

Comparison of the Effectiveness of Group Cognitive Behavioral Hypnotherapy, Mindfulness-Based Cognitive Behavioral Stress Management, and Meaning Therapy Based on the Healthy Human Theory on Academic Engagement in Eleventh-Grade Students

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ABSTRACT

Objective: This study aimed to compare the effectiveness of group cognitive behavioral hypnotherapy, mindfulness-based cognitive behavioral stress management, and meaning therapy based on the healthy human theory on academic engagement in eleventh-grade students.

Methods and Materials: The research employed a quasi-experimental design using a pretest-posttest-follow-up format with four groups. The statistical population included all male students in Isfahan, from whom 80 students were selected through non-random sampling and were randomly assigned to three experimental groups and one control group (20 students per group). The research instrument was the Academic Engagement Scale developed by Fredricks et al. (2012). While the control group remained on the waiting list, the three experimental groups received their respective educational interventions in eight 90-minute sessions. The collected data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (repeated measures ANOVA and Bonferroni post hoc test).

Findings: The results indicated that all three methods had a statistically significant effect on improving academic engagement. The post hoc test results demonstrated that in both posttest and follow-up stages, there were significant differences in academic engagement scores between the intervention groups and the control group, and all three methods were effective in enhancing academic engagement ($p < .05$). No significant differences were found among the three interventions in the posttest phase; however, during the follow-up phase, the mindfulness-based cognitive behavioral stress management approach was more effective than cognitive behavioral hypnotherapy, and meaning therapy based on the healthy human theory was more effective than both of the other approaches.

Conclusion: Accordingly, it can be concluded that meaning therapy based on the healthy human theory was the most effective method among the three.

Keywords: group cognitive behavioral hypnotherapy, cognitive behavioral stress management, mindfulness, meaning therapy, healthy human theory, academic engagement

1. Introduction

academic engagement, as a multidimensional construct, reflects the extent to which students are cognitively, emotionally, and behaviorally invested in learning. It has been consistently linked to numerous positive educational outcomes such as academic achievement, motivation, resilience, and long-term school retention (Fredricks, 2022; Fredricks & McColskey, 2012). However, a growing body of research suggests that contemporary educational settings, characterized by intense pressure, competition, and emotional distress, are increasingly leading to disengagement, particularly among adolescents facing academic challenges (Haip et al., 2024; Norian et al., 2023). As such, the implementation of evidence-based psychological interventions to enhance academic engagement has garnered attention, especially in developing contexts where academic stress and low engagement rates are common.

Mindfulness-based interventions have become a cornerstone of psychological and educational practices aimed at enhancing students' emotional regulation, attention, and motivation. Rooted in the work of Kabat-Zinn, mindfulness-based stress reduction (MBSR) involves cultivating present-moment awareness in a nonjudgmental manner, helping individuals disengage from maladaptive rumination and emotional reactivity (Kabat-Zinn, 2019; Kabat-Zinn & Kabat-Zinn, 2021). Studies have shown that mindfulness interventions can reduce academic stress and improve students' psychological functioning (Eby et al., 2019; Williams et al., 2024). Recent empirical evidence highlights the efficacy of mindfulness training on enhancing academic motivation, adjustment, and emotional well-being in student populations (Abadi Al-Naz et al., 2023; Jahantigh et al., 2023; Sadighi et al., 2024). In particular, mindfulness cultivates cognitive flexibility and attentional control, which are essential for sustaining engagement in learning tasks (Kabat-Zinn, 2021). Research further supports its role in fostering academic emotions, self-awareness, and intrinsic motivation (Nighnam Khadijeh & Zangeneh Motlaq, 2024; Salmani et al., 2023).

