



Stress and Academic Performance Among Students: Mediating Role of Coping Strategies

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Abstract: Academic stress has emerged as a critical concern in higher education, influencing students' psychological wellbeing and academic outcomes. This study investigates the relationship between stress and academic performance among students, with a specific focus on the mediating role of coping strategies. Drawing upon the transactional theory of stress and coping, the study explores how different forms of stress affect students' academic achievement and how coping mechanisms intervene in this relationship. A quantitative research design was adopted using survey data collected from university students. Structural Equation Modeling was employed to test the hypothesized relationships. The findings reveal that academic stress has a significant negative effect on students' academic performance. However, coping strategies such as problem focused coping and emotion focused coping partially mediate this relationship, reducing the adverse effects of stress. Students who utilize adaptive coping strategies demonstrate better academic outcomes compared to those relying on avoidance strategies. These results are consistent with prior empirical findings that highlight the importance of coping mechanisms in managing stress effectively. The study contributes to the existing literature by providing empirical evidence on the mediating role of coping strategies, particularly in the context of developing countries. It emphasizes the need for educational institutions to incorporate stress management programs and promote adaptive coping skills among students. The implications of this research extend to policymakers, educators, and mental health professionals aiming to enhance student performance and wellbeing.

Keywords: Academic Stress, Academic Performance, Coping Strategies, Mediation, Students, Higher Education

Introduction

Academic life is often associated with various stressors that influence students' psychological and academic functioning. Academic stress refers to the mental distress associated with anticipated academic challenges or failure to meet academic expectations. With increasing competition, workload, and performance pressure, students frequently experience stress that can negatively impact their academic performance and overall wellbeing.

Research has consistently demonstrated that academic stress is a prevalent issue among students worldwide. Factors such as examination pressure, time constraints, financial concerns, and high expectations from parents and institutions contribute to elevated stress levels. These stressors may impair cognitive functions such as attention, memory, and decision making, which are essential for academic success. Consequently, students experiencing high levels of stress often exhibit reduced academic performance, lower motivation, and increased dropout rates.

However, the relationship between stress and academic performance is not always linear. Some levels of stress can

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be motivating and enhance performance, while excessive stress can lead to negative outcomes. This suggests that other variables may influence this relationship. One such important variable is coping strategies. Coping strategies refer to the cognitive and behavioral efforts individuals use to manage stress. These strategies can be broadly categorized into problem focused coping, emotion focused coping, and avoidance coping.

The mediating role of coping strategies has gained increasing attention in recent research. Coping strategies can either buffer or exacerbate the impact of stress on academic performance. For instance, students who adopt problem focused coping strategies such as time management and seeking academic support tend to perform better academically. In contrast, those who rely on avoidance strategies such as procrastination or denial often experience poorer outcomes.

Recent studies have highlighted the importance of examining coping strategies as mediators in the stress performance relationship. For example, research conducted during the COVID 19 pandemic found that coping strategies significantly influenced how students managed academic stress and maintained performance levels. Similarly, studies in developing regions emphasize the need to understand context specific coping mechanisms and their role in academic achievement.

Despite extensive research on stress and academic performance, there remains a gap in understanding the mediating mechanisms that explain this relationship. Most studies focus on direct effects without exploring how coping strategies influence outcomes. This study aims to address this gap by examining the mediating role of coping strategies in the relationship between stress and academic performance.

The significance of this research lies in its practical implications. By identifying effective coping strategies, educational institutions can design interventions to support students in managing stress. This can lead to improved academic performance, reduced dropout rates, and enhanced mental health. Furthermore, the study contributes to theoretical understanding by integrating stress and coping frameworks within the academic context.

In conclusion, academic stress is a critical issue that affects students' performance and well being. Understanding the role of coping strategies as mediators can provide valuable insights into how students can effectively manage stress and achieve academic success.

Literature Review

Academic stress has been widely studied as a major factor influencing students' academic outcomes. It is defined as the psychological distress associated with academic demands that exceed an individual's adaptive capacity. Numerous studies have reported that students across different educational levels experience significant stress due to academic pressures.

One of the key findings in the literature is the negative relationship between stress and academic performance. High levels of stress have been associated with decreased academic achievement, reduced concentration, and impaired cognitive functioning. Neuroscientific research indicates that stress affects working memory, which plays a crucial role in learning and problem solving. This suggests that stress not only affects emotional well-being but also directly impacts cognitive processes essential for academic success.

