

Original research

The Comparing Effectiveness of Emotion-Focused Therapy and Mindfulness-Based Cognitive Therapy on Sleep Quality in Patients with Generalized Anxiety disorderMasoud Sharifzadeh¹, Narges Razzaghi², Hakime Aghaei^{*3}, Seyed Mosa Tabatabaee⁴**Abstract**

Introduction: Generalized anxiety disorder is one of the common psychiatric disorders characterized by chronic and uncontrollable worry. The purpose of this study was to compare effectiveness of emotion-focused therapy and mindfulness-based cognitive therapy on sleep quality in patients with generalized anxiety disorder.

Methods: This semi-experimental study was conducted with a pretest-posttest design with a control group and a follow-up 2 months. The statistical population of the present study was all patients with generalized anxiety disorder in Tehran in 2023. In the first stage, the number of 45 patients with a score of 10 and above on the generalized anxiety disorder scale was selected and then randomly divided into 2 experimental groups (each group 15 patients) and one control group (15 patients) were replaced and experimental groups underwent emotion-focused therapy and mindfulness-based cognitive therapy, but the control group received no training and remained in the waiting list. To collect data generalized anxiety disorder scale (GAD-7) of Spitzer et al and the Pittsburgh sleep quality Index (PSQI) of Buysse et al. Data analysis was performed using SPSS-28 software with analysis of variance with repeated measures and Bonferroni.

Results: The results of the study showed that both interventions had a significant effect on sleep quality ($P < 0.05$). In addition, the results of the Bonferroni post hoc test showed that emotion-focused therapy is more effective ($P < 0.05$).

Conclusion: It can be concluded that, in addition effectiveness of both treatments, the priority of use in the treatment of sleep problems patients with generalized anxiety disorder is with the emotion-focused therapy.

Keyword: Emotion-Focused Therapy, Generalized Anxiety Disorder, Mindfulness-Based Cognitive Therapy, Sleep Quality

Received: 2024/9/24**Accepted:** 2024/11/26

Citation: Sharifzadeh M, Razeghi N, Aghaei H, Tabatabaee SM. The Comparing Effectiveness of Emotion-Focused Therapy and Mindfulness-Based Cognitive Therapy on Sleep Quality in Patients with Generalized Anxiety Disorder. Family and health. 2025; 14(2): 79-102

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Introduction:

Emotional symptoms and disorders, such as depression and anxiety, pose a major challenge to public health (1, 2). Anxiety symptoms typically emerge during childhood and adolescence, and if left unaddressed, it may develop into a clinical disorder (3). Anxiety disorders in childhood and adolescence are associated with an increased likelihood of developing an anxiety or depressive disorder in the future (4). generalized anxiety disorder is one of the most common subtypes of anxiety disorders (5, 6), which has several fundamental problems that may be addressed by enhancing positive emotional regulation. These problems include heightened alertness to threats, neglect of positive emotions accompanied by persistent worry, and inaccurate negative predictions about future outcomes (7). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), generalized anxiety disorder is characterized by excessive anxiety and worry, difficulty controlling these feelings, and psychosocial impairment in various aspects of the individual's life (8). Its symptoms are associated with impaired functioning, academic and occupational failure, poor quality of life, emotional distress (9, 10, 11), and poor sleep quality (12).

According to the third edition of the International Classification of Sleep Disorders, insomnia is characterized by difficulty in initiating, maintaining, or continuing sleep, despite adequate opportunity and conditions for sleep (13). Sleep disorders are also considered a growing public health issue, leading to their recognition as emerging epidemics globally, affecting both developed and developing countries, as well as general populations and clinical settings (14, 15). Some studies have shown that over 50% of adults in the West experience sleep problems, with approximately 15–20% reporting chronic sleep issues (16). Among these issues, difficulties in falling asleep, maintaining sleep, and poor sleep quality have been reported (17). Research indicates that insomnia is often associated with psychiatric disorders, particularly with anxiety disorders, most notably generalized anxiety disorder (12, 18).

