






The Effectiveness of Mindfulness-Based Cognitive Therapy on Distress Tolerance and Perceived Stress in Women with Social Anxiety Disorder

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Article Info

Article type:

Original Research

How to cite this article:

Ebrahimi Alavige, E., Azizi, R., Siadati, S. E., Abedi Firouzjaei, F., & Karimi, S. (2026). The Effectiveness of Mindfulness-Based Cognitive Therapy on Distress Tolerance and Perceived Stress in Women with Social Anxiety Disorder. *Psychology of Woman Journal*, 7(5), 1-10.

<http://dx.doi.org/10.61838/kman.pwj.5376>



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ABSTRACT

Objective: The present study aimed to determine the effectiveness of mindfulness-based cognitive therapy on distress tolerance and perceived stress in women with social anxiety disorder.

Methods and Materials: The present study employed a quasi-experimental design with a pretest-posttest control group. The statistical population consisted of women diagnosed with social anxiety disorder based on DSM-5 criteria in Tehran in 2024. A total of 30 participants were selected through convenience sampling and randomly assigned into an experimental group (n = 15) and a control group (n = 15). Data collection instruments included the Distress Tolerance Scale developed by Simmons and Gaher, the Perceived Stress Scale developed by Cohen et al., and the Social Anxiety Questionnaire developed by Connor. The experimental group participated in mindfulness-based cognitive therapy sessions for 8 consecutive weeks, with one 90-minute session per week, while the control group did not receive any intervention. Data were analyzed using descriptive statistics and multivariate analysis of covariance (MANCOVA) in SPSS software after examining assumptions of normality and homogeneity of variances.

Findings: The results of multivariate analysis of covariance indicated a significant difference between the experimental and control groups in distress tolerance and perceived stress at the posttest stage ($p < 0.01$). Mindfulness-based cognitive therapy significantly increased distress tolerance and reduced perceived stress among women with social anxiety disorder. The findings demonstrated significant effects for distress tolerance ($F = 72.851, p < 0.01, \eta^2 = 0.622$) and perceived stress ($F = 47.341, p < 0.01, \eta^2 = 0.614$). Statistical power for both variables was reported as 1.00, indicating high explanatory strength of the intervention.

Conclusion: The findings suggest that mindfulness-based cognitive therapy is an effective psychological intervention for improving distress tolerance and reducing perceived stress in women with social anxiety disorder.

Keywords: *Mindfulness-based cognitive therapy, distress tolerance, perceived stress, women with social anxiety disorder.*

1. Introduction

Social anxiety disorder is one of the most prevalent and debilitating anxiety disorders, characterized by persistent fear of social situations, heightened sensitivity to negative evaluation, avoidance behaviors, emotional dysregulation, and significant impairment in interpersonal, occupational, and psychological functioning. Individuals with social anxiety disorder often experience chronic emotional distress, cognitive rumination, heightened physiological arousal, and elevated levels of perceived stress, all of which negatively influence quality of life and psychosocial adaptation. Contemporary psychological literature emphasizes that social anxiety disorder is not limited to fear-related symptoms alone, but also involves broad dysfunctions in emotion regulation, distress tolerance, attentional control, and self-referential cognitive processing (Diamond, 2025; Shapiro et al., 2024). Women with social anxiety disorder may be particularly vulnerable to heightened perceived stress due to sociocultural expectations, interpersonal sensitivity, emotional suppression, and greater susceptibility to internalizing symptoms. Consequently, identifying effective interventions for reducing perceived stress and improving distress tolerance among women with social anxiety disorder has become an important area of clinical psychology research.

