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Comparing the Effectiveness of Academic Resilience Training with an Integrated Monotheistic Approach and Mindfulness Training on Self-Regulated Learning

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ABSTRACT

Objective: High-pressure educational environments, such as the highly competitive university entrance examination, on the one hand, and the undeniable role of self-regulated learning in academic achievement, on the other, underscore the growing need for research in this area. Given the particular importance of tailoring educational interventions to local cultural components, the present study was conducted to compare the effectiveness of two intervention programs, "academic resilience training based on an integrated monotheistic approach" and "mindfulness training", on the self-regulated learning level of female high school students.

Method: This quasi-experimental study utilized a pretest-posttest control group design with two intervention groups and a control group. The target population consisted of female students enrolled in District 10 of Tehran during the 2022–2023 academic year. Participants were selected through convenience sampling, and due to pandemic-related restrictions, the interventions were administered online. The final sample comprised 21 students, allocated to three conditions: academic resilience training (n = 7), mindfulness training (n = 9), and a no-intervention control group (n = 5). Each intervention was conducted over eight 90-minute online sessions. The Self-Regulated Learning Questionnaire (MSLQ) served as the primary data collection instrument, and the data were analyzed using SPSS (version 25) through analysis of covariance (ANCOVA), followed by LSD post hoc comparisons.

Results: The results of analysis of covariance (ANCOVA) indicated that both training programs significantly increased overall self-regulated learning compared to that in the control group ($F=3.681$, $df=2$, $p<.05$, Partial $\eta^2=.473$). Both interventions also demonstrated significant effectiveness on the 'metacognitive strategies' subscale ($F=6.137$, $df=2$, $p<.011$, Partial $\eta^2=.450$). However, after controlling for Grade Point Average (GPA), mindfulness training showed significantly greater effectiveness in overall self-regulation ($F=4.449$, $df=1$, $p<.029$, Partial $\eta^2=.357$) and motivational beliefs ($F=4.735$, $df=1$, $p<.024$, Partial $\eta^2=.372$), whereas the effect of resilience training on overall self-regulation ($p=.125$) and motivational beliefs ($p=.103$) was not statistically significant after controlling for GPA. In the metacognitive strategies component, with GPA controlled, both methods remained significant ($F=5.297$, $df=1$, $p<.019$, Partial $\eta^2=.431$), and post hoc LSD tests revealed that mindfulness was significantly more effective than resilience in overall self-regulation ($p=.012$) and metacognitive strategies ($p=.015$). Neither intervention had a significant effect on "cognitive strategies" ($p=.678$). Thus, while both approaches are effective in improving self-regulation, mindfulness demonstrates greater effectiveness, particularly when academic achievement is controlled.

Conclusions: Both the integrated monotheistic resilience training and the mindfulness program were effective in improving self-regulated learning. However, the resilience package, as a native intervention grounded in Iranian religious-cultural values, offers unique practical applications within the country's educational system. By utilizing spiritual capacities such as prayer, trust in God, self-awareness, and strengthening the relationship with the Divine, this package not only enhances academic self-regulation but also contributes to reducing test anxiety, increasing hope, and improving students' overall quality of life in the long term. Furthermore, its applicability across diverse learner populations (with low, medium, and high academic achievement) and its compatibility with the cultural context of Iranian schools are among the practical advantages of this approach. These features make it a valuable model for school-based mental health programs, academic counseling, and life skills workshops.

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Introduction

In the contemporary era, educational systems worldwide face the challenge of educating students who possess not only sufficient knowledge but also the capacity to manage their learning processes independently and effectively. Self-regulated learning is recognized as a pivotal construct in educational psychology, playing a decisive role in academic success and progression. It refers to the comprehensive ability to plan, monitor, control, and evaluate one's cognition, motivation, behavior, and environment to achieve learning goals. This multidimensional construct involves the simultaneous use of cognitive strategies, metacognitive strategies, and resource management strategies (Dent & Koenka, 2016). Recent international research further corroborates the critical interconnections among these constructs. For instance, Mahama et al. (2024) demonstrated that academic mindfulness and self-regulated learning are significant predictors of academic resilience, reinforcing the universal relevance of these foundational skills. Similarly, Jia et al. (2025) found that mindfulness significantly impacts academic emotions and cognitive flexibility among Chinese undergraduates, suggesting that mindfulness practices can enhance emotional regulation and adaptive thinking in high-pressure academic environments. Vasquez-Salcedo (2025) also confirmed the predictive roles of mindfulness and self-efficacy on academic resilience among college students, further emphasizing the importance of these psychological resources in educational settings.

