

Does Depression Influence Academic Stress Among University Students Through Anxiety?

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<p>Submitted: 2025-12-15</p> <p>Revised: 2026-01-15</p> <p>Published: 2026-12-04</p> <p>Keywords: Anxiety, Academic Stress, Depression, University Students</p> <p>Copyright holder: © Author/s (2025)</p> <p>This article is under:</p>  <p>How to cite: Kibtiyah, A., Muaz, Y. A., Barhordin, A., Umam, K., Widiyati, E., & Mustafida, F. (2026). Does Depression Influence Academic Stress Among University Students Through Anxiety?. <i>Bulletin of Counseling and Psychotherapy</i>, 8(2). https://doi.org/10.51214/002026081716000</p> <p>Published by: Kuras Institute</p> <p>E-ISSN: 2656-1050</p>	<p>ABSTRACT: This study investigates how depression contributes to academic stress among university students, with anxiety functioning as a mediating factor. The research arises from growing concerns about students' emotional challenges linked to demanding academic expectations and post-pandemic adjustment. Using a quantitative cross-sectional associative causal research design, the study involved 76 undergraduates recruited through purposive sampling. Standardised measures of depression, anxiety, and academic stress were administered, and the data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4. The findings showed that depression significantly predicted academic stress ($\beta = 0.352$, $p = .003$) and strongly increased anxiety levels ($\beta = 0.642$, $p < .001$). Anxiety also contributed to academic stress ($\beta = 0.380$, $p < .001$) and served as a partial mediator between depression and academic stress ($\beta = 0.244$, $p = .004$). The model displayed moderate explanatory power ($R^2 = 0.440$). Overall, the results support Lazarus and Folkman's (1984) transactional stress model and Beck's (1979) cognitive theory, highlighting the interaction of cognitive and emotional factors. Practically, the study underscores the importance of counselling approaches that strengthen cognitive-emotional regulation and promote mental health literacy in universities.</p>
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INTRODUCTION

The mental health of university students has become a central concern within modern higher education globally. The combination of demanding academic expectations, social challenges, and the developmental shift towards autonomy often contributes to heightened stress levels (Gil et al., 2023). Which in turn affect students' academic outcomes and overall psychological wellbeing. Eisenberg et al. (2013) report that more than one-third of university students display depressive and anxious symptoms that markedly impair their concentration, learning effectiveness, and overall adjustment to university life. Such evidence underscores that student mental health should not be viewed merely as an individual concern but rather as a systemic challenge influencing the broader quality and sustainability of higher education systems.

Academic stress is generally conceptualised as a psychological reaction arising from a mismatch between academic demands and one's perceived ability to cope effectively (Lazarus & Folkman, 1984). Within this framework, depression often serves as a major trigger for reduced

motivation, self-efficacy, and emotional regulation. Students experiencing depressive symptoms tend to interpret academic demands negatively, perceiving them as threats rather than challenges (Beck, 1979; Haikal et al., 2022). Recent data in Indonesia indicate that approximately 28–35% of university students report moderate to severe depressive symptoms within a semester, primarily triggered by academic pressure, career uncertainty, and economic difficulties (Pratama et al., 2025; Ramadianto et al., 2022). These circumstances highlight the pressing necessity to better understand and manage depression among students.

Beyond depression, anxiety also plays a crucial role in exacerbating academic stress. According to Cassady (2022) academic anxiety induces excessive physiological arousal, emotional tension, and concentration difficulties. The reciprocal relationship between depression and anxiety frequently forms a negative emotional loop that reinforces stress perception (Arisudana & Yudianto, 2024; Feng et al., 2023). Prior research found that students with high anxiety levels demonstrate up to 25% lower academic productivity compared with their low-anxiety counterparts (Bayram & Bilgel, 2008). Studies across Southeast Asia, including Indonesia, indicate that academic anxiety increased during the COVID-19 period, primarily due to the constraints of online learning, diminished social interaction, and greater uncertainty regarding the future (Cao et al., 2020). Such evidence reinforces the need to examine both the direct and indirect relationships among depression, anxiety, and academic stress within local as well as international settings.

The rationale for this research stems from several considerations. First, although numerous studies have examined depression, anxiety, and academic stress, most are descriptive and focus on a single variable. Causal and integrative analyses linking the three constructs remain scarce, particularly in Indonesia. Second, mental health problems among students have wide-ranging implications for academic achievement, social engagement, and long-term wellbeing. Third, empirical evidence indicates a rising prevalence of student depression and anxiety, yet evidence-based interventions remain limited and rarely institutionalised in Indonesian universities (Guna Segar & Mohd Kosnin, 2024). Therefore, this study holds substantial urgency by providing empirical data that could serve as the foundation for developing mental health intervention programmes in higher education.

Previous studies provide relevant insights. Stockinger et al. (2021) reported that students experiencing depression tend to have higher academic stress levels, which negatively affect performance and adaptability. A longitudinal investigation by Yang et al. (2025) reported that academic anxiety serves as a mediating factor between academic pressure and reduced learning motivation, indicating that students who utilise effective coping mechanisms tend to show greater resilience to stress. In the Indonesian context, Mofatteh (2021) reported notable links between depression and anxiety among university students in urban settings and their dissatisfaction with the academic environment and its associated demands, emphasising the necessity for comprehensive interventions that address these psychological factors simultaneously.

