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Effectiveness of an Academic Motivation Training Model on Cognitive Flexibility, Academic Resilience, and Academic Motivation among Female Lower Secondary School Students in Tehran

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A B S T R A C T

Objective: The present study aimed to examine the effectiveness of an academic motivation training model on cognitive flexibility, academic resilience, and academic motivation among female students in lower secondary schools in Tehran.

Methods and Materials: This applied study employed a quasi-experimental design with a pretest–posttest format and a control group. The statistical population consisted of all female lower secondary school students in Tehran during the 2025–2026 academic year. Based on sample size estimation using G*Power software and Cohen's criteria, 42 participants were selected through convenience sampling and randomly assigned to an experimental group (n = 21) and a control group (n = 21). The experimental group received training based on the academic motivation model over eight sessions, while the control group received no intervention. Research instruments included the Cognitive Flexibility Inventory developed by Dennis and Vander Wal (2010), the Academic Motivation Scale by Vallerand et al. (1992), and the Academic Resilience Scale by Cassidy (2016). Data were analyzed using analysis of covariance (ANCOVA) in SPSS at a significance level of 0.05.

Findings: The results indicated that, after controlling for pretest effects, the academic motivation training model had a positive and statistically significant effect on cognitive flexibility, academic resilience, and academic motivation ($p < 0.001$). Specifically, significant differences were observed between the two groups in posttest scores for cognitive flexibility ($F = 24.82$, $\eta^2 = 0.39$), academic resilience ($F = 32.27$, $\eta^2 = 0.46$), and academic motivation ($F = 43.80$, $\eta^2 = 0.53$).

Conclusion: Based on the findings, the academic motivation training model can be considered an effective educational intervention that enhances academic motivation, increases cognitive flexibility, and strengthens academic resilience among students. Therefore, implementing this model in educational settings and school counseling programs may improve learning quality, increase academic engagement, and facilitate better student adaptation to educational challenges.

Keywords: *Academic motivation training model, cognitive flexibility, academic resilience, academic motivation, female students, lower secondary education*

1. Introduction

Academic functioning in contemporary educational systems is increasingly conceptualized as a multidimensional construct shaped not only by cognitive abilities but also by motivational, emotional, and regulatory processes. Among these, academic motivation, cognitive flexibility, and resilience have emerged as core determinants of students' adaptive functioning, learning engagement, and long-term academic success. Academic motivation, defined as the internal and external drivers that energize and sustain learning behaviors, plays a pivotal role in shaping students' persistence, effort, and achievement outcomes. A decline in motivation, particularly during early adolescence, has been associated with disengagement, reduced academic performance, and increased vulnerability to psychological distress (Jamali et al., 2021; Nikan et al., 2023). In parallel, cognitive flexibility—the capacity to adapt cognitive processing strategies in response to changing environmental demands—enables students to reinterpret challenges, generate alternative solutions, and regulate maladaptive thought patterns, thereby facilitating more effective learning and problem-solving (Khanjani et al., 2014; Tirch et al., 2012). Furthermore, academic resilience, defined as the ability to maintain or regain academic functioning despite adversity, serves as a protective factor that buffers against stress, failure, and academic setbacks (Rafiei et al., 2011).

Recent theoretical and empirical developments suggest that these constructs are not independent but are dynamically interrelated within broader psychological frameworks. For instance, contemporary cognitive-behavioral and third-wave therapeutic models emphasize the role of psychological flexibility, self-regulation, and adaptive cognitive-emotional processing in enhancing both motivation and resilience (Hayes et al., 1999; Jamali et al., 2021). Acceptance and Commitment Therapy (ACT), as a prominent example, posits that psychological flexibility enables individuals to act in accordance with their values despite the presence of distressing thoughts and emotions, thereby enhancing goal-directed behavior such as academic engagement (Hayes et al., 1999). Similarly, schema therapy, grounded in integrative cognitive-behavioral principles, focuses on modifying early maladaptive schemas that underlie dysfunctional emotional and behavioral patterns, thus contributing to improved cognitive flexibility and emotional regulation (Bamelis et al., 2014; Young et al., 2003).