Alongside mindfulness, cognitive-behavioral approaches remain foundational in educational psychology, particularly for students dealing with performance anxiety and motivational deficits. Cognitive-behavioral stress management (CBSM) targets maladaptive thought patterns and emotional responses, aiming to restructure beliefs and enhance self-efficacy in academic contexts (Asgari, 2019; Hojjati et al., 2020). More recently, the integration of hypnotherapy into cognitive-behavioral frameworks—

termed cognitive behavioral hypnotherapy (CBH)—has gained empirical validation. CBH combines the structured techniques of CBT with the trance-inducing elements of hypnosis to facilitate deeper cognitive restructuring and emotion regulation (Fuhr et al., 2021; Taştan et al., 2021). Research has shown that hypnotherapy, particularly when combined with CBT, can yield superior outcomes compared to traditional cognitive interventions alone, especially in addressing internalizing symptoms such as anxiety and depression (Fuhr et al., 2023; Haip et al., 2024). Within educational settings, CBH has demonstrated efficacy in reducing test anxiety and improving academic self-efficacy (Hashemi, 2024; Vordiloo & Jarareh, 2020). The immersive nature of hypnotic suggestion, when focused on learning and achievement, allows students to internalize adaptive beliefs and visualize success, thereby enhancing engagement (Batra et al., 2024; Soleimani et al., 2021).

In addition to mindfulness and CBH, existential and meaning-centered approaches have emerged as powerful frameworks for enhancing student engagement. Meaning-centered therapy (MCT), particularly in its educational adaptations, emphasizes the development of purpose, values, and personal responsibility as antidotes to apathy and disengagement (Sadri et al., 2021). Rooted in logotherapy and humanistic psychology, MCT supports individuals in making sense of their academic journey by aligning learning goals with broader life meanings (Nasajpour Isfahani & Aghayi, 2021; Sadri et al., 2021). This approach resonates strongly with adolescents, for whom identity formation and existential questioning are developmentally salient. Empirical studies show that enhancing meaning in education can lead to improved psychological resilience, motivation, and academic optimism (Khabaz Shirazi et al., 2021; Lahrab Galle et al., 2024). Through techniques such as value clarification, goal-setting, and narrative reflection, students can develop a sense of coherence and commitment toward their academic roles, which in turn fosters deeper and more sustained engagement (Narimani et al., 2022).

Although the individual effectiveness of mindfulness, CBH, and meaning-centered interventions has been substantiated in prior research, few studies have compared these approaches directly within a single experimental framework. Moreover, most existing research has focused on narrow outcomes—such as anxiety reduction or achievement—rather than the broader construct of academic engagement, which encapsulates cognitive, emotional, and behavioral dimensions (Fredricks, 2022). Given the complex nature of engagement and its sensitivity to psychological and

contextual factors, there is a need for comparative studies that evaluate multiple therapeutic models in parallel. Such comparisons are especially important in adolescence, a period marked by heightened vulnerability to academic disengagement due to psychosocial stressors, identity exploration, and emerging autonomy (Fuhr et al., 2023; Hashemi, 2024).

Furthermore, previous studies have often overlooked the potential differential sustainability of treatment outcomes over time. While certain interventions may demonstrate immediate effects, others may yield more enduring changes in students' engagement profiles. For example, mindfulness may foster gradual improvements through self-regulation and meta-awareness, while CBH may produce faster changes via targeted restructuring of academic cognitions (Salmani et al., 2023; Soleimani et al., 2021). Meaning-centered approaches, by instilling existential motivation, may produce deeper, longer-lasting effects by reshaping the individual's overarching perspective on education (Sadri et al., 2021). Thus, longitudinal designs with follow-up measurements are essential to assess the durability and comparative efficacy of these interventions.

This study aims to address these gaps by comparing the effectiveness of three empirically grounded interventions—mindfulness-based stress reduction (based on Kabat-Zinn's model), group cognitive behavioral hypnotherapy (following the protocol of Vordiloo and Jarareh), and meaning therapy based on the healthy human theory—on academic engagement in eleventh-grade students.