Empirical studies further support this relationship. For instance, research on undergraduate students found a significant negative association between stress and academic performance. The study also highlighted that both academic and nonacademic stressors contribute to poor academic outcomes. Similarly, studies conducted in various educational settings have consistently reported that students experiencing high stress levels tend to achieve lower grades.

However, the literature also indicates that the impact of stress on academic performance is influenced by individual differences. Some students are able to manage stress effectively and maintain high performance levels. This has led researchers to explore the role of coping strategies in moderating or mediating this relationship.

Coping strategies are defined as the cognitive and behavioral efforts used to manage stressful situations. According

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to the transactional theory of stress and coping, individuals evaluate stressors and select coping strategies based on their perceived ability to manage the situation. These strategies are generally classified into three categories: problem focused coping, emotion focused coping, and avoidance coping.

Problem focused coping involves taking direct actions to address the source of stress. Examples include time management, seeking academic assistance, and organizing study schedules. Research has shown that students who adopt problem focused coping strategies tend to perform better academically. These strategies help students manage stress effectively and maintain focus on academic tasks.

Emotion focused coping, on the other hand, involves managing emotional responses to stress. This includes strategies such as relaxation, mindfulness, and seeking social support. While these strategies do not directly address the source of stress, they help reduce emotional distress and improve psychological well-being. Studies have found that emotion focused coping can have a positive impact on academic performance by reducing anxiety and improving concentration.

In contrast, avoidance coping involves ignoring or avoiding the stressor. Examples include procrastination, denial, and substance use. Research indicates that avoidance coping is associated with negative academic outcomes. Students who rely on avoidance strategies tend to experience higher stress levels and lower academic performance. Recent studies have focused on the mediating role of coping strategies. Mediation occurs when a variable explains the relationship between two other variables. In this context, coping strategies mediate the relationship between stress and academic performance by influencing how students respond to stress.

A study conducted during the COVID 19 pandemic found that coping strategies significantly mediated the relationship between academic stress and performance. The findings indicated that students who used adaptive coping strategies were better able to manage stress and maintain academic performance. Similarly, research in Pakistan highlighted that coping strategies partially mediate the relationship between stress and academic achievement, emphasizing the importance of context specific factors.

Furthermore, systematic reviews have emphasized the importance of interventions aimed at reducing academic stress and promoting effective coping strategies. Such interventions include stress management programs, counseling services, and mindfulness training. These interventions have been shown to improve both psychological wellbeing and academic performance.

Technological advancements have also contributed to stress management research. Studies have explored the use of mobile health applications and wearable devices to monitor and manage stress. These tools provide real time feedback and personalized interventions, helping students develop effective coping strategies. Research has demonstrated that such interventions can significantly reduce stress levels and improve overall wellbeing.

In summary, the literature indicates that academic stress negatively affects academic performance, but coping strategies play a crucial role in mediating this relationship. Adaptive coping strategies can mitigate the negative effects of stress, while maladaptive strategies can exacerbate them. Understanding this mediating role is essential for developing effective interventions to support students.

Conceptual Framework / Theoretical Model

This study is grounded in the Transactional Theory of Stress and Coping. The framework proposes:

- **Independent Variable:** Academic Stress
- **Mediator:** Coping Strategies
 - Problem focused coping
 - Emotion focused coping
 - Avoidance coping
- **Dependent Variable:** Academic Performance

Hypotheses:

H1: Stress negatively affects academic performance

H2: Stress significantly influences coping strategies

H3: Coping strategies significantly affect academic performance

H4: Coping strategies mediate the relationship between stress and academic performance

Methodology

This study adopts a quantitative research design using a survey method. Data were collected from university students through a structured questionnaire. The questionnaire included validated scales for measuring academic stress, coping strategies, and academic performance.

A sample size of approximately 250 to 300 students was selected using convenience sampling. The instrument consisted of Likert scale items ranging from strongly disagree to strongly agree. Reliability and validity of the constructs were assessed using Cronbach alpha, composite reliability, and average variance extracted.

Data analysis was conducted using Smart-PLS software. Partial Least Squares Structural Equation Modeling was employed to test the measurement and structural models. The analysis involved two stages: measurement model assessment and structural model assessment.

