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# The Effectiveness of Mindfulness-Based Schema Therapy on Cognitive Emotion Regulation in Men with Generalized Anxiety Disorder

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#### **ABSTRACT**

The aim of the present study was to determine the effectiveness of mindfulness-based schema therapy on cognitive emotion regulation in men with generalized anxiety disorder (GAD). The research method was classified as a quasi-experimental design with pre-test and post-test, including an experimental group and a control group. The statistical population consisted of all men with generalized anxiety disorder in the western region of Tehran. From this population, 30 individuals were selected through convenience sampling, with 15 participants assigned to the experimental group and 15 to the control group. To assess the research variables, demographic characteristics and the Cognitive Emotion Regulation Questionnaire developed by Garnefski and Kraaij (2006) were employed. The data were analyzed using SPSS statistical software, applying both descriptive and inferential statistics, including multivariate and univariate analysis of covariance (MANCOVA and ANCOVA). The results demonstrated that mindfulness-based schema therapy was effective in improving cognitive emotion regulation in men with GAD with 99% confidence. Therefore, it can be concluded that mindfulness-based schema therapy significantly enhances cognitive emotion regulation in men with generalized anxiety disorder, and it can be considered a useful and effective intervention for the treatment of GAD.

Keywords: Mindfulness-Based Schema Therapy, Cognitive Emotion Regulation, Generalized Anxiety Disorder (GAD)

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#### Introduction

Generalized Anxiety Disorder (GAD) is characterized by pervasive and excessive levels of worry concerning various events or activities. Individuals with GAD struggle to control their worries and, as a result, often experience difficulties with concentration, sleep, or rest. These individuals frequently worry about trivial matters such as paying bills or ensuring their children are dropped off on time. Such worry is disproportionate to the actual risk or severity of the problems (1). GAD is marked by a persistent and



repetitive pattern of anxiety and worry that does not correspond with the actual effects or consequences of the events or conditions at the center of the worry. The *DSM-5-TR* emphasizes the distinction between GAD and normative anxiety by using the term "excessive" in its diagnostic criteria and specifying that symptoms must cause significant distress or impairment (2, 3).

Research indicates that anxious individuals, particularly those with GAD, display cognitive biases in information processing. These biases lead them to be overly vigilant for potential threats, generate more sources of worry, and perpetuate their anxiety (Beer et al., 2024). Empirical evidence has demonstrated that people with GAD preferentially attend to threatening stimuli and information. Increasing evidence suggests that this attentional bias toward threat may *cause* anxiety, rather than being a mere consequence of it (4). It appears that attentional bias in individuals with GAD is part of a broader set of cognitive distortions in anxious individuals, contributing to the interpretation of current and future events as threatening, focusing attention on threat-related information, and reinforcing information-processing patterns that are resistant to change (5).

GAD not only leads to chronic worry but can also significantly impair individuals' abilities to regulate their emotions, leaving them unable to cope with negative feelings (6). Thus, emotion can affect the health of individuals with panic-related disorders through multiple pathways. Emotion regulation can be defined as the processes by which individuals influence which emotions they have, when they have them, how they experience them, and how they express them—processes that are also influenced by age-related factors (7). In emotion-focused theories, emotional regulation refers to an individual's ability to act, be aware of, verbalize, and adaptively use emotions to manage distress and pursue needs and goals (8).

Emotion regulation is essential for adaptive functioning. There is an optimal level of emotional arousal appropriate to each situation (9). A person's ability to regulate emotions stems from early attachment experiences with responsive and available caregivers. Difficulties in emotion regulation include problems with both underarousal and overarousal and represent a significant form of emotional dysfunction (10). When individuals are unable to regulate their emotions—especially when their partners are not emotionally available—it can lead to serious marital problems. In such situations, individuals often respond by either attacking or withdrawing. Therefore, therapists should focus not only on enhancing mutual responsiveness and identifying barriers but also on improving each individual's emotion regulation abilities so that distress does not lead to aggression or withdrawal. It is thus essential for individuals to develop the ability to soothe and repair their own experiences of anxiety and shame, particularly during moments of relational disappointment or absence (11). Research has shown that individuals with lower emotional regulation capacity are more vulnerable to anxiety disorders, potentially contributing to a vicious cycle of anxiety and fear (12).

