



Exploring the Interplay between Academic Stress and Mental Health in Undergraduate Students: A Case Study of Sindh University, Jamshoro, Pakistan

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ABSTRACT

The global higher education landscape is marked by growing concerns regarding the mental well-being of undergraduate students, with academic stress identified as a critical determinant. While extensively documented in Western and East Asian contexts, the specific manifestations of this interplay in South Asian settings remain underexplored. This study employs a quantitative, cross-sectional design to investigate the relationships between academic stress, socio-contextual factors (financial pressure, familial expectations), and mental health among 400 undergraduate students from Sindh University, Pakistan. Data were collected using standardized scales, including an academic stress measure and the Depression, Anxiety, and Stress Scale (DASS-21). Results revealed alarmingly high rates of psychological distress, with 63%, 67%, and 60% of participants reporting at least mild symptoms of depression, anxiety, and stress, respectively. Correlation and multiple regression analyses identified academic stress as the strongest positive predictor of poorer mental health ($\beta = .53, p < .001$). Familial expectations (the highest-rated stressor) and financial pressure also emerged as significant unique predictors. Conversely, GPA was a significant negative predictor. The findings indicate that the Pakistani student experience constitutes a critical synthesis of global and local pressures, where intense familial obligations and socioeconomic vulnerabilities uniquely amplify academic stress, creating a potent risk profile for mental health. This underscores the necessity for culturally-sensitive, multi-level interventions tailored to this distinct socio-academic context.

INTRODUCTION

The pursuit of higher education is a period of significant transition and development, marked not only by intellectual growth but also by considerable psychological challenges (Chen & Khoso, 2025). In recent decades, the global academic landscape has witnessed a growing concern regarding the mental well-being of undergraduate students (Ying et al., 2024). Within this population, academic stress, defined as the body's and mind's response to academic-related demands that exceed the adaptive capacities of the student, has been identified as a critical determinant of psychological distress (Singh et al., 2023; Talley, 2024). The pressures to excel academically, manage heavy workloads, secure future careers (Pattar et al., 2025), and navigate complex social environments coalesce into a potent stressor that can precipitate or exacerbate mental health issues such as anxiety, depression, and burnout (Smith, 2024). The universality of this challenge is evidenced by research across diverse national contexts. In the United States, a competitive academic culture, coupled with the pervasive stress of soaring student loan debt, creates a high-pressure environment where mental health issues are increasingly prevalent (Johnson & Lester, 2022). Similarly, in Canada, studies have highlighted the significant impact of academic performance pressures on student well-being (Versaevel, 2014). Universities have reported a rising demand for counseling services, often linked to fears about future career prospects in a fluctuating economy (Newman et al., 2010). Moving beyond Western contexts, China's higher education system presents a distinct yet equally intense landscape (Jin & Horta, 2018). The phenomenon of "neijuan" (involution) describes an intense, internal competition for top grades, prestigious graduate school placements, and lucrative jobs, driven by a deeply ingrained cultural emphasis on academic achievement as a pathway to familial success (Chen & Hong, 2024; Zhang, 2024). This creates a relentless pressure cooker environment for Chinese undergraduates, with documented high levels of psychological distress. In France, while the tuition burden is lower, students face unique stressors related to the rigid, highly centralized curriculum and a highly selective "classes préparatoires aux grandes écoles" system, which fosters an environment of intense competition and perfectionism, contributing to anxiety and imposter syndrome among students (Van Zanten & Maxwell, 2019).

While this substantial body of literature from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) nations, as well as from major educational powers like China, has meticulously documented this interplay, a significant gap remains in understanding its specific manifestations in other non-Western contexts, particularly in South Asia (Pitesa, & Gelfand, 2023; Li et al., 2021). Pakistan, with its unique socio-cultural fabric and a rapidly expanding higher education sector, presents a critical case for investigation. Pakistani undergraduates often synthesize the pressures seen elsewhere the competitive drive of South America (Hamrick, 2007), the familial expectations akin to China, and compound them with context-specific stressors, including intense familial obligations, profound socioeconomic pressures, political instability, and a highly saturated job market, all of which may uniquely intensify the academic experience (Malik et al., 2025). This study focuses on the

student population of Sindh University, Jamshoro, a premier public sector university in the Sindh province. As a major educational hub, it attracts a diverse student body from varied rural and urban backgrounds, many of whom are first-generation university attendees. This demographic is potentially more vulnerable to the strains of academic life due to a lack of prior familial exposure to university culture and potentially limited coping resources. However, the specific perceptions of these students regarding how academic stress impacts their mental health remain underexplored.

