

The Mediating Role of Academic Resilience in the Relationship Between Positive Emotions and Test Anxiety Among Muslim Undergraduate Students

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Abstract

While positive emotions and test anxiety have been extensively studied in educational psychology, the mechanisms linking these constructs remain insufficiently understood, particularly within Islamic higher education. This study investigated whether academic resilience mediates the relationship between positive emotions and test anxiety among Muslim undergraduate students at Al-Azhar University. A cross-sectional design was employed with 300 students (144 males, 156 females; Mage = 20.20, SD = 0.94) from the Faculty of Education, Al-Azhar University, Egypt. Participants completed the Academic Resilience Scale-30, a newly developed 27-item Arabic Positive Emotion Scale, and the Multidimensional Test Anxiety Scale. Mediation analysis using Hayes' PROCESS macro with 5,000 bootstrap samples revealed significant correlations: positive emotions correlated positively with academic resilience ($r = .489, p < .001$) and negatively with test anxiety ($r = -.322, p < .001$), while academic resilience negatively correlated with test anxiety ($r = -.290, p < .001$). The analysis confirmed partial mediation, with positive emotions significantly predicting academic resilience ($\beta = .489, p < .001$), which in turn predicted reduced test anxiety ($\beta = -.174, p = .005$). The indirect effect was significant ($\beta = -.085$), accounting for 26.42% of the total effect, while the direct effect remained significant ($\beta = -.237, p < .001$), representing 73.58% of the relationship. Results demonstrate that academic resilience is a partial mediator, with positive emotions operating through direct and indirect pathways to reduce test anxiety. These findings reveal significant associations among positive emotions, academic resilience, and test anxiety, suggesting that these constructs may be potential targets for future anxiety interventions that could integrate immediate positive emotion strategies (e.g., gratitude practices, spiritual mindfulness) and longer-term resilience-building components (e.g., adaptive help-seeking, perseverance development) within Islamic educational frameworks, though longitudinal and intervention research is needed to establish causal relationships and intervention effectiveness.

INTRODUCTION

Emotional factors have emerged as central determinants of academic performance and student well-being in higher education, with research demonstrating that positive emotions enhance achievement while negative emotions such as anxiety impair performance (Camacho-Morles et al., 2021; MacCann et al., 2019). Test anxiety, a multifaceted psychological

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phenomenon characterized by worry, cognitive interference, and physiological distress during evaluative situations, affects a substantial proportion of university students and significantly undermines academic outcomes, self-esteem, and long-term educational opportunities (Brady et al., 2017; von der Embse et al., 2018). While research has established that positive emotions reduce test anxiety and that academic resilience—students' capacity to overcome educational challenges and persist through setbacks—protects against academic stressors (Hayat et al., 2021; Shen et al., 2018), the mechanisms through which these constructs interact remain unclear. Specifically, no research has examined whether academic resilience mediates the relationship between positive emotions and test anxiety, representing a critical gap in understanding how emotional resources translate into reduced academic stress. This study addresses this gap by investigating the mediating role of academic resilience in the positive emotion-test anxiety relationship among Muslim undergraduate students in Islamic higher education contexts.

Within Islamic educational frameworks, emotional and spiritual well-being is paramount, as Islamic pedagogy emphasizes comprehensive student development encompassing intellectual, emotional, and spiritual dimensions (Fatimah & Sumarni, 2024). Contemporary research demonstrates that Islamic educational institutions foster unique emotional and resilience patterns through faith-based worldviews and spiritual practices such as prayer, *dhikr*, and mindfulness (*muraqabah*), which enhance character development, emotional regulation, and academic achievement while reducing stress and anxiety (Alimni et al., 2022; Elfattah, 2025). This holistic approach, integrating spiritual and psychological resources, provides a distinctive context for examining emotion-resilience-anxiety relationships, as Muslim students may develop resilience through mechanisms that combine traditional psychological constructs with Islamic concepts such as *sabr* (patience and perseverance), *tawakkul* (trust in Allah), *shukr* (gratitude), and the spiritual significance of knowledge-seeking (Gumiandari et al., 2022; Nasrin, 2025). These spiritual practices and values may strengthen positive emotions and provide unique pathways for coping with academic stressors, including *dhikr* (remembrance of Allah) for stress management and the belief that challenges represent opportunities for spiritual growth (Dzikra et al., 2025).