Schema theory provides a particularly relevant framework for understanding maladaptive patterns in academic contexts. According to Young et al. (2003), early maladaptive schemas are pervasive cognitive-emotional structures formed during childhood that influence how individuals perceive themselves and their environment. These schemas can lead to rigid thinking patterns, reduced adaptability, and maladaptive coping strategies, which in turn undermine academic motivation and resilience. Empirical studies have demonstrated that schema therapy is effective in reducing psychological distress and improving adaptive functioning across various populations, including individuals with personality disorders and chronic depression (Bakos et al., 2015; Renner et al., 2016). Moreover, group-based schema therapy interventions have shown promising results in enhancing emotional regulation and interpersonal functioning (Farrell et al., 2009).

In addition to schema-based approaches, compassion-focused and mindfulness-based interventions have gained increasing attention for their role in promoting adaptive psychological functioning. Self-compassion, as conceptualized by Neff (2003), involves treating oneself with kindness, recognizing common humanity, and maintaining a balanced awareness of one's experiences. This construct has been linked to reduced psychopathology and improved emotional regulation (MacBeth & Gumley, 2012; Neff, 2003). Compassion-focused therapy, developed by Gilbert (2009), further extends this framework by targeting self-criticism and shame, thereby fostering emotional resilience and adaptive coping (Gilbert, 2009). Empirical evidence suggests that compassion-based interventions can significantly enhance cognitive-emotional regulation and psychological well-being among students and clinical populations (Mamdouhi et al., 2023; Mansouri Karyani et al., 2022).

Mindfulness-based approaches also contribute to this domain by enhancing present-moment awareness and reducing automatic, maladaptive cognitive patterns. Research indicates that mindfulness-based cognitive therapy can improve emotional regulation, resilience, and overall psychological functioning (Aghabagheri et al., 2012; Nikan et al., 2023). These findings align with broader evidence suggesting that interventions targeting cognitive and emotional processes can have significant downstream effects on academic motivation and performance. For example, improvements in cognitive flexibility and emotional regulation are associated with increased persistence, adaptive coping, and engagement in learning activities (Faustino et al., 2020; Thimm, 2017).

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Despite the growing body of literature on therapeutic interventions, there remains a critical gap in translating these insights into structured educational models that can be implemented within school settings. Most existing studies have focused on clinical populations or therapeutic contexts, with limited attention to preventive and developmental interventions in educational environments. However, adolescence represents a critical period for the development of motivational and cognitive-emotional competencies, making it an ideal target for such interventions. Educational programs that integrate principles from schema therapy, ACT, and compassion-focused approaches may provide a comprehensive framework for enhancing students' academic functioning.

Recent studies have begun to explore the effectiveness of integrative approaches that combine elements from different therapeutic models. For instance, the integration of schema therapy and ACT has been shown to improve subjective well-being and reduce maladaptive cognitive patterns in clinical populations (Karami Mohajeri et al., 2025; Karimi Mohajeri et al., 2025). These findings suggest that combining cognitive restructuring with acceptance-based strategies may yield synergistic effects on psychological functioning. Moreover, interventions that target multiple dimensions of functioning—such as cognition, emotion, and motivation—are likely to be more effective than those focusing on a single component.

In the educational context, the role of teachers, learning environments, and instructional methods is also crucial in shaping students' motivation and engagement. Supportive teacher-student relationships, autonomy-supportive teaching practices, and positive feedback have been identified as key factors that enhance intrinsic motivation and academic resilience (Kelly et al., 2009; Körük & Özabacı, 2018). Additionally, the development of adaptive cognitive-emotional skills, such as flexible thinking and effective coping strategies, can help students navigate academic challenges more effectively.