Therefore, this study aims to qualitatively explore the nuanced interplay between academic stress and mental health from the perspective of undergraduates at Sindh University. By employing a case study design, this research seeks to address a critical gap in the literature by answering the following questions: (1) What are the primary sources of academic stress as perceived by students? (2) How do students describe the impact of this stress on their psychological well-being? and (3) What are the coping mechanisms, if any, do they employ? The findings are expected to provide valuable insights for university administrators, policymakers, and mental health professionals in developing targeted, culturally-sensitive interventions to support student well-being within the Pakistani context and similar settings.

LITERATURE REVIEW

The Global Landscape of Academic Stress and Student Mental Health

The nexus between academic life and psychological distress is a well-established area of inquiry in higher education research. Globally, studies consistently report high prevalence rates of anxiety, depression, and stress among undergraduate populations. A seminal multinational study by Heumann (2025) found that approximately one-third of students across 21 countries screened positive for at least one common mental health disorder, with academic performance pressures being a primary correlate. Key academic stressors identified in the literature include excessive academic workload, pressure to achieve high grades, fear of failure, time constraints, and anxieties about future career prospects (Muller et al., 2022).

The theoretical underpinnings of this relationship are often explained through transactional models of stress (Lazarus & Folkman, 1987), where academic demands are appraised as threatening, exceeding the student's resources, and thereby triggering negative emotional and physiological responses. Prolonged exposure to such stress can lead to burnout, a syndrome characterized by emotional exhaustion, cynicism, and reduced personal accomplishment (Maslach & Leiter, 2016), which is increasingly recognized as a significant mental health concern in academic settings.

Contextualizing the Challenge: The South Asian and Pakistani Milieu

Despite the global nature of this issue, its expression is profoundly shaped by cultural, social, and economic contexts. In collectivist societies like those in South Asia, familial honor and social standing are often closely tied to academic success, creating a unique form of pressure not always as prominent in individualistic societies (Abbas, 2003). Students may bear the weight of entire

families' aspirations, where failure is not merely a personal setback but a collective one. Research within Pakistan has begun to shed light on this problem. Studies conducted in various institutions have confirmed that Pakistani students experience significant academic stress, which is linked to poor mental health outcomes (Hussain, 2024; Somerville & Robinson, 2016). Factors such as the traditional, lecture-heavy pedagogical approaches, rigid examination systems, and a relative lack of institutionalized mental health support services compound these issues (Siddiqui, 2017). Furthermore, socio-cultural factors, including financial constraints and, for some female students, navigating restrictive gender norms, add layers of complexity to their academic experience (Ali & Bakar, 2019).

Furthermore, the existing body of work in Pakistan often treats the student population as monolithic. There is a need for focused case studies that can account for the specific institutional environment. Sindh University, with its distinct institutional culture, student demographics, and regional context, provides a critical setting to explore these dynamics in depth. Understanding the specific "ecosystem" of stress within this university is a necessary step toward designing effective, localized support systems.

This literature review, therefore, establishes that while the link between academic stress and mental health is universal, its specific contours in the Pakistani context, and particularly at Sindh University, are not fully understood. This study seeks to fill this gap by providing a nuanced, quantitative exploration of this interplay, giving voice to the student experience and contributing to a more globally inclusive understanding of student mental health.

METHODOLOGY

Research Design and Participants

This study employed a quantitative, cross-sectional research design to investigate the relationships between academic stress, socio-contextual factors, and mental health among undergraduate students. Data were collected through a self-administered survey.