The originality of this study is demonstrated through several key elements. Firstly, it introduces a cohesive causal model linking depression, anxiety, and academic stress among Indonesian university students an area that has received relatively limited attention in contemporary educational psychology scholarship. Additionally, the research utilises PLS-SEM, allowing for the simultaneous assessment of direct and indirect effects and thereby yielding a more refined and empirically robust interpretation of the psychological processes that contribute to stress. Furthermore, the outcomes are anticipated to inform the development of evidence-based mental health programmes that prioritise coping efficacy, emotional regulation and effective approaches to managing academic stress (Ismail et al., 2021; Setyarini et al., 2025). In turn, this study enriches theoretical discussions within educational psychology while also offering practical

insights for institutional policy-making and the strengthening of student mental health support systems.

Theoretically, this research contributes by testing and strengthening Lazarus and Folkman's (1984) transactional model of academic stress and Beck's (1979) cognitive theory of depression through the inclusion of academic anxiety as a mediating construct. This integrated perspective seeks to offer a fuller understanding of the psychological dynamics influencing student mental health, while simultaneously responding to existing empirical gaps within the Indonesian context.

The research aims to address four central questions: (1) To what extent does depression affect academic stress? (2) Does depression exert a significant impact on anxiety? (3) Is anxiety a significant predictor of academic stress? and (4) Does anxiety function as a mediating factor between depression and academic stress? Through examining these issues, the study intends to offer empirically grounded insights, reinforce existing theoretical models, and establish a basis for evidence-informed mental health interventions within higher education settings.

Overall, this research responds to the urgent need for a systematic, evidence-driven, and contextually grounded understanding of student academic stress. By integrating empirical data, theoretical frameworks, and current field conditions, this study aspires to serve as a key reference for academics, educational practitioners, and university policymakers in promoting students' psychological well-being and optimising their academic achievement.

Study Aim and Hypothesis

The primary aim of the study is to examine the extent to which depression influences academic stress among university students, both directly and indirectly through anxiety. This objective is situated within Lazarus and Folkman's (1984) transactional model of stress, which posits that stress emerges from cognitive appraisal processes, and Beck's (1979) cognitive theory of depression, which emphasises the role of maladaptive cognitions in shaping emotional responses. By integrating these theoretical perspectives, the study seeks to contribute an empirically grounded explanation of how cognitive and emotional processes jointly affect students' academic stress levels. Drawing on this framework, the study formulates four explicit hypotheses.

H₁: Depression significantly predicts academic stress, such that higher levels of depressive symptoms increase students' perceived academic strain.

H₂: Depression significantly predicts anxiety, reflecting the well-established comorbidity between depressive and anxious symptomatology (Eisenberg et al., 2013).

H₃: Anxiety significantly predicts academic stress, consistent with the idea that anxiety heightens vigilance and threat appraisal (Cassady, 2022).

H₄: Anxiety mediates the relationship between depression and academic stress, functioning as an affective intermediary through which depressive cognition shapes stress reactivity (Misra & Castillo, 2004).

Collectively, these hypotheses aim to test a cohesive causal model that explains how cognitive distortions characteristic of depression escalate emotional arousal and, consequently, academic stress.

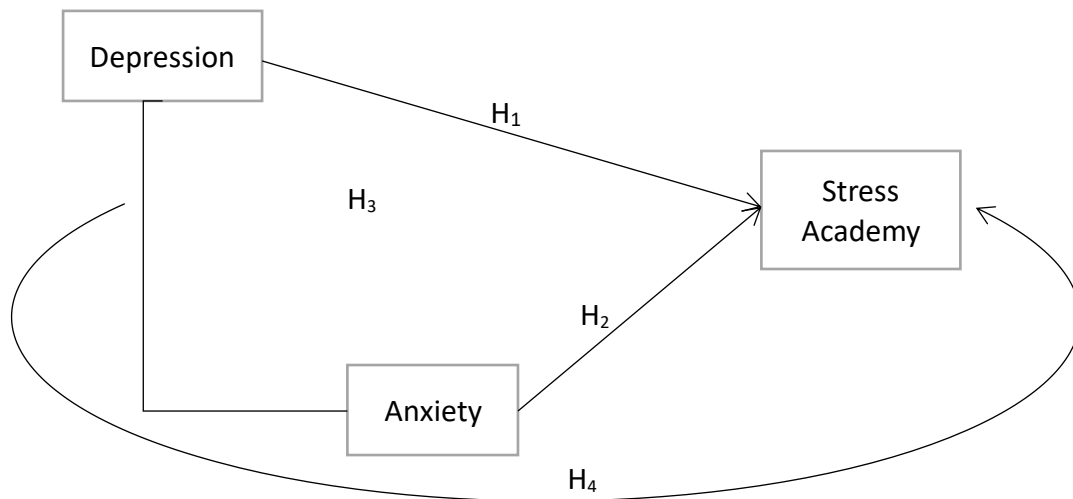


Figure 1. Hypothesised Structural Model

METHODS

Design

This research adopted a quantitative methodological approach grounded in an associative causal design to explore the interconnections and mediating mechanisms linking depression, anxiety, and academic stress. This methodological design was considered particularly suitable for empirically evaluating theoretical propositions and for analysing both direct and indirect relationships among latent psychological constructs (Hair et al., 2022). Through this analytical framework, the study sought to capture the dynamic interactions between cognitive and emotional processes that collectively shape students' experiences of academic stress.