The relationship between positive emotions and test anxiety is well-established, with interventions targeting positive emotional states significantly attenuating anxiety symptoms across diverse student populations (Liu et al., 2021; Shen et al., 2018). Theoretical frameworks, particularly the broaden-and-build theory, explain that positive emotions expand cognitive and behavioral repertoires, enhance self-regulatory capacity, and build psychological resources that buffer against stress (Fredrickson et al., 2000; Qi et al., 2020). Similarly, academic resilience consistently demonstrates protective effects against test anxiety, with resilient students exhibiting markedly lower anxiety responses during evaluative situations through enhanced self-efficacy, psychological flexibility, and emotion regulation capabilities (Hayat et al., 2021; Türk, 2024).

Contemporary research has illuminated a robust bidirectional relationship between positive emotions and academic resilience, suggesting that positive emotions both predict resilience outcomes and contribute to resilience development through cognitive broadening, stress regulation enhancement, and strengthening of motivation and self-efficacy (Carmona-Halty et al., 2019; Gloria & Steinhardt, 2014). The broaden-and-build theory and psychological capital model provide theoretical frameworks explaining how positive emotions serve as foundational agents in building enduring personal resources, including resilience, which collectively mediate relationships between emotional states and academic outcomes (Carmona-Halty et al., 2019). Despite this theoretical foundation and the well-established individual relationships among these constructs, no empirical research has examined whether academic resilience mediates the positive emotion-test anxiety relationship.

The present study investigated whether academic resilience mediates the relationship between positive emotions and test anxiety among Muslim undergraduate students at Al-Azhar University. Based on theoretical frameworks suggesting that positive emotions build psychological resources that protect against stress, we expected that positive emotions would predict higher academic resilience, which would predict lower test anxiety. Specifically, we hypothesized partial mediation, whereby positive emotions would directly and indirectly influence test anxiety through academic resilience. This research extends existing knowledge by examining the mechanistic pathways through which positive emotions influence test anxiety outcomes and investigating these relationships within Islamic higher education contexts, where spiritual and psychological resources may uniquely contribute to resilience development and stress management.

METHODS

Design

The study employed a quantitative, non-experimental cross-sectional design to examine relationships among positive emotions, academic resilience, and test anxiety in Muslim undergraduate students. Data was collected at a single time point using self-report questionnaires administered electronically through Google Forms, with participants completing three validated measures assessing the key study variables. This non-experimental design allowed for examination of associations and mediating pathways among variables, though it does not permit causal conclusions about directional relationships.

Participants

The current study employed a two-phase sampling approach to establish the psychometric properties of the instruments and conduct the primary analysis. The psychometric validation sample consisted of 200 undergraduate students recruited from the Faculties of Education at Al-Azhar University, including the Men's Faculty of Education in Tafhna Al-Ashraf and the Women's Faculty of Education in Cairo. Ages ranged from 18 to 23 years ($M = 20.29$, $SD = 0.98$). The main study sample consisted of 300 undergraduate students from the same institutional context as the validation sample, aged 18 to 23 ($M = 20.20$, $SD = 0.94$). All participants were Muslim students enrolled in degree programs at Al-Azhar University, one of the world's most prestigious Islamic institutions. The demographic characteristics of both samples are presented in Table 1.

Table 1. Demographic Characteristics of Study Samples

Characteristic	Psychometric Sample		Main Sample	
	N	%	N	%
<i>Gender</i>				
Male	93	46.5	144	48.0
Female	107	53.5	156	52.0
<i>Academic Year</i>				
First-year	38	19.0	63	21.0
Second-year	50	25.0	113	37.7
Third-year	62	31.0	74	24.7
Fourth-year	50	25.0	50	16.6
<i>Residential Background</i>				
Rural	80	40.0	124	41.3
Urban	120	60.0	176	58.7

Instruments

Academic Resilience Scale (ARS-30)

