Walker & Colosimo, 2011; Kazemi Rezaei et al., 2023; Leeuwerik et al., 2020; Neff, 2016; Neff & Germer, 2013; Raes, 2011; Roeser et al., 2023; Soleymany & Sarifi, 2023; Thimm, 2017). In explaining the effectiveness of MBCT on self-compassion, it can be said that mindfulness, as a process involving paying attention to the present moment in a particular, purposeful, and non-judgmental manner, can play a significant role in improving self-compassion. Mindfulness is not a technique for understanding the past or correcting past wrong ways of thinking but helps in bringing awareness to the underlying stimuli of cognitions, emotions, and behaviors, aiding in understanding the hidden themes of life (Frostadottir & Dorjee, 2019). In the process of mindfulness, the individual realizes that emotions consist of thoughts, bodily sensations, raw feelings, and impulses without judgment or blame. Furthermore, the individual understands that emotions like anger often signify deeper and broader inefficiencies in how we connect with ourselves, others, and the world, indicating that emotions provide internal and external information and are signs that should be observed at the moment without judgment or blame (Tavakoli & Ebrahimi, 2020). Thus, in mindfulness, through non-judgmental attitude training towards emotions and observing their different physical, mental, and impulsive dimensions, people learn not to habitually engage in emotions such as self-unfriendliness but to attend to and react to them differently. Essentially, mindfulness is a method for arranging the mind and acts like a microscope revealing the deepest patterns of the mind; when observed in action, thoughts and emotions disappear on their own, and the individual develops greater self-compassion, thereby logically stating that MBCT is effective in enhancing self-compassion.

## 5. Limitations & Suggestions

Since this research was conducted on female medical science students in Tehran, caution should be exercised by researchers and users of this research's results when generalizing these findings to students from other universities and male students. This study could have been conducted both quantitatively and qualitatively (mixed-methods), but due to the lack of interview conditions, this

possibility was not available in the current study, which was one of the research limitations. Future studies should use mixed-methods designs (qualitative and quantitative), larger sample sizes, and more sophisticated statistical methods that allow for deeper analysis and better conclusions. Also, experts and therapists in the field of anxiety and depression are advised to use MBCT as a model for reducing psychological distress syndromes, rumination, and enhancing self-compassion in working with individuals with psychological distress.

## Acknowledgments

The authors of the article deem it necessary to thank all the individuals who participated in this study.

## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

## Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

## Authors' Contributions

All authors contributed equally.

## References

- Abedini, M., Asadi, S., Avarideh, S., & Mirblouk Bozorgi, A. (2022). Predicting Intimate Attitudes and Marital Happiness Based on self-Compassion and Communication Skills in Married female Students. *Psychological Research*, 2(23), 17-95. <http://rimag.ricest.ac.ir/fa/Article/39534>
- Abedini, M., & Joibari, A. (2023). The Relationship between Resilience and Mindfulness with Psychological Strength in Cancer Patients: The Mediating Role of Self-Compassion. *Basic & Clinical Cancer Research*, 14(1). <https://doi.org/10.18502/bccr.v14i1.14390>