Distress tolerance refers to an individual's capacity to withstand negative emotional states and aversive psychological experiences without engaging in maladaptive coping behaviors. Low distress tolerance has been associated with anxiety disorders, depressive symptoms, emotional avoidance, cognitive rigidity, and maladaptive behavioral responses. Individuals with social anxiety disorder frequently demonstrate limited tolerance for emotional discomfort, which contributes to avoidance of social situations and reinforcement of anxious cognitions. In addition, perceived stress reflects an individual's appraisal of life situations as overwhelming, uncontrollable, and psychologically taxing. High perceived stress is strongly associated with emotional exhaustion, anxiety severity, impaired cognitive functioning, and reduced resilience. Recent evidence suggests that perceived stress and distress tolerance are closely interconnected constructs influencing psychological well-being and psychopathology (Nicholson et al., 2025; Shchaslyvyi et al., 2024). Chronic exposure to

stress may reduce emotional flexibility and coping capacity, thereby increasing vulnerability to anxiety-related disorders and emotional dysregulation.

Over the past decades, cognitive-behavioral therapies have been widely used for the treatment of anxiety disorders; however, the emergence of third-wave psychological interventions has introduced more integrative and acceptance-oriented approaches emphasizing mindfulness, emotional awareness, and cognitive flexibility. Among these interventions, mindfulness-based cognitive therapy (MBCT) has received considerable empirical attention due to its effectiveness in reducing anxiety, stress, rumination, and emotional dysregulation (Diamond, 2025; Shamblaw & Segal, 2022). MBCT integrates principles of cognitive therapy with mindfulness meditation practices in order to help individuals develop nonjudgmental awareness of thoughts, emotions, and bodily sensations. Rather than attempting to suppress or eliminate distressing experiences, mindfulness-based interventions encourage acceptance, present-moment awareness, and adaptive cognitive disengagement from maladaptive thought patterns (Kraemer et al., 2022; Shapiro et al., 2024).

Mindfulness-based interventions are grounded in the assumption that many psychological disorders are maintained by habitual cognitive reactivity, experiential avoidance, and maladaptive emotional responses. Through mindfulness training, individuals learn to observe their thoughts and emotions without automatic identification or reactive judgment. This process facilitates emotional regulation, attentional control, resilience, and distress tolerance. Research has shown that mindfulness practices can significantly alter cognitive-emotional processing and reduce physiological stress responses (Arrastía-Chisholm et al., 2024; Nicholson et al., 2025). Moreover, mindfulness-based interventions have demonstrated effectiveness across a wide range of clinical and non-clinical populations, including individuals with mood disorders, chronic stress, medical conditions, substance use disorders, and anxiety-related problems (Kraemer et al., 2022; Shamblaw & Segal, 2022; Shapiro et al., 2024).

Recent studies have increasingly highlighted the role of MBCT in improving emotional functioning and reducing psychological distress. For example, research demonstrated that mindfulness-based interventions can significantly reduce emotional distress and perceived stress while

improving psychological flexibility and adaptive coping mechanisms (Khataei et al., 2023; Wardęszkiewicz & Holas, 2023). Similarly, online and internet-delivered MBCT interventions have shown promising results in decreasing perceived stress and emotional dysregulation among various populations, suggesting that mindfulness skills may effectively target cognitive and affective vulnerabilities associated with anxiety disorders (Holas & Wardęszkiewicz, 2025; Wardęszkiewicz & Holas, 2023). Holas and Wardęszkiewicz further reported that self-compassion and resilience mediated the beneficial effects of MBCT interventions, indicating that mindfulness practices may enhance emotional adaptation through strengthening psychological resilience and compassionate self-awareness (Holas & Wardęszkiewicz, 2025).

The effectiveness of mindfulness-based interventions has also been examined in populations experiencing significant emotional and physiological distress. Research on patients with chronic pulmonary diseases showed that mindfulness-based interventions reduced anxiety, depression, stress, and emotional burden while improving quality of life (Bramanti et al., 2025). Similarly, mindfulness programs have been associated with reductions in stress and anxiety among pregnant women, indicating their broad applicability in emotionally vulnerable populations (Vázquez-Lara et al., 2025). In another study, mindfulness-based cognitive therapy significantly improved rumination and post-traumatic growth among patients with acute cerebral infarction, emphasizing the intervention's role in adaptive cognitive-emotional transformation (Zhang et al., 2025). These findings support the notion that MBCT not only alleviates psychopathological symptoms but also enhances emotional resilience and cognitive adaptation.