Participants

The study recruited 76 undergraduate students from several universities across East Java, Indonesia, all of whom participated voluntarily. A purposive sampling strategy was employed to ensure that participants met the specific requirements of the investigation. The inclusion criteria stipulated those respondents: (1) be currently enrolled as active undergraduate students; (2) be undertaking a minimum study load of 18 academic credits (SKS); and (3) express a willingness to complete all research instruments sincerely and accurately. Ethical clearance for this research was granted by the institutional review board, and all participation was carried out with complete anonymity. Electronic informed consent was obtained before any data were gathered, and rigorous confidentiality procedures were upheld throughout the entire study.

Regarding demographic characteristics, the sample comprised 54% female and 46% male students, with a mean age of 20.8 years (SD = 1.4). Most participants were enrolled in programmes related to education and psychology. Although relatively modest in number, the sample size met the minimum threshold recommended for PLS-SEM analysis, which generally advises at least ten observations for each estimated parameter (Hair et al., 2019b). This ensured that the dataset was sufficient to generate stable, credible, and statistically sound model estimates.

Instruments

Depression Scale

Depressive symptoms were measured using the Beck Depression Inventory–II (BDI-II) (Beck et al., 2024), a tool that has already been translated and culturally adapted for use within Indonesian populations. The scale comprises 21 items that evaluate cognitive, affective, and somatic aspects of

depressive experience. Each item is evaluated on a four-point Likert scale ranging from 0 to 3, indicating progressively higher degrees of symptom severity. Higher cumulative scores correspond to more intense depressive symptomatology, reflecting heightened psychological distress linked to depression.

Anxiety Scale

Anxiety was assessed using the State Trait Anxiety Inventory (STAI), focusing specifically on the state anxiety subscale, which reflects temporary feelings of tension and apprehension associated with students' immediate academic conditions (Valente et al., 2025). The subscale comprises 20 items rated on a four-point Likert scale from "almost never" to "almost always," enabling the identification of fluctuations in situational emotional reactions.

Academic Stress Scale

Academic stress was assessed using the Academic Stress Scale, which had been earlier adapted for Indonesian university students to maintain linguistic precision and cultural relevance (Rasmini, 2023). The scale evaluates students' stress responses stemming from academic workload, examination pressures, and expectations surrounding academic performance. The scale contains 21 items rated on a five-point Likert continuum from "strongly disagree" to "strongly agree." Higher overall scores signify greater perceived academic stress, representing a stronger subjective experience of pressure within the academic environment.

All measurement instruments were reviewed by three subject-matter experts to guarantee content validity and contextual appropriateness. Reliability testing demonstrated high internal consistency, with Cronbach's alpha coefficients ranging from 0.884 to 0.901 and composite reliability values falling between 0.910 and 0.922. These figures demonstrate that all measurement scales exhibited excellent reliability (Kennedy, 2022).

Data Analysis

Data analysis was carried out using Partial Least Squares Structural Equation Modelling (PLS-SEM) through the SmartPLS version 4 software. This method was selected for its suitability in exploratory and prediction-focused research, especially when working with small to medium sample sizes and latent variables that may deviate from normal distribution assumptions (Hair et al., 2019). This method also allows simultaneous estimation of complex interrelationships among constructs, making it ideal for modelling multifactor psychological phenomena. The analytical procedure was conducted in two principal phases.

Measurement Model (Outer Model) Evaluation, The first stage focused on assessing the measurement model to confirm the reliability and validity of each construct. This process involved examining indicator loadings (with an acceptable criterion exceeding 0.70), the Average Variance Extracted ($AVE > 0.50$), Cronbach's alpha values (> 0.70), and Composite Reliability coefficients (> 0.70). Collectively, these indicators confirmed that the measurement items exhibited adequate convergent validity and strong internal consistency in capturing their respective latent constructs.

Structural Model (Inner Model) Evaluation, The second stage entailed evaluating the structural model, which included estimating path coefficients, computing the Coefficient of Determination (R^2), and identifying the Effect Size (f^2). Model fit was further examined using indices such as the Standardised Root Mean Square Residual (SRMR), with values below 0.10 indicating an acceptable fit, and the Normed Fit Index (NFI), where values above 0.70 reflect satisfactory model adequacy.

To determine the statistical significance of both direct and indirect pathways, particularly the mediating role of anxiety in the link between depression and academic stress, a bootstrapping

technique with 5,000 resamples was applied. Statistical significance was determined at the 0.05 threshold ($p < 0.05$), following the recommendation of Hair et al. (2019a). for mediation testing in variance-based structural models.

As illustrated in Figure 1, depression was hypothesised to influence academic stress both directly and indirectly through anxiety.

