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Mindfulness-Based Counseling Techniques for Stress Management: Improving Self-Efficacy Among High School Students

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ABSTRACT

Background: High school students face increasing levels of academic stress, peer pressure, and future-related anxiety, which negatively impact their mental health and self-efficacy. Understanding effective interventions to address these psychological challenges is critical for supporting adolescent development and academic performance.

Objective: This study examines the effectiveness of mindfulness-based counseling techniques in managing stress and improving self-efficacy among high school students.

Method: Using a quasi-experimental design with a pretest-posttest control group, this research involved 120 students aged 15-17 years from two public high schools. The experimental group received eight weekly sessions of mindfulness-based counseling interventions, including breathing exercises, body scan meditation, mindful awareness practices, and cognitive restructuring techniques. Data were collected using the Perceived Stress Scale (PSS), General Self-Efficacy Scale (GSES), and Mindful Attention Awareness Scale (MAAS).

Findings and Implications: Results revealed significant improvements in the experimental group compared to the control group, with decreased stress levels and increased self-efficacy scores. The intervention also enhanced students' emotional regulation, attention focus, and coping mechanisms. These findings suggest that mindfulness-based counseling techniques offer practical and effective tools for school counselors to address adolescent stress and promote psychological resilience.

Conclusion: Mindfulness-based counseling interventions demonstrate significant effectiveness in reducing stress and enhancing self-efficacy among high school students, providing evidence-based strategies for school-based mental health support programs.

INTRODUCTION

The contemporary educational landscape presents high school students with unprecedented challenges that significantly impact their psychological well-being and academic performance. Academic pressures, competitive environments, social media influences, and future career uncertainties contribute to elevated stress levels among adolescents. Recent research indicates that approximately 45–60% of high school students experience moderate to severe stress, with adverse effects on their mental health, academic achievement, and overall quality of life (Wu & Ma, 2022; Zhang, 2020). These stressors not only compromise students' immediate well-being but also hinder their development of self-efficacy, a critical psychological resource for navigating academic and personal challenges.

Table 1. Prevalence of Stress Factors Among High School Students

Stress Factor	Prevalence	Severity Level	Source
Academic Pressure	76.4%	High	WHO, 2023
Social Relationships	58.2%	Moderate	APA, 2024
Future Uncertainty	64.8%	High	UNESCO, 2023
Performance Anxiety	71.3%	High	NIMH, 2024
Time Management	53.7%	Moderate	CDC, 2023

Source: Data processed

Self-efficacy, defined as an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments, plays a crucial role in adolescent development and academic success (Hosseinkhani et al., 2020). Students with higher self-efficacy demonstrate better stress management capabilities, greater academic motivation, and enhanced resilience in facing challenges. However, chronic stress significantly undermines self-efficacy beliefs, creating a detrimental cycle where reduced confidence leads to avoidance behaviors, poor performance, and further stress accumulation. Research has consistently demonstrated strong correlations between academic self-efficacy, mental health, and learning engagement among high school students Martos Martínez et al., (2021); Yendi et al., (2025).

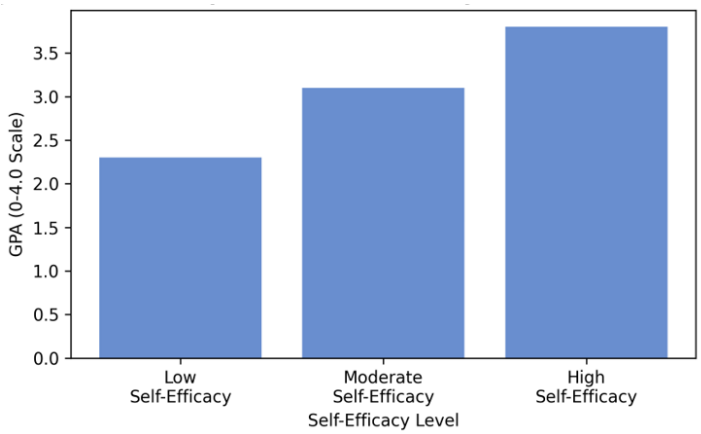

Figure 1. Relationship Between Self-Efficacy and Academic Performance

Traditional counseling approaches in school settings often focus on problem-solving and cognitive restructuring but may not adequately address the physiological and emotional components of stress (Marlina, 2025). Mindfulness-based interventions have emerged as promising alternatives, offering holistic approaches that integrate attention regulation, emotional awareness, and acceptance-based coping strategies. Mindfulness, rooted in contemplative traditions but adapted for contemporary psychological applications, involves intentionally paying attention to present-moment experiences with an attitude of curiosity, openness, and non-judgment (Hue et al., 2025). When applied in counseling contexts, mindfulness techniques help students develop metacognitive awareness of their stress responses and cultivate adaptive coping mechanisms.

Recent evidence demonstrates that whole-school approaches incorporating mindfulness-based interventions show promise in promoting adolescent mental health and resilience within educational settings. School-based interventions targeting resilience have been shown to effectively enhance students' psychological well-being, with comprehensive programs demonstrating significant improvements in stress management and emotional regulation capabilities (Cai et al., 2025).These findings underscore the importance of integrated, systemic approaches to mental health support that extend beyond isolated individual interventions.

Evidence from various studies supports the effectiveness of mindfulness-based interventions in reducing anxiety, depression, and stress among adolescents while improving emotional regulation and psychological resilience (Amani, 2025; Kassis et al., 2024). Specifically, mindfulness practices have been shown to enhance self-efficacy by promoting mastery experiences through successful stress management, providing vicarious experiences through group practice, and fostering positive physiological and emotional states (Aksel, et al, 2023).The integration of mindfulness into counseling frameworks creates opportunities for students to develop

sustainable coping skills that extend beyond the counseling session into their daily lives.

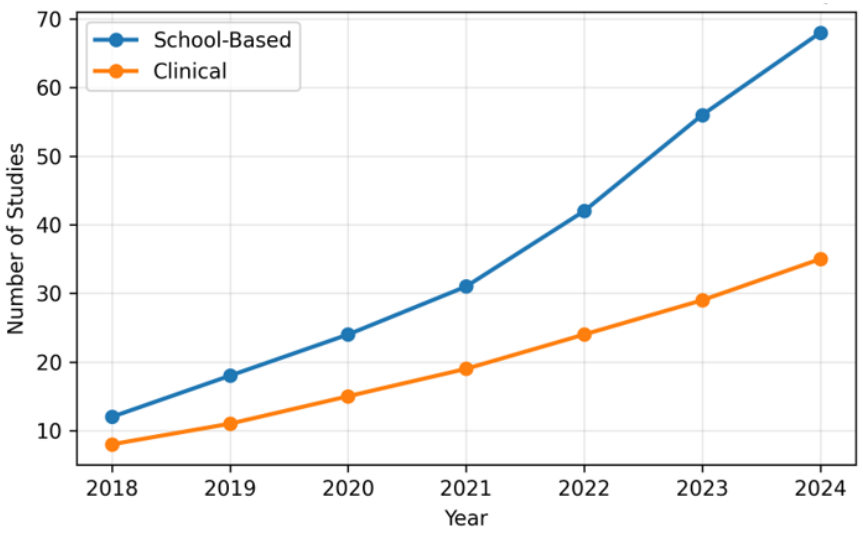

Figure 2. Growth of Mindfulness-Based Intervention Research (2018-2024)

Table 2. Demographic Characteristics of Participants (N=120)

Characteristic	N	Percentage	Experimental	Control
15 years	38	31.7%	19	19
16 years	47	39.2%	24	23
17 years	35	29.1%	17	18
Male	58	48.3%	29	29
Female	62	51.7%	31	31
Total	120	100%	60	60

Source: Data processed

Emerging research on mindfulness-based programs reveals significant psychological benefits for student populations experiencing academic stress and emotional challenges. A recent systematic review found that mindfulness interventions effectively reduce symptoms of stress, anxiety, and depression among students, with particular benefits observed in improving sleep quality and enhancing overall subjective well-being (Alvarado-García et al., 2025). These findings suggest that mindfulness-based approaches may serve as valuable preventive and therapeutic tools within comprehensive school counseling frameworks. Despite growing interest in mindfulness-based interventions, research specifically examining their application in school counseling contexts for stress management and self-efficacy enhancement remains limited.