A growing body of evidence has demonstrated that mindfulness-based interventions are effective in reducing maladaptive cognitive processes such as rumination, catastrophic thinking, and emotional avoidance. Rumination is particularly relevant in social anxiety disorder because socially anxious individuals often engage in repetitive negative self-focused thinking before and after social interactions. Such cognitive processes intensify anxiety symptoms and impair emotional recovery following stressful situations. Mindfulness training interrupts these repetitive cognitive cycles by promoting present-focused awareness and reducing automatic cognitive reactivity (Diamond, 2025; Khavari et al., 2024). Research among students with psychological distress demonstrated that MBCT significantly reduced rumination and psychological

distress while improving self-compassion (Khavari et al., 2024). Likewise, MBCT interventions targeting perceived stress have shown effectiveness in enhancing emotional regulation capacities and reducing stress-related symptoms (Khataei et al., 2023).

In recent years, the role of mindfulness-based approaches in stress reduction has become increasingly important due to the growing prevalence of chronic stress-related psychological disorders. Chronic stress has been associated with dysregulation of neurobiological stress pathways, heightened inflammatory responses, impaired emotional regulation, and increased vulnerability to anxiety and depressive disorders (Shchaslyvyi et al., 2024). Behavioral stress reduction programs, particularly mindfulness-oriented interventions, appear capable of reducing the psychological and physiological consequences of chronic stress by enhancing self-regulation and cognitive flexibility (Nicholson et al., 2025; Shchaslyvyi et al., 2024). Furthermore, mindfulness interventions have shown beneficial effects in medically vulnerable populations, including individuals with cancer, cardiological conditions, neurological disorders, and chronic gastrointestinal illnesses (Carney et al., 2023; Farzanegan et al., 2025; Marinovic & Hunter, 2022; Szczepanowski et al., 2022).

Research has also expanded the application of mindfulness-based interventions to behavioral and technology-related disorders. Kim et al. explored mindfulness-based cognitive therapy as an intervention for internet gaming disorder and found that mindfulness-oriented techniques could effectively reduce maladaptive behavioral engagement and improve emotional self-regulation (Kim et al., 2024). Similarly, studies investigating mindfulness interventions for substance use disorders have suggested that mindfulness can improve interoceptive awareness and reduce maladaptive coping behaviors associated with emotional dysregulation (May et al., 2022). These findings collectively suggest that MBCT has broad transdiagnostic utility in targeting emotional dysregulation, maladaptive coping, and stress vulnerability.

Another important area of research concerns the integration of mindfulness into digital and telehealth interventions. Internet-delivered and tele-mindfulness interventions have demonstrated effectiveness in reducing emotional distress, perceived stress, and caregiver burden, suggesting that mindfulness skills can be effectively adapted to modern healthcare contexts (Wardęszkiewicz & Holas, 2023; Zarei et al., 2022). Moreover, emerging technologies such as artificial intelligence-based psychotherapy have

begun incorporating mindfulness principles into therapeutic support systems. For instance, an empirical study examining ChatGPT as a psychotherapist for anxiety disorders found that AI-assisted therapeutic interactions may contribute to reductions in anxiety symptoms and emotional distress when combined with evidence-based psychological strategies (Alanzi et al., 2024). Such developments indicate the expanding relevance of mindfulness-oriented approaches in contemporary mental health care.

The mechanisms underlying MBCT effectiveness have been extensively investigated in recent literature. Studies suggest that mindfulness interventions improve emotional functioning through multiple pathways, including enhancement of self-compassion, resilience, attentional regulation, emotional awareness, and cognitive decentering (Carney et al., 2023; Holas & Wardęszkiewicz, 2025). By fostering acceptance and reducing experiential avoidance, MBCT may increase individuals' ability to tolerate emotional discomfort without engaging in maladaptive coping strategies. This process is especially important for individuals with social anxiety disorder, who frequently experience intense emotional discomfort during social interactions and often rely on avoidance behaviors to regulate anxiety. Increased distress tolerance may therefore reduce the reinforcing cycle of social avoidance and anxiety maintenance (Khavari et al., 2024; Roodmajani et al., 2024).

