

ANALYSIS OF CAUSES OF ACADEMIC STRESS AMONG HIGHER SECONDARY SCHOOL STUDENTS: EVIDENCE FROM KARACHI

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ABSTRACT

This quantitative study investigates the factors causing stress among higher secondary school students under the Board of Intermediate Education, Karachi. A questionnaire based on Likert's five-point scale, ranging from strongly disagree to strongly agree, was administered to grades XI and XII students across six districts of Karachi for data collection via convenience sampling. Based on the literature review, the questionnaire addressed various factors that contribute to student stress, including environmental, academic, relationship, and personal stressors. The higher the scoring for each factor towards strongly agree, the higher is the degree of stress produced by it. The results identified that the major causes of stress concerning each factor is such that Environmental factors had the highest impact on students particularly the fear of meeting parents' expectations (79%), lack of time to plan or get engaged in de-stressing activities (77%) and peer distraction (73%). Academic factors were found to be the second most significant stressors including fear to fail in unannounced tests (75%), unclear content delivery and ambiguous assessment tasks (70%). Relationship challenges, such as the interaction and working with strict or biased teachers (80%), and personal struggles like balancing academics and social activities (78%), were also significant. The study concludes that institutions should prioritize awareness of these stressors and implement targeted interventions, such as stress-relief programs and transparent academic guidelines, to facilitate students' coping with stress. Replicating this research across other examination boards could enhance generalizability to broader student populations.

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INTRODUCTION

Background of the Study

Stress represents an inevitable psychological and physiological response to challenges, particularly acute among students navigating the critical transition from secondary school to higher secondary school systems. In Karachi, Pakistan, students under the Board of Intermediate Education face compounded pressures from rigorous curricula, heightened parental expectations, and intense peer competition. This study investigates the multifaceted stressors affecting students' academic performances in grades XI and XII, examining four key domains: Academic, Environmental, Relationship, and Personal factors.

The concept of stress, defined as the body's integrated response to perceived challenges, manifests through concerning patterns of anxiety, depression, and physical health deterioration among students. Research indicates these effects are exacerbated by academic overload, unrealistic expectations, and chronic time constraints. The typical student experience characterized by back-to-back classes, relentless exams, and overwhelming assignments, creates a perfect storm for chronic stress that undermines sleep quality, nutritional habits, and academic performance. Through systematic identification and analysis of these stress factors, the

study aims to provide actionable insights for educational institutions to develop targeted support systems. While the research focuses specifically on Karachi's student population, acknowledging certain geographical and logistical constraints, its findings hold relevance for similar educational contexts facing the growing challenge of student stress management.

Statement of the Problem

Academic stress is the top-reported barrier to student success, linked to headaches, fatigue, and suicidal ideation. U.S. data show a 58% rise in campus stress-related issues, mirroring global trends. Hence, this study addresses:

1. Students' lived experiences of stress.
2. Stress's academic impact (Likert scale: 1–5).
3. The need for institutional stress-management programs.

Research Objectives

To analyse

Causes of stress (academic, environmental, relationship, personal).

Stress's impact on board exam performance.

Coping strategies for students and institutions.

Research Questions

1. Which stress domain (academic/ environmental/ personal/ relationship) most significantly influences higher secondary school students in Karachi?
2. How does self-reported study load intensity predict daily stress levels among higher secondary school students?
3. Is there a significant negative correlation between perceived stress levels and board examination performance in core subjects?

Significance of the Study

Findings will guide higher secondary schools in implementing stress-relief initiatives (e.g., time-management workshops, counselling) to improve student well-being and academic outcomes.

Scope and Limitations

- **Scope:** The study includes higher secondary school students of Grades XI–XII in Karachi.
- **Limitations:** Convenience sampling limits generalizability (non-representative); time/resource constraints.

Delimitations

- Focus restricted to Karachi Board-affiliated (BIEK) higher secondary schools.
- Stressors are measurable via Likert-scale questionnaires

LITERATURE REVIEW

Theoretical Framework and Academic Stress

Stress in academic environments is best understood through the transactional model, which describes stress as a dynamic interaction between an individual and their environment. This model is particularly applicable in higher education, where students must balance internal expectations with external demands such as academic workload, peer interactions, and institutional structures.

