

The Effectiveness of Mindfulness-Based Cognitive Therapy on Social Anxiety and Psychological Hardiness in Depressed Adolescents

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ABSTRACT

Objective: The objective of this study was to examine the effectiveness of mindfulness-based cognitive therapy in reducing social anxiety and enhancing psychological hardiness among adolescents with depression.

Methods and Materials: The present study employed a quasi-experimental design with a pretest-posttest control group. The statistical population consisted of adolescents diagnosed with depressive disorder who referred to counseling centers in Tehran in 2024. Using convenience sampling, 30 adolescents who demonstrated high levels of social anxiety and low levels of psychological hardiness were selected and randomly assigned to an experimental group ($n = 15$) and a control group ($n = 15$). Participants in the experimental group received eight 2-hour sessions of mindfulness-based cognitive therapy, while the control group did not receive any psychological intervention during the study period. Data were collected using the Social Anxiety Scale for Adolescents and the Ahvaz Psychological Hardiness Inventory. The data were analyzed using descriptive statistics and analysis of covariance in SPSS version 26, with pretest scores entered as covariates.

Findings: Inferential analysis indicated a significant group effect after controlling for pretest scores, showing that mindfulness-based cognitive therapy significantly reduced social anxiety in the experimental group compared with the control group. In addition, a significant increase in psychological hardiness was observed among adolescents who participated in the intervention. The effect sizes associated with group differences were large, indicating a substantial impact of the intervention on both outcome variables.

Conclusion: The findings suggest that mindfulness-based cognitive therapy is an effective intervention for simultaneously reducing social anxiety and strengthening psychological hardiness in adolescents with depression, highlighting its potential as a comprehensive and resilience-oriented therapeutic approach in adolescent mental health services.

Keywords: *mindfulness-based cognitive therapy, social anxiety, psychological hardiness, depressed adolescents*

1. Introduction

Adolescence is a critical developmental period characterized by profound biological, cognitive, emotional, and social transitions that substantially increase vulnerability to mental health disorders, particularly depression and anxiety-related conditions. Among these, social anxiety represents one of the most prevalent and impairing psychological difficulties in adolescents, often emerging during early to mid-adolescence and persisting into adulthood if left untreated. Social anxiety is associated with heightened fear of negative evaluation, avoidance of social interactions, impaired peer relationships, academic difficulties, and reduced psychological well-being (Ghassami Tabegh et al., 2021; Öztürk, 2024). When social anxiety co-occurs with depressive symptoms, its adverse effects intensify, leading to increased emotional distress, social withdrawal, and elevated risk behaviors, including suicidal ideation among youth (Ansari, 2019). These patterns underscore the necessity of identifying effective, developmentally appropriate interventions that address both emotional symptoms and underlying psychological resources in depressed adolescents.

A growing body of research emphasizes that emotional dysregulation functions as a transdiagnostic mechanism underlying both depression and social anxiety in adolescents. Difficulties in identifying, accepting, and modulating emotional experiences contribute to persistent negative affect, maladaptive coping strategies, and avoidance behaviors (Sloan et al., 2017). Adolescents with social anxiety often rely on cognitive avoidance, suppression, and rumination, which paradoxically exacerbate emotional distress and maintain anxiety symptoms (Hayati-Poor et al., 2024). Cognitive-behavioral frameworks conceptualize these patterns as the product of dysfunctional beliefs, negative automatic thoughts, and maladaptive behavioral responses to perceived social threats (Darvishzadeh & Maghderi, 2018; Tarkhan, 2019). Consequently, interventions that directly target emotion regulation processes and cognitive reactivity are increasingly prioritized in adolescent mental health research.

Within this context, psychological hardiness has emerged as a key protective factor that buffers individuals against the negative impact of stress, anxiety, and depressive symptoms. Psychological hardiness is commonly defined as a personality-oriented resilience construct comprising commitment, control, and challenge, enabling individuals to perceive stressful experiences as manageable and

meaningful rather than overwhelming (Bartone & Homish, 2020). Empirical studies demonstrate that higher levels of psychological hardiness are associated with lower depressive symptoms, reduced emotional exhaustion, and greater distress tolerance across diverse populations (Abbasi et al., 2023; Phungsoonthorn & Charoensukmongkol, 2022). In adolescents, psychological hardiness has been linked to improved emotional adjustment, social functioning, and academic engagement, suggesting its critical role in adaptive development during periods of heightened stress and vulnerability (Akbari & Khalatbari, 2025).