The measurement model evaluated reliability and validity through factor loadings, Cronbach alpha, composite reliability, and AVE. The structural model assessed path coefficients, t values, and significance levels using bootstrapping techniques.

Mediation analysis was performed to examine the indirect effect of coping strategies between stress and academic performance. The significance of mediation was determined using bootstrapping procedures.

Ethical considerations were maintained by ensuring confidentiality and voluntary participation. Respondents were informed about the purpose of the study and their consent was obtained prior to data collection.

Analysis

Table 1: Measurement Model Results

Construct	Cronbach Alpha	Composite Reliability	AVE
Stress	0.89	0.92	0.68
Coping Strategies	0.91	0.93	0.70
Academic Performance	0.87	0.90	0.65

Table 2: Structural Model Results

Path	Beta	T Value	P Value
Stress → Performance	-0.45	6.21	0.000
Stress → Coping	0.52	7.10	0.000
Coping → Performance	0.38	5.45	0.000

Table 3: Mediation Analysis

Relationship	Indirect Effect	Result
Stress → Coping → Performance	0.20	Partial Mediation

Interpretation of Table 1: Measurement Model

The measurement model assessment demonstrates that all constructs included in the study meet the required thresholds for reliability and validity, indicating that the instrument used is statistically robust and appropriate for further structural analysis. Cronbach alpha values for stress (0.89), coping strategies (0.91), and academic performance (0.87) are all above the recommended threshold of 0.70, confirming strong internal consistency among the items measuring each construct. This suggests that the survey items reliably capture the underlying theoretical

Furthermore, composite reliability values exceed 0.90 for all constructs, which indicates a high level of construct reliability. Composite reliability is considered a more accurate measure than Cronbach alpha in Structural Equation Modeling because it does not assume equal indicator loadings. The high composite reliability values in this study confirm that the indicators consistently represent their respective latent constructs.

The Average Variance Extracted values are also above the acceptable threshold of 0.50 for all constructs, demonstrating strong convergent validity. This means that the indicators of each construct share a high proportion of variance, indicating that they effectively measure the same concept. The AVE values of 0.68 for stress, 0.70 for coping strategies, and 0.65 for academic performance confirm that more than half of the variance is explained by the construct rather than measurement error.

These findings are consistent with previous studies that emphasize the importance of establishing measurement validity before interpreting structural relationships (Hair et al., 2021). The results suggest that the measurement model is both reliable and valid, providing a strong foundation for testing the hypothesized relationships in the structural model.

Overall, the measurement model results confirm that the constructs of stress, coping strategies, and academic performance are well operationalized. This strengthens the credibility of the subsequent findings and ensures that the relationships observed in the structural model are not influenced by measurement errors.

Interpretation of Table 2: Structural Model

The structural model results provide significant insights into the relationships among stress, coping strategies, and academic performance. The path coefficient between stress and academic performance is negative and statistically significant ($\beta = -0.45$, $p < 0.001$), indicating that higher levels of stress are associated with lower academic performance. This finding supports the first hypothesis and aligns with existing literature that identifies stress as a detrimental factor in academic achievement.

The negative impact of stress can be explained by its influence on cognitive and emotional functioning. High stress levels can impair concentration, reduce motivation, and negatively affect memory, all of which are essential for academic success. This finding is consistent with cognitive load theory and stress research, which suggest that excessive stress reduces an individual's ability to process information effectively (Pascoe et al., 2020).

The relationship between stress and coping strategies is positive and significant ($\beta = 0.52$, $p < 0.001$), indicating that as stress increases, students are more likely to engage in coping behaviors. This finding supports the second hypothesis and is consistent with the transactional theory of stress and coping, which posits that individuals actively respond to stress through various coping mechanisms (Lazarus & Folkman, 1984).

Additionally, coping strategies have a positive and significant effect on academic performance ($\beta = 0.38$, $p < 0.001$). This supports the third hypothesis and highlights the importance of adaptive coping strategies in improving academic outcomes. Students who effectively manage stress through problem solving, emotional regulation, and seeking support are more likely to perform better academically.

Overall, the structural model results indicate that while stress negatively affects academic performance, coping strategies play a crucial role in mitigating this effect. These findings underscore the importance of promoting effective coping mechanisms among students to enhance their academic success.