Sources and Manifestations of Stressors

Academic stress is multifaceted, often stemming from both curriculum-related pressures and psychosocial challenges. A 2013 study identified academic workload and insufficient social support as dominant stressors influencing performance among medical students in Pakistan, a finding generalizable to other disciplines. The Academic Stress Inventory expanded this understanding by highlighting additional sources such as teacher expectations, group dynamics, and peer competition.

Student stress extends beyond academic pressures, with environmental, relationship, and personal factors playing significant roles. While positive teacher-student relationships enhance school belonging and academic performance, negative interactions such as family conflicts, peer disputes, or strict teacher dynamics undermine focus and exacerbate stress. Financial instability, career uncertainty, and social pressures further compound these challenges, as does the struggle to balance academic and social demands. Unaddressed stress often manifests behaviourally and emotionally through insomnia, irritability, and diminished concentration, ultimately jeopardizing academic engagement.

Stress and Academic Performance

Research consistently links elevated stress levels with poor academic performance. A longitudinal study of medical students found that stress directly impairs grade point average (GPA) through reduced cognitive functioning and motivation. Stress-related disruptions, including impaired concentration and emotional exhaustion, detract from effective learning. Furthermore, socio-economic status (SES) and family stress are significant determinants of academic success, with lower SES associated with fewer academic resources and guidance. Other studies emphasize the role of institutional support systems. Research has demonstrated that access to

libraries, learning facilities, and academic counselling improves student resilience and performance. Similarly, research highlights the moderating role of cultural context, noting that Western institutions often provide stronger support systems compared to high-pressure environments in Asia.

Cultural and Contextual Considerations

Cultural expectations fundamentally shape stress responses, with striking differences between collectivist and individualist educational systems. Where collectivist cultures (e.g., China) exhibit stress intensification through familial pressures, particularly parental expectations, Western contexts demonstrate greater institutional buffering through structured support systems. This dichotomy between family-centric and institution-mediated stress modulation highlights the imperative for culture-specific intervention frameworks.

Educational Theories Informing Stress Interventions

Educational theories provide distinct yet complementary frameworks for addressing academic stress. Walberg's Educational Productivity Theory identifies aptitude, instructional quality, and learning environment as key determinants of both stress and learning outcomes. Complementing this perspective, Social Cognitive Theory emphasizes self-regulation and external reinforcement as critical stress buffers, offering a more individualized approach to stress management. This review illustrates that stress among students arises from a confluence of academic (e.g., workload, evaluations), psychosocial factors (e.g., peer/family conflicts, financial instability), and institutional environments (e.g., teacher-student dynamics, resource access), with significant impacts on their academic performance. Tailored interventions such as workload management, mentorship programs, and stress literacy must be embedded in educational policy to support student well-being and success.

METHODOLOGY

Research Design

It is a cross-sectional quantitative study, which was undertaken using a self-administered questionnaire to understand the factors that create stress among higher secondary school students of the Board of Intermediate Education, Karachi. The internet was accessed to obtain and validate information alongside retrieving thesis, journals and books that focused on

the impacts of stress on students' academic performances for in-depth literature review. The questionnaire comprised of closed ended statements for the students to strongly agree or disagree on five-point Likert scale based on their lived experiences. The questionnaire helped in capturing the type of stressors that majorly influences students' academic performances out of the four selected: academic, relationship, environmental and personal factors. For each factor, higher scoring towards strongly agree indicated the higher degree of stress caused by it.

Participants

- *Population:* For this study, the number of participants was expected to be 150 that included both male and female students of Grades XI–XII, belonging to government or private higher secondary schools under the Board of Intermediate Education, Karachi. An independent variable of the study is the stress among students, which was measured through four factors including academic, relationship, environmental and personal factors. Academic performance, health and general lifestyle of students are affected by stress as shown in literature; therefore, these were regarded as the dependent variables.