Academic resilience was assessed using the Academic Resilience Scale developed by Cassidy (2016), which measures students' capacity to overcome academic difficulties and persist through educational challenges. The scale comprises 30 items distributed across three factors: Perseverance, Reflecting and Adaptive Help-seeking, and Negative Affect and Emotional Response. Participants responded to items using a 5-point Likert scale ranging from "likely" (1) to "unlikely" (5). The Perseverance factor demonstrated excellent reliability with McDonald's $\omega = .913$, Cronbach's $\alpha = .912$, and Guttman's $\lambda_2 = .914$. The Reflecting and Adaptive Help-seeking factor showed good reliability (McDonald's $\omega = .873$, Cronbach's $\alpha = .873$, Guttman's $\lambda_2 = .874$), while the Negative Affect and Emotional Response factor exhibited acceptable reliability (McDonald's $\omega = .832$, Cronbach's $\alpha = .829$, Guttman's $\lambda_2 = .832$). The total scale demonstrated excellent internal consistency with McDonald's $\omega = .946$, Cronbach's $\alpha = .946$, and Guttman's $\lambda_2 = .947$, with an average inter-item correlation of .370 ($M = 81.255$, $SD = 21.603$).

Positive Emotion Scale

Positive emotions were measured using a newly developed Arabic scale comprising 27 items in its final form. The scale was designed to assess various dimensions of positive emotional experiences in academic contexts, with participants responding on a 5-point Likert scale from "always" to "never." Factor analysis procedures confirmed the scale's construct validity, with the Kaiser-Meyer-Olkin measure of sampling adequacy yielding .907 and Bartlett's test of sphericity being significant ($\chi^2 = 2070.800$, $df = 351$, $p < .001$). Principal component analysis with varimax rotation extracted four factors explaining 51.768% of the total variance. The factors demonstrated adequate to good reliability: Effectiveness (McDonald's $\omega = .833$, Cronbach's $\alpha = .832$), Immersion (McDonald's $\omega = .826$, Cronbach's $\alpha = .825$), Altruism (McDonald's $\omega = .819$, Cronbach's $\alpha = .817$), and Spirituality (McDonald's $\omega = .750$, Cronbach's $\alpha = .749$). The total scale exhibited excellent internal consistency (McDonald's $\omega = .909$, Cronbach's $\alpha = .909$, Guttman's $\lambda_2 = .911$) with a mean score of 84.610 ($SD = 15.466$).

Multidimensional Test Anxiety Scale (MTAS)

Test anxiety was assessed using the Multidimensional Test Anxiety Scale developed by Putwain et al. (2020), which comprises two cognitive dimensions (Worry and Cognitive Interference) and two affective-physiological dimensions (Tension and Physiological Indicators). Participants rated items on a 5-point scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The reliability analyses revealed acceptable to good internal consistency across all dimensions: Worry (McDonald's $\omega = .778$, Cronbach's $\alpha = .752$), Cognitive Interference (McDonald's $\omega = .795$, Cronbach's $\alpha = .789$), Tension (McDonald's $\omega = .770$, Cronbach's $\alpha = .760$), and Physiological Indicators (McDonald's $\omega = .810$, Cronbach's $\alpha = .770$). The total scale demonstrated acceptable reliability (McDonald's $\omega = .478$, Cronbach's $\alpha = .779$, Guttman's $\lambda_2 = .809$) with a mean score of 53.345 ($SD = 9.532$).

Procedure

Data collection was conducted electronically using Google Forms to ensure accessibility and convenience for participants while maintaining standardized administration conditions. Prior to data collection, ethical approval was obtained from the Research Ethics Committee of the Faculty of Education at Al-Azhar University, Dakahlia, Egypt (Ref. No. EDU-REC-2025-0249), and all participants provided informed consent before completing the questionnaires. The survey was distributed to students through official university channels and took

approximately 25-30 minutes to complete. Participants were assured of confidentiality and anonymity, with no personal identifying information collected beyond basic demographic characteristics. The electronic format allowed for efficient data collection while minimizing administrative burden and ensuring data quality through built-in validation checks.

