

Relationship between Stressors and Students' Academic Achievements with mediation of coping strategies: A Survey of Gomal University, Khyber PakhtunKhwa, Pakistan

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ABSTRACT

Introduction: Students often face various stressors during their academic journey, which can hinder their ability to perform well in school. Exploring the role of coping strategies helps uncover how students manage these challenges and maintain or improve their academic success. The theoretical foundation of this study is based on Transactional Model of Stress and Coping (1984) proposed by Richard Lazarus and Susan Folkman. **Methodology:** The model conceptualizes stress as a dynamic interaction between the individual and the environment, where cognitive appraisal determines whether a situation is perceived as threatening or manageable. It further highlights problem-focused and emotion-focused coping strategies as central mechanisms influencing psychological and academic outcomes. **Results:** The current study focuses on the relationship between stressors and academic achievement of students with the mediating of coping strategies. Students of Gomal University Dera Ismail Khan (D.I.K) were participated in the study. Quantitative method was employed. A sample of 389 students was selected through stratified sampling method. A self-developed questionnaire was distributed among the students for data collection. Regression techniques and Hayes (2015) process macro was used for mediation analysis. **Conclusion:** The study found that coping strategies partially mediate the negative relationship between stressors and students' academic achievement, with high stress leading to lower grades. It recommends that students adopt effective coping methods, and that HEIs organize awareness programs to support stress management. It is recommended that HEIs may arrange workshops and seminars regarding awareness about stressors and how to cope with such stressors.

Keywords: Stressors, Academic achievement, coping strategies

INTRODUCTION

The term 'stress' refers to some physical, mental and emotional strains on an individual which produced due to reaction of some situation that a person feels threatened (Peerzada, 2024). Now a days, every person encounters stress. Some stress is beneficial and assist to drive towards the achievement is called 'eustress' whereas some stress are negatively effect on the individual mental, physical and emotional part (Varasteniya & Ojinejad, 2022). Research evidence indicates that students are also experience stress

during their academic period. There are many factors related to students' stress including financial, health, peer relationship, related departments, personal or family and environmental (Lei *et al.*, 2022). Research Studies indicates that a stressful condition of the students leads to mental, physical and emotional disturbance which ultimately influence of their academic performance. Low self-esteem, mental health issues, frustration and Polyphagia issues developed due to constant stress which ultimately influences the performance of the students (Khan, 2023). Sometime stress can also enhance the performance of students and one the reasons for this could be approach of the students to coping with stress (Iqbal *et al.*, 2020). In higher Education Institutions such as university where the burden placed on students' shoulder due to limited time, semester system, assignments, tests and examination. Continuous stress among students develops loss of energy, elevated blood pressure, cause depression and nervousness (Khan, 2023). research studies indicates that there are different coping strategies used by the students in higher education institutions to decrease the level of stress including problem-focused coping strategies, goal-coping strategies and problem- avoiding strategies. So, the present research paper was examined the mediating role of coping strategies in the association of stressors with students' academic achievement.

Objectives of the study

1. To find out the association between stressors and academic achievements of learners.
2. To investigate the most dominant stressors which affect the students' academic score.
3. To find out the mediating role of coping strategies in the association of stressors with students' academic score

Significance of the Study

There are very limited researches have been conducted regarding association between stressors and students' academic score with mediating role of coping strategies. Therefore, this study is helpful for stress students are developed or improve coping strategies will able to resolve their problems. Through this study, students are able to understand and identify the nature of the stress. Moreover, the current study also helpful for students to identify type of stressors and guide students to manage their stress.

LITERATURE REVIEW

According to Jiang *et al.*, (2023) usually stress arises when expectation exceeds than available resources to students which they adapts and then such stress negatively affects the students' academic achievement. According to Hammoudi Halat *et al.*, (2022) students experience different type of stress specifically in higher education institutions which categorized into individual stress, group stress, organizational and environmental stress. So, there are many empirical research studies have been established results that stress has influence on the learners' education life. It often declines the students' academic progress or abandonment of studies or negative consequences (Iqbal *et al.*, 2020). A meta-analysis was conducted by Hancock *et al.*, (2007) which examined 562 research studies and found positive association between stress and performance of learners ($r=-.18$). Another meta-analysis was conducted by McCarthy and Goffin (2005) and found that stress has negative association with

performance of students ($r=-.23$). Such results infer that stress arises among students then academic achievement decreases ([Genc, 2017](#)).