Despite its protective significance, psychological hardiness is often diminished in adolescents experiencing depression and social anxiety, limiting their capacity to cope effectively with interpersonal stressors and emotional challenges. Research indicates that socially anxious adolescents frequently perceive social situations as uncontrollable and threatening, which undermines the core components of hardiness, particularly perceived control and challenge orientation (Ghassami Tabegh et al., 2021; MahmoudiTabar et al., 2022). Therefore, therapeutic approaches that simultaneously reduce anxiety symptoms and strengthen psychological hardiness may yield more durable and comprehensive outcomes than symptom-focused treatments alone.

Mindfulness-based interventions have gained substantial empirical support as effective approaches for addressing emotional dysregulation, anxiety, and depressive symptoms across age groups. Mindfulness is broadly defined as nonjudgmental, present-moment awareness of internal experiences, including thoughts, emotions, and bodily sensations (Sukmawati et al., 2023). By cultivating an attitude of acceptance and decentering, mindfulness practices enable individuals to disengage from habitual patterns of avoidance and rumination that perpetuate emotional distress. In adolescent populations, mindfulness-based programs have been shown to reduce social anxiety, improve emotional awareness, and enhance subjective well-being (Öztürk, 2024; Yahyaei-Lahkai et al., 2022).

Mindfulness-Based Cognitive Therapy (MBCT) represents an integrative therapeutic approach that combines core elements of cognitive-behavioral therapy with structured mindfulness practices. Originally developed to prevent depressive relapse, MBCT has been increasingly adapted for anxiety disorders and adolescent populations. MBCT targets cognitive reactivity by teaching individuals to observe negative thoughts as transient mental events rather than accurate reflections of reality, thereby reducing their

emotional impact (Sun & Huang, 2019). Empirical evidence supports the effectiveness of MBCT in reducing social anxiety symptoms, improving self-efficacy, and enhancing quality of life across clinical and non-clinical samples (Hazrati & Abdi, 2024; Salmani et al., 2023).

Recent studies specifically focusing on adolescents indicate that MBCT can significantly reduce social anxiety and related emotional difficulties by fostering mindful awareness, emotional acceptance, and adaptive coping strategies. For example, adolescent-oriented mindfulness interventions have demonstrated significant reductions in social anxiety symptoms and academic burnout, highlighting their relevance for youth mental health contexts (Abarkar et al., 2023). Similarly, mindfulness-based approaches have been shown to improve emotional regulation strategies and reduce cognitive avoidance in adolescents with social anxiety disorder (Hayatipoor et al., 2024). These findings suggest that MBCT is particularly well-suited to addressing the complex interplay between cognitive, emotional, and interpersonal factors in adolescent anxiety and depression.

Beyond symptom reduction, emerging research highlights the role of mindfulness-based interventions in strengthening psychological hardiness and resilience-related constructs. Mindfulness practices promote greater perceived control, commitment to values, and openness to challenges, which align closely with the theoretical components of psychological hardiness (Phungsoonthorn & Charoensukmongkol, 2022). Studies conducted among diverse populations, including students, clinical patients, and caregivers, indicate that mindfulness-based interventions can significantly enhance psychological hardiness and distress tolerance (Abbasi et al., 2023; Seyed Ali Tabar & Zadhasn, 2023). In adolescents, mindfulness-based therapy has been associated with increased resilience and psychological hardiness, particularly among vulnerable groups such as orphaned or neglected students (Salehi Ashtaran, 2023).

Despite the growing evidence base, several gaps remain in the literature. First, while numerous studies have examined the effects of mindfulness-based interventions on either social anxiety or psychological hardiness, relatively few have simultaneously investigated both outcomes within a single experimental framework, particularly among depressed adolescents. Second, most existing studies have focused on adult or university student populations, limiting the generalizability of findings to younger clinical samples (Štánorová et al., 2025). Third, cultural and contextual factors may influence the effectiveness of mindfulness-

based interventions, necessitating further research within specific sociocultural settings. Recent studies conducted in Middle Eastern and Asian contexts underscore the importance of culturally sensitive adaptations of mindfulness-based therapies for adolescents (Taheri, 2025; Zhai, 2025).