Given the above, generalized anxiety disorder can be chronic and debilitating, highlighting the need for effective treatments (19), as generalized anxiety disorder has a chronic nature characterized by periods of full or partial remission followed by relapse of symptoms. Over an eight-year period, 43% of men and 36% of women will experience another episode of generalized anxiety disorder (20). According to one study, among respondents who reported a lifetime history of generalized anxiety disorder, 48% reported experiencing generalized anxiety disorder within the past year (21). Thus, the high risk of generalized anxiety disorder relapse underscores the importance of effective treatments (19). Considering issues such as poor sleep quality and the likelihood of relapse, this research focuses on providing psychological interventions to alleviate these problems in patients with generalized anxiety disorder. One effective intervention for reducing problems in patients with generalized anxiety disorder is emotion-focused therapy. According to recent research, emotion-focused therapy has been developed for generalized anxiety disorder and has shown promising results in clinical trials (22, 23, 24, and 25). Emotion-Focused Therapy is a process-based and experiential therapy grounded in the humanistic traditions of client-centered and Gestalt psychotherapy. (26)

emotion-focused therapy has also been developed as an evidence-based treatment for a variety of psychological issues, including, more recently, generalized anxiety disorder (22). emotion-focused therapy requires therapists to work both on the underlying emotional vulnerability that the client is concerned with and at a more symptom-focused level, where anxiety-related symptoms like worry or avoidance are addressed (27). Timulak and McElvaney (25), as well as Timulak and Keogh (28), suggest that the main therapeutic work in treating generalized anxiety disorder is to alter the core emotional vulnerability (referred to in emotion-focused therapy as the "core pain"), which is complemented by work at the level of generalized anxiety disorder - specific symptoms (29). According to previous research, emotion-focused therapy has demonstrated positive and effective impacts on reducing issues in individuals with generalized anxiety disorder (30), and one study showed that it is effective in alleviating problems caused by generalized anxiety disorder. (22)

Research has also shown that emotion-focused therapy can have a significant positive impact on improving sleep quality (31, 32). Another intervention that has been proven effective in reducing problems in patients with generalized anxiety disorder is mindfulness-based cognitive therapy (33, 34). Mindfulness-based cognitive therapy, which combines mindfulness practices and principles with components of cognitive-behavioral therapy, was initially developed to prevent relapse in patients recovering from depression (35). In recent years, several studies have demonstrated that, beyond relapse prevention strategies, mindfulness-based interventions, including mindfulness-based cognitive therapy, may also reduce acute anxiety symptoms (36). A meta-analysis of 39 studies involving a total of 1,140 participants indicated that mindfulness-based interventions have a significant effect in reducing anxiety symptoms in individuals with anxiety disorders. (37) In mindfulness-based cognitive therapy, participants can learn to identify patterns of emotional responses and negative thinking, helping them develop a crisis plan and take action if depression, hopelessness, or suicidal thoughts arise in the future (38). mindfulness-based cognitive therapy has also been shown to have comparable or even greater effectiveness in preventing anxiety relapse compared to classic counseling theories such as behavioral and cognitive therapy (39, 40). Research has demonstrated that mindfulness-based cognitive therapy can have a significant positive impact on improving sleep quality as well. (32, 41)

As mentioned, various studies have shown that both emotion-focused therapy (22, 23, 24, 25, 28, and 30) and mindfulness-based cognitive therapy (33, 34, 39, and 40) have significant effectiveness in reducing anxiety disorder symptoms, particularly generalized anxiety disorder. However, fewer studies have directly compared the effectiveness of these two therapies specifically on patients with generalized anxiety disorder. Additionally, from a methodological perspective, there are limited studies comparing the efficacy of emotion-focused therapy and mindfulness-based cognitive therapy, which makes it challenging to identify the most effective therapy for addressing these patients' needs and reducing their difficulties. This research also carries practical implications for psychologists and therapists. Therefore, based on the issues outlined, the present study aimed to answer the question: "What differences exist in the

effectiveness of emotion-focused therapy and mindfulness-based cognitive therapy in improving sleep quality in patients with generalized anxiety disorder?"

Research Method:

The research method was a quasi-experimental design with a pre-test and post-test along with a control group and a 2-month follow-up. The statistical population of this study consisted of all patients diagnosed with generalized anxiety disorder who were referred to counseling and psychological service centers in the northern and northwestern regions of Tehran during the fall of 2023. For determining the sample size, Cohen's table was used. At a 95% confidence level, with an effect size of 0.70 and statistical power of 0.91, the sample size was determined to be 12 individuals per group. However, considering the possibility of sample attrition and to increase the generalizability of the results, the sample size for each group was increased to 15 participants (15 in the Emotion-Focused Therapy group, 15 in the Mindfulness-Based Cognitive Therapy group, and 15 in the control group). Inclusion criteria for the study were a score of 10 or higher on the Generalized Anxiety Disorder scale, having at least a high school diploma and a maximum educational level of a PhD. Furthermore, exclusion criteria for the study included missing more than 2 therapy sessions, simultaneous participation in other therapeutic programs or interventions during the research, substance abuse (including drugs and smoking), and any other condition that would interfere with the study's integrity. The method of data analysis was conducted at two levels: descriptive (mean, standard deviation, percentage, and frequency) and inferential (analysis of variance with repeated measures, Bonferroni post hoc test, one-way Anova, and chi-square test). SPSS version 28 was used for data analysis. Subsequently, the tools for data collection are reviewed, with details provided below.