Academician agreed that stress is part of students' life and its influence on the students' studies and students' coping strategies is helpful to improve their academic life ([Freiberg-Halimi et al., 2023](#)). Experiences of students indicates that high academic stress produced due to limited time, class competition, peer relationship, covering huge syllabus and policies of universities ([Aldwin, 2021](#)). A study conducted by [Kulal and Rahiman \(2023\)](#) and concluded that academic stress is one of the prime factors which affect their performance at university. Students confront different kinds of stress including environmental stress, peer relationship stress, social behavior and adjustment in university environmental and personal stress. [Almarri et al. \(2022\)](#) further added that high expectations of parents, lengthy curriculum, physical environment, unhealthy student-teacher interaction, teachers' attitude, hard and fast rules of university.

Relationship Between Stressors and Students' Academic Achievement: Contradictory Findings

Prior literature presents mixed evidence regarding the relationship between stressors and students' academic achievement. Some studies suggest that moderate or manageable stress can enhance motivation and performance. [Yerkes and Dodson \(1908\)](#), through the Yerkes–Dodson law, proposed that optimal levels of arousal (stress) improve performance, whereas very low or very high levels impair it. Similarly, [Struthers, Perry and Menec \(2000\)](#) found that academic stress can positively predict achievement when mediated by adaptive coping strategies such as problem-focused coping. Conversely, several studies report a negative association between stress and academic performance. [Akgun and Ciarrochi \(2003\)](#) identified a significant negative relationship between academic stress and students' GPA. Likewise, [Pascoe, Hetrick and Parker \(2020\)](#) concluded in their review that excessive academic stress is associated with poorer academic outcomes and psychological well-being. These contradictory findings indicate that coping strategies may mediate the stress–achievement relationship, determining whether stress becomes facilitative or debilitating.

Association between Stressors and academic achievement with Mediating of Coping Strategies:

Academic Stressors refers a mental distress about some anticipated frustration link with failure in academic career. There are some kinds of stressors which associated with students' academic such as Environmental, individual and group stressors. Such stressors are usually faced by the students in the academic institutions which cause mental distress and ultimately influence on their learning ([Abedi et al., 2023](#)). There is common conception that stress has negative association with academic score of the students. In other words, if stress rises, the students' performance in exam declines. Many mediators involve in reducing the stress level in students particularly in tertiary education ([Menzies et al., 2023](#)). Transactional theory of stress founded by Lazarus and Folkman provided a special attention to contribution of coping strategies which lead to a change an event in individual favor comprehensively. Individual used different kinds coping strategies to handle the stressors such as Problem-focused coping strategies, emotion-focused strategies, avoiding strategies and social gathering strategies ([Pinto, 2024](#)). In Problem focus strategies, one's prime emphasis on the problem being caused distress and handle such problem accordingly. Emotion-based coping strategies regulates the one's emotions, uphold the hope and refuse accept the worst. Avoiding strategies refers to one's cognitive and behavioral avoidance and rejects the existence of the problem ([Shah et al., 2022](#)). Results of different studies suggest coping

strategies play vital role in declining the stress among students. Students who use coping strategies to handle problem reduces their stress level and secured high marks. Emotion-focused coping is one of the most is significantly mediator in the association between stress and learners' academic performance ([Genc, 2017](#)).

While several studies have established a negative relationship between academic stressors and students' academic performance, the mediating role of coping strategies remains insufficiently explored across diverse cultural and educational contexts. Most existing research tends to focus on direct relationships, often overlooking how different coping mechanisms—problem-focused, emotion-focused, or avoidant—may influence this dynamic ([Lee, Jeong & Kim, 2021](#)). Furthermore, much of the empirical work has been conducted in Western or high-income contexts, limiting the generalizability of findings to under-resourced settings such as public universities in South Asia ([Soomro, Bhutto & Shah, 2022](#)). Additionally, although COVID-19 amplified academic stress globally, few post-pandemic studies have examined long-term impacts on student performance and how coping strategies evolve over time ([Ibrahim & Mahmud, 2023](#)). This highlights a critical need for context-specific, longitudinal, and mediation-focused studies that can unpack how students' coping strategies mitigate stress and influence academic outcomes, especially in developing countries.

Conceptual Model of the Study

According to [Anfara and Mertz, \(2022\)](#) conceptual framework explains the association between the prime constructs, ideas or research variables in a logical manners to provide the visual angle in statistical perspective. A study conducted by found significant association between stress and students' academic achievement. Moreover, [Abdullah et al., \(2023\)](#) found that coping strategies partially mediates in the association between academic stress and academic score. The conceptual framework proposes that organizational stress, including academic workload, role conflict, time pressure, and institutional demands, influences students' cognitive appraisal of stressful situations, particularly their perception of threat and control. Based on this appraisal, students adopt different coping strategies such as problem-focused, emotion-focused, or avoidance coping, which function as mediating mechanisms in the stress–achievement relationship. The effectiveness of these coping strategies determines whether stress produces adaptive or maladaptive outcomes, ultimately influencing students' academic achievement in terms of GPA, test performance, task completion, and overall engagement. On the above results of different empirical studies, following research hypotheses were generated:

H₀₁: Stressors has significant impact on students' academic achievement.