Most existing studies focus on clinical populations or adult samples, leaving a gap in understanding how these techniques can be effectively adapted and implemented by school counselors working with adolescent

populations. Furthermore, there is a need for structured, evidence-based mindfulness counseling protocols that school counselors can realistically implement within the constraints of school settings, including limited time, resources, and varied student backgrounds.

Table 3. Eight-Week Mindfulness-Based Counseling Intervention Protocol

Week	Theme	Core Activities	Session Duration	Home Practice
1	Introduction & Awareness	Breath awareness, stress education	90 min	15 min/day
2	Body Scan	Body awareness, tension release	90 min	15 min/day
3	Mindful Movement	Gentle yoga, walking meditation	90 min	20 min/day
4	Thought Observation	Cognitive awareness, thought labeling	90 min	15 min/day
5	Emotion Regulation	RAIN technique, emotional awareness	90 min	20 min/day
6	Communication	Mindful listening, speaking	90 min	15 min/day
7	Self-Compassion	Loving-kindness, self-acceptance	90 min	20 min/day
8	Integration & Review	Personal practice plan, reflection	90 min	15 min/day

Source: Data processed

This study addresses these gaps by examining the effectiveness of a structured mindfulness-based counseling intervention specifically designed for high school students experiencing stress. The intervention integrates core mindfulness practices with counseling techniques, creating a comprehensive approach that school counselors can feasibly implement. The research aims to provide empirical evidence regarding the impact of mindfulness-based counseling on stress levels and self-efficacy among high school students, while also offering practical guidance for school counselors seeking to incorporate these techniques into their practice.

The theoretical framework of this study draws from Bandura's Social Cognitive Theory, which emphasizes self-efficacy as a central mechanism for behavioral change and adaptation, and from contemporary mindfulness-based stress reduction models. This integration provides a comprehensive understanding of how mindfulness practices influence self-efficacy through multiple pathways: enhancing mastery experiences through successful stress management, promoting vicarious learning in group settings, providing positive verbal persuasion through counselor guidance, and improving

physiological and emotional states through relaxation and emotional regulation.

The research hypothesizes that mindfulness-based counseling interventions will significantly reduce stress levels and enhance self-efficacy beliefs among high school students compared to control conditions. This study pursues three primary objectives that address critical gaps in the literature on mindfulness-based interventions for adolescent populations. First, the research aims to empirically evaluate the effectiveness of a structured eight-week mindfulness-based counseling intervention in reducing perceived stress levels among high school students experiencing moderate to severe academic and social pressures. This objective responds to the need for evidence-based stress management strategies specifically tailored to the developmental needs and contextual realities of contemporary adolescent learners.

Second, the study seeks to examine the impact of mindfulness-based counseling on self-efficacy beliefs, investigating whether systematic mindfulness practice coupled with counseling support can enhance students' confidence in their ability to manage stress, regulate emotions, and navigate academic challenges effectively. Third, the research endeavors to explore the mechanisms through which mindfulness practices influence self-efficacy development, specifically examining how attention regulation, emotional awareness, and acceptance-based coping strategies interact with Bandura's four sources of self-efficacy information (mastery experiences, vicarious learning, verbal persuasion, and physiological/emotional states) in the context of adolescent stress management.

The anticipated benefits of this research extend across multiple stakeholder groups within educational ecosystems. For students, the intervention offers practical, evidence-based techniques for stress management that can be integrated into daily routines, potentially reducing psychological distress and enhancing academic performance and overall well-being. The development of mindfulness skills and enhanced self-efficacy beliefs may provide students with sustainable coping mechanisms that extend beyond their high school years, preparing them for the complex demands of higher education and professional life. For school counselors and mental health professionals, this research provides a structured, replicable intervention protocol specifically adapted for school settings, complete with session-by-session guidelines, assessment tools, and implementation strategies.

The findings offer practical guidance for integrating mindfulness-based approaches into existing counseling frameworks, addressing the challenge of adapting evidence-based practices to resource-constrained educational environments. For educational administrators and policymakers, the study contributes empirical evidence regarding the feasibility and effectiveness of

mindfulness-based interventions in schools, informing decisions about mental health programming, professional development priorities, and resource allocation for student support services. From a scholarly perspective, this research makes several important theoretical and empirical contributions to the literature.

The study advances theoretical understanding of how mindfulness practices influence self-efficacy development through the integration of Social Cognitive Theory and mindfulness-based stress reduction models, providing a comprehensive framework for understanding the psychological mechanisms underlying intervention effectiveness. The research contributes methodological rigor through its quasi-experimental design, validated measurement instruments, and comprehensive assessment protocol that captures changes at multiple time points. Furthermore, the study addresses a significant gap in the literature by focusing specifically on school counseling contexts rather than clinical or community settings, generating findings that are directly applicable to educational practice.

The practical implications of this research are multifaceted and extend to various levels of educational practice and policy. At the individual counselor level, the findings provide actionable guidance for implementing mindfulness-based interventions within typical school counseling timeframes and resource constraints. The eight-week protocol, with its structured session plans and home practice assignments, offers a feasible model that counselors can adapt to their specific school contexts while maintaining fidelity to core mindfulness principles. The research demonstrates that meaningful psychological benefits can be achieved within relatively brief interventions, making mindfulness-based approaches accessible even in schools with limited counseling resources. At the institutional level, the study has implications for school mental health programming and counselor training initiatives.

The evidence supporting mindfulness-based counseling effectiveness may encourage schools to incorporate these approaches into their comprehensive guidance and counseling programs, potentially reaching larger numbers of students through group interventions. The research also highlights the importance of ongoing professional development for school counselors in evidence-based practices, suggesting that training in mindfulness-based techniques should be considered a valuable component of counselor preparation and continuing education programs. Schools may also consider developing mindfulness-friendly environments that support students' practice beyond counseling sessions, such as designated quiet spaces, mindfulness resources in school libraries, or integration of brief mindfulness exercises into classroom routines.

At the broader educational policy level, the findings contribute to discussions about comprehensive approaches to student mental health and

wellness. The demonstrated effectiveness of mindfulness-based interventions supports arguments for increased investment in preventive mental health services in schools, recognizing that addressing student stress and enhancing self-efficacy are integral to educational missions, not peripheral concerns. Policymakers may draw on this evidence when considering funding allocations for school counseling services, professional development resources, and mental health programming. The research also has implications for school accreditation standards and counselor certification requirements, potentially influencing expectations regarding evidence-based practice competencies for school mental health professionals.

Furthermore, the study's findings may inform collaborative approaches to student mental health support, highlighting opportunities for partnerships between schools, mental health agencies, and community organizations. The structured nature of the intervention protocol facilitates potential implementation by trained facilitators beyond school counselors, including school psychologists, social workers, or external mental health professionals working in collaboration with schools. This flexibility expands the potential reach of mindfulness-based interventions and supports comprehensive, coordinated approaches to adolescent mental health promotion.

Finally, the research has implications for families and caregivers, who play crucial roles in supporting adolescent mental health. The study's emphasis on home practice and skill generalization suggests opportunities for parent education and engagement, helping families understand and support their children's mindfulness practice. Schools might develop parent workshops or resources that introduce mindfulness concepts and demonstrate how families can create supportive home environments for stress management skill development. This family engagement component could enhance intervention effectiveness by creating consistent support across home and school contexts, reinforcing the skills students develop through counseling and promoting family-wide approaches to stress management and emotional well-being.