Generalized Anxiety Disorder Scale-7 (GAD-7): This scale was developed by Spitzer and colleagues (42) and consists of 7 questions. Respondents score based on their experience: "not at all" (0 points), "several days" (1 point), "more than half the days" (2 points), and "nearly every day" (3 points). The score range is from 0 to 21, with higher scores indicating greater levels of generalized anxiety in the respondent. A score of 10 or higher is considered the cutoff point (43,44). The developers of the scale examined its psychometric properties and used Cronbach's alpha and test-retest reliability to calculate its reliability. The Cronbach's alpha coefficient was found to be 0.92, and the Pearson correlation coefficient for the test-retest reliability after a 2-week interval was 0.83, which was significant at the 0.01 level. Additionally, the scale's validity was reviewed, and its concurrent validity was calculated, showing correlation coefficients with the MOS short-form general health survey Questionnaire Stewart and et al (45) in the range of 0.30 to 0.75, significant at the 0.01 level (42).

This scale has been translated and standardized in Iran, and its reliability and validity have been calculated. To assess reliability, Cronbach's alpha and test-retest coefficients were used. The Cronbach's alpha coefficient was found to be 0.85, and the Pearson correlation coefficient for test-retest reliability after a 2-week interval was 0.48, which was significant at the 0.01 level. Concurrent validity was also examined, with a Pearson correlation coefficient of 0.63 with the Anxiety subscale of the Symptom Checklist-90 (SCL-90) by Derogatis and et al (46), which was

significant at the 0.01 level (43). In this study, the Cronbach's alpha coefficients for 0.80 in pretest, 0.83 in posttest and 0.90 in follow-up.

Pittsburgh Sleep Quality Index (PSQI): The scale developed by Buysse and et al (47) and comprises 9 questions; however, since question 5 contains 10 sub-questions, the entire questionnaire includes 19 questions. It features seven subscales: subjective sleep quality (question 9), sleep latency (question 2 and the first part of question 5), sleep duration (question 4), habitual sleep efficiency (questions 1, 3, and 4), sleep disturbances (the second to tenth parts of question 5), use of sleeping medication (question 6), and daytime dysfunction (questions 7 and 8). Each subscale score ranges from 0 to 3, indicating normal, mild, moderate, and severe issues, respectively. The total score is the sum of the subscale scores and ranges from 0 to 21, with a score of 5 or higher indicating poor sleep quality. Higher mean scores reflect worse conditions in each component. The developers evaluated the psychometric properties of the scale, reporting a Cronbach's alpha of 0.83 for reliability and validity was assessed using an index validity measure, yielding a validity index of 89.6% (47). The Persian version of this scale was validated by Farrahi Moghaddam and colleagues (45), who reported a content validity of 0.83, sensitivity and specificity with a cutoff point of 5 for insomnia patients and normal individuals of 0.94 and 0.72, respectively, and a Cronbach's alpha of 0.77 for reliability (48). In the present study, Cronbach's alpha for reliability was found to be 0.72 in pretest, 0.82 in posttest and 0.92 in follow-up.

Therapy Sessions

Table 1. Emotion-Focused Therapy Sessions Adapted from Timulak & McElvaney (27)

Step	Therapeutic Step	Therapeutic Goals
1	Establishing and Maintaining an Empathetic Relationship	To build a therapeutic relationship that creates a sense of security, introduce general treatment guidelines, assess the nature of the problem, and evaluate the goals and expectations from the therapy.
2	Strengthening the Vulnerable Self, Increasing Emotional Awareness, and Developing More Positive Emotional Regulation Strategies	To help the client understand the meaning of their experiences and create a cohesive life narrative, to enhance their sense of agency and self-confidence, to achieve emotional regulation skills and build belief in their ability to cope with challenges, and to foster positive self-talk and internalization for developing a positive self-concept.
3	Working Through the Splitting of Anxiety	To identify and address secondary anxiety, recognize secondary emotional reactive responses, manage indicators, and facilitate access to underlying core emotions.
4	Neutralizing or invalidating negative self-reactions and self-restraint.	Identifying the self-critical and self-worrying parts to correct negative self-interactions, and recognizing the split between the self-critical and self-inhibitory aspects to enhance access to self-acceptance and