A relatively recent intervention approach for psychological problems and family-related issues is mindfulness-based schema therapy. Maladaptive schemas can lead to self-destructive patterns that repeat across adult relationships. These schemas, formed in childhood, are reactivated in stressful situations throughout life. Once triggered, schemas generate a full-spectrum experience including thoughts, feelings, perceptions, memories, and powerful schema-driven compulsions (13). Regarding the integration of mindfulness techniques into schema therapy, Bennett-Goleman suggests that mindfulness practices can be used to modify schemas. Individuals dominated by maladaptive modes tend to behave, feel, and make

decisions according to these modes, leading to interpersonal and intrapersonal difficulties. The goal of combining schema therapy with mindfulness is to enable the "Healthy Adult" mode to gain more influence over other modes by applying mindfulness techniques. Through this process, individuals may reach a state of acceptance, patience, tolerance, enjoyment, and realistic thinking—an outcome that, even if not fully achieved, offers a valuable journey in itself (14).

During mindfulness practice, individuals are trained to be kind and compassionate toward themselves and their experiences, including wishing themselves well and acknowledging personal suffering. With a self-compassionate attitude, they learn to better tolerate unpleasant emotions and stressful feelings (15). When individuals driven by schemas and modes fall into patterns of emotional neglect or avoidance, they often react impulsively and counterproductively. Their goal becomes the elimination of unpleasant emotions or sensations. The integration of mindfulness training into schema therapy helps individuals shift toward a more mindful path, resulting in healthier behaviors (16).

Given that individuals with GAD often experience problems in emotion regulation, it is reasonable to conclude that this disorder disrupts both cognitive and emotional processes. In this context, mindfulness-based schema therapy has emerged as an innovative and effective treatment for such disorders. This form of therapy helps individuals recognize and reassess their negative patterns through mindfulness techniques, thereby enhancing their capacity for emotion regulation. However, the current literature includes limited studies examining the effectiveness of mindfulness-based schema therapy on cognitive emotion regulation in men with GAD. This research gap indicates the need for further investigation in this field, especially considering that men may face unique challenges in the expression and regulation of emotions. Thus, the central research question of this study is: "Can mindfulness-based schema therapy positively influence cognitive emotion regulation in men with generalized anxiety disorder?"

# **Methods and Materials**

# Study Design and Participants

The present study employed a quasi-experimental design with a pre-test-post-test format, including an experimental group and a control group. The statistical population consisted of all men diagnosed with Generalized Anxiety Disorder (GAD) who had referred to psychiatric clinics in western Tehran for anxiety treatment. Following clinical interviews and the completion of personal history forms, a diagnosis of GAD was confirmed for these individuals. From this population, 30 participants were selected using a convenience sampling method based on their willingness to participate in the treatment sessions, and according to specific inclusion and exclusion criteria.

Inclusion criteria included: residing in Tehran, belonging to an approximately middle economic and cultural class, age between 25 and 45 years, having at least a high school diploma, being physically and mentally healthy, and receiving a GAD diagnosis by a psychiatrist based on the DSM-IV-TR criteria of the American Psychiatric Association.

Exclusion criteria were: diagnosis of other psychiatric disorders such as major depression or bipolar disorder, diagnosis of major physical illnesses such as diabetes or cardiovascular disease, participation in other therapeutic interventions, being divorced or widowed, and current pharmacological treatment for any physical or psychological condition.

The selected sample was randomly assigned using purposive allocation to either the experimental group (15 participants) or the control group (15 participants).