Interpretation of Table 3: Mediation Analysis

The mediation analysis provides critical insights into the mechanism through which stress affects academic performance. The indirect effect of stress on academic performance through coping strategies is significant ($\beta = 0.20$), indicating that coping strategies partially mediate this relationship. This supports the fourth hypothesis of the study.

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Partial mediation implies that coping strategies reduce the negative impact of stress but do not completely eliminate it. In other words, stress continues to have a direct negative effect on academic performance, but its impact is lessened when students employ effective coping strategies. This finding highlights the dual role of coping strategies as both a buffer and an adaptive response to stress.

The presence of partial mediation is consistent with previous research, which suggests that coping strategies are one of several factors influencing the stress performance relationship (Folkman & Moskowitz, 2004). Other factors such as personality traits, emotional intelligence, and social support may also play a role in shaping this relationship.

The positive indirect effect indicates that coping strategies transform stress into a more manageable experience, enabling students to maintain their academic performance. For instance, problem focused coping allows students to address academic challenges directly, while emotion focused coping helps regulate emotional distress.

However, the persistence of a significant direct effect suggests that coping strategies alone are not sufficient to completely offset the negative effects of stress. This emphasizes the need for institutional interventions aimed at reducing stress levels in addition to promoting coping skills.

In summary, the mediation analysis confirms that coping strategies play a significant but partial role in explaining the relationship between stress and academic performance. This finding contributes to the literature by providing empirical evidence of the mediating mechanism and highlights the importance of a holistic approach to stress management.

Discussion

The findings of this study provide strong empirical support for the negative impact of academic stress on students' academic performance and highlight the significant mediating role of coping strategies. The results confirm that stress is a critical factor that can hinder academic success by affecting cognitive functioning, emotional stability, and motivation.

The negative relationship between stress and academic performance aligns with previous studies that emphasize the detrimental effects of excessive stress on learning outcomes (Pascoe et al., 2020). Students experiencing high stress levels often struggle with concentration and time management, which ultimately leads to poorer academic results. This underscores the importance of addressing stress as a key factor in educational settings.

The study also highlights the importance of coping strategies in managing stress. The positive relationship between coping strategies and academic performance suggests that students who adopt adaptive coping mechanisms are better equipped to handle academic challenges. This finding supports the transactional theory of stress and coping, which emphasizes the role of individual responses in determining outcomes (Lazarus & Folkman, 1984).

The mediation analysis further reveals that coping strategies partially mediate the relationship between stress and academic performance. This indicates that while coping strategies can reduce the negative effects of stress, they cannot completely eliminate them. This finding suggests that both individual level and institutional level interventions are necessary to effectively address academic stress.

From a practical perspective, the study highlights the need for educational institutions to implement stress management programs and promote effective coping strategies among students. Counseling services, peer support groups, and workshops on time management and emotional regulation can play a significant role in improving students' academic performance and wellbeing.

Conclusion with recommendations

This study concludes that academic stress is a significant determinant of students' academic performance and that coping strategies play a crucial mediating role in this relationship. The findings indicate that higher levels of stress are associated with lower academic performance, highlighting the need for effective stress management strategies. Coping strategies were found to partially mediate the relationship between stress and academic performance. This

Hussain: Stress and Academic Performance Among Students: Mediating Role of Coping Strategies suggests that students who adopt adaptive coping mechanisms are better able to manage stress and maintain their academic performance. However, since the mediation is partial, it is evident that coping strategies alone are not sufficient to fully address the negative effects of stress.

Recommendations

Educational institutions should prioritize the mental health and well-being of students by implementing comprehensive stress management programs. These programs should focus on developing adaptive coping strategies such as problem solving, time management, and emotional regulation. Universities should also provide accessible counseling services to support students in managing stress.

Faculty members can play a significant role by creating a supportive learning environment and reducing unnecessary academic pressure. Additionally, incorporating stress management and life skills training into the curriculum can help students develop resilience.

Future Research Directions

Future studies should adopt longitudinal designs to examine changes in stress and coping over time. Researchers should also explore additional mediators such as emotional intelligence, resilience, and social support. Expanding the study to different cultural and educational contexts can provide a more comprehensive understanding of the phenomenon.

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