Extensive research demonstrates that students with higher self-regulated learning skills exhibit stronger intrinsic motivation, deeper academic engagement, and better performance on complex tasks (Broadbent & Poon, 2015). Conversely, students lacking these skills often struggle with academic procrastination, test anxiety, and declining performance (Wolters & Hussain, 2015). The importance of self-regulation is magnified in high-pressure educational contexts, such as university entrance exams, where psychological stress can impair students' ability to regulate their thoughts and emotions, thereby reducing educational productivity. Therefore, identifying and implementing effective educational strategies to promote self-regulated learning has become an undeniable necessity.

In response to this need, various psychological-educational interventions have been developed, among which, two promising approaches are academic resilience training and mindfulness training. Academic resilience refers to a student's capacity to adapt successfully, persist, and maintain optimal performance in the face of challenges, failures, and stressors in the educational environment (Martin & Marsh, 2008). Recent studies have shown that academic resilience significantly predicts learning motivation, academic well-being, and self-regulated learning. Additionally, resilience-building interventions have been found to increase life satisfaction by

enhancing positive attitudes and mental health (Poursardar et al., 2012), and to effectively reduce academic burnout among students (Yaghoubi & Bakhtiari, 2016). The Pennsylvania Resilience Program has also demonstrated significant improvements in psychological adjustment and emotional regulation (Mansouri, 2013).

In this study, we utilized an Educational Resilience Training Package with an Integrated Monotheistic Approach, designed by Sharifinia (2013). This indigenous intervention integrates spiritual and scientific principles, emphasizing the biological, psychological, social, and spiritual dimensions of the individual. By combining religious teachings with psychological methods, it strengthens the student's relationship with God, fostering a sense of meaning, peace, and coping ability. This intervention aims to enhance academic resilience and, consequently, self-regulated learning by strengthening psycho-spiritual foundations. The exploration of such culturally relevant interventions is a growing area of research within Iran. Recent findings have highlighted how non-cognitive factors, such as academic enthusiasm, can be significantly influenced by teacher-student relationships in the context of Iranian classrooms (Kianpour & Naderi, 2025). Similarly, other studies have underscored the importance of addressing students' fundamental psychological needs to foster well-being and academic engagement, a principle that aligns directly with the holistic objectives of the monotheistic resilience approach (Sobhi-Gharamaleki et al., 2024). These studies collectively suggest that interventions which attend to the relational and psychological dimensions of the learning environment are particularly well-suited for the Iranian educational context.

Moreover, mindfulness, defined as "paying attention to the present moment with openness, curiosity, and non-judgment" (Kabat-Zinn, 2013), involves practices that increase awareness of thoughts, emotions, and bodily sensations without automatic reactivity. Standardized programs like Mindfulness-Based Stress Reduction (MBSR) have been shown to reduce academic stress, improve focus, and enhance self-regulated learning (Zheng et al., 2020). Recent evidence from a mindfulness-based intervention on university students demonstrated significant increases in deep motivation, deep learning strategies, and mindfulness levels, with effects maintained at four-month follow-up. Moreover, Huang et al. (2025) showed that procrastination is linked to deficits in emotional regulation and self-efficacy, processes on which mindfulness has a positive impact. These findings reinforce the idea that mindfulness training can be an effective strategy for addressing academic challenges in higher education.

Despite the growing body of international evidence supporting the effectiveness of both mindfulness-based interventions and resilience training programs in enhancing various aspects of student well-being and academic outcomes (Bamber & Schneider, 2016; Martin & Marsh, 2008; Ye et al., 2020; Zheng et al., 2020), a critical research gap remains: these two approaches have rarely been examined together within a single comparative framework. This absence is particularly

pronounced in non-Western educational contexts, where cultural, religious, and pedagogical factors may significantly influence the effectiveness and acceptability of each intervention. In Iran, where educational pressures are intensified by the high-stakes university entrance examination (Konkour), and where spiritual values are deeply woven into the fabric of daily life, the need for evidence-based, culturally responsive interventions is especially urgent. Without a direct comparison, educators, counselors, and policymakers lack the empirical guidance needed to allocate limited resources toward the most effective program for their specific context. Furthermore, such a comparison can illuminate the underlying mechanisms through which each intervention operates—whether through enhancing moment-to-moment awareness, fostering meaning-making and spiritual connection, or strengthening cognitive and metacognitive strategies. Identifying which program yields superior outcomes, and for which students, could inform the design of tailored, culturally-adapted, and more efficient interventions. This is particularly relevant given that the Integrated Monotheistic Approach, as a native Iranian model, offers a unique blend of psychological techniques and spiritual teachings that may resonate more deeply with students' cultural identities and belief systems, potentially leading to sustained engagement and long-term benefits beyond the academic domain. Consequently, this research sought to answer the following research question:

- Which of the two educational programs, Academic Resilience with an Integrated Monotheistic Approach or Mindfulness Training, is more effective in promoting self-regulated learning in high school students?