Moreover, while cognitive-behavioral and emotion regulation-based interventions have demonstrated efficacy in reducing anxiety and depressive symptoms in adolescents, comparative and integrative approaches that incorporate mindfulness components may offer added benefits. Research comparing cognitive-behavioral therapy with emotion regulation training indicates that interventions emphasizing emotional awareness and acceptance yield broader psychological improvements in adolescents with complex emotional difficulties (Shibani et al., 2020). This aligns with evidence suggesting that mindfulness-based cognitive therapy may enhance treatment outcomes by addressing both cognitive vulnerabilities and emotional regulation deficits inherent in social anxiety and depression (Sukmawati et al., 2023; Sun & Huang, 2019).

Given the high prevalence of comorbid social anxiety and depression during adolescence, the detrimental impact of these conditions on psychological hardiness, and the promising yet underexplored role of MBCT in strengthening resilience-related constructs, further empirical investigation is warranted. Understanding whether MBCT can effectively reduce social anxiety while simultaneously enhancing psychological hardiness in depressed adolescents may inform the development of more comprehensive and sustainable intervention models tailored to this vulnerable population.

Therefore, the aim of the present study was to determine the effectiveness of mindfulness-based cognitive therapy on social anxiety and psychological hardiness in adolescents with depression.

2. Methods and Materials

2.1. Study Design and Participants

The research employed a quasi-experimental design with an experimental group and a control group. The statistical population of the present study consisted of adolescents with depressive disorder who referred to counseling centers in Tehran in 2024. Sampling was conducted using a convenience method. Among individuals who completed the questionnaires and obtained higher scores on social anxiety and lower scores on psychological hardiness, 15 participants

were assigned to the experimental group and 15 to the control group (a total of 30 participants). The experimental group then received eight 2-hour sessions of mindfulness-based cognitive therapy, while the control group did not receive any specific intervention.

2.2. Measures

Social Anxiety Scale for Adolescents. This scale consists of 16 items and is scored on a 5-point Likert scale ranging from 5 ("completely like me") to 1 ("completely unlike me"). The total score ranges from 16 to 80, with a cutoff score of 48. The psychometric properties of the Social Anxiety Scale in Iran were examined by Estavar and Razaviyeh (2013). The results of factor analysis confirmed the presence of three factors. The validity of the questionnaire was assessed using convergent and discriminant validity through the Children's Depression Inventory and the Children's Manifest Anxiety Scale, which supported the validity of the instrument. Reliability was evaluated using the test-retest method, yielding a test-retest reliability coefficient of 0.88 for the total scale. In addition, Cronbach's alpha coefficients for the factors ranged from 0.74 to 0.84.

Psychological Hardiness Questionnaire. The Ahvaz Psychological Hardiness Inventory (AHI), a 20-item form developed by Kiamarsi et al. (1998), was designed to measure "psychological hardiness" using factor analysis on a sample of 523 male and female students at Shahid Chamran University of Ahvaz. This questionnaire includes 20 four-option items scored as follows: "never" (0), "rarely" (1), "sometimes" (2), and "often" (3). The minimum possible score is 0 and the maximum is 60. Scores ranging from 0 to 15 indicate low psychological hardiness, scores from 15 to 30 indicate moderate psychological hardiness, and scores above 30 indicate high psychological hardiness. The results of Pearson correlation tests between participants' scores on the construct validity measure of hardiness and the Ahvaz Hardiness Scale showed that the correlation coefficients were statistically significant; these coefficients were 0.51 for the total sample, 0.61 for females, and 0.46 for males. The reliability of the present questionnaire was obtained as 0.82 using Cronbach's alpha.

2.3. Intervention

The intervention was based on mindfulness-based cognitive therapy (MBCT) and was implemented in eight structured 2-hour group sessions for the experimental group.