2. Methods and Materials

2.1. Study Design and Participants

Given the aim of the study, this research employed a quasi-experimental design with a four-group structure (three experimental groups and one control group) and three measurement phases (pretest, posttest, and follow-up).

According to established standards in experimental research, a minimum of 15 participants is required per group. However, to increase statistical power, the sample size was raised to 20 participants per group. Therefore, a total of 80 students were selected for this study. Participants were randomly assigned to one of the four groups (three intervention groups and one control group), with each group consisting of 20 students. A pretest was administered to all groups, followed by the implementation of the intervention specific to each experimental group. The control group did not receive any intervention. After the completion of the

intervention sessions, a posttest was conducted, and a follow-up was performed 45 days later. Participants were selected based on inclusion and exclusion criteria.

The statistical population of this study consisted of all eleventh-grade male students in the city of Isfahan during the 2023 academic year. The sample included 80 male students in eleventh grade, selected through convenience sampling and randomly assigned to the study groups. The inclusion criteria were as follows: having physical and mental health necessary to attend educational sessions, confirmed through the students' health records; willingness to participate in the training sessions; completion of the informed consent form; and not attending any other training programs simultaneously. The exclusion criteria were as follows: missing more than two sessions, irregular attendance, and disruptive behavior during group training sessions.

2.2. Measures

2.2.1. Academic Engagement

The Academic Engagement Scale was developed by Fredricks et al. (2012) and includes 14 items that measure three subscales of behavioral, emotional, and cognitive engagement among students. To assess the reliability of this scale, it was initially administered to 200 students from various medical science disciplines. The Cronbach's alpha coefficient was calculated and found to be 0.66. Fredricks et al. reported a reliability coefficient of 0.86 for the scale (Fredricks, 2012). In the study by Soleimani et al. (2024), the psychometric properties of the questionnaire were deemed satisfactory. Additionally, in the present study, Cronbach's alpha coefficient for the entire questionnaire was calculated as 0.86, indicating high internal consistency.

2.3. Intervention

The MBSR intervention implemented in this study was based on Jon Kabat-Zinn's (2021) standard protocol for adult mindfulness training. It consisted of eight 90-minute sessions. In the first session, a therapeutic alliance was established, participants were introduced to one another, and ground rules were agreed upon; a pretest was administered and participants reflected on the experience of stress. The second session introduced the concept of mindfulness, discussing the impact of stress and negative thoughts, followed by the mindful raisin-eating exercise. In the third session, participants practiced body scan meditation to enhance awareness of physical sensations and everyday

activities. The fourth session focused on mindful breathing and seated meditation, particularly the three-minute breathing space. The fifth session addressed the relationship with thoughts and introduced gentle yoga exercises to improve muscle awareness and cognitive flexibility. In the sixth session, participants were trained to label thoughts during daily stress situations and practiced sitting meditation focusing on emotions and thoughts. The seventh session deepened awareness of both positive and negative emotions through mindful breathing, eating, and continued yoga practice. The final session involved a comprehensive review, posttest administration, and the assignment of long-term mindfulness practices for sustained benefit.

This eight-session protocol was based on the model proposed by Verdilo and Jerareh (2020) and integrated cognitive behavioral therapy (CBT) with clinical hypnotherapy. The first session involved group orientation, clarification of session goals, and baseline assessment of academic stress and engagement. The second session explained the principles of CBH, correcting misconceptions about hypnosis, and used guided imagery and hypnotic suggestions to challenge dysfunctional beliefs. The third session addressed the role of irrational thinking in emotional disturbance and introduced cognitive restructuring within a hypnotic trance, including the use of positive imagery. The fourth session examined the connection between thoughts, beliefs, behaviors, and their outcomes, incorporating hypnosis to reinforce insight into maladaptive cognitive schemas. In the fifth session, participants identified automatic thoughts and began generating alternative beliefs, supported by hypnotic suggestion and structured worksheets. The sixth session evaluated the characteristics of adaptive beliefs and emphasized perceptual change using trance-based interventions. The seventh session aimed to strengthen positive cognitions and reviewed progress through monitoring and visualization exercises. The eighth and final session concluded with a posttest and a synthesis of learning outcomes, addressing questions and reinforcing skill maintenance through hypnosis.