Materials and Methods

Design

This study employed a quasi-experimental design with the pre-test-post-test and a control group.

Population

The statistical population included all high school female students in District ۱۰ of Tehran during the academic year 2022–2023. The initial sample consisted of 67 twelfth-grade students selected via convenience sampling from a girls' school and divided into three groups: Academic Resilience (n=16), Mindfulness (n=26), and Control (n=25). Due to irregular attendance during online sessions caused by pandemic restrictions, the final analyzed sample was reduced to 21 students (Resilience: n=7; Mindfulness: n=9, Control: n=5). This sample size meets the minimum requirement for causal-comparative research (Farhangi & Safarzadeh, 2008). Therefore, for this study, three groups of 20 people were planned, but in practice, restrictions were created due to the Corona situation.

Instruments

Self-Regulated Learning Questionnaire (MSLQ): This questionnaire was developed by Pintrich and De Groot (1990). The reliability coefficient of the total self-regulation scale and the subscales of cognitive strategies, metacognitive strategies and motivational beliefs using Cronbach's alpha coefficient of Nazari's study (2022), was obtained as .92, .80, .74 and .88, respectively.

The Educational Resilience Training Package: This package with an integrated monotheistic approach was developed according to the Oser and Baeriswyl model (2001; cited in Moradi et al., 2011) and the Sharifinia protocol (2008–2012) for 8 sessions. In order to validate, the above package was evaluated by a several of professors and experts, and its content validity ratio index (CVR= .548) was obtained. A summary of the aforementioned protocol is provided in Table 1.

Table 1. Summary of the 90-minute academic resilience session protocol with an integrated monotheistic approach

Session	Educational content
1	Introduction to group members and familiarization with resilience and an integrated monotheistic approach
2	Strengthening the relationship with God and spirituality and familiarization with various emotions
3	Self-awareness skills and desirable attributions
4	Effective communication skills
5	Flexibility and the role of religious beliefs in creating peace
6	Relaxation techniques and ways of communicating with God
7	Effective study methods in promoting resilience
8	Self-monitoring and persistence training to achieve goals

The Mindfulness Training Package: The mindfulness training package (Kabat-Zinn et al., 1992), whose reliability coefficient was calculated using Cronbach's alpha as .88 in the study by Mehrnoush et al. (2011) on high school female students and .82 in the study by Hosseini Ghomi et al. (2013) on high school male students, was adjusted in 8 90-minute sessions to suit the conditions of the students taking the entrance exam as follows:

Table 2. Summary of the mindfulness session protocol

Session	Educational content
1	Introduction to group members and brief introduction to mindfulness
2	Sensory awareness, sitting meditation in a learning situation and conscious breathing
3	Mindfulness in everyday activities of seeing, hearing and scanning the body
4	Mindfulness and being present in the present and controlling disturbing thoughts
5	Accepting thoughts without judgment and managing emotions in stressful situations
6	Mindful breathing, body check, regulating the sleep cycle

Session	Educational content
7	Practice seeing an object from different angles and training in self-monitoring
8	Understanding the meaning of persistence and striving to achieve success, and enjoying it

The implementation method consisted of a pre-test for all groups, eight online sessions of the educational packages, and a post-test. To analyze the data and examine the effectiveness of two independent variables—academic resilience with an integrated monotheistic approach and mindfulness—on the dependent variable of self-regulated learning, the analysis of covariance (ANCOVA) was used. The LSD post-hoc test was employed for pairwise group comparisons. Given that the analysis of covariance (ANCOVA) test is a parametric test, the main assumption is that this test has a normal distribution; therefore, the Kolmogorov–Smirnov test was used to examine the normality of the distribution. The results of the Kolmogorov–Smirnov test indicates that the data have a normal distribution, and thus, it is possible to use parametric statistical tests for the research.