Data Analysis

Statistical analyses were conducted using SPSS version 27 and AMOS version 26. Preliminary analyses assessed data quality, missing values, and common method variance bias using Harman's single-factor test through exploratory factor analysis. Descriptive statistics, reliability analyses, and bivariate correlations were computed to examine the relationships among study variables. The primary mediation analysis was conducted using Hayes' PROCESS macro for SPSS, employing Model 4 with bootstrapping procedures based on 5,000 bootstrap samples to generate bias-corrected confidence intervals for indirect effects. The mediation model examined whether academic resilience mediates the relationship between positive emotions and test anxiety, with statistical significance set at $p < .05$ for all analyses.

RESULTS AND DISCUSSION

Results

Before the mediation analysis, preliminary analyses were performed to ensure data quality and examine the assumptions of the statistical procedures. Harman's single-factor test through exploratory factor analysis assessed common method variance bias. The results indicated that a single factor accounted for 35.330% of the total variance in the data, which falls below the critical threshold of 40% recommended by Podsakoff and Organ (1986). This finding suggests that common method bias is not a significant concern in the current dataset and does not substantially threaten the validity of the study's conclusions.

The correlation matrix revealed significant bivariate relationships among all study variables, providing initial support for the proposed mediation model. As presented in Table 2, positive emotions demonstrated a strong positive correlation with academic resilience ($r = .489$, $p < .001$), indicating that students who experience higher levels of positive emotions tend to exhibit greater academic resilience. Furthermore, positive emotions showed a moderate negative correlation with test anxiety ($r = -.322$, $p < .001$), suggesting that students with higher positive emotional experiences report lower levels of test anxiety. Academic resilience was also significantly and negatively correlated with test anxiety ($r = -.290$, $p < .001$), indicating that more resilient students experience less test anxiety during evaluative situations.

Table 2. Correlation Matrix of Study Variables

Variable	1	2	3
1. Positive Emotions	1		
2. Academic Resilience	.489**	1	
3. Test Anxiety	-.322**	-.290**	1

Note. N = ** $p < .001$ (two-tailed).

The mediation analysis used Hayes' PROCESS macro for SPSS, employing bootstrapping procedures with 5,000 bootstrap samples to generate bias-corrected confidence intervals. The analysis examined whether academic resilience mediates the relationship between positive emotions and test anxiety among undergraduate students. The mediation analysis results are summarized in Table 3, which presents the coefficients for each pathway in the mediation model along with their corresponding statistical significance tests.

The first regression equation examined the effect of positive emotions on academic resilience (Path a). Results indicated that positive emotions significantly predicted academic

resilience ($\beta = .489$, $B = 0.873$, $SE = 0.090$, $t = 9.67$, $p < .001$), with the model explaining 23.88% of the variance in academic resilience ($R^2 = .239$, $F(1, 298) = 93.51$, $p < .001$). This finding demonstrates that students who experience higher levels of positive emotions are significantly more likely to develop and maintain academic resilience. The standardized coefficient of .489 indicates a moderate to strong positive relationship between these constructs, supporting the theoretical proposition that positive emotions are building blocks for resilience in academic contexts.

Table 3. Mediation Analysis Results: Effects of Positive Emotions on Test Anxiety through Academic Resilience

Pathway	β	B	SE	t	p	95% CI [LL, UL]
PE → AR (Path a)	.489	0.873	0.090	9.67	< .001	[0.695, 1.050]
PE → TA (Path c')	-.237	-0.210	0.055	-3.81	< .001	[-0.319, -0.102]
AR → TA (Path b)	-.174	-0.086	0.031	-2.80	.005	[-0.147, -0.026]
PE → TA (Path c)	-.322	-0.286	0.049	-5.87	< .001	[-0.382, -0.190]

Note. PE = Positive Emotions; AR = Academic Resilience; TA = Test Anxiety.

The second regression equation examined the simultaneous effects of positive emotions and academic resilience on test anxiety (Paths b and c'). When both predictors were included in the model, academic resilience significantly predicted test anxiety ($\beta = -.174$, $B = -0.086$, $SE = 0.031$, $t = -2.80$, $p = .005$), while positive emotions maintained a significant direct effect on test anxiety ($\beta = -.237$, $B = -0.210$, $SE = 0.055$, $t = -3.81$, $p < .001$). The combined model explained 12.66% of the variance in test anxiety ($R^2 = .127$, $F(2, 297) = 21.52$, $p < .001$). These results indicate that both positive emotions and academic resilience independently contribute to the reduction of test anxiety, with academic resilience serving as a significant predictor even when controlling for the direct effects of positive emotions.