The meaning therapy protocol, adapted from Sadri et al. (2021), consisted of ten structured sessions centered around Viktor Frankl's existential framework and the Healthy Human Theory. The first session introduced participants and the concept of educational meaning, with pretests administered to assess academic self-efficacy, meaning, optimism, and engagement. The session emphasized the importance of life purpose, preventing existential emptiness, and identifying personal responsibilities. The second session

explored different types of meaning, its depth, and methods for achieving it, using introspection and guided contemplation. The third session developed self-awareness around meaning, encouraging participants to accept life's hardships, build resilience, and seek purpose in suffering through relational and existential exercises. The fourth session taught decentering from egocentric perspectives, cultivating satisfaction, forgiveness, and the flow experience. The fifth session tackled distorted and toxic meanings, training students to recognize false meaning systems and break depressive cycles. The sixth session focused on sustaining meaningful experiences, enhancing spiritual intelligence, and increasing sensitivity to intuitive and transcendent experiences. The seventh session deepened academic meaning orientation, fostering loyalty to personal purpose, inner growth, and positive family relationships. The eighth session reinforced commitment to spiritual values, practicing self-compassion, gratitude, and connection with a higher power. The ninth session promoted metacognition, planning, and boundary-setting skills to maintain meaning in academic life. The tenth session emphasized willpower, responsibility, and optimism; it concluded with posttests, verbal appreciation, and ethical commitments for long-term follow-up participation.

2.4. Data Analysis

Data analysis in this study was conducted using both descriptive and inferential statistical methods. Descriptive statistics, including means and standard deviations, were calculated to summarize academic engagement scores across the different groups and time points (pretest, posttest, and follow-up). To assess the normality of the data distribution, the Shapiro–Wilk test was employed, while Levene's test was used to evaluate the homogeneity of variances across groups. Additionally, Box's M test was applied to verify the equality of covariance matrices, and Mauchly's test of sphericity assessed the assumption of sphericity in repeated measures. Due to the violation of the sphericity assumption, Greenhouse–Geisser corrections were applied. To examine the effects of the interventions over time, repeated measures analysis of variance (ANOVA) was used, including within-subjects effects (time and time \times group interaction) and between-subjects effects (group differences). Where significant differences were detected, Bonferroni post hoc tests were performed to determine pairwise comparisons between the intervention and control groups at each

measurement phase. All analyses were conducted at a significance level of $p < .05$.

3. Findings and Results

Table 1

Means and Standard Deviations of Academic Engagement Scores Across Groups and Time Points

Group	Pretest M (SD)	Posttest M (SD)	Follow-up M (SD)
Cognitive Behavioral Hypnotherapy	35.35 (4.36)	40.90 (3.85)	45.20 (4.34)
Cognitive Behavioral Stress Management	34.00 (3.58)	40.15 (2.71)	42.45 (3.66)
Meaning Therapy (Healthy Human Theory)	34.95 (4.58)	36.40 (4.34)	48.15 (4.51)
Control Group	35.75 (4.01)	36.40 (4.34)	37.60 (4.36)

As seen in Table 1, the variable of academic engagement demonstrates that cognitive behavioral hypnotherapy, cognitive behavioral stress management, and meaning therapy based on the healthy human theory all showed improvements in posttest and follow-up scores compared to the control group. Table 5 presents the results of the Shapiro–Wilk test (for normality of distribution), Levene’s test (for homogeneity of variances), Box’s M test (for equality of covariance matrices), and Mauchly’s test of sphericity for the academic engagement variable.