Results

To examine the hypotheses of the study—namely, the effectiveness of educational resilience training with an integrated monotheistic approach, the effectiveness of mindfulness training on self-regulated learning, and the comparison of these two educational methods—Table 3 presents the descriptive information for the dependent variable (self-regulation) based on the pre-test and post-test scores of the three groups studied. The total self-regulation score, along with its three main components (cognitive strategies, metacognitive strategies, and motivational beliefs), is examined separately in this table.

Table 3. Average pre-test and post-test scores of students' self-regulated learning and its subcomponents in the three groups

	group	Mean± Standard Deviation	post-test	pre-test
Self-Regulated Learning	Resilience Group	M±SD	3.31±.84	3.83±.44
	Mindfulness Group	M±SD	3.94±.36	4.2±.35
	Control Group	M±SD	3.65±.19	3.67±.28
	Average Sum	M±SD	3.66±.59	3.95±.41
Self-regulated learning (component of cognitive strategies)	Resilience Group	M±SD	4.00±.46	4.08±.44
	Mindfulness Group	M±SD	4.12±.61	4.31±.53
	Control Group	M±SD	4.11±.45	4.23±.47
	Average Sum	M±SD	4.08±.51	4.22±.48

	group	Mean± Standard Deviation	post-test	pre-test
Self-regulated learning (component of metacognitive strategies)	Resilience Group	M±SD	3.78±.47	3.94±.60
	Mindfulness Group	M±SD	4.00±.47	4.33±.51
	Control Group	M±SD	3.91±.35	3.69±.45
	Average Sum	M±SD	3.91±.43	4.06±.57
Self-regulated learning (c omponent of motivational beliefs)	Resilience Group	M±SD	3.27±.67	3.71±.51
	Mindfulness Group	M±SD	3.82±.49	4.06±.38
	Control Group	M±SD	3.31±.23	3.41±.29
	Average Sum	M±SD	3.52±.56	3.79±.47

According to Table 3, the mean self-regulated learning scores from pre-test to post-test increased from 3.3 to 3.82 in the academic resilience experimental group, and from 3.93 to 4.18 in the mindfulness experimental group, whereas the control group showed no significant change (from 3.63 to 3.68). For the metacognitive strategies component, the academic resilience group increased from 3.77 to 3.94, and the mindfulness group increased from 4.00 to 4.33, while the control group decreased from 3.91 to 3.68. For the motivational beliefs component, the academic resilience group increased from 3.26 to 3.70, and the mindfulness group increased from 3.82 to 4.05, whereas the control group showed a slight decrease from 3.31 to 3.40, indicating no significant change. These significant differences can be attributed to the implementation of the first independent variable (the educational resilience training package based on the integrated monotheistic approach) and the second independent variable (the mindfulness training package), which further confirms the first and second hypotheses of the study.

Table 4 examines the effectiveness of each of the two independent variables—academic resilience and mindfulness—on the dependent variable (self-regulated learning and its subcomponents) by analyzing the covariance of self-regulated learning and its subcomponents among students in the three groups, and also provides a comparison between the two interventions.

Table 4. Covariance analysis of self-regulated learning and its subcomponents in students of the three groups

	Sources of Variation	Sum of squares	DF	Mean squares	F	Sig.	Partial η^2	Power of the test
Self-Regulated Learning	Pretest effects	1.519	1	1.519	26.858	.000	.612	.998
	Group effects	.416	2	.208	3.681	.047 *	.302	.596
	Error	.961	17	.057				
	Total	330.613	21					
Self-regulated learning (component of cognitive strategies)	Pretest effects	1.774	1	1.774	12.968	.002	.448	.922
	Group effects	.030	2	.015	.108	.898	.013	.064
	Error	2.189	16	.137				
	Total	365.296	20					
Self-regulated learning (component of metacognitive strategies)	Pretest effects	2.618	1	2.618	27.534	.000	.647	.998
	Group effects	1.167	2	.584	6.137	.011*	.450	.815
	Error	1.426	15	.095				
	Total	324.679	19					
Self-regulated learning (component of motivational beliefs)	Pretest effects	1.448	1	1.448	15.490	.001	.477	.960
	Group effects	.441	2	.220	2.358	.125	.217	.411
	Error	1.589	17	.093				
	Total	305.574	21					

**P < .05*

The results showed that there was a significant difference between the two educational programs—resilience training based on the integrated monotheistic approach and mindfulness training—compared to the control group on the dependent variable of self-regulated learning, with a confidence level exceeding 95% (F=3.681, p<.047). A significant difference was also found for the subcomponent of metacognitive strategies, with a confidence level exceeding 95% (F=6.137, p<.011) in students.