Comparative studies have further demonstrated that mindfulness-based cognitive therapy may outperform or complement other psychological interventions in improving emotional functioning. Roodmajani et al. reported that MBCT significantly improved emotion regulation and distress tolerance when compared with integrated transdiagnostic psychotherapy (Roodmajani et al., 2024). Similarly, mindfulness-oriented counseling interventions have shown positive effects on quality of life, emotional well-being, and stress reduction across different populations (Baghbani et al., 2023; Slocum & Bilican, 2025). The integration of mindfulness with cognitive and somatic therapeutic approaches appears particularly promising for addressing anxiety-related psychopathology and chronic emotional distress (He et al., 2025; Nicholson et al., 2025).

Despite growing evidence supporting mindfulness-based interventions, relatively limited research has specifically focused on women with social anxiety disorder, particularly regarding the combined outcomes of distress tolerance and perceived stress. Most previous studies have examined general anxiety symptoms, depression, or emotional dysregulation, while fewer investigations have addressed the

broader psychological capacities associated with adaptive emotional functioning. Considering the central role of distress intolerance and perceived stress in the maintenance and exacerbation of social anxiety symptoms, further research is needed to evaluate whether MBCT can effectively improve these variables in socially anxious women. Additionally, cultural and contextual differences may influence treatment outcomes, highlighting the importance of conducting research within diverse populations and settings (Farzanegan et al., 2025; Zeng et al., 2025).

Given the increasing prevalence of anxiety-related disorders and the growing emphasis on non-pharmacological interventions, mindfulness-based cognitive therapy may represent an effective and accessible therapeutic approach for women experiencing social anxiety disorder. By enhancing emotional awareness, reducing maladaptive cognitive processing, and increasing tolerance of distressing emotional experiences, MBCT may contribute to meaningful improvements in psychological functioning and stress management. Therefore, the present study aimed to determine the effectiveness of mindfulness-based cognitive therapy on distress tolerance and perceived stress in women with social anxiety disorder.

2. Methods and Materials

2.1. Study design and Participant

The present study employed a quasi-experimental design with a pretest-posttest control group. The statistical population of the study consisted of women with social anxiety disorder (based on DSM-5 criteria) in Tehran in 2024. From this population, 30 participants were selected through convenience sampling and were randomly assigned to an experimental group (15 participants) and a control group (15 participants). The instruments used for data collection included the Distress Tolerance Questionnaire, the Perceived Stress Scale, and the Social Anxiety Questionnaire. Participants in the experimental group received mindfulness-based cognitive therapy for 8 weeks, with one 90-minute treatment session per week, whereas the control group did not receive any specific intervention.

2.2. Measures

Simmons and Gaher Distress Tolerance Scale (2005): The Distress Tolerance Scale is a self-report measure developed by Simmons and Gaher in 2005. The scale

consists of 15 items and four subscales. The Tolerance subscale (tolerance of distress) is measured by items 1, 3, and 5. The Absorption subscale (absorption by negative emotions) is measured by items 2, 4, and 15. The Appraisal subscale (subjective appraisal) is measured by items 6, 7, 9, 10, 11, and 12. The Regulation subscale (regulation efforts for relief) is measured by items 8, 13, and 14. Higher scores indicate better functioning and greater distress tolerance. In Alavi's study (2011), Cronbach's alpha coefficients for these subscales were reported as 0.72, 0.82, 0.78, and 0.70, respectively, and 0.82 for the total scale. Furthermore, the scale demonstrated acceptable criterion-related and convergent validity. The results of the present study also indicated high internal consistency reliability for the total scale (0.71).