H₀₂: Different kinds of Stressors has significant impact on students' academic achievement.

H₀₃: Coping strategies play significant role in the association of stressors with students' academic score.

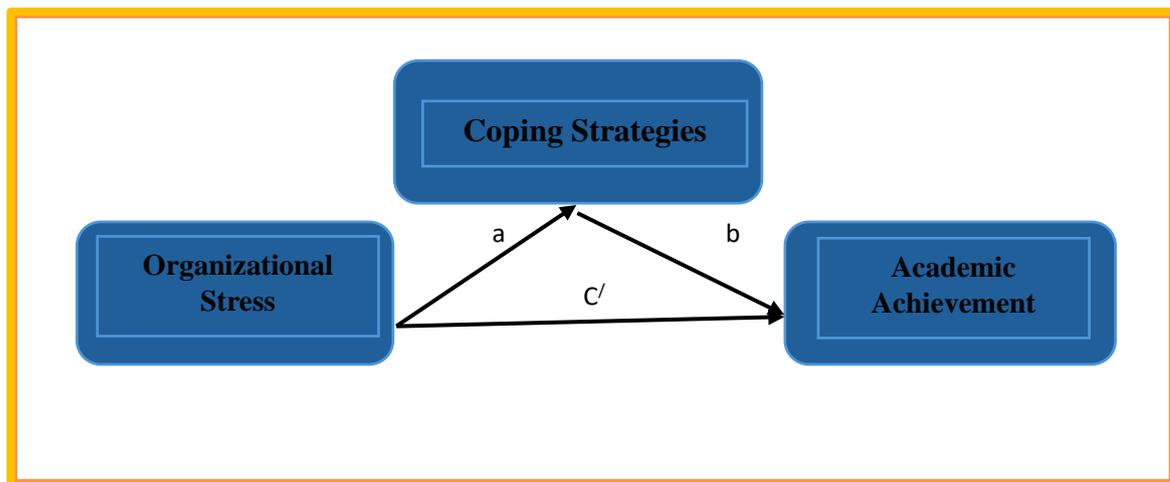


Figure: Research Model

METHODOLOGY

The current study was quantitative research approach in nature and therefore survey research design was applied. There are 13851 (7621 male and 6230 female) students are enrolled in Gomal University, Dera Ismail Khan (D.I.Khan). A sample of 389 (214 male and 175 female) students was taken in the study through stratified sample technique. Within each gender-based stratum, participants were selected using simple random sampling. Student enrollment records provided by university administration were used to develop sampling frames for each stratum. A random number generator was then employed to select individual participants from these frames. This two-stage process ensured that each subgroup was adequately represented, thereby improving the precision and generalizability of the study's findings. Sample size was calculated by using [Yamane \(1967\)](#) formula. A self-developed questionnaire was used for the purpose of data gathering. The questionnaire was developed through an extensive review of relevant literature and existing scales, with items either adapted or created to align with the study's objectives on academic stressors and coping strategies. Four types of stressors contained in the research tool including individual stressors (6 items), group stressors (5 items), organizational stressors (8 items) and environmental stressors (5 items) whereas coping strategies contained 14 items. The questionnaire was developed after a comprehensive review of established instruments such as the Student-life Stress Inventory and the Ways of Coping Questionnaire, along with recent empirical studies on academic stress and coping. Items were adapted to reflect the local educational context, while several were newly constructed to capture specific individual, group, organizational, and environmental stressors relevant to students. Validation of the questionnaire was done through Index-Objective-Congruence (IOC) while reliability of instrument was calculated through Cronbach's Alpha. Experts in social sciences validated the questionnaire. Ethical approval was obtained from the university's research ethics committee, and informed consent was secured from all participants prior to data collection. For this purpose, researcher collected consent from the Head of the department regarding data collection. Table-1 indicates that the estimated the sample size, score of IOC and reliability score.