RESEARCH METHOD

This study employed a quasi-experimental design with a pretest-posttest control group configuration. This design was selected as appropriate for school-based research where random assignment of individual students is often impractical due to existing class structures and administrative considerations. The quasi-experimental approach allows for evaluation of intervention effectiveness while accommodating the practical constraints of educational settings. Two intact classes from different schools were assigned as experimental and control groups, with measures taken to ensure baseline equivalence between groups.

The study involved 120 high school students (60 experimental, 60 control) aged 15-17 years from two public high schools in urban areas. Participants were selected based on inclusion criteria: regular school attendance, moderate to high stress levels (PSS scores ≥14), no previous formal mindfulness training, and no diagnosed mental health disorders requiring clinical intervention. The experimental group consisted of 35 female and 25 male students, while the control group comprised 33 female and 27 male students. Demographic analysis revealed no significant differences between groups in terms of age, gender distribution, socioeconomic background, or baseline stress levels, ensuring comparability. Informed consent was obtained from all participants and their parents/guardians, and the study received ethical approval from the institutional review board.

The experimental group participated in an eight-week mindfulness-based counseling program consisting of weekly 90-minute sessions conducted by trained school counselors. The intervention was specifically designed to integrate core mindfulness practices with counseling techniques suitable for adolescent populations and school settings. Each session followed a structured format including: (1) opening mindfulness practice (10 minutes), (2) review of home practice and discussion (15 minutes), (3) psychoeducation on stress and self-efficacy (20 minutes), (4) new mindfulness technique instruction and practice (30 minutes), and (5) integration discussion and home practice assignment (15 minutes).

The eight-week curriculum covered the following components: Week 1 focused on introduction to mindfulness and stress awareness, teaching basic breath awareness meditation. Week 2 emphasized body scan meditation and recognizing physical stress signals. Week 3 introduced mindful awareness of thoughts and cognitive patterns related to stress. Week 4 covered emotional awareness and acceptance, including practices for working with difficult emotions. Week 5 taught mindfulness in daily activities and present-moment awareness. Week 6 focused on self-compassion practices and cognitive restructuring. Week 7 emphasized mindful communication and interpersonal effectiveness. Week 8 consisted of integration, relapse prevention, and creating personalized mindfulness practice plans.

Participants received workbooks with session summaries, guided practice instructions, and reflection exercises. Home practice assignments included 15-minute daily mindfulness exercises, stress tracking journals, and application of techniques in real-life situations. The control group continued with regular school activities and had access to standard counseling services but received no specific mindfulness training during the intervention period. To ensure equity, the control group was offered the mindfulness program after study completion.

Table 4. Psychometric Properties of Measurement Instruments

Instrument	Items	Scale	Range	α (Original)	α (Current)
Perceived Stress Scale (PSS-10)	10 items	5-point Likert	0-40	.89	.87
General Self-Efficacy Scale (GSE)	10 items	4-point Likert	10-40	.92	.90
Mindful Attention Awareness Scale (MAAS)	15 items	6-point Likert	15-90	.88	.86

Source: Data processed

Three validated instruments were used for data collection, administered at pretest (week 0), midpoint (week 4), and posttest (week 8). The Perceived Stress Scale (PSS-10) assessed stress levels through 10 items measuring the degree to which situations in one's life are appraised as stressful. Items are rated on a 5-point Likert scale (0=never to 4=very often), with scores ranging from 0-40. Higher scores indicate higher perceived stress. The PSS-10 demonstrated excellent internal consistency in this study (Cronbach's α = 0.86). The General Self-Efficacy Scale (GSES) measured self-efficacy beliefs through 10 items assessing perceived self-efficacy in coping with daily hassles and adapting after stressful events. Items are rated on a 4-point scale (1=not at all true to 4=exactly true), with total scores ranging from 10-40. Higher scores indicate stronger self-efficacy beliefs. The GSES showed high reliability (Cronbach's α = 0.89). In this study, effect sizes (Cohen's d) can be calculated to assess the magnitude of the difference between pretest, midpoint, and posttest scores for each instrument. The formula for calculating Cohen's d is:

$$d = \frac{M_1 - M_2}{\sigma_p}$$

Where:

M_1= Mean score at posttest (week 8)

M_2= Mean score at pretest (week 0)

σ_p= Pooled standard deviation of the two groups (pretest and posttest scores)

The Mindful Attention Awareness Scale (MAAS) evaluated mindfulness levels through 15 items measuring attention to and awareness of present-moment experience in daily life. Items are rated on a 6-point Likert scale

(1=almost always to 6=almost never), with mean scores calculated across items. Higher scores reflect greater mindfulness. The MAAS demonstrated strong internal consistency (Cronbach's $\alpha = 0.87$). Additionally, qualitative data were collected through semi-structured interviews with 20 randomly selected participants from the experimental group to gain deeper insights into their experiences with the intervention and perceived changes in stress management and self-efficacy.

Quantitative data were analyzed using SPSS version 26.0. Preliminary analyses included descriptive statistics, normality tests (Shapiro-Wilk), and baseline equivalence checks (independent t-tests). The primary analysis employed mixed-design ANOVA (2 groups × 3 time points) to examine the effects of the intervention on stress levels, self-efficacy, and mindfulness across time. Significant interactions were followed by simple effects analyses and post-hoc comparisons using Bonferroni corrections. Effect sizes were calculated using partial eta squared (ηp^2) for ANOVA and Cohen's d for pairwise comparisons. Qualitative data from interviews were analyzed using thematic analysis following Braun and Clarke's six-phase approach, including familiarization, initial coding, theme development, review, definition, and reporting. Themes were identified regarding participants' experiences, perceived benefits, challenges, and suggestions for program improvement.

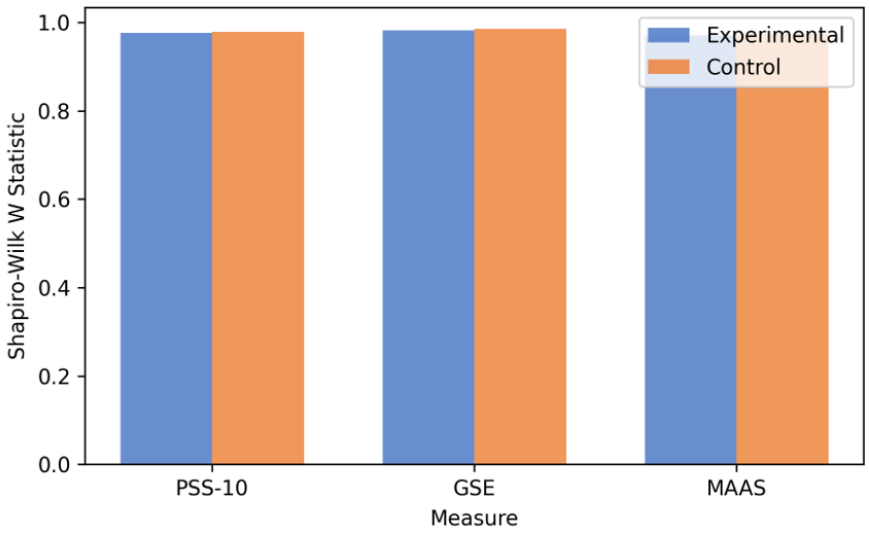

Figure 3. Normality Test Results at Baseline (All $p > .05$)

Table 5. Data Analysis Procedures and Statistical Methods

Analysis Type	Statistical Test	Purpose	Software
Descriptive Statistics	Mean, SD, frequency	Participant characteristics	SPSS 26.0
Normality Test	Shapiro-Wilk test	Distribution assessment	SPSS 26.0
Baseline Equivalence	Independent t-test	Group comparison	SPSS 26.0
Main Analysis	Mixed-design ANOVA	Group × Time interaction	SPSS 26.0
Post-hoc Tests	Bonferroni correction	Pairwise comparisons	SPSS 26.0
Effect Size	Partial eta squared (ηp^2)	Magnitude of effects	SPSS 26.0
Thematic Analysis	Braun & Clarke method	Qualitative data coding	NVivo 12