Perceived Stress Scale: The Perceived Stress Scale was developed by Cohen, Kamarck, and Mermelstein in 1983 and consists of 14 items and two subscales: perceived self-efficacy and perceived helplessness. This questionnaire has three versions containing 4, 10, and 14 items and is used to assess general perceived stress experienced during the previous month. It evaluates thoughts and feelings regarding stressful events, control, coping, psychological pressure, and experienced stress. In the present study, the 14-item version was used. Scoring is based on a five-point Likert scale ranging from never (0) to always (4). Items 4, 5, 6, 7, 9, 10, and 13 are reverse scored. The total score is calculated by summing the scores of all items. Higher scores indicate higher levels of perceived stress. The minimum obtainable score is 0 and the maximum score is 56. The content validity of this questionnaire in Iran was confirmed in the study conducted by Mazloom et al. (2011). Cronbach's alpha coefficients for this scale were reported as 0.85, 0.84, and 0.86, and the test-retest reliability coefficient was 0.85. Amin Yazdi (1998) reported a Cronbach's alpha coefficient of 0.81 for this scale.

Social Anxiety Questionnaire: This questionnaire was developed by Connor in 2004. The questionnaire contains 17 items assessing fear, avoidance, and physiological symptoms associated with social phobia. Each item is rated on a five-point scale including "not at all" (1), "a little" (2), "somewhat" (3), "much" (4), and "very much" (5). Questionnaire items are scored from 0 to 4. The scores of all items are summed to obtain a total score ranging from 17 to 68. The questionnaire includes three subscales: Fear (items 1, 3, 5, 10, 14, and 15), Avoidance (items 4, 6, 8, 9, 11, 12, and 16), and Physiological Symptoms (items 2, 7, 13, and 17). Turner et al. (1989) assessed the reliability of the

questionnaire using the test-retest method with a two-week interval and reported a reliability coefficient of 0.86. In addition, Osman et al. (1996) reported Cronbach's alpha coefficients ranging from 0.94 to 0.96 for internal consistency reliability. In the study conducted by Bayani et al. (2012), Cronbach's alpha coefficient was reported as 0.77, and the validity of the questionnaire was also confirmed.

2.3. Intervention

The mindfulness-based cognitive therapy program was implemented for the participants in the experimental group over the course of 8 consecutive weeks in the form of one 90-minute session per week. The therapeutic intervention was conducted in a group format and focused on increasing present-moment awareness, reducing maladaptive cognitive patterns, and enhancing emotional regulation and distress tolerance. During the initial sessions, participants were introduced to the principles of mindfulness, the nature of automatic thoughts, and the relationship between cognition, emotion, and behavior in social anxiety disorder. Subsequent sessions included mindfulness breathing exercises, body scan techniques, mindful observation of thoughts and emotions, cognitive restructuring, identification of dysfunctional beliefs related to social evaluation, acceptance of internal experiences without judgment, and training in emotional awareness. Participants were gradually encouraged to recognize anxiety-provoking situations, reduce experiential avoidance, and develop adaptive coping strategies through mindfulness practices. Homework assignments, daily mindfulness exercises, and reflective practices were also provided throughout the intervention process in order to strengthen the transfer of therapeutic skills into daily life situations. The final sessions emphasized relapse prevention, maintenance of acquired coping skills, and integration of mindfulness techniques into participants' interpersonal and social functioning.

2.4. Data Analysis

Data analysis was performed using descriptive statistics including means and standard deviations, as well as inferential statistics. Multivariate analysis of covariance (MANCOVA) was used to examine the effectiveness of mindfulness-based cognitive therapy on distress tolerance and perceived stress while controlling for pretest scores. Prior to conducting the analysis, assumptions of normality and homogeneity of variances were assessed using the

Shapiro–Wilk test and Levene’s test, respectively. Statistical analyses were conducted using SPSS software, and the significance level was set at 0.01.

Table 1

Means and Standard Deviations of Distress Tolerance and Perceived Stress Variables in the Experimental and Control Groups

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Distress Tolerance	Experimental	37.23	5.86	49.68	6.97
	Control	36.47	5.67	35.41	5.63
Perceived Stress	Experimental	46.32	6.35	33.53	4.74
	Control	47.14	6.67	44.47	6.45

Based on the results of the Shapiro–Wilk test, the significance levels obtained for the research variables indicated that the distribution of the variables could be

3. Findings and Results

Table 1 presents the descriptive statistics of distress tolerance and perceived stress in the experimental and control groups.

considered approximately normal. Furthermore, according to Levene’s test, the assumption of homogeneity of variances across groups was satisfied.

