Socio-Demographic Factors Influencing Academic Pressure and Mental Health Among Students

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Abstract

Academic pressure has become a big part of university life, impacting how students feel both academically and mentally. This research explores the link between mental health and academic pressure among university students across different fields of study. It identifies key factors contributing to this pressure and looks at how they connect to issues like stress, anxiety, and depression, using a quantitative approach. The study also checks if things like gender and area of study affect this relationship. By focusing on what students actually experience, this research aims to provide insights that can help universities create more supportive and healthier learning environments.

Keywords: Academic Pressure; Mental Health; Academic Stress; Anxiety; Depression; Higher Education; Student Well-Being; Exploratory Factor Analysis

Introduction

The issue of academic pressure in higher education has become increasingly significant, particularly in university environments where the benchmarks for academic success continue to rise. This pressure arises from various factors such as peer competition, institutional expectations, parental demands, and self-imposed goals (Deb et al., 2015; Kaur, 2017). While a moderate amount of academic stress can foster motivation and drive, excessive pressure can severely affect students' emotional well-being and psychological health (Misra & McKean, 2000). Over the last few decades, globalization, rapid technological advancements, and heightened competition in the job market have exacerbated academic pressure. Students today are often expected to achieve high GPAs, engage in productive extracurricular activities, and develop skills beyond their academic coursework all within a limited timeframe. This relentless pursuit of excellence can lead to chronic stress and emotional exhaustion, particularly when academic performance is equated with future security and personal worth (Schaufeli et al., 2002). Consequently, educational institutions that emphasize performance without offering adequate psychological support may inadvertently harm students' mental health. Cultural and socioeconomic contexts also play a crucial role in shaping academic pressure. In many collectivist societies, academic success is closely tied to family honor and social mobility, increasing the burden on students. Deb et al. (2015) highlight that in these contexts, parental expectations significantly intensify academic stress, leading to heightened anxiety and emotional distress. Kaur (2017) further notes that in competitive educational settings, external societal pressures often overshadow students' intrinsic academic motivations. Additionally, students from lower socioeconomic backgrounds may experience compounded stress due to limited academic resources and financial instability (Hussain, 2024). The growing academic

demands have prompted rising concerns about students' mental health. Recent surveys indicate alarming rates of stress, anxiety, and depression among college students, with over 60% reporting overwhelming anxiety and nearly 40% experiencing depression severe enough to disrupt their daily lives (American College Health Association, 2021). These findings suggest that mental health issues are prevalent in academic environments rather than isolated occurrences. Empirical studies have established a strong correlation between academic pressure and poor mental health outcomes. Misra and McKean (2000) found that students facing high academic demands exhibited significantly higher anxiety levels and decreased life satisfaction. Furthermore, Beiter et al. (2015) reported that academic stress is a major predictor of stress, anxiety, and depression among college students. Prolonged exposure to academic pressure can hinder concentration, diminish academic engagement, and erode emotional resilience, creating a vicious cycle where deteriorating mental health further threatens academic success. As academic pressure continues to rise, it is crucial for educational institutions to recognize its impact on mental health and implement supportive measures to foster a healthier learning environment. Long-term academic stress significantly impacts students' mental health, particularly leading to depressive symptoms. Research has consistently shown that high levels of academic stress are strong predictors of depression among university students (Hamaideh, 2011). This form of stress doesn't just affect emotional well-being; it can also diminish students' motivation, memory, and perseverance in the classroom. The bidirectional relationship between academic stress and depression highlights the risks of leaving this pressure unmanaged in higher education settings. Moreover, academic pressure is not just linked to anxiety and depression; it can also disrupt sleep and lead to burnout. According to Hershner and Chervin (2014), the stress of academic demands often results in sleep disturbances, which can hinder cognitive functioning and lead to exhaustion. When students experience prolonged stress, they can become burned out, characterized by feelings of cynicism, reduced academic effectiveness, and emotional fatigue (Schaufeli et al., 2002). This burnout not only affects students' mental health but also poses a threat to academic institutions' goals related to student achievement and retention. The recent shift to online and remote learning has intensified academic stress for many students. As noted by Aristovnik et al. (2020), during this transition, students reported feeling more isolated, less motivated, and increasingly stressed. The challenges of adapting to digital learning environments, coupled with reduced social interaction, have further strained their mental health and coping abilities. Despite the growing evidence linking academic pressure to declining mental health, significant gaps remain in the research. Much of the existing literature relies on cross-sectional designs, which limits our understanding of causality (Hamaideh, 2011). Additionally, studies often focus on Western or East Asian populations, leaving South Asian contexts underrepresented. Recent findings from Pakistan and nearby regions indicate that academic pressure is a strong predictor of anxiety and depression; however, the institutional and contextual factors influencing these outcomes have not been thoroughly examined (Hussain, 2024; Alam et al., 2025). Furthermore, how demographic factors such as gender, year of study, and academic discipline affect these relationships has received less attention. The current study seeks to address these gaps by exploring the connection between academic pressure and mental health among college students across various fields of study. By identifying key sources of academic pressure and examining their relationships with stress, anxiety, and depression, this research aims to provide a more nuanced understanding of student mental health. Additionally, it will investigate demographic differences in the experience of academic pressure, with the goal of informing institutional policies and mental health interventions that promote balanced academic expectations and support students' psychological well-being. In essence, this study recognizes the real struggles students face and aims to foster an academic environment where mental health is prioritized alongside academic success.