A total of 400 undergraduate students from Sindh University, Jamshoro, Pakistan, participated in the study. Participants were selected using a stratified random sampling technique to ensure representation across eight major academic departments: Institute of Business Administration, Computer Science, Economics, Education, English, International Relations, Microbiology, and Sociology. The sample was stratified by year of study (first through fourth year) to capture the undergraduate experience comprehensively. The sample consisted of 208 males (52%) and 192 females (48%), with a mean age of 20.5 years (SD = 1.4).

Measures

The survey instrument comprised two sections: a demographic information sheet and standardized scales measuring the key constructs of interest. All standardized scales were translated into Urdu using a rigorous back-translation procedure to ensure conceptual equivalence and cultural appropriateness. A pilot study with 30 students confirmed the clarity and

reliability of the translated instruments. Demographic Information: This section collected data on participants' age, gender, year of study, department, and first-generation student status (operationalized as neither parent having attended university). Academic Stress: Academic stress was measured using a 10-item scale adapted from Bedewy and Gabriel (2015). Items (e.g., "I feel stressed by my academic workload") are rated on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Total scores range from 10 to 50, with higher scores indicating greater academic stress. In the present study, the scale demonstrated excellent internal consistency (Cronbach's $\alpha = .89$).

Mental Health: The 21-item Depression, Anxiety, and Stress Scale (DASS-21) was used to assess psychological distress (Lovibond & Lovibond, 1995). Participants indicate the extent to which they have experienced each symptom over the past week on a 4-point scale from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). The total score (ranging from 0 to 63) was used as a composite measure of general psychological distress, with higher scores indicating more severe symptoms. The scale showed excellent reliability in this sample ($\alpha = .92$).

Financial Pressure and Familial Expectations: Two separate constructs were measured using subscales developed for this study based on a review of the literature on South Asian student populations. Financial Pressure was assessed with 3 items (e.g., "I am often worried about my family's financial situation and how it affects my education"), while Familial Expectations was measured with 4 items (e.g., "I feel a strong pressure to succeed academically to meet my family's expectations"). Both used a 5-point Likert agreement scale (1 = Strongly Disagree to 5 = Strongly Agree). Both subscales demonstrated acceptable internal consistency ($\alpha = .78$ and $\alpha = .81$, respectively). Academic Performance: Participants were asked to self-report their cumulative Grade Point Average (GPA) on a 4.0 scale. Perceptions of Academic Stressors: To gain a nuanced understanding of specific stress sources, participants rated their level of agreement with six specific stressor items (e.g., "Fear of failure in examinations," "Heavy academic workload") on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data Collection Procedure

Ethical approval for the study was obtained from the Institutional Review Board of Sindh University. Permission for data collection was secured from the heads of the respective departments. Potential participants were approached in common areas (e.g., libraries, student lounges) after lectures. The purpose of the study was explained, and written informed consent was obtained from all participants. They were assured of confidentiality and their right to withdraw at any time. The survey took approximately 20-25 minutes to complete.

Data Analysis

Data were analyzed using SPSS Statistics Version 28.0. Descriptive statistics (frequencies, percentages, means, and standard deviations) were computed to summarize the demographic characteristics of the sample and the scores on the key variables. The internal consistency of the scales was assessed

using Cronbach's alpha, showing satisfactory with $>.07$ in table-1. Pearson correlation analysis was conducted to examine the bivariate relationships between academic stress, mental health, financial pressure, familial expectations, and GPA using Python to generate heat map. To test the unique contribution of these variables in predicting mental health, a multiple linear regression analysis was performed, entering all predictors simultaneously into the model. The assumptions of multiple regression, including multicollinearity, homoscedasticity, and normality of residuals, were checked and met.