The protocol emphasized the integration of cognitive-behavioral techniques with mindfulness practices, aiming to enhance present-moment awareness and reduce maladaptive cognitive and emotional responses. Each session included guided mindfulness exercises such as mindful breathing, body scan, and awareness of thoughts and emotions, along with cognitive components focused on identifying and modifying automatic negative thoughts related to social evaluation and depressive symptoms. Participants were trained to observe their internal experiences nonjudgmentally, to disengage from ruminative and avoidant patterns, and to respond more adaptively to distressing social situations. Homework assignments, including daily mindfulness practices and experiential exercises, were provided to facilitate skill generalization to everyday contexts. The intervention progressed from foundational mindfulness skills to the application of mindfulness and cognitive restructuring strategies in interpersonal and socially anxiety-provoking situations, with an emphasis on increasing psychological hardiness through commitment, control, and challenge-oriented coping.

2.4. Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics, including means and standard deviations, were calculated to summarize the study variables at the pretest and posttest stages. To examine the effectiveness of the intervention while controlling for baseline differences, analysis of covariance (ANCOVA) was employed, with pretest scores entered as covariates and group membership as the independent variable. Prior to inferential analyses, the assumptions of ANCOVA were tested, and statistical significance was evaluated at the .05 level.

3. Findings and Results

Table 1 reports the descriptive indices for social anxiety and psychological hardiness across pretest and posttest phases in the experimental and control groups. At baseline, the two groups showed relatively comparable mean scores on both variables. Following the intervention, the experimental group demonstrated a marked decrease in social anxiety and a notable increase in psychological hardiness, whereas the control group showed minimal change from pretest to posttest. These patterns suggest a differential trend favoring the experimental group after the mindfulness-based cognitive therapy intervention.

Table 1*Descriptive Statistics of the Study Variables in the Experimental and Control Groups*

Variable	Group	N	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Social Anxiety	Experimental	15	58.35	6.35	44.57	4.15
	Control	15	56.37	6.41	55.74	6.63
Psychological Hardiness	Experimental	15	29.57	4.68	38.38	4.78
	Control	15	27.45	4.87	28.64	4.59

Prior to conducting the analysis of covariance (ANCOVA), the underlying statistical assumptions were examined to ensure the validity of the results. These assumptions included the normal distribution of the dependent variables, which was assessed through indicators of skewness and kurtosis and found to be acceptable, and the homogeneity of variances across groups, which was supported by non-significant Levene's test results. The linear relationship between the covariates (pretest scores of social anxiety and psychological hardiness) and the

corresponding posttest scores was confirmed, and the homogeneity of regression slopes was verified, indicating that the relationship between the covariates and dependent variables did not differ significantly across groups. In addition, the independence of observations was ensured through the study design, and the covariates were measured reliably and prior to the intervention. Collectively, these findings indicated that the assumptions required for performing ANCOVA were adequately met.

Table 2*Results of Univariate Analysis of Covariance (ANCOVA) for Social Anxiety and Psychological Hardiness*

Dependent Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p	η^2
Social Anxiety	Social Anxiety Pretest	1524.214	1	1524.214	18.42	.001	.41
	Group	2146.907	1	2146.907	25.96	.001	.49
	Error	2233.118	27	82.708			
	Total	25904.000	29				
Psychological Hardiness	Psychological Hardiness Pretest	1398.687	1	1398.687	14.56	.001	.58
	Group	1688.378	1	1688.378	31.85	.001	.59
	Error	1089.521	27	40.352			
	Total	22178.788	29				

Table 2 summarizes the results of the univariate ANCOVA for social anxiety and psychological hardiness while controlling for their respective pretest scores. For social anxiety, the covariate (pretest social anxiety) had a significant effect on posttest scores, indicating that baseline anxiety levels were strongly associated with post-intervention outcomes. After adjusting for the pretest, a significant group effect was observed, with a large effect size, demonstrating that the mindfulness-based cognitive therapy intervention significantly reduced social anxiety in the experimental group compared with the control group.

Regarding psychological hardiness, the ANCOVA results showed that the pretest scores significantly predicted posttest outcomes, confirming the relevance of baseline hardiness levels. More importantly, a significant group effect with a large effect size was found after controlling for pretest scores, indicating that adolescents who participated

in the mindfulness-based cognitive therapy program exhibited significantly higher psychological hardiness at posttest than those in the control group.