		compassion.
5	Resolving emotional injuries	Identifying Attachment Damage in Early Relationships and Deep Sources of Indicative Anxiety, Identifying Unfinished Tasks, Identifying Core Pain, Accessing and Expressing Anger Emotion.
6	Self-soothing of the client.	Enhancing the Client's Ability to Experience Emotions and Practice Self-Compassion, Teaching Physiological Self-Soothe, Coping, and Transformational Techniques, Increasing Emotion Regulation Capacity and Latent Self-Self-Soothing.
7	Consolidating a new narrative	Establishing a New Meaning, Ability to Reflect on Experience and Create a New Narrative in Identity, Enhancing Resilience, and Initial Adaptive Emotion Regulation.

Table 2. mindfulness-based cognitive therapy sessions by Segal and et al (35)

Sessions	Objective	Session Content
1	Introduction and Presentation	Introduction, Pre-test Execution, Establishing Communication Among Group Members, Self-guided Practice, Eating a Raisin Mindfully, Body Scan Meditation, First Home Assignment of Focusing Attention on Daily Activities, and a 45-Minute Body Scan Meditation.
2	Coping with Obstacles and Problems	Body Scan Meditation, Practice of Thoughts and Emotions, Home Assignment of Ten Minutes of Mindful Breathing and Focusing Attention on a Daily Activity in a Different Way, and Recording a Daily Report of the Experience of a Pleasant Event.
3	Mindfulness on Breathing	Mindful Movement, Breathing and Stretching Practice, Three-Minute Breathing Space, Home Assignment for Breathing and Stretching Practice, Mindful Movement, and a Three-Minute Breathing Practice Three Times a Day.
4	Being in the Present Moment	Five Minutes of Mindful Awareness of Sight and Sound, Sitting Meditation, Walking Meditation with Mindfulness, Home Assignment for Sitting Meditation, and a Three-Minute Breathing Space as a Coping Strategy During Unpleasant Emotional

		Experiences.
5	Acceptance and Allowance	Sitting Meditation, Awareness of Breathing and Body, Emphasis on Becoming Aware of How to Respond to Thoughts, Emotions, and Physical Sensations, Home Assignment for Sitting Meditation and Three Minutes of Breathing Space.
6	Thoughts, Not Facts	Sitting Meditation, Awareness of Breathing and Body, Mood Exercises, Thoughts, and an Alternative Perspective, Preparing Participants for the End of the Course, Forty Minutes of Daily Practice, Reflection, and Further Work on the Relapse Prevention Action Plan.
7	How to Take Care of Yourself	Sitting Meditation, Awareness of Breathing, Body, Sounds, Thoughts, and Emotions, Recognizing the Relationships Between Activity and Mood, the Assignment Includes Choosing a Pattern from All the Different Types of Exercises in the Course to Implement After the Course.
8	Final Summary	Using Learned Skills to Cope with Future Mood Situations, Body Scan Meditation, Completing the Meditation, Reviewing What Was Covered in the Course, Assigning a Task as a Choice for a Home Practice Program That Participants Can Continue Until the Next Month, and Finally Conducting a Post-Test.

Findings:

Based on the results of the mean and standard deviation of the age of the emotion-focused therapy group, 33.73 and 5.351; The mean and standard deviation of the mindfulness-based cognitive therapy age is 31.20 and 5.570; The mean and standard deviation of the age of the control group was 33.07 and 4.026 which was used to homogenize the age of the three groups using the one-way analysis of variance test. $F=1.023$, which is not statistically significant ($\text{sig}=0.368$), which indicates the homogeneity of the 3 groups in terms of age. Also, Chi-square = 10.648, this amount is not statistically significant ($\text{sig} = 0.100$), which indicates that the three groups are equal in terms of academic.