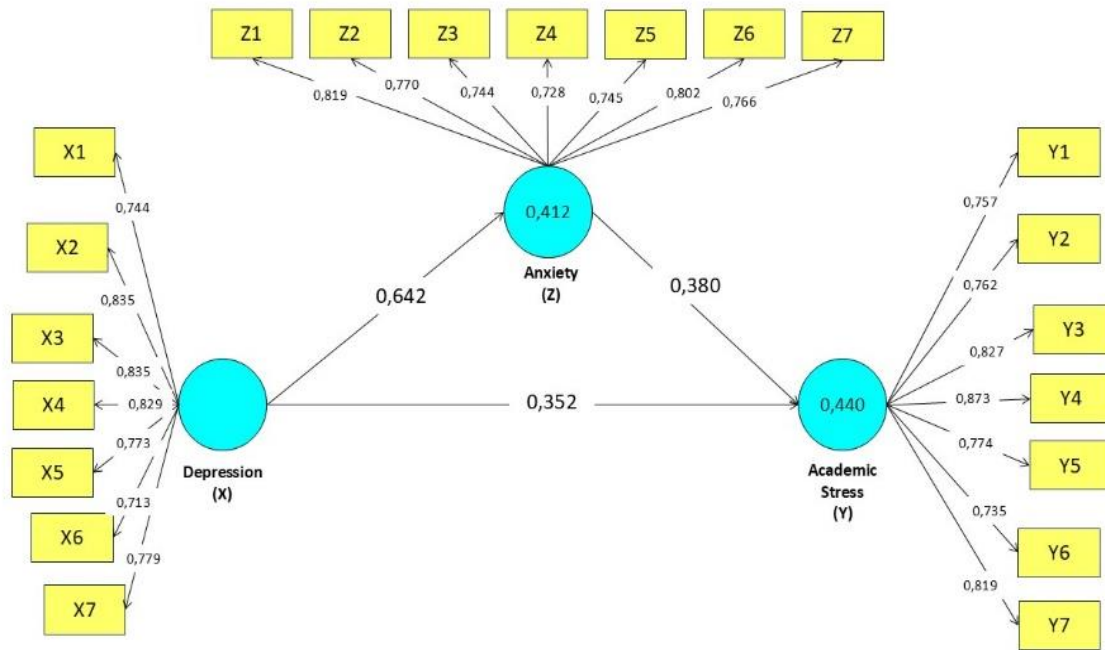


Figure 2. Structural Model of the Relationships among Depression, Anxiety, and Academic Stress (PLS-SEM Output)

RESULTS AND DISCUSSION

Results

Measurement Model Evaluation

The measurement model was assessed to confirm the reliability and validity of the latent constructs employed in the analysis. All indicator loadings surpassed the recommended benchmark of 0.70, indicating strong item reliability and affirming that each indicator adequately represented its respective construct. The Average Variance Extracted (AVE) values 0.630 for Depression, 0.621 for Anxiety, and 0.590 for Academic Stress were all above the minimum requirement of 0.50, thus demonstrating acceptable convergent validity.

In addition, the instruments showed excellent internal consistency, as evidenced by Cronbach's alpha values ranging from 0.884 to 0.901 and composite reliability (ρ_c) coefficients falling between 0.910 and 0.922 (as seen on Table 1). Taken together, these findings indicate that the instruments were highly reliable and that the observed indicators consistently represented their respective latent variables across the sample (Nunnally, 1975).

Table 1. Construct Reliability and Validity

Construct	AVE	Cronbach's Alpha (α)	Composite Reliability	Validity
Depression (X)	0.630	0.901	0.922	Acceptable
Anxiety (Z)	0.621	0.884	0.910	Acceptable
Academic Stress (Y)	0.590	0.890	0.915	Acceptable

Note: All indicators displayed strong convergent validity, confirming that the constructs measured their intended concepts effectively.

Model Fit and Quality

The overall suitability of the structural model was evaluated using several goodness-of-fit indices, including the Standardised Root Mean Square Residual (SRMR), d_ULS, d_G, and the Normed Fit Index (NFI). The SRMR value of 0.096 was below the recommended upper limit of 0.10, indicating that the model achieved an acceptable and satisfactory level of fit (Henseler et al., 2015). Similarly, the NFI value of 0.768 exceeded the suggested minimum threshold of 0.70, reflecting a moderate yet acceptable degree of model fit, consistent with expectations for exploratory studies employing the PLS-SEM approach (see Table 2).

Table 2. Goodness-of-Fit Indices

Index	Value	Criterion	Decision
SRMR	0.096	< 0.10	Good fit
d_ULS	2.004	—	Acceptable
d_G	1.701	—	Acceptable
NFI	0.768	> 0.70	Moderate–acceptable

Coefficient of Determination (R^2)

The Coefficient of Determination values reflect the proportion of variance in each endogenous construct that is accounted for by its predictor variables. The findings showed that Depression explained 41.2% of the variance in Anxiety ($R^2 = 0.412$), while the combined effects of Depression and Anxiety accounted for 44.0% of the variance in Academic Stress ($R^2 = 0.440$) (see Table 3). Following the interpretive guidelines proposed by Chin (1998), these values indicate a moderate level of explanatory strength, suggesting that the structural model successfully isolates and accounts for the key predictors of academic stress among university students.