Table 2

Results of Repeated Measures ANOVA for Academic Engagement

Source of Variation	SS	df	MS	F	Sig.	Partial η^2	Power
Within-Subjects							
Time	2806.22	1.80	1558.50	460.79	.000	.858	1.000
Time \times Group Interaction	713.60	5.40	132.10	39.06	.000	.607	1.000
Error (Time)	462.83	136.84	3.82				
Between-Subjects							
Group	885.47	3	295.16	6.83	.000	.212	.972

As shown in Table 2 for the academic engagement variable, within-subjects effects indicate a statistically significant effect of time ($F = 460.79$, $df = 1.80$, $p < .000$) and a significant interaction between time and group ($F = 39.06$, $df = 5.40$, $p < .000$). These results demonstrate significant differences in academic engagement based on time and the interaction of time with the four research groups ($p < .01$). This indicates that with 100% statistical power, 60.7% of the variance in academic engagement is explained by the interaction between time and group, meaning that the independent variable interventions (i.e., the three treatment

In Table 1, the means and standard deviations for the pretest, posttest, and follow-up stages of academic engagement in the research groups are presented.

Academic engagement at all three stages—pretest, posttest, and follow-up—showed a normal distribution ($p > .05$), homogeneity of error variance ($p > .05$), and a non-significant Box’s M test ($p > .05$). However, the Mauchly’s test result was significant, indicating that the sphericity assumption was violated. As a result, due to the violation of the sphericity assumption, the Greenhouse–Geisser correction was applied in the final analysis tables. Table 6 reports the results of repeated measures ANOVA.

methods) combined with time account for 60.7% of the variation in group means for academic engagement.

Additionally, as seen in the between-subjects effects, the group factor has a significant effect on academic engagement ($p < .000$). This implies that all three treatment methods were effective in improving academic engagement compared to the control group. Table 7 presents the Bonferroni post hoc test results comparing the means of the research groups across the three measurement times for academic engagement.

Table 3

Bonferroni Post Hoc Test Results for Comparing Group Means Across Three Time Points in Academic Engagement

Time Point	Reference Group	Comparison Group	Mean Difference	Standard Error	Sig.
Pretest	Cognitive Behavioral Hypnotherapy	Cognitive Behavioral Stress Management	1.35	1.31	.307
	Cognitive Behavioral Hypnotherapy	Meaning Therapy	0.40	1.31	.762
	Cognitive Behavioral Hypnotherapy	Control	-0.40	1.31	.761
	Cognitive Behavioral Stress Management	Meaning Therapy	-0.95	1.31	.472
	Cognitive Behavioral Stress Management	Control	-1.75	1.31	.187
	Meaning Therapy	Control	-0.80	1.31	.544
Posttest	Cognitive Behavioral Hypnotherapy	Cognitive Behavioral Stress Management	0.75	1.18	.529
	Cognitive Behavioral Hypnotherapy	Meaning Therapy	-1.15	1.18	.113
	Cognitive Behavioral Hypnotherapy	Control	4.50	1.18	.000
	Cognitive Behavioral Stress Management	Meaning Therapy	-1.90	1.18	.113
	Cognitive Behavioral Stress Management	Control	3.75	1.18	.002
	Meaning Therapy	Control	5.65	1.18	.000
Follow-up	Cognitive Behavioral Hypnotherapy	Cognitive Behavioral Stress Management	-2.75	1.33	.440
	Cognitive Behavioral Hypnotherapy	Meaning Therapy	-2.95	1.33	.031
	Cognitive Behavioral Hypnotherapy	Control	7.60	1.33	.000
	Cognitive Behavioral Stress Management	Meaning Therapy	-5.70	1.33	.000
	Cognitive Behavioral Stress Management	Control	4.85	1.33	.001
	Meaning Therapy	Control	10.55	1.33	.000

The post hoc results indicate that at both the posttest and follow-up stages, there were significant differences in academic engagement means between the intervention groups and the control group. All three methods had a statistically significant effect on improving academic engagement. Although no significant differences were found among the three methods during the posttest phase, at the follow-up stage, the mindfulness-based cognitive behavioral stress management approach was more effective than cognitive behavioral hypnotherapy, and meaning therapy based on the healthy human theory was more effective than both other methods (Table 3).