Table 3: Mean and standard deviation of sleep quality in experimental and control groups

Variables	Stage	mean			standard deviation		
		EFT	MBCT	control	EFT	MBCT	control
subjective sleep	pre-test	2.53	2.60	2.33	.52	.51	.49

quality	post-test	1.07	1.12	2.20	.70	.68	.68
	follow up	1.13	1.27	1.13	.83	.80	.64
sleep latency	pre-test	1.73	1.40	1.47	.70	.51	.52
	post-test	.47	.67	1.27	.52	.49	.59
	follow up	.53	.73	1.27	.52	.46	.46
sleep duration	pre-test	1.60	1.53	1.60	.63	.52	.63
	post-test	.53	.67	1.40	.64	.49	.63
	follow up	.60	.73	1.40	.74	.59	.62
habitual sleep efficiency	pre-test	1.40	1.53	1.53	.51	.52	.52
	post-test	.53	.67	1.40	.52	.49	.63
	follow up	.60	.73	1.40	.51	.46	.63
sleep disturbances	pre-test	2.13	2.20	2.13	.35	.41	.35
	post-test	.87	1.07	2.00	.64	.70	.53
	follow up	.93	1.13	2.07	.70	.74	.59
use of sleeping medication	pre-test	1.47	1.60	1.40	.52	.74	.51
	post-test	.53	.60	1.33	.51	.51	.49
	follow up	.60	.67	1.33	.51	.49	.62
daytime dysfunction	pre-test	1.47	1.53	1.53	.52	.52	.64
	post-test	.67	.67	1.53	.49	.49	.64
	follow up	.67	.80	1.60	.49	.41	.63
total sleep quality	pre-test	12.33	12.40	12.00	1.80	0.91	1.36
	post-test	4.67	5.53	11.13	1.59	1.41	1.51
	follow up	5.07	6.07	11.20	1.62	1.49	1.32

Table 3 shows the mean and standard deviation of sleep quality. After checking the statistical assumptions of repeated analysis of variance, this test was used to analyze the collected data. In order to know whether these changes obtained in the post-test and follow-up are statistically significant or not, repeated-measures analysis of variance was used. The use of this test requires compliance with some basic assumptions, these assumptions include the normality of the distribution of scores and the homogeneity of variances, which were checked first. Shapiro-Wilks test was used to check normality. Since the values of the Shapiro-Wilks test were not significant in any of the stages ($P < 0.05$), it can be concluded that the distribution of scores is normal. Levine's test was also used to check the homogeneity of variances. According to the results, the index of Levin's test was not statistically significant in three stages of evaluation ($P < 0.05$) and thus the assumption of equality of variances was confirmed. The research data did not question the assumption of homogeneity of variance-covariance matrices (Box's Test of Equality of Covariance Matrices); Therefore, this assumption has also been met ($P > 0.05$). The significance level of the interaction effect of group and pre-test was greater than 0.05 and this indicated the homogeneity of the slope of the regression line. Considering that the assumptions of using variance analysis with repeated measurements have been met, this statistical test can be used. Since the significance level of Mauchly's Test of Sphericity for sleep quality is 0.001, the results are shown in Table 4.

Table 4: Mauchly's Test of Sphericity for sleep quality

Variables	Mauchly's W	Approx. Chi- Square	df	Sig	Epsilon	
					Greenhouse- Geisser	Huynh- Feldt
subjective sleep quality	.33	44.96	2	.001	.60	.64
sleep latency	.42	35.29	2	.001	.63	.68
sleep duration	.36	42.21	2	.001	.61	.65
habitual sleep efficiency	.59	21.35	2	.001	.71	.76
sleep disturbances	.51	27.90	2	.001	.67	.71
use of sleeping medication	.35	42.72	2	.001	.61	.64
daytime dysfunction	.50	28.20	2	.001	.67	.71
total sleep quality	.52	26.79	2	.001	.68	.72

Based on the results of Table 4, it shows that Mauchly's Test of Sphericity for sleep quality is significant at the level of 0.001 (P value is smaller than 0.050). This finding indicates that the variance of the differences between the levels of the dependent variables is significantly different. The assumption of variance analysis of sphericity is not respected. Violation of the default assumption of sphericity causes the F statistic of variance analysis to be inaccurate. To solve this problem and increase the accuracy of the F statistic, the degrees of freedom are corrected using

the Greenhouse-Geisser and Huynh-Feldt methods. Which correction method to use, according to the suggestion of Stevens (1996; cited 49), if the epsilon value is greater than 0.75, then Huon-Flat correction and if epsilon is smaller than 0.75 or there is no information about sphericity. Greenhouse-Geisser correction is used. In the present study, the epsilon value for the Greenhouse-Geyser index for sleep quality is smaller than 0.75, so Greenhouse-Geyser epsilon was used. Therefore, taking into account the Greenhouse-Geisser correction, the results of the analysis of variance test with repeated measurements are reported in Table 5 to investigate the difference of the research sample in the three stages of pre-test, post-test and follow-up of the sleep quality variable.