Given the theoretical and empirical evidence, it is evident that enhancing academic motivation requires a multidimensional approach that addresses underlying cognitive, emotional, and behavioral processes. An educational model grounded in these principles can potentially foster not only motivation but also cognitive flexibility and resilience, thereby promoting overall academic success and psychological well-being. However, there is a paucity of research examining the effectiveness of such models among adolescent students, particularly in non-clinical, school-based settings. Furthermore, cultural and contextual factors may influence the applicability and effectiveness of these interventions, highlighting the need for context-specific research.

Therefore, the present study seeks to address this gap by designing and evaluating an academic motivation training model that integrates key principles from contemporary psychological theories and therapeutic approaches, with a focus on enhancing cognitive flexibility, academic resilience, and academic motivation among female lower secondary school students in Tehran.

2. Methods and Materials

2.1. Study Design and Participants

The present study was applied in terms of purpose and employed a quasi-experimental design with a pretest–posttest format including a control group. The statistical population consisted of all female students in lower secondary schools in Tehran during the 2025–2026 academic year. The sample size was estimated using G*Power software. In this software, parameters such as effect size, significance level, statistical power, and type of statistical test were specified. For effect size, Cohen's (1988) criterion was used, and 0.50 was considered a medium effect size. The significance level (Type I error probability) was set at 0.05, statistical power at 0.80, and an independent samples t-test was selected as the statistical test, resulting in a sample size of 21 participants for each of the experimental and control groups. Accordingly, a total of 42 participants were selected through convenience sampling and then randomly assigned to the experimental group (n = 21) and the control group (n = 21). Following the administration of the pretest, the educational package based on the academic motivation model was implemented for the experimental group over eight sessions, while the control group did not receive any psychological or educational intervention during this period. After the completion of the training sessions, a posttest was administered to both groups.

Inclusion criteria consisted of being within the age range of 11 years to 15 years, 11 months, and 29 days, enrollment in lower secondary education, willingness to participate in the study, absence of severe behavioral disorders, autism spectrum disorder, or other serious conditions that could interfere with the training process, and having an average intelligence quotient (IQ between 85 and 115). Exclusion criteria included lack of cooperation during the training process, frequent absenteeism (more than two sessions),

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withdrawal from the study, transfer from the educational institution due to changes in environmental or educational conditions, and having an IQ outside the specified range.

Prior to the intervention, the objectives of the study, implementation procedures, and ethical considerations were explained to the participants. They were assured that participation was entirely voluntary and that they could withdraw at any stage without any negative consequences. It was also emphasized that non-participation or withdrawal would not affect their academic status or educational records. Data were collected in two phases, before the intervention (pretest) and after the completion of the intervention (posttest), from both groups. The research instruments and details of the educational package are as follows:

2.2. Measures

The Cognitive Flexibility Inventory was developed by Dennis and Vander Wal (2010) and is a 20-item self-report instrument used to assess a type of cognitive flexibility involved in identifying, challenging, and replacing maladaptive thoughts with more adaptive ones. Responses are rated on a seven-point Likert scale ranging from 1 to 7, with total scores ranging from 20 to 140; higher scores indicate greater cognitive flexibility. This questionnaire measures three components: perceived controllability of difficult situations, the ability to perceive alternative explanations for events and human behavior, and the ability to generate alternative solutions to difficult situations. Dennis and Vander Wal (2010) reported concurrent validity of this scale with the Beck Depression Inventory as −0.39 and convergent validity with the Cognitive Flexibility Scale by Martin and Rubin as 0.75. In Iran, Shareh, Farmani, and Soltani (2014) reported a test–retest reliability coefficient of 0.71 for the total scale and 0.55, 0.72, and 0.55 for the subscales of perceived controllability, perception of alternatives, and perception of behavioral justification, respectively. Additionally, Cronbach's alpha for the total scale was reported as 0.90, and for the subscales as 0.87, 0.89, and 0.55, respectively, indicating satisfactory reliability and validity of the Persian version of this instrument. In the present study, the total score of the Cognitive Flexibility Inventory was used. The reliability coefficients obtained in this study were 0.79 for perceived controllability, 0.67 for perception of behavioral justification, and 0.74 for perception of alternatives.