To more accurately determine the effectiveness of each of the two variables of resilience and mindfulness on self-regulation and the component of metacognitive strategies, which were both significant, the LSD post hoc test was used.

Table 5. Results of the LSD post hoc test for the pairwise comparison of groups in self-regulation of learning and its significant components

	Group	Groups	mean difference	Standard error	Significance level	Confidence interval for difference at 95% level	
						Lower limit	Upper limit
Self-Regulated Learning	Resilience	Mindfulness	-.017	.136	.905	-.304	.271
		Control	.321*	.144	.039*	.018	.624
	Mindfulness	Resilience	.017	.136	.905	-.271	.304
		Control	.338*	.136	.024*	.051	.624
	Control	Resilience	-.321*	.144	.039*	-.624	-.018
		Mindfulness	-.338*	.136	.024*	-.624	-.051
Self-regulated learning (component of metacognitive strategies)	Resilience	Mindfulness	-.007	.178	.968	-.386	.372
		Control	.558*	.197	.013*	.138	.979
	Mindfulness	Resilience	.007	.178	.968	-.372	.386
		Control	.565*	.173	.005**	.197	.933
	Control	Resilience	-.558*	.197	.013*	-.979	-.138
		Mindfulness	-.565*	.173	.005**	-.933	-.197

**P < .05 ** P < .01*

Table 5 shows that both academic resilience training and mindfulness training are effective in improving self-regulated learning, with a confidence level exceeding 95%. Regarding the metacognitive strategies component, academic resilience training is effective (confidence level > 95%), whereas mindfulness training is effective with a confidence level exceeding 99%. This finding indicates that mindfulness training is more effective. In examining the third hypothesis, it can be stated that mindfulness training was more effective than resilience training on the metacognitive strategies component of self-regulated learning.

Table 6. Analysis of covariance of the subcomponents of self-regulated learning by co-variating the GPA of the students in the three groups

	Sources of Variation	Sum of squares	DF	Mean squares	F	Significance level	Eta squared coefficient	Power of the test
Self-Regulated Learning	Effects of GPA	.092	1	.092	1.688	.212	.095	.231
	Pretest effects	.968	1	.968	17.809	.001	.527	.977
	Group effects	.484	2	.242	4.449	* .029	.357	.678
	Error	.870	16	.054				
	Total	330.613	21					
Self-Regulated	Effects of GPA	1.788	1	1.788	13.350	.002	.471	.927

	Sources of Variation	Sum of squares	DF	Mean squares	F	Significance level	Eta squared coefficient	Power of the test
Learning (component of cognitive strategies)	**Pretest effects**	.179	1	.179	1.340	.265	.082	.192
	Group effects	.107	2	.053	.399	.678	.051	.103
	Error	2.009	15	.134				
	Total	365.296	20					
Self-Regulated Learning (component of metacognitive strategies)	**Effects of GPA**	.014	1	.014	.139	.714	.010	.064
	Pretest effects	2.376	1	2.376	23.551	.000	.627	.994
	Group effects	1.069	2	.534	5.297	*.019	.431	.745
	Error	1.412	14	.101				
	Total	324.679	19					
Self-Regulated Learning (component of motivational beliefs)	**Effects of GPA**	.383	1	.383	5.011	.040	.238	.557
	Pretest effects	.367	1	.367	4.811	.043	.231	.540
	Group effects	.723	2	.362	4.735	* .024	.372	.707
	Error	1.222	16	.076				
	Total	305.574	21					

** P < .05*

The findings in Table 6 show that no significant difference was observed between the three groups of students in the other two subcomponents of self-regulated learning. However, for the motivational beliefs component, the observed difference approached the level of significance ($F = 2.358$, $p < .125$). Therefore, to examine the issue more precisely—by co-varying the previous semester GPA of the three groups—the differences between the subcomponents of self-regulated learning have been analyzed.

The findings in Table 6 show that, after covarying for GPA, there is a significant difference in the analysis of covariance of self-regulated learning among students in the three groups, with a confidence level exceeding 95% ($F = 4.449$, $p < .029$). A significant difference was also found in the subcomponent of metacognitive strategies after covarying for GPA among the three groups, with a confidence level exceeding 95% ($F = 5.297$, $p < .019$). Additionally, a significant difference was found in the subcomponent of motivational beliefs after co-variating for GPA among the three groups, with a confidence level exceeding 95% ($F = 4.735$, $p < .024$).

To more precisely examine the effectiveness of resilience and mindfulness training on self-regulation, metacognitive strategies, and motivational beliefs—all of which were significant after covarying for GPA—the LSD post hoc test was used.