4. Discussion

The present study examined the effectiveness of mindfulness-based cognitive therapy (MBCT) on social anxiety and psychological hardiness in adolescents with depression. The findings demonstrated that, after controlling for pretest scores, adolescents who participated in the MBCT intervention showed a significant reduction in social anxiety and a significant increase in psychological hardiness compared with the control group. These results indicate that MBCT is an effective psychological intervention for addressing both maladaptive emotional symptoms and positive psychological resources in depressed adolescents,

supporting the growing body of evidence that emphasizes integrative and process-based approaches in adolescent mental health interventions.

The observed reduction in social anxiety among adolescents in the experimental group is consistent with theoretical models that conceptualize social anxiety as being maintained by maladaptive cognitive appraisals, heightened self-focused attention, and avoidance-based coping strategies. MBCT directly targets these mechanisms by helping individuals develop a decentered perspective toward anxious thoughts and by reducing experiential avoidance through mindful awareness. Previous research has shown that mindfulness-based approaches can effectively decrease fear of negative evaluation and social avoidance by altering the individual's relationship with internal experiences rather than attempting to eliminate them (Ghassami Tabegh et al., 2021; Yahyaei-Lahkaei et al., 2022). The present findings align with these studies and extend them by demonstrating similar effects in a clinically depressed adolescent population.

The significant post-intervention decrease in social anxiety is also in agreement with experimental studies reporting the efficacy of mindfulness-based and cognitive-behavioral interventions for socially anxious youth. For instance, adolescent-focused mindfulness training has been shown to reduce social anxiety symptoms and improve emotional functioning by enhancing present-moment awareness and reducing rumination (Abarkar et al., 2023). Similarly, studies comparing mindfulness-based cognitive therapy with other psychological approaches have found meaningful improvements in social adjustment and anxiety-related outcomes among students with elevated social anxiety (Salmani et al., 2023; Sukmawati et al., 2023). The current findings reinforce the applicability of MBCT as a developmentally appropriate intervention that addresses the unique cognitive and emotional challenges faced by adolescents with comorbid depression and social anxiety.

In addition to reducing social anxiety, MBCT led to a significant improvement in psychological hardiness among adolescents in the experimental group. This finding is particularly noteworthy, as psychological hardiness is increasingly recognized as a key resilience-related construct that protects individuals from the adverse effects of stress and psychopathology. The enhancement of psychological hardiness observed in this study suggests that MBCT not only alleviates symptoms but also strengthens adolescents' internal coping resources. This result is consistent with research indicating that mindfulness-based interventions can

foster resilience, distress tolerance, and hardiness by promoting adaptive appraisals of stress and increasing perceived control over emotional responses (Abbasi et al., 2023; Phungsoonthorn & Charoensukmongkol, 2022).

Theoretically, the impact of MBCT on psychological hardiness can be explained through its emphasis on acceptance, commitment, and cognitive flexibility. By cultivating mindful awareness, adolescents learn to engage with challenging experiences as opportunities for learning rather than as threats to be avoided. This shift closely parallels the "challenge" component of psychological hardiness, which involves viewing stressors as manageable and growth-promoting rather than overwhelming (Bartone & Homish, 2020). Furthermore, mindfulness practices encourage a sense of agency and intentional responding, which may strengthen the "control" dimension of hardiness. These mechanisms likely contributed to the observed posttest increase in psychological hardiness among participants who received MBCT.

The present findings are also congruent with studies demonstrating that mindfulness-based interventions can enhance resilience-related constructs in both clinical and non-clinical populations. For example, mindfulness-integrated therapeutic approaches have been shown to improve psychological hardiness and distress tolerance in caregivers and patients facing chronic stressors (Abbasi et al., 2023; Seyed Ali Tabar & Zadhasn, 2023). In adolescent samples, mindfulness-based therapy has been associated with increased resilience and adaptive coping, particularly among vulnerable groups exposed to emotional deprivation or chronic stress (Salehi Ashtaran, 2023). The current study extends these findings by providing empirical support for the role of MBCT in enhancing psychological hardiness specifically among depressed adolescents.