4. Discussion and Conclusion

The present study examined the comparative efficacy of three psychological interventions—mindfulness-based stress reduction (MBSR), group cognitive behavioral hypnotherapy (CBH), and meaning-centered therapy based on the Healthy Human Theory (MCT)—in enhancing academic engagement among eleventh-grade male students in Isfahan. Utilizing a quasi-experimental, four-group pretest-posttest-follow-up design, findings indicate that all three interventions produced significant improvements in academic engagement relative to the control group at both posttest and 45-day follow-up assessments. Although immediate posttest differences among the interventions were not statistically significant, follow-up data revealed that MCT and CBSM yielded more robust and sustainable engagement gains compared to CBH. These outcomes offer several theoretical and practical implications for school-based intervention programs.

The significant increases in academic engagement observed across MBSR, CBH, and MCT groups align with extant literature documenting the efficacy of these approaches in boosting student investment and persistence. Mindfulness training has been widely linked to improvements in attentional focus, emotional regulation, and intrinsic motivation, underpinning enhanced engagement in academic tasks (Abadi Al-Naz et al., 2023; Jahantigh et al., 2023). Studies have demonstrated that mindfulness fosters greater self-awareness and cognitive flexibility, which are essential for sustained engagement and academic performance (Nighnam Khadijeh & Zangeneh Motlaq, 2024; Sadighi et al., 2024). The present findings extend this literature by confirming that MBSR can promote engagement not only immediately following intervention but also at delayed follow-up in adolescent populations.

Similarly, CBH led to significant gains in academic engagement at posttest, corroborating previous findings showing hypnotherapy—when integrated with cognitive-behavioral techniques—enhances self-efficacy, reduces academic anxiety, and strengthens motivation (Hashemi, 2024; Vordiloo & Jarareh, 2020). For example, Hashemi (2024) reported that CBH reduced exam anxiety and bolstered academic self-efficacy among university entrance exam candidates, while Vordiloo and Jarareh (2020) observed improved confidence among students following cognitive hypnotherapy. The use of guided imagery and hypnotic suggestions appears to facilitate deep cognitive restructuring, enabling students to internalize positive academic scripts and subsequently increase engagement (Batra et al., 2024; Fuhr et al., 2021).

Most notably, MCT—grounded in the Healthy Human Theory—proved to be the most potent intervention at follow-up, with significantly higher sustained academic engagement compared to the other two modalities. This outcome supports theoretical perspectives positing that meaning-making fosters deeper and more lasting commitment to goals than approaches focused primarily on symptom reduction or cognitive restructuring (Nasajpour Isfahani & Aghayi, 2021; Sadri et al., 2021). Meaning theory interventions have been associated with heightened educational optimism, resilience, and well-being, which in turn contribute to more sustained engagement over time (Lahrab Galle et al., 2024; Narimani et al., 2022). The present study's findings corroborate this pattern, suggesting that when students perceive their academic efforts as meaningful and connected to broader values or purposes, their engagement becomes more internally driven and durable—a result consistent with foundational logotherapeutic and existential frameworks.

The temporal patterns observed in this study offer valuable insights: while all three interventions produced immediate posttest improvements, MBSR and CBH exhibited a slight plateau or regression by follow-up, whereas MCT effects continued to grow post-intervention. This aligns with prior research suggesting that cognitive and attentional shifts established via CBH or mindfulness are potent but may require ongoing practice for sustained impact (Salmani et al., 2023; Soleimani et al., 2021). In contrast, meaning-oriented interventions structurally reposition a student's sense of identity and purpose—elements which inherently persist beyond the active phase of an intervention (Sadri et al., 2021). Thus, while mindfulness and CBH may be powerful "short-term boosters," meaning therapy may be more effective as a "longer-term anchor" for engagement.