#### Data Collection

Generalized Anxiety Disorder Questionnaire: This questionnaire was developed to provide a brief screening tool for the diagnosis of Generalized Anxiety Disorder and to assess its clinical symptoms. It includes seven core items and one additional item measuring the degree to which the disorder interferes with individual, social, family, and occupational functioning (Naeinian et al., 2011). Respondents answer using a four-point Likert scale ranging from "not at all" to "nearly every day." The highest possible score is 21. Newman et al. (2002) reported high test—retest reliability and good discriminant validity. According to the study by Naeinian et al. (2011), the Persian version of the questionnaire also showed strong psychometric properties, with a Cronbach's alpha of .85 and a test—retest reliability coefficient of .48 (17). In the current study, Cronbach's alpha was .87.

Cognitive Emotion Regulation Questionnaire: This instrument contains 36 items and assesses emotional regulation strategies in response to life events perceived as threatening or stressful. Responses are rated on a five-point scale from 1 (never) to 5 (always), across nine subscales: Self-Blame (items 1, 10, 19, 28), Acceptance (2, 11, 20, 29), Rumination (3, 12, 21, 30), Positive Refocusing (4, 13, 22, 31), Refocus on Planning (5, 14, 23, 32), Positive Reappraisal (6, 15, 24, 33), Putting into Perspective (7, 16, 25, 34), Catastrophizing (8, 17, 26, 35), and Other-Blame (9, 18, 27, 36). Higher scores indicate greater use of a given cognitive strategy. The questionnaire categorizes strategies into two major types: adaptive (positive refocusing, positive reappraisal, acceptance, putting into perspective, and refocus on planning) and maladaptive (self-blame, other-blame, rumination, and catastrophizing). Garnefski and Kraaij (2002) reported Cronbach's alpha coefficients of .91 for positive strategies, .87 for negative strategies, and .93 for the entire scale. Similarly, Mohammadi and Mazidi (2014) reported Cronbach's alpha values of .88, .87, and .93, respectively, for the same subcategories in their Persian validation study (18).

#### Intervention

The intervention protocol for mindfulness-based schema therapy was structured into ten group sessions based on Young's therapeutic model and the practical guide Mindfulness and Schema Therapy (Zirk & Hamidpour, 2015, Persian translation). In Session 1, participants introduced themselves, and the group's goals and rules were explained. Previous experiences with mindfulness were shared, followed by an introductory mindfulness exercise addressing internal struggle. Session 2 focused on exploring schemas and modes, their link to emotional pain (e.g., betrayal), and included a body scan meditation. Session 3 emphasized understanding the interaction between mindfulness and automatic schema-driven reactions, complemented by applying mindfulness to daily life. In Session 4, participants reflected on their schema awareness during the previous week and practiced three-minute breathing space and mindful exposure to painful cues. Session 5 involved completing the schema coping questionnaire, a guided schema-related mindfulness exercise, and enhancing schema recognition skills. Session 6 continued mindfulness practice and taught participants how to respond from the "Healthy Adult" and "Happy Child" modes. Session 7 deepened cognitive defusion by helping participants view schemas as thoughts rather than facts and

practicing letting go. Session 8 focused on self-care through the Healthy Adult and Happy Child perspectives, and cognitive challenging of schemas. Session 9 emphasized maintaining a mindful orientation and integrating the Healthy Adult into daily life. In the final session (Session 10), participants evaluated their mindfulness progress, practiced continuous schema monitoring, and engaged in a compassionate mindfulness exercise oriented toward resilience and hope for the future.

### Data analysis

The data collected through the questionnaires were analyzed using SPSS version 27. The analysis included both descriptive statistics and inferential statistics, specifically multivariate analysis of covariance (MANCOVA).

# **Findings and Results**

Initially, the descriptive characteristics of the participants in the two groups were examined, as shown in Table 1.

Variable Value **Experimental Group** Control Group 25-30 Age 5 4 30-35 4 5 3 2 35-40 Over 40 3 4 Education High school diploma 6 7 Bachelor's 4 3 Master's 3 3 Higher 2 2 **Employment Employed** 12 11 Unemployed

Table 1. Demographic Characteristics of the Sample

The demographic variables table indicates that most participants in the experimental group were between the ages of 25–30, employed, and held a high school diploma. Similarly, the majority of the control group fell in the 30–35 age range, also had a high school diploma, and were employed. Thus, the two groups were demographically homogeneous.