The analysis of total, direct, and indirect effects provided comprehensive insights into the mediating role of academic resilience in the relationship between positive emotions and test anxiety. As illustrated in Table 4, the total effect of positive emotions on test anxiety was significant and negative ($\beta = -.322$, $B = -0.286$, $SE = 0.049$, $t = -5.87$, $p < .001$), indicating that higher levels of positive emotions are associated with lower test anxiety. When academic resilience was included as a mediator, the direct effect of positive emotions on test anxiety remained significant but was reduced in magnitude ($\beta = -.237$, $B = -0.210$, $SE = 0.055$, $t = -3.81$, $p < .001$), suggesting partial mediation.

The indirect effect of positive emotions on test anxiety through academic resilience was statistically significant, as evidenced by the bootstrap confidence interval that did not include zero ($\beta = -.085$, $B = -0.075$, 95% CI [-0.132, -0.039]). This indirect effect accounted for 26.42% of the total effect, while the direct effect accounted for 73.58% of the total relationship between positive emotions and test anxiety. The significance of the indirect effect confirms that academic resilience partially mediates the relationship between positive emotions and test anxiety, providing empirical support for the theoretical model proposing that positive emotions influence test anxiety both directly and indirectly through their enhancement of academic resilience.

Table 4. Total, Direct, and Indirect Effects in the Mediation Model

Effect Type	β	B	SE	95% CI [LL, UL]	% of Total Effect
Total Effect	-.322	-0.286	0.049	[-0.382, -0.190]	100.00%
Direct Effect	-.237	-0.210	0.055	[-0.319, -0.102]	73.58%
Indirect Effect	-.085	-0.075	0.024*	[-0.132, -0.039]	26.42%

Note. *Bootstrap SE based on 5,000 bootstrap samples

The complete mediation model is presented in Figure 1, which illustrates the standardized path coefficients for all relationships in the model. The figure demonstrates that positive emotions have a strong positive effect on academic resilience ($\beta = .489, p < .001$), which in turn has a negative effect on test anxiety ($\beta = -.174, p = .005$). The direct path from positive emotions to test anxiety remains significant ($\beta = -.237, p < .001$), indicating partial rather than complete mediation. The model provides a comprehensive framework for understanding how positive emotions influence test anxiety both directly and through the development of academic resilience, offering important theoretical and practical implications for supporting undergraduate students' emotional and academic well-being.

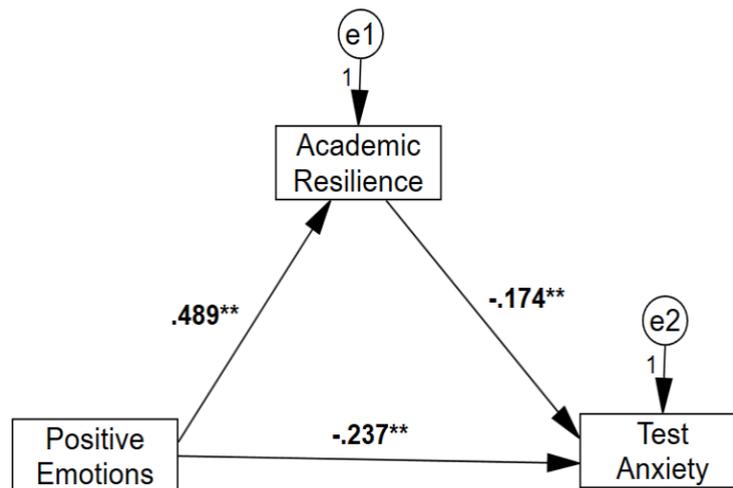


Figure 1. Mediation model showing the relationships between positive emotions, academic resilience, and test anxiety

The results provide strong empirical support for the hypothesized mediation model, demonstrating that academic resilience is a significant partial mediator in the relationship between positive emotions and test anxiety among undergraduate students. The analysis revealed that positive emotions exert both direct and indirect effects on test anxiety, with approximately one-quarter of the total effect (26.42%) being mediated through academic resilience. In comparison, most of the effect (73.58%) remains direct. These findings indicate that while positive emotions directly reduce test anxiety, they also operate indirectly by fostering academic resilience, which subsequently contributes to lower levels of test anxiety. The statistical significance of all pathways in the mediation model, combined with the substantial variance explained in the mediator and outcome variables, provides robust evidence for the theoretical framework proposing that positive emotions serve as psychological resources that build resilience and reduce academic stress responses in higher education contexts.