RESULTS

Research Variables	IOC (including low and high values)	Sample Size (n)	Cronbach's Alpha
Individual Stressor	0.7-0.9	$n = \frac{N}{1 + Ne^2} = \frac{13851}{1 + 13851(0.5)^2} = 389$.873
Group Stressor	0.8-1.0		.786
Organizational Stressor	0.6-1.0		.865
Environmental Stress	0.5-0.9		.923
Coping Strategies	0.5-0.8		.806

Table 1 Sample Size, IOC and Cronbach's Alpha Score

The IOC values ranging from 0.5 to 1.0 indicate acceptable to excellent content validity, confirming that the items were well aligned with their respective constructs. The Cronbach's alpha coefficients demonstrate strong internal consistency across all variables, with environmental stress showing the highest reliability ($\alpha = .923$), followed by individual stressors ($\alpha = .873$) and organizational stressors ($\alpha = .865$). The high reliability of environmental stress suggests that these stressors are consistently experienced and clearly perceived among respondents. Environmental factors such as inadequate facilities, classroom conditions, resource limitations, and broader socio-economic pressures are often beyond students' personal control, making them more persistent and impactful compared to individual or group stressors. The sample size of 389, calculated using Yamane's formula, ensures adequate representation of the total population ($N = 13,851$), thereby strengthening the credibility and generalizability of the findings. Regarding coping strategies ($\alpha = .806$), the results suggest that adaptive coping mechanisms play a crucial mediating role in reducing the negative effects of stress on academic achievement. Problem-focused coping strategies, including effective time management, seeking academic guidance, and task prioritization, appear to be the most effective in improving performance outcomes because they directly address the source of stress. Emotion-focused coping strategies, such as positive thinking and emotional regulation, may help manage psychological strain but have a more indirect influence on academic results. In contrast, avoidance-based strategies are generally less effective and may intensify stress over time. Overall, the findings highlight that while environmental stressors exert a strong influence on students' academic performance, the type and effectiveness of coping strategies significantly determine whether stress leads to diminished or sustained achievement.

Research Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stressors	.035	388	.200*	.991	388	.543
Academic Achievement	.039	388	.200*	.990	388	.504
Coping Strategies	.036	388	.200*	.993	388	.818

Table 2: Data Normality Tests

Table 2 shows the Kolmogorov-Smirnov (K-S) and Shapiro Wilk (S-W) test was applied to determine that a sample is come from particular distribution and both test are used to test the normality of data set. The above table reported that value of K-S ($p=.200>.05$) and S-W ($p=.543>.05$) for stressors, K-S ($p=.200>.05$) and S-W ($p=.504>.05$) for academic achievement and K-S ($p=.200>.05$) and S-W ($p=.818>.05$) for coping strategies. Thus, it is concluded that data found normally distributed for all research variable.

<i>IV</i>	<i>R</i>	<i>R²</i>	<i>Adjusted-R²</i>	<i>F</i>	<i>B</i>	<i>Sig.</i>	<i>Durban-Watson</i>
Stressors	.682 ^a	.466	.464	287.54	-.846	.000	1.70

Table 3: H01: Stressor has no significant impact on students’ academic achievement.

Dependent: Academic Achievement

Table-3 reveals regression output regarding impact of stressors on the academic achievement of students. The table shows that $R^2 = .466$ which depicts that 46% change occur in academic achievement due to stressors. Moreover, the table indicates that value of $F=287.54$ which provide strong evidence against the rejection of null hypothesis. The value of $p=.000<.05$ which shows that null hypothesis is hereby rejected. The value of negative beta (-.846) indicates that a single unit increase in independent variable (stressor) then .486 unit decrease in the dependent variable (academic achievement). The score of Durban Watson (1.70) shows no autocorrelation was found between the variables.

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<i>IVs</i>	<i>R</i>	<i>R²</i>	<i>Adjusted-R²</i>	<i>F</i>	<i>B</i>	<i>VIF</i>	<i>Tolerance</i>
Individual Stressor	.777 ^a	.603	.598	124.14	-.733	.583	1.714
Group Stressor					-.659	.436	2.293
Organizational Stressor					-.780	.423	2.366
Environmental Stressor					-.896	.691	1.446

Table 4: H02: Different kinds Stressors has no significant impact on students’ academic achievement

Dependent: Academic Achievement

Table-4 shows the regression outcome regarding impact of different kinds of stressors on the students’ academic achievement. The table shows that $R^2 = .603$ which depicts that 60% change occur in academic achievement due to stressors (individual, group, organizational and environmental stressors). Moreover, the table indicates that value of $F=124.14$ which provide strong evidence against the rejection of null hypothesis. The value of $p=.000<.05$ which shows that null hypothesis is hereby rejected. Different value of negative beta value (-.733) for individual stressor, -.659 for group stressor, -.780 for organizational stressor and -.896 for environmental stressor generate some degree of contribution in variable (academic achievement). The table also shows that all the values of VIF and tolerance falls in acceptable range, so there is no muticollinearity issue among the variables.