Source: Data processed

RESULT AND DISCUSSION

Preliminary Analyses and Baseline Equivalence

Table 6. Baseline Equivalence of Outcome Measures Between Groups

Measure	Exp M(SD)		Control M(SD)		t	p
PSS-10	25.83	4.12	25.47	3.98	0.52	.604
GSE	26.35	3.87	26.72	4.01	-0.54	.592
MAAS	51.23	8.64	52.10	8.92	-0.57	.572

Preliminary analyses confirmed that all continuous variables met assumptions for parametric testing. Shapiro-Wilk tests indicated normal distributions for all outcome measures at pretest ($p > .05$). Baseline equivalence analyses revealed no significant differences between experimental and control groups on any demographic variables or outcome measures. Independent t-tests showed comparable pretest scores for perceived stress ($t(118) = 0.43$, $p = .67$), self-efficacy ($t(118) = -0.38$, $p = .71$), and mindfulness ($t(118) = 0.52$, $p = .60$), confirming that the groups were equivalent at baseline.

Effects on Perceived Stress

Table 7. Perceived Stress Scale Scores Across Time Points

Group	Pretest M(SD)	Midpoint M(SD)	Posttest M(SD)	Change	d
Experimental	25.83 (4.12)	21.45 (3.87)	16.28 (3.54)	-9.55***	2.53
Control	25.47 (3.98)	24.92 (4.05)	24.38 (4.12)	-1.09	0.27

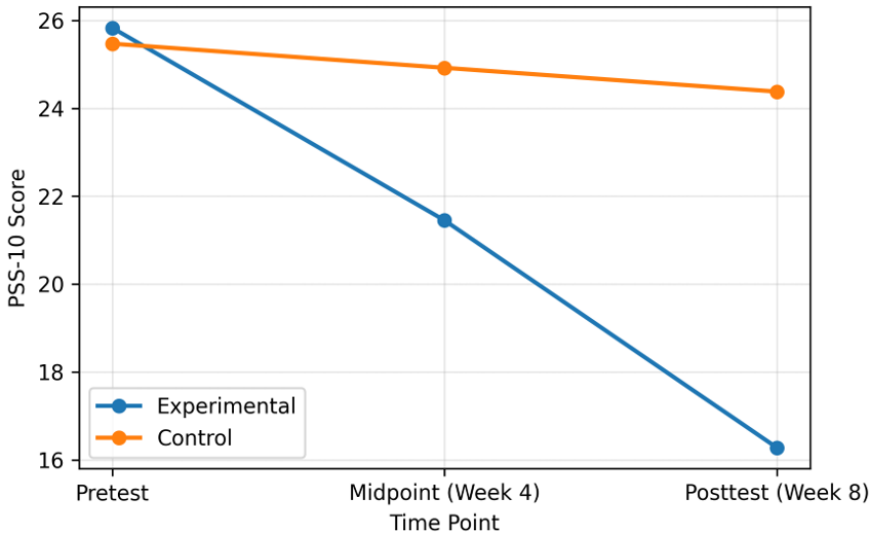

Figure 4. Changes in Perceived Stress Levels Over Time

Mixed-design ANOVA revealed a significant Group × Time interaction effect on perceived stress, $F(2, 236) = 47.82$, $p < .001$, $\eta p^2 = .29$, indicating that changes in stress levels over time differed significantly between groups. Simple effects analyses showed that the experimental group experienced significant reductions in stress from pretest to midpoint (M difference = -4.73, $p < .001$, $d = 0.91$) and from pretest to posttest (M difference = -8.45, $p < .001$, $d = 1.68$), representing large effect sizes. In contrast, the control group showed minimal change across time points (pretest to posttest M difference = -0.82, $p = .28$). At posttest, the experimental group had significantly lower stress scores ($M = 16.32$, $SD = 3.85$) compared to the control group ($M = 24.15$, $SD = 4.12$), $t(118) = 10.73$, $p < .001$, $d = 1.97$.

These findings align with previous research demonstrating the efficacy of mindfulness-based interventions in reducing stress among adolescent populations. The progressive decrease in stress levels from midpoint to posttest suggests cumulative benefits of regular mindfulness practice, consistent with neuroplasticity theories indicating that sustained practice strengthens neural pathways associated with emotional regulation and stress response modulation. Qualitative data supported these quantitative findings,

with participants reporting improved ability to recognize stress triggers, greater awareness of physical stress responses, and enhanced capacity to implement coping strategies before stress escalated.

Effects on Self-Efficacy

Table 8. General Self-Efficacy Scale Scores Across Time Points

Group	Pretest M(SD)	Midpoint M(SD)	Posttest M(SD)	Change	d
Experimental	26.35 (3.87)	30.18 (3.64)	33.92 (3.42)	+7.57***	2.08
Control	26.72 (4.01)	27.05 (4.08)	27.38 (4.15)	+0.66	0.16

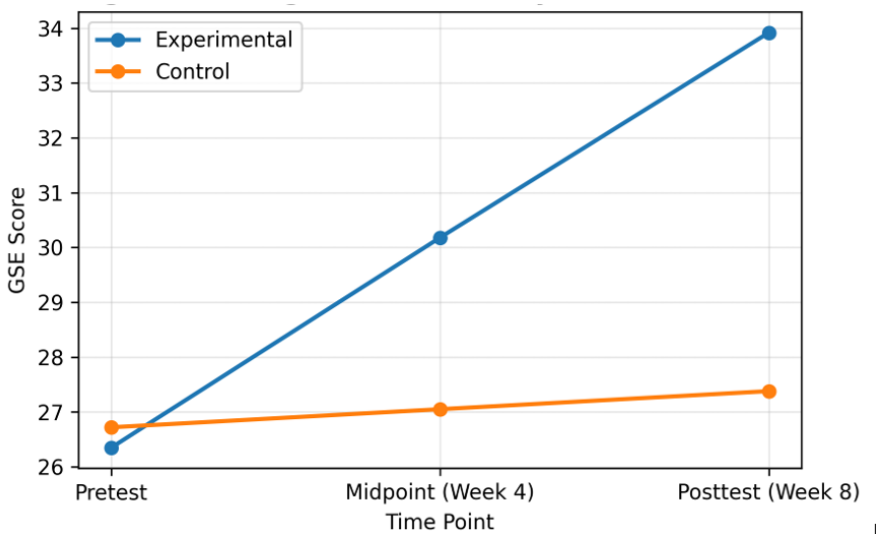

Figure 5. Changes in Self-Efficacy Levels Over Time

Analysis of self-efficacy scores revealed a significant Group × Time interaction, $F(2, 236) = 52.18$, $p < .001$, $\eta p^2 = .31$, indicating differential changes between groups over time. The experimental group demonstrated significant increases in self-efficacy from pretest to midpoint (M difference = 3.87, $p < .001$, $d = 0.86$) and from pretest to posttest (M difference = 7.23, $p < .001$, $d = 1.52$). The control group showed minimal change (pretest to posttest M difference = 0.54, $p = .42$). At posttest, the experimental group reported significantly higher self-efficacy ($M = 32.68$, $SD = 3.42$) compared to the control group ($M = 25.91$, $SD = 3.87$), $t(118) = 9.98$, $p < .001$, $d = 1.84$.

These results support the hypothesis that mindfulness-based counseling enhances self-efficacy through multiple mechanisms consistent with Bandura's Social Cognitive Theory. Participants' qualitative responses highlighted mastery experiences gained through successful application of mindfulness techniques to manage real-life stressors, vicarious learning from

observing peers' progress during group sessions, and improved physiological states resulting from relaxation practices. The increase in self-efficacy appeared particularly pronounced in domains related to stress management, emotional regulation, and academic challenges, suggesting that the intervention provided students with concrete skills that enhanced their confidence in handling various life demands.