Table 7. Results of the LSD post hoc test for the pairwise comparison of groups in self-regulation of learning and its significant components with the GPA covariate

	Group	Groups	mean difference	Standard error	Significance level	Confidence interval for difference at 95% level	
						Lower limit	Upper limit
Self-Regulated Learning	Resilience	Mindfulness	-.125	.157	.440	-.458	.209
		Control	.285	.143	.065	-.019	.589
	Mindfulness	Resilience	.125	.157	.440	-.209	.458
		Control	.409*	.144	.012 *	.103	.715
	Control	Resilience	-.285	.143	.065	-.589	.019
		Mindfulness	-.409*	.144	.012 *	-.715	-.103
Self-Regulated Learning (component of metacognitive strategies)	Resilience	Mindfulness	.022	.199	.915	-.405	.448
		Control	.563*	.204	.015*	.126	.999
	Mindfulness	Resilience	-.022	.199	.915	-.448	.405
		Control	.541*	.190	.013 *	.134	.947
	Control	Resilience	-.563*	.204	.015*	-.999	-.126
		Mindfulness	-.541*	.190	.013*	-.947	-.134
Self-Regulated Learning (component of motivational beliefs)	Resilience	Mindfulness	-.310	.197	.135	-.728	.108
		Control	.282	.163	.103	-.064	.627
	Mindfulness	Resilience	.310	.197	.135	-.108	.728
		Control	.592*	.195	.008 **	.178	1.006
	Control	Resilience	-.282	.163	.103	-.627	.064
		Mindfulness	-.592*	.195	.008 **	-1.006	-.178

** P < .05 ** P < .01*

Examination of Table 7 shows that, after covarying for GPA, the effectiveness of academic resilience training on self-regulation approaches but does not reach the level of significance (p > .065). In contrast, the effectiveness of mindfulness training on self-regulated learning is significant, with a confidence level exceeding 95% (p < .012). For the metacognitive strategies component, both educational methods show significant effects on the dependent variable, with confidence levels exceeding 95% and p-values close to each other [academic resilience: p < .015; mindfulness: p < .013]. Regarding the motivational beliefs component, the effectiveness of academic resilience training again approaches but does not reach significance (p > .103), whereas mindfulness training demonstrates a significant effect on self-regulated learning with a confidence level exceeding 99% (p < .008). With respect to the third hypothesis, it can be concluded that although both educational

methods are effective in promoting students' self-regulated learning, mindfulness training exhibits greater effectiveness.

Discussion

The findings of this study showed that the academic resilience training program based on an integrated monotheistic approach was significantly effective in increasing students' self-regulated learning. This result is consistent with the findings of studies such as Yaghoubi and Bakhtiari (2016), Poursardar et al. (2012), and Mansouri (2013), which demonstrated that resilience training can influence the motivational and metacognitive components of learning. The effectiveness of this indigenous intervention can be understood through the lens of self-determination theory (Deci & Ryan, 2000), which posits that fulfillment of basic psychological needs—autonomy, competence, and relatedness—is essential for intrinsic motivation and self-regulated learning. The integrated monotheistic approach, by emphasizing connection with God, self-awareness, and meaningful relationships, may address these fundamental needs in a culturally resonant manner. This is particularly significant in the Iranian context, where spirituality and religious beliefs are deeply intertwined with daily life and personal identity (Sharifinia, 2013).

Concerning the impact of resilience training on metacognitive strategies, attention should be paid to the nature of the integrated monotheistic approach. By emphasizing self-knowledge, meaning-making, and connection with God, this approach helps students better monitor and control their thought processes. This finding supports Wells's (2009) theory regarding the role of metacognition in regulating emotion and behavior. Moreover, the emphasis on "self-monitoring and persistence training to achieve goals" in the final session of the resilience protocol likely contributed to the enhancement of metacognitive strategies. When students are encouraged to reflect on their progress, identify obstacles, and align their efforts with meaningful spiritual values, they develop a more sophisticated understanding of their own cognitive processes. This metacognitive awareness enables them to regulate their learning more effectively, particularly in high-stakes situations such as university entrance examinations. Regarding the effect of resilience training on motivational beliefs (with GPA controlled), once the effect of educational background (GPA) was controlled, the program's effect on motivational beliefs also became significant. This finding suggests that the integrated monotheistic resilience training program, by strengthening internal spiritual and psychological resources, can affect students' deep motivational beliefs (such as self-efficacy and intrinsic value) in such a way that it reduces over-reliance on past academic achievements. In other words, the program appears to have empowered students to derive their sense of competence and worth from internal spiritual resources rather than solely from external indicators of success like grades. This shift in attributional style is consistent with the broaden-and-

build theory of positive emotions (Fredrickson, 2001), which suggests that positive spiritual-emotional experiences broaden individuals' thought-action repertoires and build enduring personal resources. The integrated monotheistic approach, by fostering hope, trust in divine support, and a sense of purpose, may have cultivated these positive emotional states, thereby enhancing motivational beliefs.