- AghaDavoud Marnani, S., Mirahmadi, L., & Izady, R. (2022). Predicting resilience based on emotional intelligence, cognitive flexibility and compassion in the medical staff of Dr. Ali Shariati Hospital during the outbreak of Covid 19. *Journal of New Strategies in Psychology and Educational Sciences*, 5(13), 127-138. <https://www.magiran.com/paper/2448333>
- Akbarzadeh, S., & Zaharakar, K. (2022). The Prediction of Marital Adjustment based on Cognitive Flexibility and Self-Compassion in Couples [Research]. *Journal of Psychology New Ideas*, 12(16), 1-16. <http://jnip.ir/article-1-683-en.html>
- Aliche, C. J. (2023). The mediating role of positive reappraisal and self-compassion on the relationship between mindfulness and posttraumatic growth in patients with cancer. *South African Journal of Psychology*, 53(1), 111-123. <https://doi.org/10.1177/00812463221113445>
- Aminifar, S., Bahrami Hidaji, M., Kraskian Mujembari, A., Mansoobifar, M., & Peyvandi, P. (2023). The effectiveness of short-term intensive psychodynamic therapy on emotional self-awareness, empathy and self-compassion in psychotherapy trainees [Research]. *Journal of Adolescent and Youth Psychological Studies*, 4(5), 133-149. <https://doi.org/10.61186/jayps.4.5.133>
- Azizi, M., FarokhSiri, Y., Kazemi Bahman abad, F., & Zamani, Z. (2023). The effectiveness of mindfulness-based group therapy on controlling rumination and difficulty in regulating emotions in adolescents with obsessive-compulsive disorder [Research]. *Rooyesh-e-Ravanshenasi Journal(RRJ)*, 12(2), 219-228. <http://frooyesh.ir/article-1-4382-en.html>
- Bao, H. (2022). Intervention Effect of Mindfulness-Based Cognitive Therapy on Diabetes-Related Distress and Self-Care. *Iranian Journal of Public Health*, 51(3), 606.
- Borjali, A. (2013). The effectiveness of mindfulness based on cognitive therapy (MBCT) on reducing the child- parental conflicts in adolescences. *Internasional Journal of Behavioral Sciences*, 7(1), 1-. <https://www.magiran.com/paper/1143161>
- Campagna, D. L. (2022). *The Impacts of Internalized Homonegativity, Shame and Self-Compassion on Quality of Recovery in Gay, Bisexual and Queer Males in Addiction Recovery* Alliant International University]. <https://search.proquest.com/openview/a604460ae38e8c5f377ad61804280808/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Chan, K. K. S., Lee, J. C.-K., Yu, E. K. W., Chan, A. W. Y., Leung, A. N. M., Cheung, R. Y. M., Li, C. W., Kong, R. H.-M., Chen, J., Wan, S. L. Y., Tang, C. H. Y., Yum, Y. N., Jiang, D., Wang, L., & Tse, C. Y. (2022). The Impact of Compassion from Others and Self-compassion on Psychological Distress, Flourishing, and Meaning in Life Among University Students. *Mindfulness*, 13(6), 1490-1498. <https://doi.org/10.1007/s12671-022-01891-x>
- Cillessen, L., Van de Ven, M. O. M., Burk, W. J., Bisseling, E. M., Compen, F. R., Van der Lee, M. L., & Speckens, A. E. M. (2022). Temporal Changes in Mindfulness Skills and Positive and Negative Affect and Their Interrelationships During Mindfulness-Based Cognitive Therapy for Cancer Patients. *Mindfulness*, 13(7), 1745-1756. <https://doi.org/10.1007/s12671-022-01912-9>
- Conversano, C., Ciacchini, R., Orrù, G., Giuseppe, M. D., Gemignani, A., & Poli, A. (2020). Mindfulness, Compassion, and Self-Compassion Among Health Care Professionals: What's New? A Systematic Review. *Frontiers in psychology*. <https://doi.org/10.3389/fpsyg.2020.01683>