Table 5. Results of tests of within-subjects effects and tests of within-subjects contrasts (Greenhouse-Geisser correction) of sleep quality

Variables	Source	F	df	Sig	Partial Eta	Observed Power ^a
subjective sleep quality	group	5.46	2	.0001	.21	.82
	factor	89.75	1.20	.001	.68	1.00
	factor * group	15.68	2.40	.001	.43	1.00
sleep latency	group	5.40	2	.008	.20	.82
	factor	39.72	1.27	.001	.49	1.00
	factor * group	7.00	2.54	.001	.25	.95
sleep duration	group	5.35	2	.008	.20	.81
	factor	39.35	1.22	.001	.48	1.00
	factor * group	5.24	2.43	.001	.20	.86
habitual sleep efficiency	group	7.40	2	.002	.26	.92
	factor	43.24	1.42	.001	.51	1.00
	factor * group	6.56	2.84	.001	.24	.96
sleep disturbances	group	8.77	2	.001	.29	.96
	factor	106.51	1.34	.001	.72	1.00
	factor * group	20.60	2.68	.001	.49	1.00
use of sleeping medication	group	3.05	2	.001	.25	.91
	factor	26.55	1.21	.001	.39	1.00
	factor * group	5.36	2.43	.001	.20	.90
daytime dysfunction	group	10.07	2	.001	.32	.98
	factor	23.15	1.34	.001	.35	1.00
	factor * group	6.56	2.67	.001	.24	.95
total sleep quality	group	47.72	2	.001	.69	1.00
	factor	396.89	1.35	.001	.82	1.00
	factor * group	69.72	2.70	.001	.77	1.00

The results of Table 5 showed that the emotion-focused therapy and the mindfulness-based cognitive therapy has a significant effect on improving the quality of sleep. In the following, the two-by-two comparison of the pairwise comparisons of the test stages (pre-test, post-test and

followup) on the improvement of sleep quality to check the durability of the results in the follow-up stage is given in Table 6.

Table 6. Benferoni post hoc test results of sleep quality to study the stability of the results

Variables	stage	pairwise comparisons	mean difference	stage difference	Sig
subjective sleep quality	pre-test	2.49	pretest-posttest	1.00	.001
	post-test	1.49	pretest-follow up	.98	.001
	follow up	1.51	posttest -follow up	-.02	.999
sleep latency	pre-test	1.53	pretest-posttest	.73	.001
	post-test	.80	pretest-follow up	-.69	.001
	follow up	.84	posttest -follow up	-.04	.994
sleep duration	pre-test	1.58	pretest-posttest	.71	.001
	post-test	.87	pretest-follow up	.67	.001
	follow up	.91	posttest -follow up	-.04	.994
habitual sleep efficiency	pre-test	1.49	pretest-posttest	.62	.001
	post-test	.87	pretest-follow up	.58	.001
	follow up	.91	posttest -follow up	-.04	.994
sleep disturbances	pre-test	2.16	pretest-posttest	.84	.001
	post-test	1.31	pretest-follow up	.78	.001
	follow up	1.38	posttest -follow up	-.07	.272
use of sleeping medication	pre-test	1.49	pretest-posttest	.67	.001
	post-test	.82	pretest-follow up	.62	.001
	follow up	.87	posttest -follow up	-.04	.994
daytime dysfunction	pre-test	1.51	pretest-posttest	.56	.001
	post-test	.56	pretest-follow up	.49	.001
	follow up	1.02	posttest -follow up	-.07	.561

total sleep quality	pre-test	12.24	pretest-posttest	5.13	.001
	post-test	7.11	pretest-follow up	4.80	.001
	follow up	7.44	posttest -follow up	-.33	.056

Based on the results of Table 6, emotion-focused therapy and mindfulness-based cognitive therapy had an effect on improving sleep quality and its dimensions in the post-test stage, and its therapeutic effects were lasting and stable after 2 months. Table 7 shows the results of the follow-up test of the sleep quality, to investigate more effective treatment.