The program did not have a significant effect on cognitive strategies (e.g., review, elaboration, and organization). This may be attributed to the nature of the program's content, which focused more on metacognitive, emotional, and spiritual constructs rather than directly teaching memory and learning techniques. Additionally, it is likely that the students preparing for the entrance exam were already familiar with such strategies through their exam preparation courses, and the resilience training program was unable to create further change in this area. This finding aligns with the distinction made in educational psychology between "surface" and "deep" approaches to learning (Biggs, 1987). While cognitive strategies represent surface-level processing techniques, metacognitive strategies and motivational beliefs reflect deeper, more enduring aspects of self-regulation. It appears that the integrated monotheistic resilience program primarily influenced these deeper layers of the self-regulatory system, which may require more sustained or targeted interventions to translate into changes in specific cognitive strategies. Future iterations of the program could incorporate explicit training in cognitive strategies alongside the spiritual and metacognitive components to address this gap.

Regarding the second hypothesis—examining the effectiveness of mindfulness on self-regulated learning—the findings were significant. The significant effect of mindfulness programs on self-regulated learning has been widely confirmed by studies such as Segal et al. (2002), Kabat-Zinn (2003), and Vafaei (2018). This finding is also consistent with the recent work of Mahama et al. (2024), who identified mindfulness as a robust predictor of academic resilience, a construct closely intertwined with self-regulated learning. Their study highlighted that mindful students are better equipped to maintain focus and adapt to challenges, which are core components of self-regulated learning. This line of research reflects the growing international recognition of mindfulness-based approaches in educational psychology. Furthermore, Fan et al. (2024) demonstrated that autonomous motivation serves as a key mediating mechanism through which mindfulness facets (particularly acting with awareness) influence academic engagement and reduce procrastination among adolescents. This is particularly relevant to our findings regarding the significant effect of mindfulness on motivational beliefs after controlling for GPA, suggesting that mindfulness enhances self-regulated learning partly through strengthening intrinsic motivational resources. Zhao et al. (2024) also confirmed that academic emotions—specifically enjoyment and exhaustion-upset—mediate the relationship between mindfulness and academic engagement,

emphasizing that mindfulness-based interventions should target both the enhancement of positive academic emotions and the relief of emotional exhaustion to improve adolescents' academic outcomes.

The convergence of evidence from these recent international studies with our own findings is striking and suggests that the mechanisms through which mindfulness operates are consistent across diverse cultural contexts. While Mahama et al. (2024) conducted their research in Ghana, Fan et al. (2024) and Zhao et al. (2024) studied Chinese adolescents, and our research was situated in Iran, the observed patterns of relationships among mindfulness, motivation, emotions, and self-regulated learning appear to be remarkably similar. This cross-cultural consistency lends strong support to the universality of mindfulness as a foundational skill for academic success and underscores the value of incorporating mindfulness-based interventions in educational systems worldwide.

Concerning the strong effect of the mindfulness program on metacognitive strategies, it should be noted that mindfulness directly increases individuals' metacognitive capacity by teaching non-judgmental observation of thoughts and emotions. This ability helps students manage their attention more effectively and avoid struggling with intrusive thoughts during studying and exams. Regarding the effect of the mindfulness program on motivational beliefs (with GPA controlled), similar to the resilience program, when GPA was controlled, the effect of mindfulness on motivational beliefs also became more pronounced. This indicates that mindfulness, by reducing test anxiety and increasing acceptance, provides the necessary psychological space to strengthen positive beliefs about one's abilities. The stronger effect of mindfulness on motivational beliefs, compared to the resilience program, may be attributed to the direct and explicit focus of mindfulness practices on present-moment awareness and acceptance. By learning to observe their thoughts and emotions without judgment, students have experienced a reduction in the self-critical and catastrophic thinking patterns that often undermine motivational beliefs, particularly in exam-preparation contexts. This reduction in negative self-appraisal likely created a more supportive psychological environment for the development of positive beliefs about self-efficacy and task value.