Comparative effects among the three interventions further highlight nuanced differential benefits. Posttest results showed no significant differences, suggesting that all approaches were similarly effective in promoting acute engagement shifts. However, feedback from follow-up indicated that CBSM and MCT yielded stronger and more persistent engagement than CBH—a pattern supported by research indicating the unique, sustained benefits of meaning-oriented training (Lahrab Galle et al., 2024; Sadri et al., 2021). These findings contribute to a growing empirical case for multi-theoretical interventions in educational psychology, where addressing cognitive, emotional, and existential dimensions together offers comprehensive engagement enhancement.

Notably, this research contributes to the literature by applying the well-established Fredricks Engagement Scale, which disaggregates cognitive, behavioral, and emotional dimensions of student engagement (Fredricks, 2022). By documenting significant time \times group interactions across all three dimensions, this study validates the scale's utility in evaluating psychological interventions in school contexts and underscores academic engagement's malleability through structured psychological training.

Collectively, these findings carry important implications for theorists and practitioners. First, they emphasize the importance of addressing existential meaning in educational interventions—it appears to provide deeper grounding for motivation than strategies focused solely on cognition or emotion regulation. Second, they support a model of intervention sequencing: beginning with MBSR or CBH to catalyze immediate cognitive and emotional shifts, followed by MCT to cement long-lasting, purpose-driven engagement. Third, the results underscore the practical feasibility and effectiveness of delivering these programs in school settings, reinforcing their value in preventive and developmental educational paradigms.

5. Limitations & Suggestions

Despite these promising outcomes, several limitations must be acknowledged. First, the sample comprised only male eleventh-grade students from one city (Isfahan), which limits the generalizability of findings to other genders, age groups, or cultural contexts. Second, while the quasi-experimental randomized group design strengthens internal validity, the use of convenience sampling may introduce selection bias. Third, despite follow-up testing, the 45-day interval may not be sufficient to assess long-term maintenance of engagement; future studies with longer intervals are warranted. Fourth, reliance on a single self-report measure could introduce response biases; multi-informant and behavioral measures would improve validity. Finally, since all interventions were conducted in small group formats, it remains unclear whether outcomes are due to specific therapeutic elements or non-specific factors like group cohesion. Future research should include dismantling studies to isolate active ingredients.

Future investigations should explore these interventions across diverse educational and cultural settings to enhance external validity. Including female students, younger adolescents, and students from varying socioeconomic backgrounds would test the robustness of intervention

effects. Longer-term follow-up periods—six months to one year—would clarify the durability of engagement improvements and identify potential decay or need for booster sessions. Additionally, research should integrate multimethod assessment, including teacher reports, peer evaluations, academic records, and objective engagement metrics (e.g., class attendance, assignment completion). Examining the mechanisms underlying each intervention—such as attentional capacity, cognitive restructuring, existential worldview, or group cohesion—would further elucidate the processes driving engagement change. Finally, studies comparing these three interventions delivered sequentially or in combination could reveal whether a stepped-care model enhances engagement more effectively than standalone protocols.

Based on the current findings, educational practitioners and school counselors could implement multi-component intervention programs to promote academic engagement. Starting with an eight-week MBSR module can help students develop self-awareness, emotional regulation, and attentional control, laying the foundation for deeper engagement. This could be followed by targeted CBH sessions focusing on cognitive restructuring of maladaptive academic beliefs and imagery to reinforce positive academic self-concept. Finally, delivering a meaning-focused module based on existential principles can help students connect their academic activities to their broader life purpose, increasing long-term commitment and motivation. Schools should train teachers and counselors in delivering these protocols, potentially embedding them into the curriculum or extracurricular activities. Regular monitoring and support (e.g., booster sessions) may enhance outcomes over time. This tiered approach can foster holistic student development—cognitive, emotional, and motivational—while contributing to healthier, more engaged learning environments.

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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

All authors equally contributed to this article.

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