- Dotti Sani, G. M., Molteni, F., & Sarti, S. (2023). Boys Do Cry: Age and Gender Differences in Psycho-Physiological Distress during the COVID-19 Pandemic in Italy. *Applied Research in Quality of Life*, 18(2), 931-956. <https://doi.org/10.1007/s11482-022-10120-5>
- Emamverdi, P., & Taher, M. (2020). The role of cognitive flexibility and mindfulness in predicting student procrastination. *Journal of School Psychology*, 9(3), 19-34. <https://doi.org/10.22098/JSP.2020.1062>
- Foroozandeh, E., & entezari, s. (2020). Effectiveness of Mindfulness-based Cognitive Therapy on Resilience and Difficulties in Emotion Regulation among Divorced Women in Tehran. *Women Studies*, 11(31), 25-42. <https://doi.org/10.30465/ws.2020.5123>
- Frostadottir, A. D., & Dorjee, D. (2019). Effects of Mindfulness Based Cognitive Therapy (MBCT) and Compassion Focused Therapy (CFT) on Symptom Change, Mindfulness, Self-Compassion, and Rumination in Clients With Depression, Anxiety, and Stress [Original Research]. *Frontiers in psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.01099>
- Gorini, A., Riva, S., Marzorati, C., Cropley, M., & Pravettoni, G. (2018). Rumination in breast and lung cancer patients: Preliminary data within an Italian sample. *Psycho-Oncology*, 27(2), 703-705. <https://doi.org/10.1002/pon.4468>
- Grensman, A., Acharya, B. D., Wändell, P., Nilsson, G. H., Falkenberg, T., Sundin, Ö., & Werner, S. (2018). Effect of traditional yoga, mindfulness-based cognitive therapy, and cognitive behavioral therapy, on health related quality of life: a randomized controlled trial on patients on sick leave because of burnout. *BMC Complementary and Alternative Medicine*, 18(1), 80. <https://doi.org/10.1186/s12906-018-2141-9>
- Hertenstein, E., Rose, N., Voderholzer, U., Heidenreich, T., Nissen, C., Thiel, N., Herbst, N., & Külz, A. K. (2012). Mindfulness-based cognitive therapy in obsessive-compulsive disorder – A qualitative study on patients' experiences. *BMC psychiatry*, 12(1), 185. <https://doi.org/10.1186/1471-244X-12-185>
- Hervás, G., Cebolla, A., & Soler, J. (2016). Intervenciones psicológicas basadas en mindfulness y sus beneficios: estado actual de la cuestión. *Clínica y Salud*, 27(3), 115-124. <https://doi.org/10.1016/j.clysa.2016.09.002>
- Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and individual differences*, 50(2), 222-227. <https://doi.org/10.1016/j.paid.2010.09.033>
- John Jamir Benzoni, R. A., Maria, A., & Mascarenhas, J. (2022). Self-Compassion Promotes Mental Help-Seeking in Older, Not in Younger, Counselors. *Current Psychology*. <https://doi.org/10.1007/s12144-022-03054-6>
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144-156. <https://doi.org/10.1093/clipsy.bpg016>
- Kazemi Rezaei, S. V., Salehi, A., & Kazemi rezaei, S. V. (2023). The Effect of Emotional Regulation Skills Training Based on Self-compassion on Reduce Psychological Distress in Female First High School Students [Original Research]. *Bimonthly of Education Strategies in Medical Sciences*, 16(1), 10-20. <http://edcbmj.ir/article-1-2639-en.html>
- Kim, B., Lee, S.-H., Kim, Y. W., Choi, T. K., Yook, K., Suh, S. Y., Cho, S. J., & Yook, K.-H. (2010). Effectiveness of a mindfulness-based cognitive therapy program as an adjunct to pharmacotherapy in patients with panic disorder. *Journal of anxiety disorders*, 24(6), 590-595. <https://doi.org/10.1016/j.janxdis.2010.03.019>
- Kocsis, A., & Newbury-Helps, J. (2016). Mindfulness in Sex Therapy and Intimate Relationships (MSIR): Clinical Protocol and Theory Development. *Mindfulness*, 7(3), 690-699. <https://doi.org/10.1007/s12671-016-0506-z>