Table 7. Benferoni post hoc test results for investigate more effective treatment

Variables	group	pairwise comparisons	treatment difference	mean difference	Sig
subjective sleep quality	EFT	1.58	EFT - MBCT	-.11	.999
	MBCT	1.69	EFT - control	-.64	.011
	Control	2.22	MBCT - control	-.53	.043
sleep latency	EFT	.91	EFT - MBCT	-.02	.999
	MBCT	.93	EFT - control	-.42	.017
	Control	1.33	MBCT - control	-.40	.025
sleep duration	EFT	.91	EFT - MBCT	-.07	.999
	MBCT	.98	EFT - control	-.56	.014
	Control	1.47	MBCT - control	-.49	.035
habitual sleep efficiency	EFT	.84	EFT - MBCT	-.13	.999
	MBCT	1.98	EFT - control	-.60	.002
	Control	1.44	MBCT - control	-.47	.020
sleep disturbances	EFT	1.31	EFT - MBCT	-.16	.999
	MBCT	1.47	EFT - control	-.76	.011
	Control	2.07	MBCT - control	-.60	.009
use of sleeping medication	EFT	.87	EFT - MBCT	-.09	.999
	MBCT	.96	EFT - control	-.49	.003
	Control	1.36	MBCT - control	-.40	.018
daytime dysfunction	EFT	.93	EFT - MBCT	-.07	.999
	MBCT	1.00	EFT - control	-.62	.001
	Control	1.56	MBCT - control	-.56	.002

total sleep quality	EFT	7.36	EFT - MBCT	-0.64	.479
	MBCT	8.00	EFT - control	-4.09	.001
	Control	11.44	positivity - control	-3.44	.001

According to Table 7, the results showed that the average difference between the emotion-focused therapy group and the control group is greater than the average difference between the mindfulness-based cognitive therapy group and the control group, which indicates that the emotion-focused therapy is more effective than the mindfulness-based cognitive therapy on sleep quality.

Discussion and Conclusion:

The aim of the present study was to compare the effectiveness of emotion-focused therapy and mindfulness-based cognitive therapy on sleep quality in patients with generalized anxiety disorder. The results showed that Emotion-Focused Therapy significantly improves sleep quality in patients with generalized anxiety disorder. This finding aligns with studies by Dana and et al (32) and Omrani and et al (31), which demonstrated the effectiveness of Emotion-Focused Therapy in enhancing sleep quality. In explaining this result, it can be said that emotion-focused therapy is an experiential approach (50, 51) that views emotion as the basis of experience, playing a crucial role in adaptive and maladaptive functioning (52, 53). According to this therapy, change occurs by assisting the client through the representation of emotion (expression, regulation, feedback, and the transfer of emotional experience). This process of change is facilitated within the context of the therapeutic relationship. (54). Moreover, the main focus of emotion-focused therapy is that emotion is a fundamental component of the individual's structure and a key factor in self-organization. The primary function of emotion is seen as an adaptive form of information processing and preparation that directs behavior and reduces sleep problems in individuals with anxiety disorders. In this approach, efforts are made to identify emotions and transform them into understandable messages and constructive behaviors. The inability to interpret emotional situations may lead to issues in cognitive, psychological, and emotional processing. Emotional abilities, defined as the capacity to recognize and express emotions and adapt to challenging situations, enhance an individual's psychological resilience, allowing them to experience greater psychological calm and, consequently, better-quality sleep at night. Therefore, it is reasonable to conclude that Emotion-Focused Therapy is effective in improving sleep quality in patients with generalized anxiety disorder.

On the other hand, the results showed that mindfulness-based cognitive therapy is effective in improving sleep quality in patients with generalized anxiety disorder. This finding aligns with studies by Javadi and Ghorbani (41) and Dana and et al (32), which have demonstrated the effectiveness of mindfulness-based cognitive therapy in enhancing sleep quality. This result can be explained by the fact that mindfulness-based cognitive therapy includes exercises such as mindful eating, body scanning with a focus on short breathing, seated meditation, recording pleasant events, mindful walking, the three-minute breathing space, exercises for staying in the present moment, and awareness of sounds and thoughts, both during and outside of sessions,

along with homework assignments and structured programs—all aimed at increasing attention and staying in the present. This enhanced attention involves individuals being more aware of their experiences, feelings, thoughts, and bodily sensations (38). mindfulness-based cognitive therapy also teaches individuals how to disengage from habitual skills and shift their focus on breathing to reorient information-processing resources. Thus, mindfulness training helps individuals to stop trying to control their sleep and instead develop a different relationship with their thoughts and emotions. Additionally, Segal and et al (35) describe that eliminating maladaptive behaviors, such as conditioning to a specific environment or time for sleep, is a crucial component in treating sleep issues. Through mindfulness practice, which is cultivated during therapy, individuals shift their focus from maladaptive experiences to present experiences. People with poor sleep quality often tend to attribute various issues, such as fatigue, lethargy, decreased performance, and mood disturbances, to their sleep. Mindfulness increases awareness of signs of fatigue and reduced performance associated with sleepiness. Individuals with Generalized Anxiety Disorder often experience fatigue and insomnia due to environmental, familial, and related worries (41), and mindfulness programs enhance their mental focus and sleep hygiene. Therefore, it is reasonable to conclude that Mindfulness-Based Cognitive Therapy effectively improves sleep quality in patients with generalized anxiety disorder.