The Academic Motivation Scale was developed and validated by Vallerand et al. (1992). This instrument consists of 28 items and assesses three main dimensions: intrinsic motivation, extrinsic motivation, and amotivation. Responses are scored on a seven-point Likert scale, with each item ranging from 1 to 7, resulting in a total score range of 28 to 196. Higher scores indicate higher levels of academic motivation. In a study by Mohammadi, Moslemi, and Gomi (2021), the reliability of this questionnaire was reported as 0.91 using Cronbach's alpha. In the present study, reliability coefficients were 0.75 for intrinsic motivation, 0.82 for extrinsic motivation, and 0.73 for amotivation, with an overall reliability coefficient of 0.76 for the total scale.

The Academic Resilience Scale was developed by Cassidy (2016) to assess learners' academic resilience. This scale includes 30 items and three factors: perseverance, reflection and adaptive help-seeking, and negative affect and emotional responses. To administer this instrument, participants first read a brief scenario describing a challenging academic situation and then select responses that most closely reflect their reactions. Items are scored using a five-point Likert scale, and the total score is obtained by summing item scores, ranging from 30 to 150, with higher scores indicating greater academic resilience. Some items are reverse-scored. Cassidy (2016) reported validity through correlation with the General Academic Self-Efficacy Questionnaire at 0.49 and reliability via Cronbach's alpha at 0.90. Additionally, Ramezanpour et al. (2019), in a study on an Iranian sample, reported Cronbach's alpha and test–retest reliability coefficients of 0.92 and 0.89, respectively. In the present study, reliability coefficients were 0.78 for perseverance, 0.70 for reflection and adaptive help-seeking, and 0.64 for negative affect and emotional responses, with an overall reliability coefficient of 0.75 for the total scale.

2.3. Intervention

The intervention protocol consisted of an eight-session educational program based on an academic motivation training model developed by the researcher, delivered to the experimental group in structured group sessions. The program began with rapport building, clarification of objectives, and increasing students' awareness of the concept of academic motivation, including distinctions among intrinsic motivation, extrinsic motivation, and amotivation. Subsequent sessions focused on enhancing academic self-awareness through identification of personal

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interests, values, and meaning in learning, followed by strengthening autonomy in learning by promoting choice, decision-making, and personalized study strategies. The intervention further emphasized the development of perceived competence through recognition of strengths, incremental goal setting, and reinforcement of small academic successes. Cognitive flexibility was targeted by training students to adopt multiple perspectives toward academic challenges, reframe rigid or all-or-nothing thinking patterns, and generate alternative problem-solving strategies. Academic resilience was enhanced through techniques aimed at managing failure, tolerating frustration, and fostering adaptive self-talk in response to academic setbacks. Additionally, the program addressed the role of supportive relationships by improving communication skills, encouraging effective help-seeking behaviors, and utilizing positive feedback from teachers, family, and peers. The final session focused on integration and consolidation of learned skills, development of individualized academic motivation plans, and strategies for maintaining motivation over time. Throughout the intervention, active learning methods such as group discussions, brainstorming, guided exercises, cognitive restructuring, role-playing, and reflective writing assignments were employed, along with weekly homework tasks designed to generalize learned skills to real-life academic contexts.

2.4. Data Analysis

For data analysis, descriptive statistics included mean and standard deviation, while inferential statistics involved multivariate analysis of covariance (MANCOVA) and, where the overall effect was significant, univariate analysis of covariance (ANCOVA). Prior to conducting the analyses, assumptions of normality of data distribution, homogeneity of variances, homogeneity of regression slopes, and homogeneity of covariance matrices were examined. Data were analyzed using SPSS at a significance level of 0.05.