Table 3. Coefficients of Determination (R^2)

Endogenous Variable	R^2	R^2 Adjusted	Interpretation
Anxiety (Z)	0.412	0.404	Moderate
Academic Stress (Y)	0.440	0.425	Moderate

Effect Size (f^2)

The effect size analysis (Cohen, 2013). Demonstrated the magnitude of each predictor's contribution. Depression exerted a large effect on Anxiety ($f^2 = 0.701$), while its effects on Academic Stress ($f^2 = 0.131$) and Anxiety's effect on Academic Stress ($f^2 = 0.152$) were moderate.

Path Coefficients and Hypothesis Testing

The bootstrapping procedure involving 5,000 resamples verified that all proposed hypotheses were statistically supported. The most substantial path emerged between Depression and Anxiety ($\beta = 0.642$, $t = 7.657$, $p < .001$), indicating a strong positive association. This was followed by the pathway from Anxiety to Academic Stress ($\beta = 0.380$, $t = 3.526$, $p < .001$) and the pathway from Depression to Academic Stress ($\beta = 0.352$, $t = 2.979$, $p = .003$), both of which likewise showed statistically significant effects (see Table 4).

Table 4. Effect Size (f^2) Analysis & Structural Path Coefficients

Relationship	f^2	Effect Strength	β	t-value	p-value	interpretation
Depression → Anxiety	0.701	Large	0.642	7.657	< .001	Significant
Depression → Academic Stress	0.131	Moderate	0.380	3.526	< .001	Significant
Anxiety → Academic Stress	0.152	Moderate	0.352	2.979	.003	Significant

Hypothesis Testing Results

In order to empirically assess the theoretical assumptions underpinning this research, four hypotheses (H_1 – H_4) were subjected to statistical testing. Table 6 presents a summary of the hypothesised relationships together with their respective path coefficients (β), t-statistics, p-values, and final interpretations.

Table 5. Hypothesis Testing Results

Hypothesis	Path	β	t-value	p-value	Decision
H_1	Depression → Academic Stress	0.352	2.979	0.003	Supported
H_2	Depression → Anxiety	0.642	7.657	< .001	Supported
H_3	Anxiety → Academic Stress	0.380	3.526	< .001	Supported
H_4	Depression → Anxiety → Academic Stress (indirect)	0.244	2.901	0.004	Supported

Note: all hypotheses were supported by empirical data, indicating that depression exerts significant direct and indirect effects on academic stress through anxiety.

Interpretation of Hypothesis Testing

The findings demonstrate that depression significantly increases academic stress among university students ($\beta = 0.352, p = .003$). Students with higher levels of depressive symptoms tend to appraise academic demands as more burdensome and difficult to manage, a pattern that reflects depressive cognitive distortions as described in Beck’s (1979) cognitive theory. Negative self-evaluations, pessimistic expectations, and reduced perceptions of control intensify subjective stress appraisal, causing academic challenges to be perceived as overwhelming.

Depression was also found to be a strong predictor of anxiety ($\beta = 0.642, p < .001$), reinforcing the well-established comorbidity between these emotional conditions (Eisenberg et al., 2013). Depressive cognition fosters feelings of helplessness and uncertainty, which heighten emotional vulnerability and anticipatory worry in academic contexts. Anxiety, in turn, exerted a significant positive effect on academic stress ($\beta = 0.380, p < .001$), consistent with Lazarus and Folkman’s (1984) transactional stress model, whereby heightened anxiety amplifies threat appraisal and undermines perceived coping capacity.

Importantly, anxiety functioned as a partial mediator in the relationship between depression and academic stress ($\beta_{\text{indirect}} = 0.244, p = .004$). This finding supports the cognitive–emotional interaction model proposed by Misra and Castillo (2004) indicating that depression indirectly intensifies academic stress by increasing anxiety, which then heightens stress reactivity. Collectively, these results underscore the interdependence of depressive cognition and anxious arousal in

shaping academic stress, highlighting the need for interventions that address both cognitive appraisal and emotional regulation within higher education settings.

Together, these findings validate the proposed theoretical framework and underscore the intertwined nature of depressive and anxious processes in shaping academic stress among university students.

Mediation Analysis

The indirect effect from Depression to Academic Stress through Anxiety was also significant ($\beta = 0.244$, $t = 2.901$, $p = .004$), confirming partial mediation. This means that depression influences academic stress both directly and indirectly through increased anxiety.

Table 6. Mediation (Indirect) Effects

Mediating Path	β (Indirect)	t-value	p-value	Mediation Type
Depression → Anxiety → Academic Stress	0.244	2.901	.004	Partial Mediation

Model Summary

Overall, the structural model revealed a clear and internally consistent pattern of relationships. Specifically: a) Depression exerted a substantial direct influence on Anxiety and a moderate direct effect on Academic Stress. b) Anxiety emerged as a significant predictor contributing to elevated levels of Academic Stress. c) The mediation analysis revealed that Anxiety only partly transmitted the influence of Depression on Academic Stress, thereby substantiating its position as an intermediate psychological mechanism within the model.

The R^2 (0.440) and acceptable model fit indices indicate that the model moderately but effectively explains the mechanisms underlying students’ academic stress.