- Kovács, L. N., Takacs, Z. K., Tóth, Z., Simon, E., Schmelowszky, Á., & Kökönyei, G. (2020). Rumination in major depressive and bipolar disorder – a meta-analysis. *Journal of affective disorders*, 276, 1131-1141. <https://doi.org/10.1016/j.jad.2020.07.131>
- Leeuwerik, T., Cavanagh, K., & Strauss, C. (2020). The Association of Trait Mindfulness and Self-compassion with Obsessive-Compulsive Disorder Symptoms: Results from a Large Survey with Treatment-Seeking Adults. *Cognitive therapy and research*, 44(1), 120-135. <https://doi.org/10.1007/s10608-019-10049-4>
- Mechraoui, O. (2023). The Relationship Between Nomophobia and Psychological Distress in Tunisian Students: The Moderating Effect of Physical Activity. <https://doi.org/10.21203/rs.3.rs-2963380/v1>
- Moreno-Agostino, D., Fisher, H. L., Goodman, A., Hatch, S. L., Morgan, C., Richards, M., Das-Munshi, J., & Ploubidis, G. B. (2023). Long-term psychological distress trajectories and the COVID-19 pandemic in three British birth cohorts: A multi-cohort study. *PLOS Medicine*, 20(4), e1004145. <https://doi.org/10.1371/journal.pmed.1004145>
- Movahedrad, F., Seyed Alitabar, S. H., Mohammadi, A., & Hoseinifard, V. (2023). The effectiveness of strength-based counseling on the tendency toward marital infidelity and self-compassion of conflicted couples. *Journal of Assessment and Research in Applied Counseling*, 5(2), 8-14. <http://jarac.iranmehrs.ac.ir/article-1-161-en.html>
- Neff, K. D. (2016). The Self-Compassion Scale is a Valid and Theoretically Coherent Measure of Self-Compassion. *Mindfulness*, 7(1), 264-274. <https://doi.org/10.1007/s12671-015-0479-3>
- Neff, K. D., & Germer, C. K. (2013). A Pilot Study and Randomized Controlled Trial of the Mindful Self-Compassion Program. *Journal of Clinical Psychology*, 69(1), 28-44. <https://doi.org/10.1002/jclp.21923>
- Nikoogoftar, M., & Sangani, A. (2020). The Effectiveness of schema therapy on rumination, loneliness and general health of divorced women. *Knowledge & Research in Applied Psychology*, 21(2), 1-12. <https://doi.org/10.30486/jsrp.2019.570365.1385>
- Noroozi, B., Nouran, O. G., Abolghasemi, A., & Mousazadeh, T. (2021). Comparison of the Effectiveness of Resilience Training and Self-Compassion Training on the General Health and Academic Burnout in Students With Depression Symptoms. *Quarterly Journal of Child Mental Health*. <https://doi.org/10.52547/jcmh.7.4.3>
- Pavandi, M., Naderi, F., Heidari, A., & Ehtesham Zadeh, P. (2022). The Effectiveness of strategic solution oriented Therapy, The Meditation Technique and Meta Cognitive Therapy on Mind wandering and Rumination among mothers of children with an autism spectrum disorder. *International Journal of Pediatrics*, 10(4), 15716-15729. <https://doi.org/10.22038/ijp.2020.51764.4118>
- Raes, F. (2011). The Effect of Self-Compassion on the Development of Depression Symptoms in a Non-clinical Sample. *Mindfulness*, 2(1), 33-36. <https://doi.org/10.1007/s12671-011-0040-y>
- Rahmati, S., Hooshmani, R., Mousavi Anzehaei, A. S., & Dehaghin, V. (2020). Effectiveness of Group Training of Transactional Analysis (TA) on Distress Tolerance and Social Problem Solving of Delinquent Adolescents. *Social Psychology Research*, 10(37), 45-64. <https://doi.org/10.22034/spr.2020.109696>
- Ramezani, M., Ghorbaninezhad, M., Borji Khangheshlaghi, B., & Naimabady, Z. (2023). Examining the Role of Attachment Styles, Rumination and Psychological Coherence in Predicting the Intimacy Attitude and Quality Of Life of Nurses [Applicable]. *Quarterly Journal of Nursing Management*, 11(4), 69-80. <http://ijnv.ir/article-1-998-en.html>
- Ranney, R. M., Berenz, E., Rappaport, L. M., Amstadter, A., Dick, D., & Group, S. f. S. W. (2022). Anxiety sensitivity and distress tolerance predict changes in internalizing symptoms in individuals exposed to interpersonal trauma. *Cognitive therapy and research*, 46(1), 217-231. <https://doi.org/s10608-021-10234-4>
- Roeser, R. W., Greenberg, M. T., Frazier, T., Galla, B. M., Semenov, A. D., & Warren, M. T. (2023). Beyond All Splits: Envisioning the Next Generation of Science on Mindfulness and Compassion in Schools for Students. *Mindfulness*, 14(2), 239-254. <https://doi.org/10.1007/s12671-022-02017-z>
- Shaaban, M. (2020). *Rumination*. <http://drmandanashaban.com>
- Shin, H., Oh, H.-K., Song, Y., Kim, Y. S., Hur, B. Y., Kim, D.-W., & Kang, S. B. (2023). Efficacy of the Online Mindful Self-Compassion for Healthcare Communities Program for Surgical Trainees: A Prospective Pilot Study. *Annals of Surgical Treatment and Research*. <https://doi.org/10.4174/astr.2023.104.4.229>
- Sokratous, S., Alexandrou, G., Zavrou, R., & Karanikola, M. (2023). Mental health status and stressful life events among postgraduate nursing students in Cyprus: a cross-sectional descriptive correlational study. *BMC Nursing*, 22(1), 294. <https://doi.org/10.1186/s12912-023-01463-x>
- Soleymany, E., & Sarifi, P. (2023). The Role of Self-Compassion, Emotion Regulation, and Corona Anxiety in Predicting the Self-Care Behaviors of Family Members of People with Covid-19. *Health Psychology*, 11(44), 121-136. <https://doi.org/10.30473/hpj.2023.61062.5361>
- Tavakoli, O., & Ebrahimi, S. (2020). The effectiveness of mindfulness-based cognitive therapy (MBCT) on academic motivation, self-efficacy and academic procrastination of students. *Journal of new developments in psychology, educational sciences and education*, 3(28), 27-41. <https://www.jonapte.ir/fa/showart-29e7004637e710585a631830db312b50>
- Thimm, J. C. (2017). Relationships between early maladaptive schemas, mindfulness, self-compassion, and psychological distress. *International journal of psychology and psychological therapy*, 17(1), 3-17. [https://www.researchgate.net/publication/315977623\\_Relationships\\_between\\_early\\_maladaptive\\_schemas\\_mindfulness\\_self-compassion\\_and\\_psychological\\_distress](https://www.researchgate.net/publication/315977623_Relationships_between_early_maladaptive_schemas_mindfulness_self-compassion_and_psychological_distress)