3. Findings and Results

First, the demographic characteristics of the study participants are presented, followed by the results of data analysis. The sample size in the experimental group consisted of 21 participants, of whom 7 students (33.33%) were from each grade level (seventh, eighth, and ninth). Similarly, the control group included 21 participants, with an equal distribution across the three grade levels. The mean age and standard deviation of the experimental group were 13 years and 5 months and 0.96, respectively. For the control group, the mean age and standard deviation were 13 years and 7 months and 0.96, respectively. Table 2 presents the means and standard deviations of cognitive flexibility, academic resilience, and academic motivation in the experimental and control groups at the pretest and posttest stages.

Table 1

Means and Standard Deviations of Research Variables

Variable	Group	N	Measurement Stage	Mean	Standard Deviation
Cognitive Flexibility	Experimental	21	Pretest	76.43	8.21
			Posttest	92.57	7.48
	Control	21	Pretest	75.90	5.47
			Posttest	77.14	8.03
Academic Resilience	Experimental	21	Pretest	88.62	9.15
			Posttest	108.38	8.26
	Control	21	Pretest	89.10	8.88
			Posttest	90.33	8.64
Academic Motivation	Experimental	21	Pretest	102.71	11.34
			Posttest	136.24	10.17
	Control	21	Pretest	101.95	10.96
			Posttest	104.19	10.52

The assumptions underlying the use of analysis of covariance were examined prior to conducting the main analyses. The results of the Kolmogorov–Smirnov and Shapiro–Wilk tests indicated that the distribution of scores for cognitive flexibility (K–S = 0.137, p = 0.200; S–W = 0.880, p = 0.239), academic resilience (K–S = 0.247, p = 0.132; S–W = 0.769, p = 0.128), and academic motivation (K–S = 0.241, p = 0.105; S–W = 0.869, p = 0.143) did not significantly deviate from normality, as all significance levels exceeded 0.05, confirming the normal distribution

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assumption. In addition, Levene's test was used to assess the homogeneity of variances, and the results showed that the variances of posttest scores between the experimental and control groups were not significantly different for cognitive flexibility (F = 0.27, p = 0.266), academic resilience (F = 0.94, p = 0.338), and academic motivation (F = 1.51, p = 0.226). Therefore, the assumption of homogeneity of variances was satisfied. Overall, these findings indicate that the key assumptions required for conducting ANCOVA were met, allowing for valid interpretation of the inferential results.

Table 2

Results of Analysis of Covariance (ANCOVA) for Research Variables

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.	Effect Size (η^2)
Cognitive Flexibility	Pretest	412.58	1	412.58	10.10	0.003	0.06
	Group	1013.44	1	1013.44	24.82	0.001	0.39
	Error	1592.37	39	40.83			
	Total	3018.39	41				
Academic Resilience	Pretest	538.71	1	538.71	11.55	0.028	0.01
	Group	1504.86	1	1504.86	32.27	0.001	0.46
	Error	1818.96	39	46.64			
	Total	3862.53	41				
Academic Motivation	Pretest	684.22	1	684.22	13.94	0.015	0.05
	Group	2149.43	1	2149.43	43.80	0.001	0.53
	Error	1913.54	39	49.07			
	Total	4747.19	41				

The results presented in Table 2 indicate that, after controlling for pretest effects, there were statistically significant differences between the experimental and control groups in the posttest scores of all three dependent variables. Specifically, for cognitive flexibility, the effect of group membership was significant (F = 24.82, p = 0.001, η^2 = 0.39), indicating that the academic motivation training model accounted for 39% of the variance in cognitive flexibility. For academic resilience, the group effect was also statistically significant (F = 32.27, p = 0.001, η^2 = 0.46), demonstrating that 46% of the variance in academic resilience was attributable to the intervention. Similarly, for academic motivation, the results revealed a significant group effect (F = 43.80, p = 0.001, η^2 = 0.53), indicating that the academic motivation training model explained 53% of the variance in students' academic motivation. These findings collectively demonstrate that the independent variable, namely the academic motivation training model, had a substantial and statistically significant impact on cognitive flexibility, academic resilience, and academic motivation among the participants.