Discussion

Understanding how emotional resources translate into reduced academic stress represents a critical gap in educational psychology, particularly as test anxiety continues to affect substantial proportions of university students worldwide and significantly undermines their academic outcomes and well-being. While research has established that positive emotions reduce test anxiety and that academic resilience protects against academic stressors, the mechanisms through which these constructs interact have remained unclear, limiting the development of theoretically grounded interventions. This study addressed this gap by investigating whether academic resilience mediates the relationship between positive emotions and test anxiety among Muslim undergraduate students at Al-Azhar University. The findings provide compelling evidence that academic resilience serves as a significant partial mediator,

accounting for approximately 26.42% of the total effect of positive emotions on test anxiety reduction, thereby offering important theoretical and practical insights into the complex psychological mechanisms through which positive emotions influence academic stress responses in higher education contexts.

The findings take on particular significance when considered within the Islamic educational context of Al-Azhar University. Muslim students may develop academic resilience through unique mechanisms that integrate psychological and spiritual resources. Islamic teachings emphasize concepts such as *sabr* (patience and perseverance), *tawakkul* (trust in Allah), and the importance of seeking knowledge as a form of worship, which may enhance traditional psychological resilience frameworks (Gumiandari et al., 2022; Nasrin, 2025). The positive emotions experienced by Muslim students may be strengthened by spiritual practices such as *dhikr* (remembrance of Allah), gratitude (*shukr*), and the belief that challenges are opportunities for spiritual growth (Dzikra et al., 2025; Nasrin, 2025).

The partial mediation model shows that positive emotions influence test anxiety through both direct and indirect pathways. The direct effect (73.58%) suggests that positive emotions have inherent anxiety-reducing properties independent of resilience mechanisms. This finding extends Shen et al. (2018) and Liu et al. (2021), who showed that positive emotion interventions reduce test anxiety but did not explore underlying mechanisms. Our results confirm their conclusions, revealing that most of the effect operates outside resilience pathways. However, this dominance of direct effects contrasts with Carmona-Halty et al. (2019), whose psychological capital model posits that positive emotions mainly affect academic outcomes by building psychological resources. The strong direct effect in our study suggests that, in test anxiety contexts, positive emotions act more as immediate psychological buffers than resource-building tools, possibly because evaluative situations demand rapid emotional regulation. This aligns with the broaden-and-build theory, which proposes that positive emotions expand cognitive and behavioral repertoires, helping students approach evaluations with greater flexibility and reduced threat perception (Fredrickson et al., 2000; Qi et al., 2020), while challenging the view that psychological resources are the primary pathway for emotional influence on stress.

The significant indirect effect through academic resilience, though smaller (26.42%), reveals a key developmental pathway through which positive emotions aid long-term anxiety management. Students with higher positive emotions develop resilience marked by perseverance, adaptive help-seeking, and emotional regulation. This resilience protects against test anxiety, creating a cascading effect where positive emotions foster stable psychological resources that buffer academic stress. The smaller magnitude may reflect contextual and developmental factors: resilience building is gradual, requiring sustained emotional experiences, while our cross-sectional design captures only current states; undergraduates may still be early in resilience development, which requires repeated cycles of challenge and recovery; and the Islamic educational context at Al-Azhar University may emphasize immediate spiritual coping (e.g., *dhikr*, *tawakkul*) that reduces anxiety without relying on resilience as a mediator. This aligns with the psychological capital model, highlighting how positive emotions build lasting personal resources—hope, efficacy, resilience, and optimism (Carmona-Halty et al., 2019)—while recognizing that resource development may progress more slowly than emotional regulation.