Reliability of the Data

Table 1. Descriptive Statistics and Reliability of Key Variables (N=400)

Variable	Cronbach Alpha	
	Initial (n=35)	Final (n=400)
1. Academic Stress	.74	.89
2. Mental Health (DASS-21)	.71	.92
3. Financial Pressure	.69	.78
4. Familial Expectations	.72	.81

RESULT AND DISCUSSION

Table 2. Demographic Characteristics of the Respondents

Characteristic	Category	n	%
Gender	Male	208	52.0
	Female	192	48.0
Age (Years)	Mean (SD)	20.5	(1.4)
	Range	18 - 24	
Year of Study	First Year	112	28.0
	Second Year	100	25.0
	Third Year	96	24.0
	Fourth Year	92	23.0
Department	Institute of Business Administration	50	12.5
	Department of Computer Science	55	13.8
	Department of Economics	45	11.3
	Department of Education	52	13.0
	Department of English	48	12.0
	Department of International Relations	46	11.5
	Department of Microbiology	54	13.5
	Department of Sociology	50	12.5

The results in table-2 provides a comprehensive demographic profile of the study sample (N=400), detailing the distribution of participants by gender, age, year of study, and academic department. The sample is nearly evenly split by gender, with 52% male and 48% female participants. The cohort is relatively young, with a mean age of 20.5 years (SD = 1.4) and an age range spanning

from 18 to 24 years. Academic years are well-represented, with a roughly equal distribution across all four years of study (ranging from 23% to 28%). Furthermore, the sample is drawn from a diverse range of eight academic departments, with each department contributing proportionally to the total sample, ensuring the findings are not biased toward a single academic discipline. This balanced and varied demographic composition strengthens the generalizability of the study's results.

Table 3. Severity of Symptoms on the Depression, Anxiety, and Stress Scale (DASS-21)

Scale	Normal	Mild	Moderate	Severe	Extremely Severe	Mean (SD)
Depression	148 (37.0%)	68 (17.0%)	92 (23.0%)	56 (14.0%)	36 (9.0%)	8.9 (5.2)
Anxiety	132 (33.0%)	60 (15.0%)	84 (21.0%)	76 (19.0%)	48 (12.0%)	9.5 (5.8)
Stress	160 (40.0%)	72 (18.0%)	80 (20.0%)	60 (15.0%)	28 (7.0%)	9.7 (5.4)

The data reveal a high prevalence of clinically significant symptoms, with 63% of participants reporting at least mild depressive symptoms, 67% reporting at least mild anxiety, and 60% reporting at least mild stress. Anxiety appears to be the most severe condition, with the highest percentage of participants in the "Severe" (19%) and "Extremely Severe" (12%) categories, as well as the highest mean score (9.5 ± 5.8). Stress has the highest overall mean score (9.7 ± 5.4), but a lower proportion of participants in the most extreme severity category, suggesting the symptoms, on average, are elevated but less often reach the highest clinical threshold compared to anxiety.

Table 4. Student Perceptions of Key Academic Stressors

Stressor Item	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	SD
Fear of failure in examinations	2	5	13	45	35	4.06	0.95
Heavy academic workload	3	8	15	50	24	3.84	1.02
Pressure to maintain a high GPA	1	6	20	48	25	3.90	0.89
Uncertainty about future career	4	10	18	42	26	3.76	1.10
Family's expectation for high achievement	2	4	10	35	49	4.25	0.91
Financial concerns affecting my studies	5	12	23	40	20	3.58	1.15

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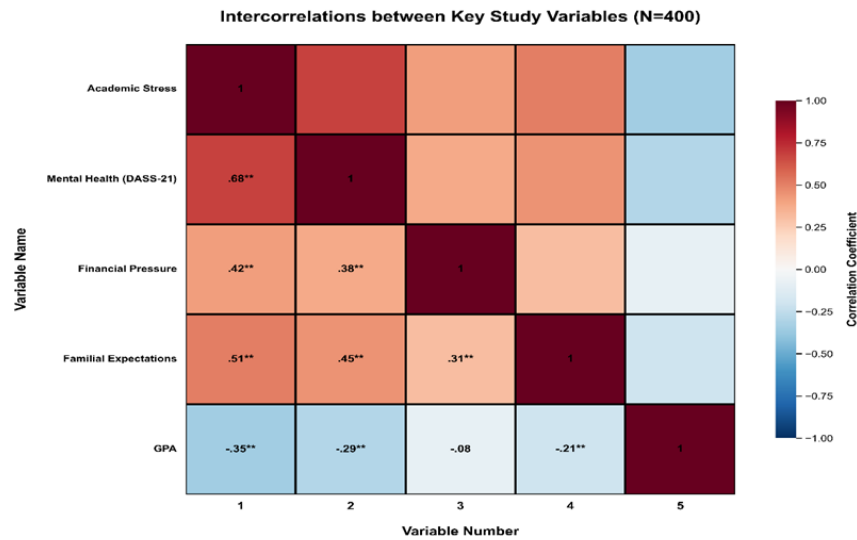