Table 2

Results of the MANCOVA Test for the Study Variables

Source of Variation	Variables	Sum of Squares	df	Mean Square	F	Significance	Effect Size	Statistical Power
Group	Distress Tolerance	1053.388	1	1053.388	72.851	0.01	0.622	1.00
	Perceived Stress	1366.534	1	1366.534	47.341	0.01	0.614	1.00

According to Table 2, the results indicated that there was a significant difference at the 0.01 level between the experimental and control groups in the pretest and posttest scores of the distress tolerance and perceived stress questionnaires among women. Overall, the findings demonstrated that mindfulness-based cognitive therapy had a significant effect on distress tolerance and perceived stress in women with social anxiety disorder.

4. Discussion

The present study aimed to determine the effectiveness of mindfulness-based cognitive therapy on distress tolerance and perceived stress in women with social anxiety disorder. The findings demonstrated that mindfulness-based cognitive therapy significantly increased distress tolerance and reduced perceived stress among participants in the experimental group compared with the control group. The observed improvements indicate that mindfulness-oriented cognitive interventions can effectively influence emotional regulation capacities and stress-related cognitive processes among women experiencing symptoms of social anxiety disorder. These findings are consistent with contemporary theoretical perspectives emphasizing the importance of mindfulness-based approaches in reducing maladaptive

emotional reactivity, cognitive rigidity, and experiential avoidance among individuals with anxiety-related psychopathology (Diamond, 2025; Shapiro et al., 2024).

One of the major findings of the present study was the significant increase in distress tolerance following participation in mindfulness-based cognitive therapy sessions. Distress tolerance is considered a fundamental psychological capacity associated with emotional endurance, adaptive coping, and resilience in stressful situations. Individuals with social anxiety disorder often demonstrate heightened emotional sensitivity and difficulty tolerating uncomfortable internal experiences, which contribute to avoidance behaviors and maintenance of anxiety symptoms. The improvement in distress tolerance observed in the present study suggests that mindfulness-based cognitive therapy may enhance participants’ ability to experience negative thoughts and emotions without engaging in maladaptive coping responses or avoidance behaviors. These findings align with previous studies indicating that mindfulness-oriented interventions improve emotional flexibility and distress tolerance by fostering nonjudgmental awareness and acceptance of internal experiences (Khavari et al., 2024; Roodmajani et al., 2024).

The increase in distress tolerance may be explained by several therapeutic mechanisms inherent in mindfulness-

based cognitive therapy. During mindfulness training, individuals learn to observe distressing thoughts, emotions, and physiological sensations without attempting to suppress or avoid them. This process gradually weakens automatic emotional reactivity and increases psychological flexibility. Through repeated mindfulness practices, participants may develop greater tolerance for emotional discomfort and reduced fear of anxiety-related experiences. The development of present-moment awareness may also reduce catastrophic interpretations of emotional experiences and strengthen adaptive emotional processing. These mechanisms are supported by research indicating that mindfulness-based interventions improve resilience, self-compassion, and emotional regulation capacities (Carney et al., 2023; Holas & Wardęszkiewicz, 2025). Holas and Wardęszkiewicz specifically reported that self-compassion and resilience mediated the beneficial effects of internet-delivered mindfulness-based cognitive therapy, suggesting that mindfulness interventions strengthen adaptive emotional functioning through multiple interconnected psychological processes (Holas & Wardęszkiewicz, 2025).

Another important finding of the present study was the significant reduction in perceived stress among women with social anxiety disorder following mindfulness-based cognitive therapy. Individuals with social anxiety disorder commonly perceive social interactions and interpersonal situations as threatening and uncontrollable, resulting in heightened psychological stress and chronic emotional tension. Mindfulness-based cognitive therapy appears to reduce perceived stress by altering individuals' cognitive appraisal of stressful experiences. Rather than interpreting social situations as overwhelming or dangerous, participants may learn to approach such experiences with greater awareness, acceptance, and emotional balance. This interpretation is consistent with the cognitive and attentional models of mindfulness, which emphasize decentering from maladaptive cognitive patterns and reducing automatic stress-related responses (Diamond, 2025; Shapiro et al., 2024).