- *Sampling:* Convenience sampling across six districts was undertaken. This technique ensured a homogenous sample including all higher secondary school students, majorly unmarried, taking exams with Karachi Board and belonging to the same context and culture of Karachi. The common variables that made the sample heterogeneous comprised of both genders (male and female), falling under the age bracket of 16 to 19 years.

Research Instrument

A 44-item Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree) was employed in this research. These items evaluated the four main domains:

1. Academic Factors (11 items: e.g., unannounced tests, unclear content).
2. Relationship Factors (11 items: e.g., strict teachers, peer rivalry).
3. Environmental Factors (11 items: e.g., parental expectations, time constraints).
4. Personal Factors (11 items: e.g., sleep deprivation, financial anxiety).

Validity and Reliability of Instrument

The research instrument adapted approximately 60% of items from an established academic stress

questionnaire. Their study adapted its instrument from a validated academic stress tool, selecting 21 items from the Academic Stress Inventory Questionnaire (ASIQ) that demonstrated established reliability and validity. These items were modified to specifically evaluate stressor impacts on management science students' academic performance. Reliability was assessed using Cronbach's alpha, with values ranging from 0.85 to 0.92 across scales. The academic stress questionnaire showed excellent internal consistency ($\alpha = 0.90$), exceeding established reliability thresholds [6]. Inter-factor relationships were analysed through correlation analysis. Six items measuring time management and financial stressors were adapted from a validated university stress scale, a tool that has also demonstrated reliability and validity in evaluating stress and its effects on university students' academic performance. Furthermore, previously published reports and questionnaires by other researchers on the topic were also reviewed and considered. These sources provided valuable insights and contributed to strengthening the study by offering relevant information and perspectives. Hence, remaining questions were self-developed to align with the local educational context based on literature review.

Data Collection & Analysis

The questionnaire was developed using google form and its link was shared through WhatsApp, Email and Facebook. Anonymized responses were collected from all six districts. The collection of the primary data was laborious activity that required many resources such as human and time. The secondary data was collected through internet, books, related thesis as well as published journals. The respondents were asked to read the questionnaire carefully and select an appropriate category matching their preferred opinions in Likert's five-point scale. The data collected through the questionnaire was then analysed using descriptive and inferential statistical techniques.

Ethical Considerations

Ethical approval was obtained prior to data collection, with all participants providing informed consent. The study ensured complete anonymity through non-collection of identifying information and secure data aggregation, as promised in the questionnaire.

RESULTS

Demographic Profile

The sample size was 150 out of which 134 respondents filled the questionnaire; thus, the response rate was 89.3%. Data was collected from six different districts of Karachi, the representation from each district is as shown in in figure 1.

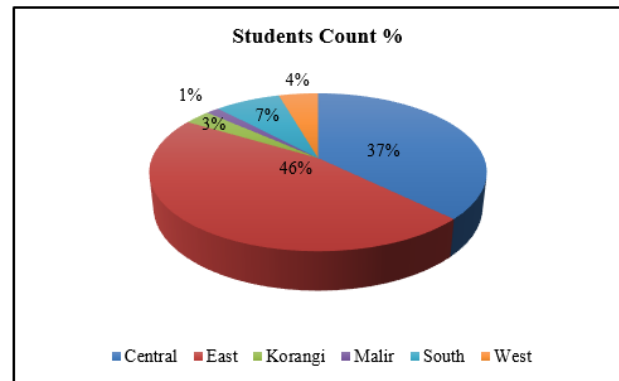


Figure 1: District Wise Response

- East and Central districts contributed the majority (83%) of the student sample, providing more robust insights from these areas.
- In West and Malir, only females responded, while Korangi had equal gender representation, but low numbers across these districts limit meaningful statistical comparisons.

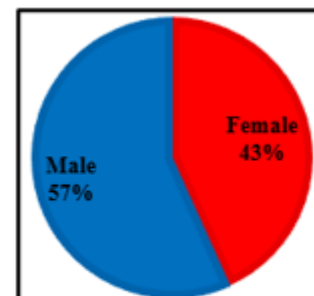


Figure 2: Gender (n=134)

As the first section of the questionnaire focuses on personal information of the respondents, the pie chart in figure 2, depicts the gender of 134 students who participated in the survey. Normally, it is a perception that females take active participation in filling out survey forms, but here the outcome was different as males had dominance over females. This slightly skewed gender distribution towards males (57%) may slightly affect gender-based generalizability.