Substantive Interpretation

These results imply that students exhibiting elevated depressive symptoms are more likely to encounter heightened anxiety, which in turn exacerbates their academic stress. The pattern aligns with cognitive–emotional models of stress (Beck, 1979; Lazarus & Folkman, 1984), affirming that negative thinking and maladaptive appraisal processes heighten stress perception. The partial mediation also implies that while depression directly affects academic stress, a substantial proportion of its effect is channelled through anxiety.

Hence, emotional regulation and cognitive restructuring may serve as critical intervention points in mitigating academic stress. The following discussion provides a detailed exposition of these theoretical and practical implications.

Discussion

The findings of the present research revealed that depression exerts both direct and indirect influences on academic stress among university students, with anxiety serving as a partial mediating variable. This outcome sheds light on the underlying psychological pathways through which depressive and anxious symptoms collectively contribute to heightened stress within academic settings. The model’s moderate explanatory capacity ($R^2 = 0.440$), combined with the strength of its path coefficients, attests to the robustness of these associations. These results align with the foundational principles of the transactional stress model articulated by Lazarus and Folkman (Biggs et al., 2017). And the cognitive theory of depression advanced by Beck et al. (2021), both of which emphasise the interplay between cognitive appraisals, emotional processes, and stress responses.

Depression as a Foundational Determinant of Academic Stress

Depression was found to exert a significant direct effect on academic stress ($\beta = 0.352$, $p = .003$), suggesting that students experiencing depressive symptoms perceive academic tasks as more demanding and less controllable. From a cognitive-behavioural standpoint, depressive cognition manifests as distorted self-appraisal, negative anticipation, and pessimistic attributional style (Beck, 2011). Consequently, students with depressive tendencies are more likely to interpret academic challenges as threats rather than opportunities for mastery.

This finding supports earlier work by Eisenberg et al. (2013) and Bayram & Bilgel (2008) found that depression diminishes academic functioning and increases stress vulnerability. In the present study, the strength of this direct relationship emphasises that depressive symptomatology alone can induce academic strain, even in the absence of overt anxiety. In practice, depression undermines intrinsic motivation, reduces goal-oriented behaviour, and weakens emotional regulation, all of which are essential for coping with complex academic demands.

Within Indonesian higher education, the impact of depression on academic stress appears especially pronounced, as students are required to cope with intensely competitive academic environments, heightened familial expectations, and limited institutional mental-health support. Ramadianto et al. (2022) reported that almost one-third of university students in Indonesia exhibit moderate to severe depressive symptoms. This considerable prevalence highlights the pressing necessity for universities to establish structured mental-health monitoring and early preventive initiatives designed to detect and alleviate psychological difficulties among students.

Anxiety as a Mediating Emotional Mechanism

Anxiety showed the strongest direct relationship with depression ($\beta = 0.642$, $p < .001$), confirming the comorbidity frequently observed between the two emotional disturbances (Eisenberg et al., 2009; McGrath et al., 2020). Conceptually, anxiety serves as an effective response that arises when individuals appraise academic challenges as unpredictable or uncontrollable (Spielberger, 1983). Depressive cognition fosters such appraisals by lowering perceived competence and self-efficacy (Bandura, 1997), thereby activating physiological and emotional arousal consistent with anxiety.

The mediating role of anxiety ($\beta_{\text{indirect}} = 0.244$, $p = .004$) reveals that the pathway from depression to academic stress is partially transmitted through heightened anxiety levels. This partial mediation aligns with Misra and Castillo's (2004) cross-cultural findings that anxiety amplifies perceived stress among students by intensifying vigilance and cognitive interference. Depression, in this model, can be viewed as a predisposing factor, while anxiety operates as a proximate trigger of stress reactivity.

Physiologically, anxiety elevates autonomic nervous system activity, leading to tension, irritability, and reduced working memory capacity (Hinds, 2022; Spielberger et al., 1971). Psychologically, anxious students overestimate the probability of failure and underestimate their coping resources, reinforcing a maladaptive stress cycle. Such an interplay between depressive cognition and anxious arousal creates a *cognitive-emotional feedback loop*, wherein negative thought patterns perpetuate emotional distress, resulting in cumulative academic fatigue.

Interpreting the Model within Theoretical Frameworks

The transactional model of stress (Lazarus & Folkman, 1984). Posits that stress results from cognitive appraisal processes: primary appraisal (evaluating potential threats) and secondary appraisal (evaluating coping resources). In this study, depression appears to distort both appraisals that students with depressive tendencies perceive academic situations as threatening (negative primary appraisal) and simultaneously doubt their capacity to manage them (ineffective secondary

appraisal). The resulting anxiety reflects an overactivation of the secondary appraisal system, indicating anticipatory worry about possible failure.

Beck's (1979) cognitive theory complements this explanation by identifying *automatic negative thoughts* and *dysfunctional beliefs* as cognitive schemas that maintain depression and anxiety. When applied to the academic domain, these schemas manifest as statements such as “*I will never succeed*” or “*I am not capable of understanding this subject,*” which foster self-doubt and anticipatory stress. The combined application of both frameworks clarifies how cognitive distortions translate into emotional distress that culminates in academic stress.