The results ultimately indicated that emotion-focused therapy has a greater effect on improving sleep quality in patients with generalized anxiety disorder compared to mindfulness-based cognitive therapy. There is no previous study directly comparing the efficacy of emotion-focused therapy over mindfulness-based cognitive therapy for improving sleep quality in generalized anxiety disorder patients, so it is unclear how this finding aligns with or diverges from prior research. To explain this result, that emotion-focused therapy may be more effective than mindfulness-based cognitive therapy in enhancing sleep quality in generalized anxiety disorder patients, it can be argued that, within an emotion-focused approach, emotions are considered foundational to the self and a primary factor in self-organization. Beyond simply experiencing emotions, individuals continuously engage in a process of understanding their emotions. Personal meaning emerges through self-organization and the interpretation of one's emotional experience, with optimal adaptation requiring the integration of reason and emotion (55). Emotion-focused therapy serves as a valuable, timely guide for clinicians seeking to enhance their clinical effectiveness, as emotion-focused therapy can significantly improve individuals' emotion regulation (56). Furthermore, emotion-focused therapy provides a compassionate therapeutic relationship and addresses symptoms (e.g., insomnia) by strengthening internal coping resources and employing experiential work that targets both the functionality and emotional costs of processes that generate and maintain symptoms. This approach ultimately improves sleep problems and enhances sleep quality in individuals with generalized anxiety disorder. Therefore, it is reasonable to conclude that Emotion-Focused Therapy is more effective than Mindfulness-Based Cognitive Therapy in improving sleep quality in patients with generalized anxiety disorder.

Limitations of the Research: One limitation of this study is that it only examined patients with generalized anxiety disorder in Tehran, and the only tool used for identifying individuals with generalized anxiety disorder was a self-report questionnaire. This reliance on self-reporting may lead to socially desirable responses. To address these limitations, future research could be conducted in other cities and employ additional tools, such as interviews, alongside questionnaires. It is also recommended to replicate such studies with diverse samples, including gender-separated groups of generalized anxiety disorder patients, to examine gender-based differences. The follow-up period in this study was two months; thus, future research could consider a longer follow-up period (over six months or even a year) to assess the long-term effectiveness and durability of Emotion-Focused Therapy and Mindfulness-Based Cognitive Therapy.

Application of the Research: Based on the study's results, several practical recommendations can be made. Therapists and psychology professionals are encouraged to apply these therapeutic interventions to reduce sleep problems in patients with generalized anxiety disorder. Consequently, organizations such as the Iranian Psychological Association, counseling centers, and psychological service providers responsible for planning and treatment in the field of psychological disorders can utilize these findings to improve sleep-related issues in generalized anxiety disorder patients.

Ethical Considerations: In this study, ethical considerations were meticulously observed, including: obtaining informed consent from patients with generalized anxiety disorder to participate in therapeutic interventions; assuring participants that their responses would not be analyzed individually but as part of a group, with confidentiality guaranteed and no access granted to any third party; explaining the study process to all participants; informing them about the study's objectives, the harmlessness of the intervention, and its potential benefits; clarifying the expertise and qualifications of the intervention providers; assuring participants of the scientific foundation of the method; and notifying them of their right to withdraw freely at any stage of the study. Participants were also informed that a competent organization, such as the university, would oversee the research process. Additional measures included emphasizing the voluntary nature of the study, providing answers to their questions, offering access to the results upon request, and ensuring that intensive therapeutic sessions would be made available to the control group after the follow-up phase. Furthermore, this study received ethical approval under the code [IR.IAU.SHAHROOD.REC.1402.083](#) from the Ethics in Research Committee of the Islamic Azad University, Shahrood Branch.

Acknowledgments: We extend our gratitude to all participants (patients with generalized anxiety disorder) who responded to the research questions and contributed to the implementation of this study. According to the authors, this article has no financial support or conflicts of interest.

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