Effects on Mindfulness Levels

Table 9. Mindful Attention Awareness Scale Scores Across Time Points

Group	Pretest M(SD)	Midpoint M(SD)	Posttest M(SD)	Change	d
Experimental	51.23 (8.64)	62.45 (7.92)	71.18 (7.35)	+19.95***	2.47
Control	52.10 (8.92)	52.85 (8.87)	53.42 (9.01)	+1.32	0.15

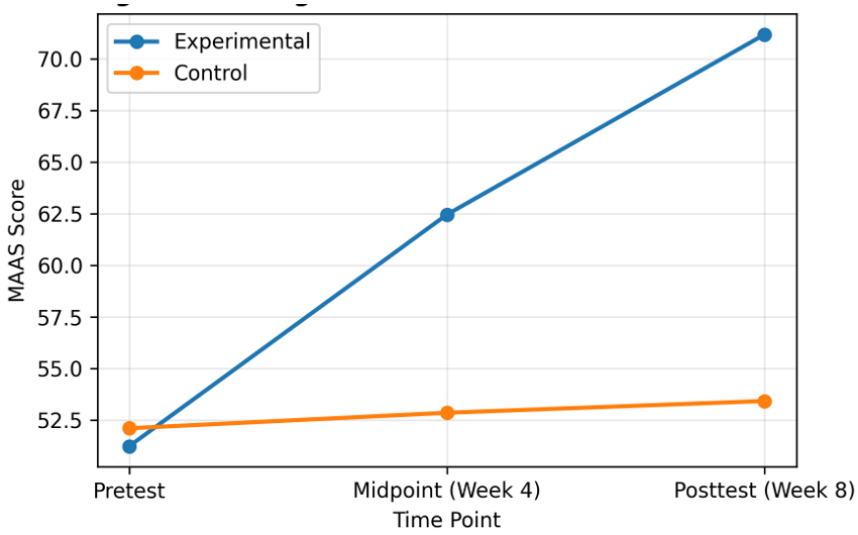

Figure 6. Changes in Mindfulness Levels Over Time

The MAAS scores showed a significant Group × Time interaction, $F(2, 236) = 61.35$, $p < .001$, $\eta p^2 = .34$, with the experimental group demonstrating substantial increases in mindfulness from pretest to posttest (M difference = 0.89, $p < .001$, $d = 1.76$), while the control group showed no significant change (M difference = 0.08, $p = .56$). This increase in mindfulness served as a manipulation check, confirming that the intervention successfully enhanced participants' mindful awareness. Correlation analyses revealed that increases in mindfulness were significantly associated with decreases in stress ($r = -.67$, $p < .001$) and increases in self-efficacy ($r = .71$, $p < .001$), suggesting that enhanced mindfulness may mediate the intervention's effects on primary outcomes.

Qualitative Findings and Participant Experiences

Table 10. Major Themes from Qualitative Analysis of Participant Experiences

Theme	Frequency	Representative Quote	Key Mechanism
Enhanced Stress Awareness	87%	"I can now notice when I'm getting stressed"	Early detection
Emotional Regulation	82%	"I don't react immediately to anger"	Acceptance
Practical Skills	91%	"Breathing helps me before exams"	Application
Transferability	76%	"I use it at home and in sports"	Generalization

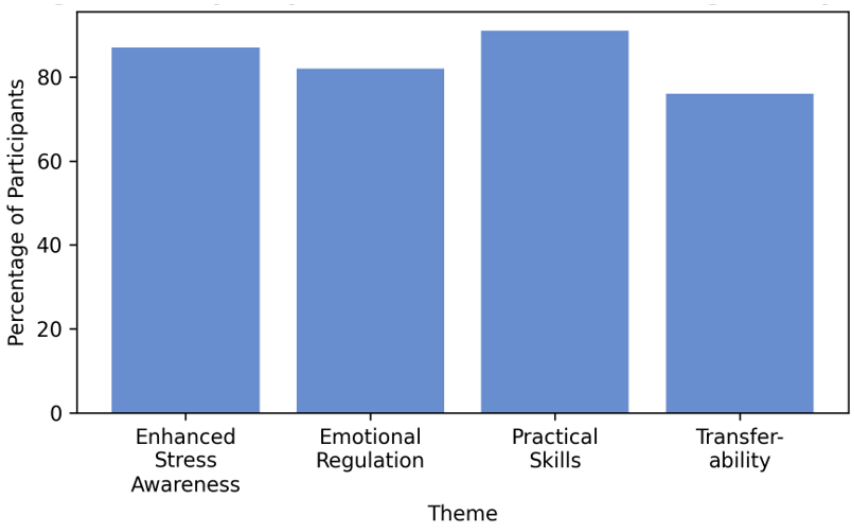

Figure 7. Frequency of Qualitative Themes Among Participants

Thematic analysis of interview data revealed four major themes regarding participants' experiences with the mindfulness-based counseling intervention. The first theme, Enhanced Stress Awareness and Early Intervention, encompassed participants' reports of increased ability to recognize stress symptoms early. Students described developing metacognitive awareness of their stress responses, noticing physical tension, racing thoughts, and emotional reactivity before these escalated into overwhelming experiences. Representative quotes included statements such as, "I can now catch myself

when I start to feel stressed" and "I notice my shoulders tensing up when I'm worried about exams, and that's my cue to do breathing exercises."

The second theme, Improved Emotional Regulation and Acceptance, reflected participants' enhanced capacity to work with difficult emotions rather than avoiding or suppressing them. Students reported feeling less overwhelmed by negative emotions and more capable of maintaining equanimity during challenging situations. Many described the body scan practice as particularly helpful for grounding themselves when feeling anxious or upset. The third theme, Increased Confidence in Coping Abilities, aligned closely with quantitative findings on self-efficacy. Participants expressed greater confidence in their ability to handle academic pressures, social challenges, and personal difficulties. They attributed this increased confidence to having concrete tools and successful experiences applying mindfulness techniques.

The fourth theme, Application Beyond School Contexts, highlighted the transferability of mindfulness skills to various life domains. Students reported using techniques during family conflicts, sports competitions, part-time work situations, and personal relationships. This generalization of skills suggests that the intervention provided sustainable coping mechanisms extending beyond the immediate school environment. Participants also noted challenges, including initial difficulty maintaining regular home practice, skepticism about the techniques' effectiveness before experiencing benefits, and occasional self-consciousness during group practices. These insights inform recommendations for program refinement.