The reduction in perceived stress observed in the present study is consistent with findings reported in numerous previous investigations. Research examining internet-delivered mindfulness-based cognitive therapy demonstrated significant reductions in perceived stress and emotional distress among participants receiving mindfulness interventions (Wardęszkiewicz & Holas, 2023). Similarly, Khataei et al. reported that online mindfulness-based cognitive therapy significantly reduced perceived stress

among nursing students, indicating the effectiveness of mindfulness-oriented approaches in managing psychological stress across different populations (Khataei et al., 2023). Studies conducted among pregnant women also showed that mindfulness programs significantly reduced anxiety, depression, and stress symptoms, further supporting the stress-reducing effects of mindfulness interventions (Vázquez-Lara et al., 2025). These convergent findings strengthen the conclusion that mindfulness-based cognitive therapy is an effective intervention for reducing perceived stress in emotionally vulnerable individuals.

The findings of the present study can also be interpreted within the broader framework of stress regulation and neuropsychological adaptation. Chronic stress has been associated with dysregulation of physiological stress systems, increased inflammatory activity, impaired attentional control, and emotional dysregulation. Mindfulness practices may counteract these maladaptive processes by enhancing parasympathetic activation, improving attentional regulation, and reducing cognitive-emotional overreactivity (Nicholson et al., 2025; Shchaslyvyi et al., 2024). The mindfulness exercises implemented during therapy sessions, such as mindful breathing, body scanning, and nonjudgmental awareness of thoughts and emotions, may have contributed to reductions in physiological arousal and improved emotional self-regulation. Consequently, participants may have experienced lower levels of psychological stress and greater emotional stability following the intervention.

The effectiveness of mindfulness-based cognitive therapy observed in the present study is also consistent with evidence reported in studies involving individuals with medical and psychological conditions associated with chronic stress and emotional dysregulation. Bramanti et al. found that mindfulness-based interventions reduced anxiety, depression, stress, and emotional burden among patients with chronic pulmonary diseases (Bramanti et al., 2025). Similarly, mindfulness-oriented interventions have demonstrated positive effects in cancer patients and survivors by improving coping processes and reducing emotional distress (Carney et al., 2023; Marinovic & Hunter, 2022). These findings suggest that mindfulness-based interventions possess broad transdiagnostic utility and may effectively target core psychological processes underlying emotional suffering across diverse clinical populations.

The present findings also support contemporary perspectives emphasizing the role of mindfulness in reducing maladaptive cognitive patterns such as rumination,

self-focused attention, and cognitive avoidance. Individuals with social anxiety disorder often engage in repetitive negative thinking and anticipatory worry before social interactions, followed by post-event rumination after social situations. Such cognitive patterns intensify emotional distress and maintain anxiety symptoms over time. Mindfulness-based cognitive therapy helps individuals disengage from repetitive cognitive cycles by fostering present-focused awareness and cognitive decentering. Research has shown that MBCT significantly reduces rumination and enhances adaptive cognitive-emotional functioning (Khavari et al., 2024; Zhang et al., 2025). Therefore, reductions in perceived stress and improvements in distress tolerance observed in the present study may partially reflect decreased cognitive rumination and greater acceptance of internal experiences.

Another explanation for the effectiveness of mindfulness-based cognitive therapy concerns its impact on self-compassion and emotional acceptance. Women with social anxiety disorder frequently experience excessive self-criticism, fear of negative evaluation, and emotional suppression. Mindfulness training encourages individuals to approach themselves with acceptance and compassion rather than judgment and self-rejection. Increased self-compassion may reduce emotional vulnerability and facilitate adaptive coping during stressful interpersonal situations. Research indicates that mindfulness interventions enhance self-compassion, resilience, and emotional awareness, all of which contribute to improved psychological well-being (Arrastía-Chisholm et al., 2024; Holas & Wardęszkiewicz, 2025). Consequently, mindfulness-based cognitive therapy may help socially anxious women develop healthier emotional responses and greater tolerance for anxiety-provoking experiences.