4. Discussion

The present study aimed to examine the effectiveness of an academic motivation training model on cognitive flexibility, academic resilience, and academic motivation among female lower secondary school students. The findings demonstrated that, after controlling for pretest scores, the intervention produced statistically significant improvements in all three dependent variables, with moderate to large effect sizes. Specifically, the results indicated that the academic motivation training model significantly increased cognitive flexibility, suggesting that students who participated in the intervention became more capable of reinterpreting challenging academic situations, generating alternative solutions, and modifying rigid cognitive patterns. This finding is theoretically consistent with the core assumptions of cognitive-behavioral and schema-based approaches, which emphasize the role of modifying maladaptive cognitive structures in enhancing adaptive functioning (Tirch et al., 2012; Young et al., 2003). Schema therapy, in particular, posits that early maladaptive schemas contribute to rigid and dysfunctional thinking patterns, and that targeted interventions can promote more flexible and adaptive cognitive processing (Bakos et al., 2015; Bamelis et al., 2014). The observed improvement in cognitive flexibility in the present study can therefore be interpreted as a direct outcome of training components that encouraged perspective-taking, cognitive restructuring, and the generation of alternative interpretations, which align with the mechanisms proposed in schema therapy and related models.

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Furthermore, the findings revealed that the intervention had a significant positive effect on academic resilience, indicating that students in the experimental group became better able to cope with academic stressors, tolerate failure, and maintain engagement despite challenges. This result is consistent with prior research demonstrating that interventions targeting cognitive-emotional processes can enhance resilience by improving individuals' capacity to regulate emotions and adapt to adversity (Isazadeh et al., 2020; Nikan et al., 2023). From a theoretical perspective, resilience is closely linked to psychological flexibility, as individuals who can adapt their cognitive and behavioral responses are more likely to recover from setbacks and persist in goal-directed activities (Hayes et al., 1999). The integration of elements such as self-reflection, adaptive help-seeking, and reframing of failure within the intervention likely contributed to strengthening students' resilience. In addition, the emphasis on supportive relationships and positive feedback in the training program may have enhanced students' sense of belonging and perceived support, which are critical components of resilience development (Rafiei et al., 2011).

The significant increase in academic motivation observed in the experimental group further underscores the effectiveness of the intervention. Academic motivation is influenced by a complex interplay of cognitive, emotional, and environmental factors, and the present findings suggest that addressing these dimensions simultaneously can lead to substantial improvements. The training model incorporated components aimed at enhancing intrinsic motivation, such as identifying personal values, fostering autonomy, and promoting meaningful engagement with learning tasks. These elements are consistent with self-determination theory and have been shown to increase motivation by satisfying basic psychological needs for autonomy, competence, and relatedness. Moreover, the findings align with previous studies indicating that interventions based on acceptance and commitment therapy and compassion-focused approaches can enhance motivation by increasing psychological flexibility and reducing self-critical tendencies (Mamdouhi et al., 2023; Mansouri Karyani et al., 2022).

In explaining the mechanisms underlying these effects, it is important to consider the role of emotional schemas and self-related processes. Emotional schemas, which refer to individuals' beliefs and attitudes about their emotions, can significantly influence how they respond to academic challenges. Research has shown that maladaptive emotional schemas are associated with increased psychological distress and reduced adaptive functioning, whereas adaptive schemas facilitate effective emotion regulation and goal-directed behavior (Faustino et al., 2020; Thimm, 2017). The intervention likely contributed to modifying students' emotional schemas by promoting acceptance of negative emotions, encouraging self-compassion, and fostering a more balanced perspective toward academic difficulties. The role of self-compassion is particularly noteworthy, as it has been associated with greater resilience, lower levels of anxiety and depression, and improved motivation (MacBeth & Gumley, 2012; Neff, 2003). Compassion-focused therapy, which emphasizes the development of a supportive and non-judgmental relationship with oneself, may have played an indirect role in enhancing students' motivation and resilience by reducing fear of failure and self-criticism (Gilbert, 2009).