Empirical Comparisons and Regional Context

The findings align with international evidence while offering region-specific insights. In Western contexts, such as the United States and Europe, high academic stress has long been associated with depressive and anxious symptomatology (Blanco et al., 2021; Fritz et al., 2008). However, in collectivist cultures like Indonesia, stress dynamics are often intensified by cultural expectations regarding family honour, social comparison, and academic success. Consequently, students not only experience personal failure but also perceive it as collective disappointment, compounding emotional burden.

Furthermore, during and after the COVID-19 pandemic, the transition to online learning introduced new stressors technological fatigue, isolation, and uncertainty (Cao et al., 2020). These contextual factors amplify the depression–anxiety–stress triad, as students face diminished social interaction and increased self-regulation demands. Therefore, the present findings underscore the importance of contextualising psychological models within cultural and situational realities rather than assuming universal homogeneity.

Educational and Counselling Implications

From an educational psychology perspective, the evidence strongly advocates for cognitive–emotional regulation interventions in higher education. Since depression and anxiety both contribute to academic stress, universities should prioritise early identification and targeted counselling strategies. Regular psychological screenings using validated tools such as the BDI-II and DASS-21 can help detect students at risk before symptoms escalate.

Moreover, implementing Cognitive Behavioural Therapy (CBT)-based interventions, particularly Cognitive Reframing, can assist students in modifying maladaptive thought patterns and developing more adaptive academic self-appraisals (Beck, 2012; Terepka & Torres-Pagán, 2021). For instance, structured workshops focusing on reframing failure as feedback and enhancing problem-solving orientation can reduce both depression and anxiety, ultimately alleviating stress levels.

Equally important are mindfulness-oriented interventions, such as *Mindfulness-Based Stress Reduction* (MBSR), which foster a non-judgemental awareness of one's emotional experiences. Empirical evidence has shown that MBSR effectively mitigates physiological arousal and strengthens students' capacity for emotional regulation (Asani et al., 2022). When integrated with *Acceptance and Commitment Therapy* (ACT), such practices can further enhance psychological flexibility allowing students to endure emotional discomfort while maintaining sustained engagement with their academic objectives.

Social and Institutional Support Mechanisms

Consistent with the social buffering hypothesis (Cohen & McKay, 2020; Cohen & Wills, 1985). Social support from lecturers, peers, and academic advisers plays a protective role against academic stress. The presence of empathetic mentors and peer networks fosters a sense of belonging and shared experience, mitigating the isolating effects of depression and anxiety. Structured peer-

mentoring schemes, counselling centres, and student well-being programmes can thus serve as institutional buffers.

In Indonesian universities, counselling services are often under-resourced or perceived as remedial rather than preventive (Minsih et al., 2024). This study's findings highlight the necessity for reorienting mental health services to be normalised as part of student development rather than crisis management. Incorporating mental health components into foundational or orientation courses may strengthen students' mental health literacy, enabling them to develop the vocabulary and competencies needed to identify early signs of emotional distress.

Faculty members also play a pivotal role in reducing academic stress through pedagogical empathy, adapting assessment policies, offering flexible deadlines, and providing constructive feedback. Such practices not only enhance academic performance but also demonstrate institutional care, reinforcing students' sense of competence and safety.

Broader Theoretical and Methodological Implications

From a theoretical standpoint, this research broadens the transactional model of stress by integrating emotional mediators into the context of higher education. While the original model concentrated largely on processes of cognitive appraisal, the present results demonstrate that affective dimensions, especially anxiety, serve as pivotal determinants in how students perceive and manifest stress. In addition, the study reinforces the Cognitive Theory of Depression by illustrating how cognitive distortions can precipitate emotional and behavioural responses in academic environments, thereby emphasising the fluid interaction between thought patterns and affective experiences.

From a methodological perspective, the utilisation of Partial Least Squares Structural Equation Modelling (PLS-SEM) provided distinct strengths for examining intricate relationships among latent constructs, particularly in research with relatively modest sample sizes. The model's moderate explanatory capacity indicates a favourable balance between simplicity and analytical rigour. Nevertheless, future investigations may enhance the model's predictive strength by incorporating moderating variables such as self-efficacy, social support, and coping strategies, in line with the recommendations of Bandura (2022) and Akgun and Ciarrochi (2003). Including these elements would allow for a more refined and comprehensive understanding of the psychological mechanisms that contribute to students' emotional resilience within academic settings.

Synthesis and Theoretical Integration

In synthesis, this study elucidates a multidimensional mechanism wherein depression acts as a cognitive precursor that lowers perceived control, anxiety functions as an affective mediator amplifying stress, and academic stress emerges as the behavioural outcome of maladaptive cognitive–emotional processes (Tholen et al., 2022). Combining Lazarus and Folkman's appraisal framework with Beck's cognitive theory provides a more refined insight into the ways in which underlying belief structures and emotional responsiveness jointly contribute to the emergence of stress reactions.

This integrated model not only explains why academic stress persists even when objective workloads are moderate but also clarifies why interventions targeting emotional regulation are often more effective than those focusing solely on time management or study skills. By recognising the interdependence of cognitive and affective domains, universities can design holistic well-being programmes addressing both mindset and emotional resilience.