According to Table 2, the mean, standard deviation, skewness, and kurtosis of the variables were examined.

Variable	Mean – Control Group	Mean – Experimental Group	Std. Dev. – Control Group	Std. Dev. – Experimental Group
	Pre	Post	Pre	Post
Self-Blame	52.37	52.20	53.45	49.30
Acceptance	55.03	55.10	56.54	59.80
Rumination	55.00	54.90	55.70	53.00
Positive Refocusing	58.66	58.40	59.37	62.00
Refocus on Planning	60.03	60.10	58.48	61.50
Positive Reappraisal	20.58	20.50	20.72	23.00
Putting into Perspective	40.12	40.00	47.08	50.30
Catastrophizing	52.06	51.90	54.06	50.00
Other-Blame	50.02	49.90	49.03	47.00

Table 2. Descriptive Statistics of the Variables

As observed in Table 2, for the negatively valenced variables such as self-blame, rumination, catastrophizing, and other-blame, the post-test means show a reduction compared to the pre-test. This decline indicates that the intervention effectively reduced the participants' levels of negative thinking and mental rumination. Additionally, the decrease in standard deviations for these variables suggests that the amount of change among participants in the experimental group occurred more uniformly, and their scores became more consistent.

On the other hand, variables such as acceptance, positive refocusing, positive reappraisal, and putting into perspective—which are considered positive components of cognitive emotion regulation—showed an increase in post-test means. This increase indicates the development of positive emotional skills among participants in the experimental group following the intervention. The reduction in standard deviations for these variables in the post-test compared to the pre-test also demonstrates uniform improvement across participants in the experimental group.

Table 3. Results of Univariate ANCOVA Test in Experimental and Control Groups

Variable	Source of Variation	Sum of Squares	Mean Square	F	Significance Level	df	Eta Squared
Cognitive Emotion Regulation	Pre-test	205.3	205.3	6.72	.090	1	.25
	Group	350.1	175.05	18.20	.001	2	.45
	Error	250.1	9.62			26	
	Total	5841				30	

Based on the results, after adjusting scores for the pre-test, the effect of the between-subjects factor (i.e., group effect) is statistically significant (p < .001, F = 10.34). The effect size ( $\eta^2 = .45$ ) indicates that approximately 45% of the variance in the improvement in self-focused attention can be attributed to the schema therapy intervention. Therefore, the research hypothesis is confirmed.

Table 4. Bonferroni Post Hoc Test for Mean Comparison

Variable	Group	Mean Difference	Standard Error	Significance
Self-Blame	Control	2.72	0.70	.002
	Experimental	2.69	0.21	.001
Acceptance	Control	-1.35	1.66	.001
	Experimental	2.94	1.66	.025
Rumination	Control	1.35	1.66	.001
	Experimental	4.30	1.66	.040
Positive Refocusing	Control	-2.94	1.66	.025
	Experimental	4.30	1.66	.040
Refocus on Planning	Control	-2.51	0.60	.001
	Experimental	-2.11	0.48	.001
Positive Reappraisal	Control	2.51	0.60	.001
	Experimental	0.41	0.30	.057
Putting into Perspective	Control	0.10	0.48	.001
	Experimental	3.41	0.30	.057
Catastrophizing	Control	-1.23	0.53	.030
	Experimental	11.25	0.51	.006
Other-Blame	Control	1.43	0.53	.030
	Experimental	4.17	0.09	.016

Based on the *p*-values and as previously indicated, there are statistically significant differences between the two groups across all subscales. However, the mean scores demonstrate that the experimental group scored higher than the control group in the subscales of self-blame, acceptance, rumination, positive

refocusing, putting into perspective, catastrophizing, and other-blame. This indicates that the mindfulness-based schema therapy intervention was effective in improving these cognitive emotion regulation subscales. On the other hand, the control group had higher mean scores in the subscales of positive reappraisal and refocus on planning.