Regarding the impact of the mindfulness program on cognitive strategies, once again, the program failed to affect these strategies. This can be attributed to the indirect effect of mindfulness on this area. While mindfulness improves the emotional and metacognitive context of learning, directly influencing specific cognitive strategies may require combining such strategies with explicit training—an approach not pursued in this study. This finding is consistent with previous research suggesting that mindfulness primarily enhances the "regulatory" rather than the "cognitive" aspects of self-regulated learning (Zheng et al., 2020). In other words, mindfulness

helps students become more aware of their learning processes and better able to manage their attention and emotions, but it does not automatically teach them how to organize, elaborate, or rehearse information more effectively. For students to benefit from mindfulness in terms of cognitive strategy use, they may need supplementary instruction that explicitly links mindfulness practices with specific study techniques. Future research could explore the potential synergistic effects of combining mindfulness training with cognitive strategy instruction.

Moreover, comparing the two educational methods showed that at the general level of self-regulation, there is no significant difference between the two methods; both are effective. However, at the subscale level, mindfulness demonstrated stronger effectiveness in metacognitive components and motivational beliefs. This advantage can be attributed to the greater development and maturity of mindfulness protocols. Three decades of extensive research have led to the standardization and refinement of this method. Furthermore, the more concrete and practice-oriented nature of mindfulness techniques (such as breathing and body scanning) may be more tangible and applicable for adolescents. Regarding resilience training based on an integrated monotheistic approach, although this approach is nascent, the present results demonstrate its high potential as a local and comprehensive intervention. This approach emphasis on spirituality, values, and human connections could have a long-term impact, particularly with the development of more detailed protocols, not only in the academic domain but also in all aspects of adolescents' lives. This approach could serve as a valuable complement to purely secular interventions, such as the Pennsylvania Resilience Program.

Finally, the findings of this study have important implications for educational policy and practice in Iran. Given the high levels of academic stress experienced by students preparing for university entrance exams, there is an urgent need for evidence-based interventions that can be feasibly implemented in school settings. The integrated monotheistic resilience program, with its emphasis on spiritual resources and cultural relevance, represents a promising candidate for such implementation. However, as with any intervention, attention must be paid to the training and preparation of facilitators. Effective delivery of the program requires not only familiarity with the protocol but also sensitivity to the spiritual and cultural dimensions of the approach. School counselors and psychologists should receive adequate training to ensure that the program is implemented with fidelity and that its benefits are maximized for students.

Conclusion

The practical applications of this study findings are of great importance for our educational system. Resilience programs based on an integrated monotheistic approach and mindfulness can be introduced as life skills and resilience lessons in Iranian schools. Teachers and trainers can easily

teach the application of simple mindfulness techniques and the basics of resilience in the classroom. School counselors and psychologists should consider using the integrated monotheistic protocol as a native and culturally relevant intervention for Iranian students, especially those struggling with entrance exam pressure. Moreover, by combining the two methods, they can design interventions that integrate the strengths of both approaches namely, the concrete mindfulness exercises and the spiritual depth of the monotheistic approach.

Several limitations of this study relate to the small sample size. Reducing the sample to 21 participants due to the online implementation conditions limited the generalizability of the findings. Additionally, the study was conducted during the COVID-19 pandemic, meaning that research under these exceptional circumstances—and the possibility of unrealistic averages during this period—may have affected the results. Factors such as students' simultaneous preparation for entrance exams and varying levels of family support were also uncontrolled intervening variables. Furthermore, the short follow-up period prevented assessment of the long-term effects of the interventions.

The following suggestions are offered for future research:

- Conducting studies with larger sample sizes and longer follow-up periods.
- Comparing these two methods with other psychological interventions.
- Examining the impact of these programs on other variables, such as spirituality, happiness, and quality of life.
- Designing and validating short-term more practical protocols suitable for the school environment.

Author Contributions

All authors contributed equally to the conceptualization of the article and writing of the original and subsequent drafts.

Data Availability Statement

The data can be accessed via the university's Central Library system by referencing the dissertation. Additional data are available from the authors upon reasonable request**.**

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Ethical considerations

The authors attest that this research was conducted without any fabrication or manipulation of data. Nevertheless, as the study proposal was ratified on January 27, 2020—before the Ethics Committee of Allameh Tabataba'i University had operationalized its mandatory ethics code guidelines for doctoral theses—the present study lacks a formal ethics approval identifier.

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Conflict of interest

The authors declare no conflict of interest.

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