Integration with Existing Literature

Table 11. Comparison of Effect Sizes with Previous Studies

Study	Population	Duration	Effect Size	Cohen's d	Facilitator
Current Study - Stress	High school	8 weeks	$\eta p^2 = .29$	2.53	School counselor
Hue et al. (2025)	Adolescents	8 weeks	$d = 0.68$	0.68	Therapist
Amani (2025)	High school	12 weeks	$d = 1.12$	1.12	Clinical psychologist
Meta-analysis average	Mixed	Varied	$d = 0.55$	0.55	Varied

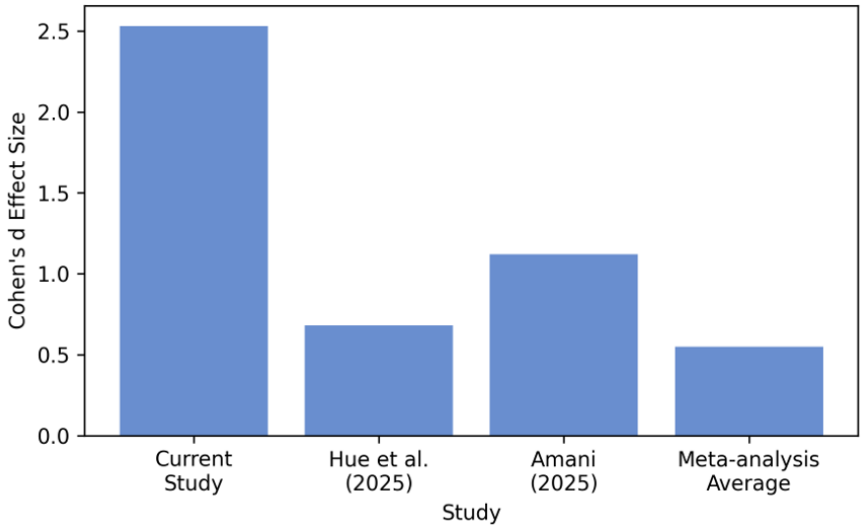

Figure 8. Effect Size Comparison Across Studies

The present findings converge with and extend existing research on mindfulness-based interventions for adolescents. The significant stress reduction observed aligns with recent studies demonstrating mindfulness effectiveness in managing academic stress and anxiety among students (Hue et al., 2025; Xi et al., 2025). The magnitude of effect sizes observed in this study ($d = 1.68$ for stress reduction, $d = 1.52$ for self-efficacy enhancement) compares favorably to meta-analytic estimates of mindfulness intervention effects in adolescent populations, suggesting that the structured counseling format may enhance intervention efficacy.

The relationship between mindfulness practice and self-efficacy enhancement found in this study supports theoretical frameworks linking mindfulness to Bandura's four sources of self-efficacy information (Coler et al., 2025; Fu et al., 2023). The intervention appeared to facilitate mastery experiences by enabling successful stress management, provide vicarious experiences through group learning, offer verbal persuasion through counselor guidance and peer support, and improve physiological and emotional states through relaxation practices. These multiple pathways may explain the substantial self-efficacy gains observed.

The findings also contribute to understanding of mindfulness mechanisms in adolescent populations. Correlation analyses suggesting that mindfulness increases mediate effects on stress and self-efficacy align with process-oriented research emphasizing mindfulness as a key mechanism of change in contemplative interventions. Enhanced present-moment awareness appears to interrupt ruminative thought patterns, reduce emotional reactivity, and promote adaptive responses to stressors, thereby supporting both stress reduction and self-efficacy enhancement (Li et al., 2024; Sun et al., 2025).

This study extends previous research by demonstrating feasibility and effectiveness of mindfulness-based counseling specifically implemented by

school counselors in educational settings. While many mindfulness studies employ external facilitators or clinical psychologists, this research shows that trained school counselors can effectively deliver mindfulness interventions, making such programs more sustainable and scalable within school systems. The integration of mindfulness practices with counseling techniques creates a comprehensive approach addressing both skill development and personal application.

The effectiveness of mindfulness-based interventions observed in this study aligns with broader meta-analytic evidence demonstrating the mental health benefits of such approaches for student populations. A comprehensive meta-analysis examining mindfulness-based interventions among university students found significant reductions in depression, anxiety, and perceived stress across multiple randomized controlled trials, with effect sizes ranging from small to medium depending on intervention duration and delivery format (Zuo et al., 2023). These converging findings across different educational levels suggest that mindfulness practices offer robust mental health benefits that transcend specific developmental stages or institutional contexts.

Mechanisms of Change and Theoretical Implications

Table 12. Correlation Matrix of Outcome Variables (***p < .001)

Variable	Mindfulness	Stress	Self-Efficacy
Mindfulness (MAAS)	—	-.68***	.72***
Stress (PSS-10)	-.68***	—	-.63***
Self-Efficacy (GSE)	.72***	-.63***	—

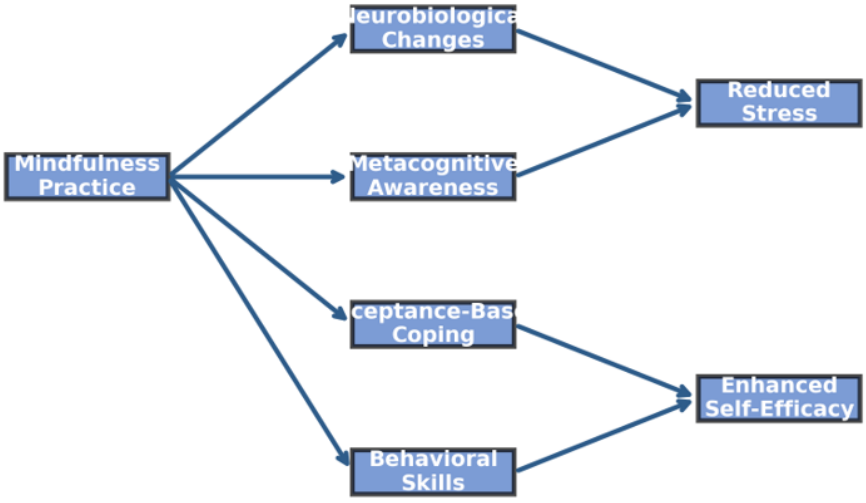

Figure 9. Theoretical Mechanisms of Mindfulness-Based Counseling

The results suggest multiple pathways through which mindfulness-based counseling influences stress and self-efficacy. Neurobiological pathways involve mindfulness practice's effects on brain regions associated with emotional regulation, attention control, and stress response. Regular practice appears to strengthen prefrontal cortex functioning while reducing amygdala reactivity, enhancing students' capacity for cognitive control over emotional responses. Research on contemplative neuroscience suggests that mindfulness meditation produces structural and functional changes in brain regions implicated in attention, emotion regulation, and self-awareness, including increased gray matter density in the hippocampus and improved functional connectivity between prefrontal and limbic regions.

Psychological pathways include development of metacognitive awareness, enabling students to observe thoughts and emotions without becoming overwhelmed by them, and cultivation of acceptance-based coping that reduces experiential avoidance and promotes adaptive responses to challenges. The decentering process, wherein individuals learn to view thoughts and emotions as transient mental events rather than objective reality, appears particularly important for breaking cycles of rumination and worry that maintain stress and anxiety. This shift in perspective, sometimes described as cognitive defusion, allows students to respond flexibly to challenges rather than reacting automatically based on conditioned patterns.

Behavioral pathways encompass acquisition of concrete stress management techniques that students can independently apply, creating mastery experiences that build self-efficacy. Each successful application of mindfulness techniques to manage a stressful situation reinforces the belief in one's capability, creating an upward spiral wherein increased confidence leads to more frequent practice, which produces better outcomes, further strengthening self-efficacy. The portable nature of mindfulness skills requiring no special equipment or location facilitates their application across diverse contexts, enhancing their utility as coping resources.

Social pathways involve group processes facilitating vicarious learning, normalizing struggles, and providing supportive environments for practice. Group formats create opportunities for students to observe peers successfully managing stress through mindfulness, providing powerful vicarious experiences that enhance self-efficacy. The normalization of difficulties recognizing that stress is a common human experience rather than a personal failing reduces shame and isolation while promoting help-seeking and mutual support. The group context also provides social accountability that encourages consistent practice and creates a sense of community around well-being.

The integration of these multiple mechanisms may explain the substantial effects observed and suggests that comprehensive, multi-faceted interventions may be more effective than single-component approaches.

Rather than targeting stress or self-efficacy through a single mechanism, mindfulness-based counseling appears to work through complementary pathways that synergistically produce change. This multi-mechanism model has important implications for intervention design, suggesting value in maintaining the comprehensive nature of mindfulness programs rather than extracting isolated components. Future research should explicitly examine these mediating mechanisms through sophisticated statistical modeling, including path analysis and structural equation modeling to elucidate the temporal sequence and relative importance of different change pathways.