#### **Discussion and Conclusion**

The present study aimed to investigate the effectiveness of mindfulness-based schema therapy on cognitive emotion regulation in men with Generalized Anxiety Disorder (GAD). The results demonstrated that mindfulness-based schema therapy was effective in enhancing cognitive emotion regulation among men with GAD. These findings are consistent with those of previous studies (13-16, 19-28).

Cognitive emotion regulation is defined as a set of cognitive strategies individuals use to respond to stressful events and manage emotionally arousing information, representing a form of cognitive coping. When individuals face stressful situations, they employ a variety of emotion regulation strategies to modulate their emotional and cognitive reactions (29). Ghayour et al. (2022) have highlighted that individuals who fail to effectively manage their emotional responses to daily events tend to experience more severe and prolonged psychological distress (21). Cognitive emotion regulation specifically explains how individuals experience, organize, or modify emotions, which increases their tolerance during distressing situations (17).

Moreover, cognitive emotion regulation, which facilitates the management of emotions, involves awareness, acceptance, and understanding of emotions in order to control impulsive behaviors (30). Mindfulness-based schema therapy seeks to use mindfulness techniques to enhance the "Healthy Adult" mode so that individuals can achieve acceptance, patience, tolerance, enjoyment, and realism (24). The findings of the current study further support this by showing that after undergoing mindfulness-based schema therapy, participants in the experimental group—who had scored low in cognitive emotion regulation at pretest—demonstrated significantly improved scores at post-test.

They learned how to control their emotions and exhibit improved functioning. For instance, they no longer blamed themselves repeatedly for unfortunate events using distorted and unhelpful thoughts. They recognized that problems are a natural part of life alongside positive experiences, and they made efforts to prioritize tasks and organize their daily lives more effectively. Notably, all subscales of cognitive emotion regulation showed marked improvement, indicating comprehensive progress.

Another explanation for the findings is that mindfulness-based schema therapy helps clients challenge their maladaptive schemas and develop a healthy internal voice, thus empowering their Healthy Adult mode. This therapeutic approach enables individuals to critically evaluate their schemas and perceive them as external constructs that can be challenged using objective and experiential evidence. Behavioral strategies in this approach aim to help clients overcome their avoidance of social situations. One major behavioral technique used is exposure and response prevention, which provides an effective context for activating and modifying schemas related to social anxiety.

Given the strong emotional focus of schema therapy, the use of experiential and emotional techniques plays a major role. These techniques assist individuals in becoming aware of, accepting, and better regulating their emotions in social contexts. Emotional techniques contribute to emotional reorganization, new

learning, interpersonal affect regulation, and self-soothing, facilitating healthier and more successful participation in social situations.

Cognitive strategies also work by highlighting the benefits of change, thereby increasing client motivation. Behavioral techniques such as role-playing and imagery help individuals with social anxiety symptoms overcome avoidance in social performance situations. Homework assignments and behavioral practice further prepare participants for independent functioning. Tools such as coping cards and rational response exercises were useful in helping individuals tolerate anxiety associated with independent performance in social settings.

Like other studies in the field of human sciences, the present study faced several limitations. First, the research was conducted exclusively on men with Generalized Anxiety Disorder. Another limitation was that all therapy sessions were conducted by a single therapist; however, multiple researchers recommend the involvement of a co-therapist to prevent therapist fatigue. Additionally, the study lacked a follow-up evaluation to assess the sustainability of improvements over time. It is recommended that future studies employ longitudinal designs with multiple follow-up stages to examine the long-term effects of mindfulness-based schema therapy.

Given that this study used a group therapy format, it is further recommended that future studies compare the outcomes of individual and group formats. Based on the findings of this study, it is advised that therapists, psychologists, and counselors utilize mindfulness-based schema therapy as an effective intervention to reduce psychological harm in men with Generalized Anxiety Disorder.

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# **Authors' Contributions**

All authors equally contributed to this study.

# **Declaration of Interest**

The authors of this article declared no conflict of interest.

#### **Ethical 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.

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