Figure 1. Intercorrelations between Key Variables

Table 5. Intercorrelations between Key Study Variables

Variable	1	2	3	4	5
1. Academic Stress	1				
2. Mental Health (DASS-21)	.68**	1			
3. Financial Pressure	.42**	.38**	1		
4. Familial Expectations	.51**	.45**	.31**	1	
5. GPA	-.35**	-.29**	-.08	-.21**	1

Note: DASS-21 = Depression, Anxiety and Stress Scale.

The correlation matrix in table-5 and figure-1 reveals that all variables are significantly correlated with one another. Mental Health (DASS-21) shows strong positive correlations with Academic Stress ($r = .68$), Financial Pressure ($r = .38$), and Familial Expectations ($r = .45$), indicating that higher levels of these stressors are associated with poorer mental health. Conversely, GPA has significant negative correlations with Academic Stress ($r = -.35$), Mental Health ($r = -.29$), and Familial Expectations ($r = -.21$), suggesting that higher academic performance is associated with lower stress and better mental health. The strongest bivariate relationship in the entire study is between Academic Stress and Mental Health.

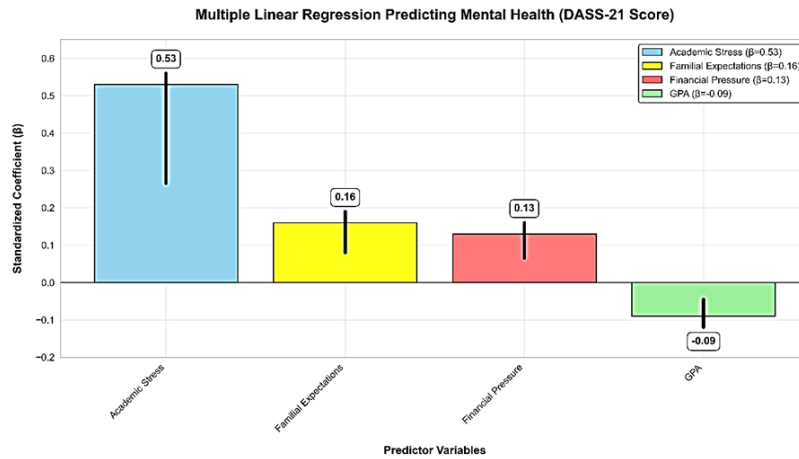


Figure 2. Standardized Beta Coefficients for Mental Health Predictors

Table 6. Multiple Linear Regression Predicting Mental Health (DASS-21 Score)

Predictor Variable	B	SE B	β	t	p
(Constant)	5.12	1.85		2.77	.006
Academic Stress	0.65	0.06	.53	10.83	<.001
Financial Pressure	1.12	0.38	.13	2.95	.003
Familial Expectations	1.88	0.52	.16	3.62	<.001
GPA	-1.45	0.68	-.09	-2.13	.034

Note: B = unstandardized coefficient; SE B = standard error of the coefficient; β = standardized coefficient.