The findings of the present study are also congruent with research supporting mindfulness-based interventions across a wide range of psychological and behavioral disorders. Studies have demonstrated the effectiveness of mindfulness-oriented therapies in treating internet gaming disorder, substance use disorders, body dysmorphic disorder, and chronic psychological distress (He et al., 2025; Kim et al., 2024; May et al., 2022). Such evidence highlights the flexibility and broad applicability of mindfulness-based approaches in addressing emotional dysregulation, maladaptive coping behaviors, and stress-related psychopathology. Moreover, emerging evidence concerning tele-mindfulness and digital mindfulness interventions suggests that mindfulness-based cognitive therapy may be

effectively adapted to different treatment contexts and delivery formats (Wardęszkiewicz & Holas, 2023; Zarei et al., 2022). These developments may increase accessibility of psychological interventions for individuals with anxiety disorders who face barriers to traditional face-to-face therapy.

The present findings further support theoretical models proposing that mindfulness-based cognitive therapy enhances adaptive emotional functioning through modifications in attentional processes and cognitive appraisal systems. Mindfulness practices cultivate sustained attention to present-moment experiences while reducing automatic engagement with threatening thoughts and emotional reactions. This attentional shift may be especially important for women with social anxiety disorder, who often demonstrate heightened vigilance toward social threats and excessive concern regarding evaluation by others. By reducing cognitive fusion with anxiety-provoking thoughts, mindfulness-based cognitive therapy may facilitate more balanced emotional responses and decrease perceived stress in social situations (Diamond, 2025; Shapiro et al., 2024).

5. Conclusion

Overall, the results of the present study suggest that mindfulness-based cognitive therapy is an effective intervention for improving distress tolerance and reducing perceived stress among women with social anxiety disorder. The intervention appears to influence multiple psychological mechanisms simultaneously, including emotional regulation, cognitive flexibility, self-compassion, attentional control, and resilience. Considering the chronic and impairing nature of social anxiety disorder, mindfulness-based cognitive therapy may provide a valuable complementary or alternative treatment approach capable of improving emotional adaptation and psychological well-being in affected individuals. The findings also contribute to the growing body of literature supporting mindfulness-based interventions as effective evidence-based treatments for anxiety-related disorders and stress-related psychological difficulties (Diamond, 2025; Shamblaw & Segal, 2022; Shapiro et al., 2024).

6. Limitations and Suggestions

One limitation of the present study was the relatively small sample size, which may limit the generalizability of the findings to broader populations of women with social anxiety disorder. In addition, the study focused exclusively

on women from Tehran, and therefore the findings may not be fully applicable to men or individuals from different cultural and social backgrounds. Another limitation concerns the reliance on self-report questionnaires, which may be influenced by response bias, social desirability, or participants' subjective interpretations. Furthermore, the absence of a long-term follow-up period limited the ability to determine the durability and stability of treatment effects over time.

Future research is recommended to examine the long-term effectiveness of mindfulness-based cognitive therapy through follow-up assessments conducted several months after treatment completion. Researchers may also compare mindfulness-based cognitive therapy with other third-wave psychological interventions such as acceptance and commitment therapy or dialectical behavior therapy in individuals with social anxiety disorder. Conducting studies with larger and more diverse samples, including different age groups and male participants, would improve the generalizability of findings. Additionally, future investigations may explore mediating variables such as self-compassion, resilience, emotional regulation, and cognitive flexibility in order to clarify the mechanisms underlying therapeutic change.

From a practical perspective, the findings of the present study suggest that mindfulness-based cognitive therapy can be incorporated into psychological counseling and clinical treatment programs for women with social anxiety disorder. Mental health professionals may use mindfulness techniques to help clients improve emotional awareness, reduce stress, and increase tolerance for distressing emotional experiences. Educational and healthcare centers may also benefit from implementing mindfulness-based workshops and group interventions aimed at stress reduction and emotional regulation. Given the increasing accessibility of digital mental health services, online and telehealth-based mindfulness interventions may represent a cost-effective and accessible strategy for supporting individuals experiencing anxiety-related psychological difficulties.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

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

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