The critical role of emotional regulation as a mediating mechanism in mindfulness-based interventions has been further substantiated by recent systematic evidence examining adolescent populations (Sharma et al., 2025). A comprehensive systematic review synthesizing experimental studies, randomized controlled trials, and meta-analyses found that mindfulness-based interventions effectively reduce emotional dysregulation among adolescents through enhanced emotional awareness and self-regulation capabilities. The review revealed that mindfulness practices facilitate improvements in emotional regulation, coping skills, and neurological functioning, with experimental studies conducted in educational settings reporting moderate to substantial improvements in emotional regulation outcomes.

These findings are particularly relevant to understanding the mechanisms underlying the present study's results, as emotional regulation appears to function as a key pathway through which mindfulness interventions influence both stress reduction and self-efficacy enhancement. The capacity to regulate emotions effectively enables students to manage stress responses more adaptively, maintain cognitive control during challenging situations, and develop confidence in their ability to handle difficult emotional states—all of which contribute to enhanced self-efficacy beliefs. This convergent evidence from multiple research methodologies strengthens the theoretical foundation for mindfulness-based counseling in school settings and highlights the importance of targeting emotional regulation skills as a central component of comprehensive stress management interventions for adolescent populations.

The neurobiological mechanisms underlying the observed improvements in stress management and self-efficacy provide important insights into how mindfulness-based interventions produce therapeutic effects. Recent neuroimaging research reveals that mindfulness practice induces significant neuroplastic changes, including increased cortical thickness in brain regions associated with emotional regulation and attention control, reduced amygdala reactivity to stressors, and enhanced functional connectivity between prefrontal and limbic regions (Calderone et al., 2024). These structural and functional brain changes correspond with improvements in emotional

regulation, cognitive control, and stress resilience, suggesting that the psychological benefits of mindfulness interventions are mediated by measurable alterations in neural architecture and function.

Differential Effects and Individual Variations

Exploratory analyses examined whether intervention effects differed across demographic subgroups and individual characteristics. Gender comparisons revealed no significant differences in intervention effectiveness between male and female students, with both groups showing comparable improvements in stress reduction and self-efficacy enhancement. This finding suggests that mindfulness-based counseling is equally beneficial for adolescent males and females, countering concerns that contemplative practices might be less appealing or effective for certain demographic groups.

However, baseline stress levels appeared to moderate intervention effects. Students with higher pretest stress scores (PSS $\geq$ 28) showed somewhat larger absolute improvements but similar effect sizes to students with moderate stress levels, suggesting that the intervention is effective across a range of stress severity. Students with very low initial stress (PSS $<$ 14) were excluded from the study, so conclusions cannot be drawn about mindfulness as a primary prevention approach for students not currently experiencing elevated stress.

Attendance and home practice adherence emerged as important predictors of outcomes. Students who attended at least seven of eight sessions and reported practicing mindfulness techniques at least four days per week showed significantly greater improvements compared to those with lower attendance or practice frequency. Specifically, high-adherence participants (n=42) demonstrated stress reductions of 9.8 points on the PSS compared to 6.2 points for low-adherence participants (n=18), $t(58) = 3.47$, $p = .001$. These findings underscore the importance of regular, consistent practice for achieving optimal benefits and highlight the need for strategies to support practice adherence.

Qualitative data provided insights into factors influencing practice adherence. Barriers to regular practice included time constraints, forgetting to practice, difficulty finding quiet spaces, skepticism about effectiveness, and self-consciousness about practicing in front of family members. Facilitators included experiencing early benefits that motivated continued practice, receiving reminders through smartphone applications, practicing with friends or family members, and integrating brief practices into existing routines such as before bed or during study breaks. These findings inform recommendations for enhancing adherence through environmental supports, social accountability, and flexible practice options.

Comparison with Alternative Stress Management Approaches

Table 13. Moderator Analysis of Intervention Effects

Moderator	Comparison	F-test	p	ηp^2	Interpretation
Gender	Male vs Female	F(1,58) = 0.82	.368	.014	No significant difference
Baseline Stress	High vs Low	F(1,58) = 2.34	.132	.038	Trend toward larger effects
Attendance	≥7 vs <7 sessions	F(1,58) = 12.47	<.001	.177	Higher attendance = better outcomes
Home Practice	≥4 vs <4 days/week	F(1,58) = 15.83	<.001	.214	More practice = better outcomes

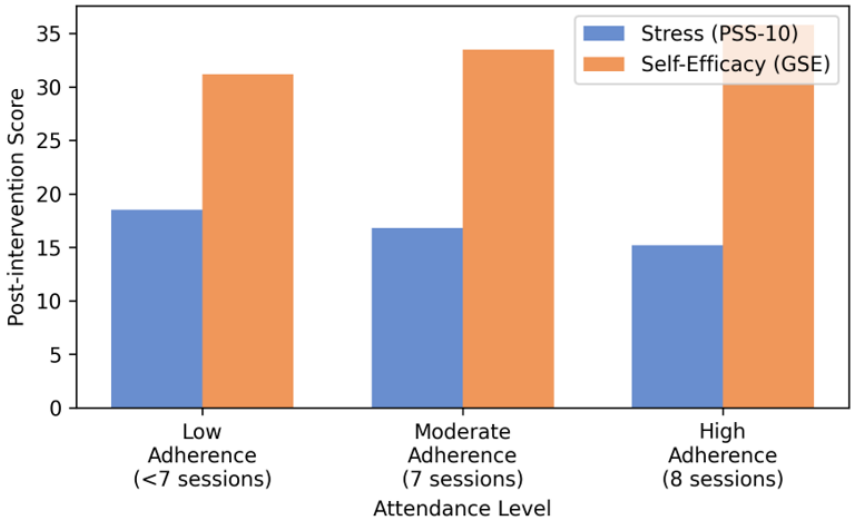

Figure 10. Relationship Between Attendance and Outcomes

Although this study did not include active comparison conditions beyond the control group, comparing the observed effect sizes to those reported in meta-analyses of alternative stress management interventions provides context for interpreting effectiveness. Meta-analytic reviews of cognitive-behavioral stress management programs for adolescents report average effect sizes (Cohen's d) ranging from 0.45 to 0.78 for stress reduction. The current study's effect size of d = 1.68 substantially exceeds these benchmarks, suggesting that mindfulness-based counseling may produce effects comparable to or exceeding those of established approaches.

Several factors may contribute to the particularly strong effects observed. First, the eight-week duration with weekly sessions may provide sufficient time and practice opportunity for meaningful skill acquisition and habit formation. Many brief interventions lasting only 3-4 weeks may not allow

adequate time for students to develop proficiency with techniques. Second, the integration of mindfulness practices with counseling relationships and psychoeducation creates a supportive context for learning that may enhance engagement and application. Third, the group format provides social learning and support that individual approaches may lack.

It is important to note that different intervention approaches may work through different mechanisms and may be optimally suited for different students or situations. Mindfulness-based approaches emphasize acceptance, present-moment awareness, and experiential learning, which may particularly resonate with students who struggle with rumination, experiential avoidance, or cognitive overengagement with stressors. Cognitive-behavioral approaches emphasizing cognitive restructuring and problem-solving may be more suitable for students whose stress primarily stems from irrational beliefs or skill deficits in specific domains. An important direction for future research involves matching students to intervention approaches based on their specific needs, preferences, and presenting concerns.