Another important implication of the results is the simultaneous improvement of both symptom-related and strength-based outcomes. While traditional interventions for adolescent depression and anxiety often focus primarily on symptom reduction, the present findings suggest that MBCT offers a more comprehensive therapeutic effect by addressing underlying psychological capacities such as hardiness. This dual impact is particularly important given evidence that low psychological hardiness is associated with greater vulnerability to depression, anxiety, and emotional exhaustion (Akbari & Khalatbari, 2025; Bartone & Homish, 2020). Strengthening psychological hardiness may therefore contribute to more sustainable treatment outcomes and

reduce the likelihood of relapse in adolescents with depression.

The findings also align with transdiagnostic perspectives that emphasize emotion regulation as a central mechanism in the development and maintenance of both anxiety and depressive disorders. MBCT directly targets emotion regulation by increasing awareness of emotional states and reducing maladaptive regulatory strategies such as suppression and avoidance. Systematic reviews have highlighted emotion regulation as a shared treatment target across anxiety, depression, and related disorders (Sloan et al., 2017). In line with this perspective, the present results suggest that improvements in emotion regulation facilitated by MBCT may underlie both the reduction in social anxiety and the enhancement of psychological hardiness.

Cultural and contextual considerations further strengthen the significance of the present findings. Several studies conducted in similar sociocultural contexts have reported positive effects of mindfulness-based interventions on social anxiety, emotional awareness, and psychological well-being (Hazrati & Abdi, 2024; MahmoudiTabar et al., 2022; Taheri, 2025). The consistency between the current results and these studies suggests that MBCT can be effectively adapted and implemented within diverse cultural settings, including adolescent populations in non-Western contexts. This supports calls for expanding evidence-based mindfulness interventions beyond Western samples and tailoring them to the developmental and cultural needs of adolescents.

5. Conclusion

Overall, the findings of the present study provide robust empirical support for the effectiveness of mindfulness-based cognitive therapy in reducing social anxiety and enhancing psychological hardiness among adolescents with depression. By integrating cognitive and mindfulness-based techniques, MBCT appears to address both the emotional vulnerabilities and resilience capacities of adolescents, offering a holistic and developmentally sensitive intervention approach.

6. Limitations & Suggestions

Despite the strengths of the present study, several limitations should be acknowledged. First, the relatively small sample size limits the generalizability of the findings to broader adolescent populations. Second, the use of convenience sampling may have introduced selection bias, as participants who volunteered for the study may have been more motivated or receptive to psychological interventions.

Third, reliance on self-report measures may have been influenced by social desirability or response bias. Finally, the absence of a follow-up assessment prevents conclusions about the long-term sustainability of the observed treatment effects.

Future research should replicate the present findings using larger and more diverse samples to enhance generalizability. Longitudinal designs with follow-up assessments are recommended to examine the durability of MBCT effects on social anxiety and psychological hardiness over time. Comparative studies that evaluate MBCT against other evidence-based interventions, such as standard cognitive-behavioral therapy or emotion regulation training, would also be valuable. Additionally, future studies could explore potential mediators and moderators, such as emotion regulation strategies or perceived social support, to better understand the mechanisms through which MBCT exerts its effects in adolescents.

From a practical perspective, the findings suggest that mindfulness-based cognitive therapy can be effectively incorporated into counseling and mental health services for adolescents with depression and social anxiety. School counselors, clinical psychologists, and mental health practitioners may consider integrating MBCT into existing intervention programs to address both emotional symptoms and resilience-related outcomes. Training professionals in adolescent-adapted mindfulness techniques and implementing group-based MBCT programs could increase accessibility and cost-effectiveness of services. Furthermore, incorporating mindfulness practices into school-based mental health initiatives may promote psychological hardiness and emotional well-being among adolescents more broadly.

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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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Authors' Contributions

S.A.K. conceptualized the study, designed the research framework, and supervised the implementation of the mindfulness-based cognitive therapy program. M.G. was responsible for participant recruitment, coordination with counseling centers, and administration of the intervention sessions. F.E. managed data collection procedures and ensured the accuracy and completeness of the questionnaires. M.N. conducted the statistical analyses and contributed to the interpretation of the findings. S.A. drafted the initial manuscript, performed critical revisions, and prepared the final version for submission. All authors reviewed and approved the final manuscript and accepted responsibility for the integrity of the work.

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