Implications

The findings indicate that depression and anxiety exert substantial direct and indirect effects on academic stress, suggesting that academic stress is not merely a consequence of objective workload but is closely intertwined with students' cognitive–emotional functioning. Theoretically, these results strengthen the explanatory power of Lazarus and Folkman's (Lazarus & Folkman, 1984). Stress-appraisal model by demonstrating that depressive cognition distorts both primary (threat) and secondary (coping) appraisals, while simultaneously extending Beck's (1979) cognitive theory by showing how negative automatic thoughts intensify anxiety and, in turn, amplify perceived academic pressure. Practically, the findings provide strong justification for universities to implement preventive mental-health initiatives, including routine psychological screening using validated instruments such as the BDI-II and STAI to identify students at risk before symptoms escalate (Kennedy, 2022). As well as cognitive–behavioural interventions, particularly cognitive reframing and problem-solving training to support more adaptive academic appraisals (A. Beck, 2012; Terepka & Torres-Pagán, 2021). In addition, mindfulness-based programmes, such as Mindfulness-Based Stress Reduction, may enhance emotional regulation and reduce anxiety-related physiological arousal (Asani et al., 2022). At the institutional level, and consistent with the social buffering hypothesis (Cohen & Wills, 1985). The findings underscore the importance of strengthening mentoring systems, counselling services, and empathetic staff–student communication, as well as embedding mental-health literacy within the curriculum to reduce stigma and equip students with effective coping strategies, an imperative that is particularly urgent in the Indonesian context, where counselling services remain largely reactive rather than preventive (Minsih et al., 2024).

Limitations and Further Research

Several methodological limitations should be acknowledged. The cross-sectional design restricts the ability to draw causal inferences among the variables, suggesting that future studies should adopt longitudinal approaches to examine temporal dynamics and changes in the relationship between depression, anxiety, and academic stress across academic periods. The exclusive reliance on self-report measures also increases the risk of response bias, including socially desirable responding and the potential underreporting of psychological difficulties (Takona, 2024). Therefore, incorporating qualitative methods such as in-depth interviews or reflective journals may provide a more nuanced understanding of students' emotional experiences and coping processes. In addition, the sample's restriction to undergraduate students in East Java limits the generalisability of the findings to broader Indonesian or Southeast Asian populations, indicating the need for future research across more diverse geographical and cultural contexts to strengthen external validity. Further studies would also benefit from employing mixed-method designs that integrate quantitative modelling with phenomenological inquiry to capture cultural nuances in stress interpretation, as well as experimental designs to evaluate the effectiveness of intervention strategies such as cognitive reframing training and mindfulness-based programmes in substantiating and extending the theoretical framework proposed in this study.

CONCLUSION

The present study provides empirical evidence that depression significantly predicts academic stress both directly and indirectly through anxiety among university students. By diminishing students' cognitive appraisals of control and competence, depression heightens anxiety and intensifies stress reactivity, with the observed partial mediation model ($R^2 = 0.440$) confirming the interconnected nature of cognitive and emotional processes underlying academic stress. These findings reinforce the relevance of Lazarus and Folkman's transactional stress theory and Beck's

cognitive theory within higher education, positioning depression as a cognitive antecedent that distorts appraisal mechanisms and anxiety as an affective intermediary that transforms cognitive vulnerability into manifest stress. Theoretically, the study advances educational psychology by integrating cognitive and emotional dimensions within a unified explanatory framework, while methodologically demonstrating the value of PLS-SEM for modelling complex relationships among latent psychological constructs. Practically, the results underscore the necessity of preventive mental health screening using validated instruments, the institutionalisation of cognitive-behavioural and mindfulness-based interventions, the strengthening of mentoring and peer-support systems, and the integration of mental health literacy into curricula to reduce stigma and enhance coping capacity. Overall, the findings highlight that mitigating academic stress requires a comprehensive and proactive strategy addressing depression, anxiety, and maladaptive cognitive appraisals simultaneously; by cultivating empathetic, supportive, and psychologically informed academic environments, universities can promote both emotional resilience and academic excellence as mutually reinforcing dimensions of higher education.

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AUTHOR CONTRIBUTIONS STATEMENT

This article represents a collaborative effort among all listed authors, each of whom contributed substantively to the development, refinement, and completion of the study. Asriana Kibtiyah led the conceptualisation of the research problem, secured funding, coordinated data curation, and prepared the initial manuscript draft. She also undertook critical revisions and final editorial refinements to ensure the coherence and scholarly quality of the article. Her contributions further included facilitating access to resources essential for completing the research.

Yusuf Ahmed Muaz played a significant role in conducting the formal data analysis and contributed to the methodological design of the study. He was also responsible for validation procedures and the visualisation of analytical outputs, ensuring that the statistical findings were accurately represented and interpreted. His expertise strengthened the analytical rigour and methodological robustness of the study.

Ariga Bahrodin contributed to the conceptual framing of the study, undertook investigative tasks, and supervised aspects of project administration. Khoirul Umam provided essential support in formal data analysis, investigation, project management, and visualisation. Evita Widiyati contributed to formal analysis, resource provision, manuscript drafting, substantive review, and editing. Fita Mustafida supported the methodological framework, conducted validation processes, participated in the critical review, and refined the manuscript. All authors reviewed, approved the final version of the article, and agreed to be accountable for its academic integrity.

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