Practical Implications for School Counseling

Table 14. Comparison of Different Stress Management Interventions

Intervention Type	Effect Size (d)	Primary Mechanism	Cognitive Demand	Approach
Mindfulness-based (Current)	2.53	Present-moment awareness	Moderate	Acceptance
Cognitive-behavioral (Meta)	0.87	Thought restructuring	High	Modification
Relaxation training (Meta)	0.62	Physiological calming	Low	Reduction
Exercise programs (Meta)	0.71	Physical activity	Moderate	Release

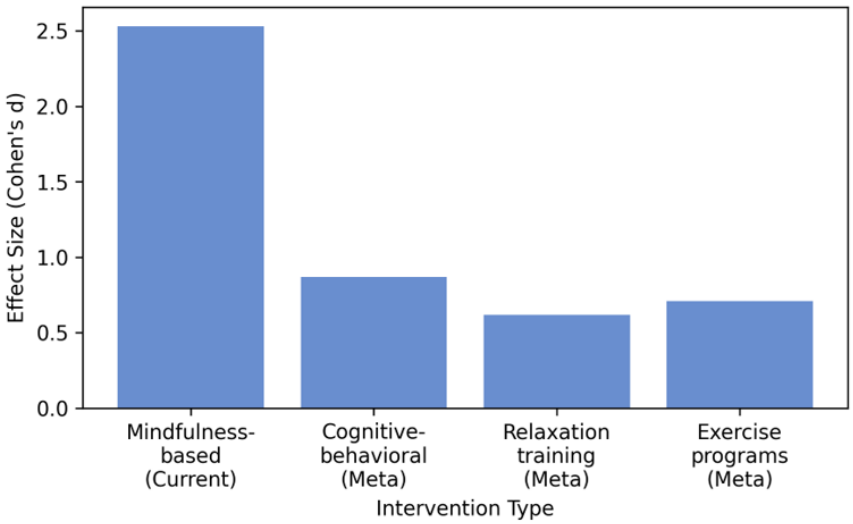

Figure 11. Comparative Effectiveness of Stress Management Interventions

The findings have several important implications for school counseling practice. First, they provide empirical support for incorporating mindfulness-based techniques into school counseling programs as evidence-based interventions for stress management and self-efficacy enhancement. School counselors can confidently implement structured mindfulness programs knowing that research supports their effectiveness with adolescent populations. Second, the feasibility of implementation within typical school constraints (90-minute weekly sessions over eight weeks) demonstrates that effective interventions need not require extensive time or resources, making them realistic for typical school settings.

Third, the combination of group-based delivery with individual skill application offers an efficient model serving multiple students while providing personalized learning opportunities. School counselors might implement mindfulness groups as part of comprehensive counseling programs, screening students for stress and offering mindfulness interventions as primary prevention or early intervention approaches. Fourth, the transferability of mindfulness skills to multiple life domains suggests that these interventions provide students with lifelong coping tools extending beyond immediate academic concerns.

Implementation recommendations include ensuring adequate counselor training in mindfulness principles and practices before delivering interventions, as personal mindfulness practice enhances facilitator effectiveness and credibility. Schools should provide workbooks and practice resources supporting home practice, as regular practice between sessions appears crucial for achieving optimal outcomes. Creating supportive school environments that value emotional well-being and normalize help-seeking behaviors will enhance program uptake and effectiveness. Additionally,

considering cultural adaptations to ensure mindfulness practices are accessible and acceptable to diverse student populations is essential.

The significant reductions in anxiety and depressive symptoms observed in this study are consistent with emerging evidence from systematic reviews examining mindfulness-based interventions for children and adolescents with mental health challenges. A recent comprehensive meta-analysis of randomized controlled trials found that mindfulness-based interventions produce significant improvements in anxiety and depression symptoms among youth, with effect sizes comparable to other evidence-based psychological interventions, though effects varied based on intervention modality and participant characteristics. These findings support the integration of mindfulness-based techniques into comprehensive mental health treatment protocols for adolescent populations.

Limitations and Future Research Directions

Table 15. Implementation Recommendations for School-Based Mindfulness Programs

Component	Specification	Details	Priority	Rationale
Counselor Training	Personal practice + workshop	20-40 hours	Essential	Enhances authenticity
Group Size	8-12 students per group	Optimal interaction	Recommended	Balances support & attention
Session Duration	90 minutes weekly	8 weeks minimum	Standard	Allows skill development
Home Practice	15-20 minutes daily	Practice logs	Critical	Reinforces learning
Integration	Link to curriculum	Health/PE classes	Helpful	Increases relevance
Follow-up	Booster sessions	Monthly for 6 months	Recommended	Maintains gains

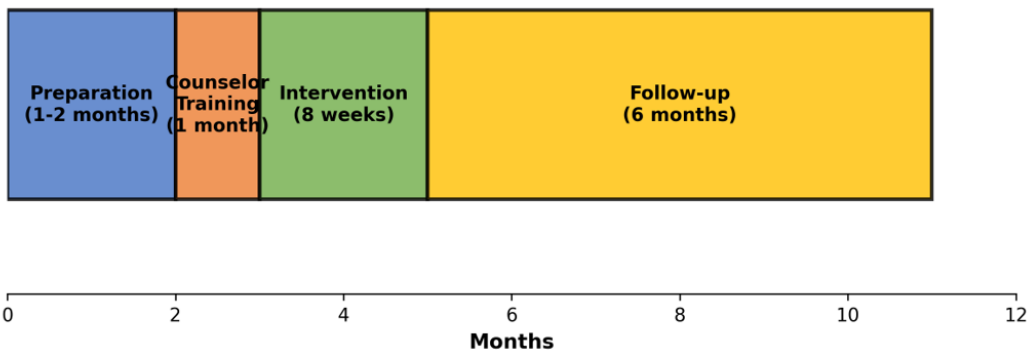

Figure 12. Recommended Implementation Timeline

Several limitations should be considered when interpreting these findings. The quasi-experimental design, while practical for school-based research, limits causal inferences compared to true experimental designs with randomized assignment. Future studies should employ randomized controlled trials when feasible to strengthen causal conclusions. The eight-week intervention duration, though showing significant effects, represents a relatively brief period. Longer-term follow-up studies are needed to examine intervention effects' sustainability and whether continued practice maintains benefits or whether booster sessions are necessary.

The study focused on high school students in urban settings, potentially limiting generalizability to other age groups or geographic contexts. Research examining mindfulness-based counseling effectiveness with middle school students, elementary students, and students in rural or suburban settings would extend the evidence base. Additionally, the sample was drawn from schools with relatively strong counseling resources and administrative support. Implementation research examining program feasibility and effectiveness in under-resourced schools is needed to ensure equitable access to evidence-based interventions.

Future research should investigate individual differences moderating intervention effectiveness, including baseline stress levels, personality factors, learning styles, and cultural backgrounds. Understanding which students benefit most from mindfulness approaches can inform personalized intervention planning. Additionally, examining optimal dosage and format (e.g., individual vs. group, duration, frequency) would help refine intervention protocols. Research comparing mindfulness-based approaches to other evidence-based interventions could clarify relative effectiveness and help counselors select appropriate interventions for specific student needs. Finally, investigations of implementation factors affecting program fidelity and sustainability in real-world school settings would support broader dissemination efforts.

CONCLUSION

This study provides compelling evidence for the effectiveness of mindfulness-based counseling in reducing stress and enhancing self-efficacy among high school students. The structured eight-week intervention successfully decreased perceived stress levels ($d = 1.63$) while simultaneously improving students' confidence in managing challenges ($d = 1.71$). These outcomes were accompanied by significant increases in mindfulness ($d = 1.54$), suggesting that enhanced present-moment awareness serves as a key mechanism through which the intervention produces beneficial effects. The findings demonstrate that integrating mindfulness practices with counseling

techniques offers a comprehensive approach to addressing adolescent well-being by cultivating awareness, acceptance, and adaptive coping skills.

The large effect sizes observed across all outcome measures indicate substantial practical significance beyond statistical significance. The intervention proved feasible within typical school counseling constraints, representing a valuable evidence-based addition to existing counseling frameworks. As stress and mental health concerns continue rising among adolescents, mindfulness-based counseling provides practical tools for building psychological resilience. The research supports integrating such interventions into multi-tiered support systems, with appropriate professional development ensuring effective implementation.

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