Another important mechanism that may explain the observed effects is the enhancement of psychological flexibility. Psychological flexibility, defined as the ability to remain in contact with the present moment and adapt behavior in accordance with one's values, is a central construct in acceptance and commitment therapy (Hayes et al., 1999). Increased psychological flexibility enables individuals to respond more adaptively to stressors, persist in the face of challenges, and maintain engagement in meaningful activities. Empirical evidence supports the association between psychological flexibility and improved emotional regulation, reduced distress, and enhanced functioning across various domains (Jamali et al., 2021). In the present study, training components such as value clarification, acceptance of difficult experiences, and commitment to goal-directed actions likely contributed to increasing psychological flexibility, which in turn enhanced cognitive flexibility, resilience, and motivation.

The findings of this study are also consistent with previous research demonstrating the effectiveness of integrative therapeutic approaches. For example, studies integrating schema therapy and acceptance-based interventions have reported significant improvements in psychological well-being and reduction in maladaptive cognitive patterns (Karami Mohajeri et al., 2025; Karimi Mohajeri et al., 2025). These integrative approaches are particularly effective because they address both the content and process of cognition, combining cognitive restructuring with acceptance and mindfulness-based strategies. Similarly, mindfulness-based cognitive therapy has been shown to improve emotional regulation and resilience, which are closely linked to academic functioning

(Aghabagheri et al., 2012). The present study extends these findings by demonstrating that such principles can be successfully adapted into an educational training model and applied within a school setting.

In addition, the group-based format of the intervention may have contributed to its effectiveness. Group interventions provide opportunities for social learning, peer support, and normalization of experiences, which can enhance engagement and motivation. Previous research on group schema therapy has shown that the group context facilitates emotional processing and interpersonal learning, leading to improved outcomes (Farrell et al., 2009). The collaborative activities, discussions, and shared experiences in the present intervention likely fostered a supportive learning environment that enhanced students' motivation and willingness to engage with the training content.

5. Conclusion

Overall, the results of this study provide strong evidence for the effectiveness of an academic motivation training model that integrates cognitive, emotional, and behavioral components. By targeting multiple dimensions of functioning, the intervention was able to produce significant improvements in cognitive flexibility, academic resilience, and academic motivation. These findings highlight the importance of adopting a holistic approach to educational interventions, one that goes beyond traditional instructional methods and addresses the underlying psychological processes that influence learning and performance. The study also underscores the potential of school-based interventions to promote not only academic success but also psychological well-being among students.

6. Limitations & Suggestions

One limitation of the present study is the relatively small sample size and the use of convenience sampling, which may limit the generalizability of the findings to broader populations. Additionally, the study was conducted exclusively with female students in a specific educational context, which restricts the applicability of the results to other demographic groups. Another limitation is the reliance on self-report measures, which may be subject to response biases and social desirability effects. Furthermore, the absence of a follow-up assessment limits the ability to determine the long-term sustainability of the intervention effects.

Future research should consider employing larger and more diverse samples to enhance the generalizability of the findings. Longitudinal designs with follow-up assessments are recommended to evaluate the دوام and stability of the intervention outcomes over time. Researchers may also explore the effectiveness of similar training models across different educational levels, including primary and upper secondary students, as well as in mixed-gender samples. Additionally, incorporating objective measures, such as academic performance indicators, could provide a more comprehensive evaluation of the intervention's impact. Comparative studies examining the relative effectiveness of different intervention approaches would also contribute to a deeper understanding of the mechanisms underlying improvements in academic motivation and related constructs.

From a practical perspective, the findings suggest that implementing structured academic motivation training programs in schools can play a significant role in enhancing students' cognitive and emotional competencies. Educators and school counselors can incorporate elements of the intervention, such as fostering autonomy, promoting flexible thinking, and encouraging adaptive coping strategies, into their teaching and counseling practices. Training programs for teachers may also be developed to equip them with the skills necessary to support students' motivation and resilience. Moreover, integrating such programs into the regular curriculum or extracurricular activities could help create a more supportive and engaging learning environment, ultimately improving students' academic outcomes and overall well-being.

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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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