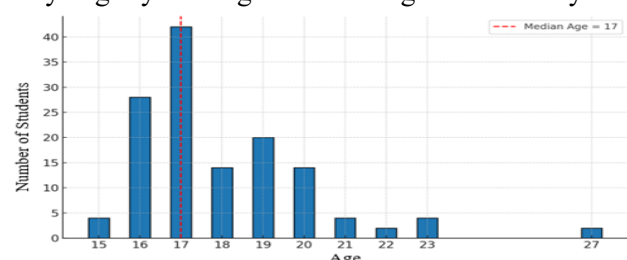


Figure 3: Age Distribution of Survey Participants (n=134)

Figure 3 presents the age distribution of students who participated in the survey. Ages range from 15 to 27 years, with a clear concentration between 16 and 19 years. The highest frequency occurs at 17 years, after which participation declines steadily. The distribution is right-skewed, with a small number of older participants extending the range. The median age of respondents is 17 years.

Figure 4 shows the distribution of respondents by their current grade level. Out of 134 participants, 62% were enrolled in Grade XII (second year), while 38% were in Grade XI (first year). The predominance of Grade XII respondents suggests greater engagement or availability among students in their final year of higher secondary education, which may influence the perspectives and stress factors reflected in the survey results.

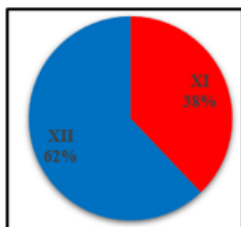


Figure 4: Distribution of survey respondents by grade level (n=134)

Stress Factors

The analysis categorized stress into four main factors: Academic, Relationship, Environmental, and Personal. Each factor's impact was measured using the mean score on a 5-point Likert scale and then converted to a percentage for clearer interpretation.

Stats	Academic Factors	Relationship Factors	Environmental Factors	Personal Factors
Mean	3.31	3.26	3.45	3.22
Mean %	66%	65%	69%	64%
SD	1.21	1.34	1.30	1.34
SD %	24%	27%	26%	27%
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00
Reliability	0.80	0.79	0.69	0.73

Table 1: Statistical Analysis of Stressors

According to table 1, the questionnaire demonstrated good overall internal consistency, with a Cronbach's alpha of 0.78 for the entire scale. Subscale reliabilities ranged from 0.69 to 0.80, indicating acceptable to good internal consistency across all four factors. Academic Factors and Relationship Factors exhibited the highest reliability, both nearing 0.80, suggesting that items within these domains were highly consistent in measuring their intended constructs. Personal Factors showed acceptable reliability ($\alpha = 0.73$), while Environmental Factors recorded the lowest alpha value

($\alpha = 0.69$), though still meeting the minimum threshold for exploratory research. These results collectively support the reliability of the instrument in capturing consistent responses across items within each domain as well as across the scale.

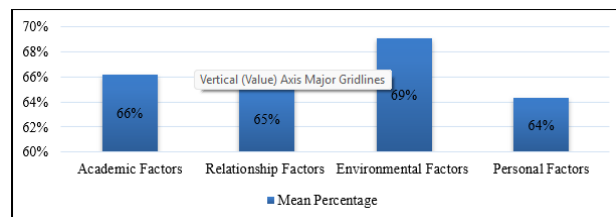


Figure 1: Mean Percentages of Factors Causing Stress Among Higher Secondary School Students

As we interpret figure 5, Environmental stressors had the highest impact on students (mean = 3.45), suggesting that external factors like peer pressure, classroom environment, parental expectations, time management and lifestyle balance significantly influence students' stress levels. Academic factors were the second most significant stressors (mean = 3.31), which include academic workload, teachers' expectations, strict deadlines, instructional and communication barriers as highlighted in the questionnaire. Relationship and personal factors were slightly lower but still substantial, indicating interpersonal issues and personal management challenges (like sleep and financial stress) also play a considerable role in causing stress among higher secondary school students.