The results of a multiple linear regression analysis predicting mental health, as measured by the DASS-21 score. The analysis reveals that all four predictor variables were statistically significant. Academic Stress ($\beta = .53$, $p < .001$) was the strongest positive predictor of poorer mental health, followed by Familial Expectations ($\beta = .16$, $p < .001$) and Financial Pressure ($\beta = .13$, $p = .003$). In contrast, GPA was a significant negative predictor ($\beta = -.09$, $p = .034$), indicating that higher academic performance was associated with slightly better mental health outcomes as shown in figure-2 and table-6. The model suggests that while academic stress is the most substantial factor, familial, financial, and academic performance factors all uniquely contribute to students' mental health. This study's findings, revealing alarmingly high rates of depression (63%), anxiety (67%), and stress (60%) among undergraduates at Sindh University, alongside academic stress as the strongest predictor of psychological distress ($\beta = .53$), compellingly demonstrate that while the core relationship between academic pressure and mental health is a global phenomenon, its specific intensity and drivers are profoundly shaped by the local socio-academic context. The potent role of familial expectations as the highest-rated stressor ($M=4.25$) and a significant predictor ($\beta = .16$) echoes the "neijuan" (involution) culture in China, where academic achievement is a paramount familial obligation driving intense psychological distress (Jiang, 2022); however, in the Pakistani context, this pressure is often compounded by more acute socioeconomic vulnerabilities, making academic success a perceived

necessity for entire family upliftment (Ullah, 2022). Similarly, the significant burden of financial pressure ($\beta = .13$) mirrors concerns documented in the United States regarding student debt (Lipson, Lattie, & Eisenberg, 2019), yet in Pakistan, it operates within a system with far less institutional financial support, creating a pervasive background of anxiety that is independent of academic performance, as indicated by its non-significant correlation with GPA ($r = -.08$). The strong predictive power of academic stress itself reflects the competitive academic cultures observed in Canada and the USA (Davies and Hammack, 2005), but the environment at Sindh University may lack the extensive counseling infrastructures increasingly common in the Global North, leaving students with fewer coping resources. Furthermore, the high-stakes, examination-focused system shares characteristics with the rigid, selective structures of France's "classes préparatoires" which are known to foster perfectionism and anxiety (Bourgeois-fortin, 2023), but here it intersects with the collectivist pressures akin to China. Thus, the Pakistani student experience appears to be a critical synthesis of these global forces the competition of the West, the familial pressures of East Asia, and localized economic strains creating a uniquely potent "pressure cooker" effect that is quantitatively confirmed by our model. This underscores the necessity for interventions that are not only aware of the universal link between stress and mental health but are specifically tailored to address this distinct, amplified confluence of academic, familial, and financial pressures within the Global South context.

CONCLUSIONS AND RECOMMENDATIONS

This study conclusively demonstrates that undergraduate students at Sindh University experience significant mental health challenges, primarily driven by academic stress that is uniquely intensified within Pakistan's specific socio-cultural context. While confirming the universal link between academic pressure and psychological distress, our findings reveal that Pakistani students face a particularly potent combination of stressors. These include intense familial expectations, financial pressures, and a high-stakes academic environment that together create a distinctive risk profile. The research establishes that students in this context are navigating a complex convergence of global and local pressures, where collective family aspirations and socioeconomic anxieties substantially amplify conventional academic stressors. This underscores the necessity of understanding student mental health in non-Western settings through a culturally-sensitive lens that recognizes the multifaceted nature of these challenges.

The findings necessitate a comprehensive, multi-level approach to address the identified challenges. At the institutional level, recommendations advocate for the formal integration of mental health considerations into academic policy and a reform of assessment practices to mitigate examination-related anxiety. For direct student support, the development of proactive psycho-educational workshops and the establishment of structured peer support networks are proposed to expand accessible resources. Furthermore, initiating structured dialogue between the university and parents is suggested

to cultivate more supportive home environments. To advance scholarly understanding, future research should prioritize longitudinal designs to track the progression of mental health challenges and employ qualitative methodologies to gain deeper insight into student experiences. These evidence-based recommendations aim to foster a more nurturing academic ecosystem that addresses both the academic and socio-contextual dimensions of student well-being at Sindh University and comparable institutions.

FURTHER RESEARCH

This research still has limitations, so further research on this topic is still needed.

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