Academic resilience mediates this relationship by transforming positive emotions into domain-specific coping mechanisms—perseverance through academic setbacks, strategic help-seeking during evaluative challenges, and regulated emotional responses to performance pressure—that directly counter test anxiety's cognitive and physiological manifestations. This finding extends Cotton et al. (2017) and Durso et al. (2021) by empirically demonstrating that academic resilience's specialized focus on educational stressors provides unique predictive

power beyond general psychological resilience, explaining why students with similar positive emotions exhibit different anxiety responses based on their academically-tailored adaptive capacities.

The strong positive relationship between positive emotions and academic resilience ($\beta = .489$) supports Fredrickson's (2001) broaden-and-build theory and Carmona-Halty et al.'s (2019) psychological capital model, demonstrating that emotional experiences are foundational to resilience development rather than mere outcomes. The partial mediation model aligns with Gloria and Steinhardt (2014), suggesting effective interventions require both immediate emotion enhancement strategies and longer-term resilience-building components. This finding extends Shen et al.'s (2018) expressive writing intervention by demonstrating how positive emotion cultivation can be integrated with resilience training—targeting perseverance, adaptive help-seeking, and emotional regulation—to create reinforcing cycles of psychological growth that provide sustained protection against academic stressors in higher education contexts.

The partial mediation findings suggest potential implications for designing anxiety interventions in Islamic higher education contexts, though these implications require empirical validation. Based on the observed associations, practitioners may consider dual-pathway approaches that address both immediate emotional regulation through spiritually-grounded positive emotion practices (gratitude exercises, dhikr-based mindfulness, reframing evaluations as growth opportunities) and systematic resilience development through skills training in perseverance, adaptive help-seeking, and emotional response management. Educational psychologists and Islamic educators could collaborate to create integrated programs acknowledging that, if causal relationships are confirmed through intervention research, positive emotions may provide rapid anxiety relief while sustainable stress management may require cultivating domain-specific academic resilience. Institution-wide wellness initiatives could potentially embed both components into curriculum design, student support services, and faculty development programs. However, these implications remain tentative and require confirmation through longitudinal studies and randomized controlled trials that can establish causal directionality and test intervention effectiveness in Islamic educational contexts.

The study has several limitations, including a cross-sectional design that limits causal inferences about the temporal relationships between positive emotions, academic resilience, and test anxiety. It also introduces concerns about common method variance and social desirability bias, and the sample composition, drawn exclusively from Al-Azhar University in Egypt, may limit generalizability to other cultural contexts and educational systems. Additionally, the study did not examine potential moderating factors, such as personality traits, socioeconomic status, prior academic achievement, and mental health history, which could affect the strength of mediation relationships.

Future research should explore the relationship between emotion-resilience and anxiety in academic contexts. Longitudinal studies could provide insights into the temporal dynamics of these relationships, examining whether positive emotion interventions lead to sustained increases in academic resilience and long-term reductions in test anxiety. The mechanisms through which positive emotions contribute to resilience development, such as enhanced self-efficacy, improved emotion regulation skills, strengthened social connections, and increased cognitive flexibility, should be investigated. Spiritual practices and Islamic concepts of resilience should also be explored. Environmental factors, such as instructor teaching styles, classroom climate, peer relationships, and institutional support services, may moderate the effectiveness of positive emotions in building resilience. Intervention research should test the effectiveness of mediation models, with randomized controlled trials comparing different intervention approaches.

CONCLUSION

Understanding the mechanisms through which emotional resources reduce academic stress has remained insufficiently explored in educational psychology, particularly regarding how positive emotions translate into lower test anxiety. Research examining whether academic resilience mediates this relationship among Muslim undergraduate students revealed significant partial mediation, with resilience accounting for 26.42% of the total effect while direct pathways represented 73.58%. These findings demonstrate that positive emotions operate through dual mechanisms—immediate anxiety reduction and gradual resilience development—suggesting effective interventions for emerging adults should integrate both immediate emotion-enhancement strategies and longer-term resilience-building components within culturally-responsive educational frameworks.

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AUTHOR CONTRIBUTION STATEMENT

HSG contributed to data collection and statistical analysis. AFAO assisted in data interpretation. MSA conceptualized the study, supervised the research, and critically revised the manuscript. MAN contributed to drafting the manuscript. ARI performed additional statistical analyses and reviewed the manuscript. MNAD contributed to the literature review and manuscript editing. All authors read and approved the final manuscript.

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