Impact on Academic Performances

The response pattern across grades along with their interpretation are as follows:

Result for Grade	Students Count
only X	54
X, XI	14
X, XI, XII	66
Grand Total	134

Table 2: Response Pattern Across Grades

According to table 2, out of 134 students, only 66 students (49%) provided scores for all three grades (X, XI, and XII). This indicates that less than half the sample had complete academic data across the higher secondary span, which may impact the depth of longitudinal academic performance analysis. Only 14 students (10.4%) reported both Grade X and XI

results, while skipping Grade XII, and 54 students (40.3%) only shared Grade X. The declining response pattern from Grade X to XII may point to:

- Higher stress and reluctance to disclose recent, potentially lower scores.
- Incomplete records or students still awaiting results at the time of data collection.
- Possible attrition or school transfer scenarios that disrupt academic continuity.

For more reliable insight into academic performance trends under stress, future studies might include incentives or follow-ups to encourage full disclosure or official score submissions.

Analysis of Students Who Shared Scores for Grades X and XI (n = 14)

Grade	Mean	Correlation
X	83.05	- 0.42
XI	78.76	

Table 3: Mean Score and their Correlation for Grades X-XI

According to Table 3, mean scores were relatively high in both grades, with Grade X achieving the highest average (83.05%). However, the negative correlation ($r = -0.42$) indicates that students who performed well in Grade X tended to score lower in Grade XI, and vice versa. Given the small sample size ($n = 14$), this inverse relationship should be interpreted cautiously, as it may not represent the broader population. Possible explanations include increased academic demands or stress levels in Grade XI, particularly affecting previous high achievers; burnout or adjustment challenges during the transition from secondary to higher secondary education; and individual variability in coping strategies or learning approaches. These findings highlight the need for further research to explore student adaptation and institutional factors influencing performance across the two grades.

Analysis of Students Who Shared Scores for Grade X, XI, and XII (n = 66)

Grade	Mean
X	77.31
XI	68.88
XII	65.55

Table 4: Mean Scores

Grade	Correlation
X, XI	0.46
XI, XII	0.49
X, XII	0.47

Table 5: Correlations

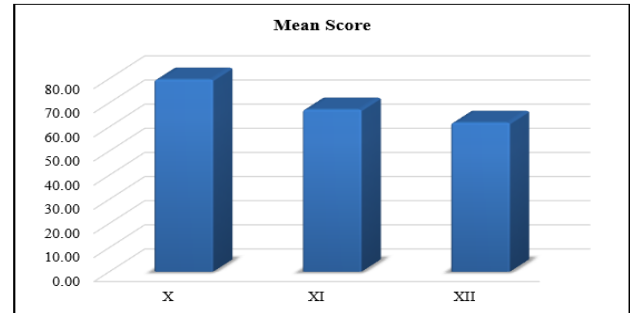


Figure 6: Academic Achievement Trend

As shown in Table 4, mean scores declined steadily from Grade X (77.31%) to Grade XII (65.55%), representing a decrease of nearly 12 percentage points over three academic years. Table 5 indicates moderate positive correlations between grades ($r = 0.46-0.49$), suggesting that students who performed well in one grade generally maintained relatively strong performance in subsequent grades. Nevertheless, the consistent downward trend in mean scores, despite these positive associations, supports the interpretation that increasing academic demands and stress over time may contribute to reduced achievement across the higher secondary school years.

Contrasting the Two Groups

Comparison of the two cohorts reveals notable differences in performance patterns. The smaller group ($n = 14$) recorded higher mean scores but a negative correlation between grades, a pattern likely influenced by outliers or unique individual characteristics. In contrast, the larger group ($n = 66$) demonstrated more stable and generalizable results, with positive yet gradually weakening correlations and a steady decline in mean scores. This consistency in the larger sample provides stronger evidence supporting the hypothesis that increasing academic stress over time may be contributing to an erosion in performance. While the smaller cohort offers useful exploratory insights, its results should be interpreted cautiously due to greater susceptibility to individual variation. Observed differences between the two groups also highlight the potential influence of cohort-specific or contextual factors, warranting further investigation.