Steps	β	p
Step-1 Association between Stressor & Academic Achievement	-.622	.000
Step-2 Association between Stressor and Coping Strategies	.846	.000
Step-3 & 4 Mediation of coping strategies in relationship between stressor and academic score	.852	.000

Table 5: H_{03} : Relationship between stressors and students' academic achievement with mediating role of coping strategies

Table-5 indicates association between stressors and students' academic achievement by taking coping strategies as mediating variable. The table illustrates the Baron and Kenny (1986) four step model. The table reveals that association between stressor and academic achievement is found significant ($\beta = -.622$, $p = .000$) which satisfied the first condition. In the 2nd step, it is found that significant association between stressor and coping strategies. ($\beta = -.846$, $p = .000$) which shows that coping strategies decrease the stress level in students. The third and fourth step indicates that coping strategies partially mediates in association between stressor and students' academic achievement ($\beta = .853$, $p = .000$).

DISCUSSION

The present study primarily examined the relationship between stressors and students' academic achievement, with a particular focus on the mediating role of coping strategies. The findings revealed a significant negative impact of stressors on students' academic scores, indicating that heightened stress—whether individual, group-based, organizational, or environmental—can impair students' academic performance. This result is consistent with the work of [Pascoe, Hetrick and Parker \(2020\)](#), who emphasized that excessive academic stress reduces concentration, weakens learning efficiency, and negatively affects mental health, ultimately lowering academic outcomes. Importantly, the present study found that coping strategies partially mediate the relationship between stressors and academic achievement. This suggests that although stress has a detrimental effect, students who employ adaptive coping mechanisms—such as problem-solving, time management, and seeking academic or social support—are better able to buffer its negative consequences. This finding aligns with [Genç \(2017\)](#), who reported that effective coping reduces psychological strain and improves academic functioning. From a cultural and contextual perspective, these findings are particularly relevant to the setting of Gomal University, where students may experience distinct pressures linked to limited institutional resources, financial constraints, transportation challenges, and strong familial and societal expectations. In many South Asian contexts, including South Asia, academic success is closely tied to family honor and future economic mobility, which can intensify stress levels. Compared to studies conducted in Western settings, research from countries such as Pakistan and India similarly reports high levels of academic and environmental stress among university students, often linked to competitive examination systems and limited employment opportunities. The partial rather than full mediation found in this study may be explained by structural stressors—such as overcrowded classrooms or inadequate facilities—that coping strategies alone cannot fully resolve. While individual resilience helps students manage psychological distress, systemic and institutional reforms are necessary to reduce the root causes of stress. Therefore,

the findings underscore the combined importance of personal coping capacity and contextual support systems in improving academic achievement within developing country university environments.

Limitations

Despite the valuable insights gained from this research, several limitations must be acknowledged to allow for a balanced interpretation of the findings. First, the study was conducted within a single institution limiting the generalizability of the results to broader student populations in other regions or educational contexts. The cultural, institutional, and socio-economic factors specific to this setting may not reflect those of other universities. In Pakistan, factors such as hierarchical teacher-student relationships, exam-oriented learning, and limited access to educational resources can shape student experiences differently than in other contexts. Additionally, regional variations in language, socio-economic status, and cultural attitudes toward education may influence responses. Therefore, the findings may not fully generalize to institutions with differing educational practices or more resource-rich environments.

CONCLUSION

The key objective of the study was to examine the role of coping strategies in the association of stressors with students' academic score. The study concluded that coping strategies partially mediates in the association between stressors and students' academic performance. Students secured low grades due stress environment in the institutions. In other words, negative association between stressors and students' academic achievement. High stress causes low grades. The current study concluded that when students using different strategies to cope with different kind of stressors then students perform better in their academics.

Recommendations of the study

The present study recommended that students may use different coping strategies to reduce their stress level. For this purpose, HEIs may arrange workshops and seminars regarding awareness about stressors and knowledge about coping strategies to deal with such stressors.

Research Implications

The current research has theoretical and practical implications as well. The results of the current study contribute in the existing literature in perspective of role of coping strategy as mediator in the association between stressors and learners' academic performance. Moreover, administrative bodies, faculty members of the Gomal University can provide psychological counseling services for students who have high level of stress.

FUTURE SCOPE

Future studies could adopt a longitudinal design to examine how stress and coping strategies evolve over time. Expanding the sample across multiple universities would enhance the generalizability of findings. Further research should also explore the effectiveness of specific coping strategies in diverse academic and cultural settings.

Conflict of Interest

The author declares no conflict of interest regarding the publication of this study.

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