DISCUSSION

The findings align with global studies but emphasize cultural nuances. For instance, parental expectations in collectivist Pakistani society amplify environmental stress. Academic stressors mirror 2018 findings [18] on ambiguous assessments, while relationship stressors reflect power dynamics in teacher-student interactions. The study reveals that higher secondary school students commonly experience stress, significantly influencing their academic performance, health, and lifestyle. The primary sources of stress are environmental and academic factors, followed by relationship and personal factors.

Environmental Stressors

Students report the highest stress from environmental factors. A supportive environment helps academic performance, but hostile settings—such as peers mocking presenters—damage confidence and participation. Many students lack training in communication skills and feel anxious during presentations. This often leads to low self-esteem and withdrawal from class activities.

Academic Stressors

Academic stress mainly stems from the fear of failing exams, overwhelming assignments, and unclear assessment expectations. Assignments often feel burdensome as they are not graded, yet demand significant effort, such as data collection and analysis. Strict deadlines and unfamiliar teaching methods add to the pressure. Students struggle to adapt to the faster pace of higher secondary school instructions, leading to confusion and poor academic performance.

Relationship and Personal Stressors

Students also face stress from inconsistent or negative relationships with peers, teachers, or parents. High expectations perceived unfair treatment and difficulty in-group work contribute to emotional strain. Competitive academic environments further foster mistrust and rivalry among classmates.

Personal stress is also linked to poor time management, sleep deprivation, and financial pressures. Many students delay preparation, leading to last-minute panic before exams. Balancing academics with social life and part-time jobs adds to their stress. Financial concerns, such as managing weekly budgets or planning for post-graduation employment, further increase anxiety—especially for those lacking social or professional support. Environmental, academic, relationship, and personal factors—individually or combined—significantly affect higher secondary school students' academic success, well-being, and overall lifestyle.

CONCLUSION

Environmental stress emerges as the most significant factor affecting higher secondary school students, followed closely by academic-related pressures—highlighting the urgent need for institutional reforms. The findings support the hypothesis that multiple sources of stress negatively impact academic performance, with environmental and academic domains exerting the greatest influence. The questionnaire used in the study demonstrated strong structure and internal consistency, lending credibility to the results. Based on these insights, policy and school-level interventions should focus on enhancing the school environment, strengthening academic support systems, and expanding access to psychological services to help students cope with stress more effectively. Future research should aim to replicate this study across different educational boards and integrate qualitative methods to gain deeper, more nuanced understandings of student stress.

RECOMMENDATIONS/ IMPLICATIONS

Stress among higher secondary school students can be significantly reduced if addressed early, with a focus on equipping students with effective study and test-taking skills. Teachers play a critical role in this process, not only by recognizing signs of stress in the classroom but also by collaborating with parents to raise awareness of the impact of academic pressure on student well-being. Reducing stress can lead to improved academic performance and overall well-being.

Unchecked stress—manifesting as anxiety, fear, worry, or burnout can negatively affect students' health, lifestyle, and academic outcomes. According to Attribution Theory, stressed students may internalize their difficulties as fixed disabilities, hindering their motivation and growth. Timed assessments, peer comparison, and fear of failure further exacerbate stress levels. To counter this, teachers can implement stress management strategies such as mindfulness, deep breathing, and the 4 A's (avoid, alter, adapt, accept). However, the lack of trained counsellors and resources in many schools limits these interventions. Institutions should enhance teachers' competencies in implementing inclusive and equitable pedagogies, providing clear and accessible instructions, and minimising the use of unannounced assessments. Professional development initiatives could include workshops on effective time management strategies and fostering

peer support networks to promote both academic success and student well-being.

Furthermore, to address these gaps, teachers should consider adjusting classroom practices by moderating workload, streamlining assignments, integrating co-curricular activities, and providing clear, specific, and timely constructive feedback to

support student engagement and well-being. By adopting engaging and student-centred teaching methods, educators can create a more supportive learning environment that promotes academic success while minimizing stress.

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