Research design and Methodology

This chapter explains the Population, Sample, Data collection method and Sampling Designs, Instrument of data collection, Data analysis techniques and software used.

Sampling Technique and Sample Size:

Cross-Sectional study design was utilized and convenience sampling technique was used for primary data collection through Questionnaire which focused on levels of academic stress, its causes, and symptoms of mental distress. Randomly chosen students of university were selected across different academic years and departments to ensure diverse perspectives on academic pressure. Data was analyzed by using Python software.

Reliability test:

Reliability of questionnaire was tested through Cronbach's Alpha a statistical measure used to assess the internal consistency reliability of a survey, scale, or questionnaire. It tells how well a set of items measure a single underlying construct.

Exploratory Factor Analysis:

Exploratory Factor Analysis (EFA) was used in this study to determine the measurement instrument's dimensionality and underlying structure. EFA is a statistical method used to investigate how observed variables spontaneously cluster into latent constructs while the factor structure is still unknown. It helps identify how many elements are there in the data and shows which items load together, which helps create meaningful components. Python statistical software was used for the analysis, allowing factor loadings to be examined and items with weak or cross-loadings to be eliminated. The assessment scale was validated empirically by the EFA results, which also guaranteed that only trustworthy and theoretically sound items were kept for additional examination.

Multiple Linear Regression Analysis

In order to investigate the association between the dependent variable and several independent variables at once, this study used Multiple Linear Regression Analysis (MLR). By controlling for the influence of other factors, this statistical technique enables the researcher to evaluate how much each predictor contributes to explaining the variance in the outcome. Python statistical software was used in this study to perform OLS, which made it easier to estimate regression coefficients, assess model fit, and test each predictor's significance. A thorough grasp of the variables affecting the dependent variable was made possible by the analysis's insights on the direction and intensity of relationships between variables.

Random Forest Regression

The connection between the dependent variable and several independent factors was modeled and predicted in this study using Random Forest Regression (RFR). RFR is an ensemble machine learning technique that reduces overfitting and increases accuracy by building a large number of decision trees and aggregating their predictions. In contrast to conventional regression techniques, Random Forest is resilient to multicollinearity among variables and may identify intricate, non-linear correlations in the data. Python was used for the analysis in this study, which made it possible to build the Random Forest model, determine the significance of the variables, and evaluate the prediction performance. This method offered a potent tool for comprehending how various predictors affect the outcome variable and producing accurate forecasts.

Results Discussion and Conclusion.

Reliability Analysis

The reliability analysis yielded a Cronbach's Alpha of 0.961, over the generally recognized cutoff of 0.70. This indicates that the scale has outstanding internal consistency, demonstrating that the items are logical, connected, and together offer a reliable assessment of the construct. Therefore, the scale is considered reliable and suitable for further statistical and multivariate

analyses in this study.

Exploratory Factor Analysis

The questionnaire items' underlying structure was investigated using exploratory factor analysis (EFA). Three unique factors were extracted from the research, as shown in table 3.1, demonstrating the multidimensional nature of the construct being studied. A number of items showed substantial factor loadings (above 0.50) on their corresponding factors, indicating sufficient construct validity. While the second factor reflected contextual or external factors, the first factor was mostly represented by questions pertaining to fundamental perceptions and experiences. A distinct but significant dimension connected to behavioral or experience elements was represented by the third factor. Overall, the factor structure validates that the items successfully assess several aspects of the phenomena and supports the instrument's theoretical underpinnings.

Table 3.1: Factor Loadings

	Factor1	Factor2	Factor3
q1	0.633283	-0.331010	-0.234630
q2	0.124072	0.221536	-0.018787
q3	-0.226829	0.488574	0.040757
q4	0.544747	0.137533	-0.164701
q5	0.615240	-0.193253	0.267118
q6	0.109825	0.174214	0.472338
q7	-0.169810	0.641634	0.237280
q8	0.383171	0.195398	0.128188
q9	0.622365	-0.105593	0.317283
q10	-0.104335	0.205836	0.676857
q11	0.765839	0.040973	0.020849
q12	0.013020	0.654874	0.089824
q13	-0.007904	0.631519	0.279132
q14	0.579927	-0.158625	0.442121
q15	0.789491	-0.079000	0.101013
q16	0.007935	0.269944	0.6999 81
q17	-0.112471	0.594711	0.481781
q18	0.506040	0.223303	-0.104266
q19	0.626012	-0.035225	-0.215395
q20	0.194047	0.558476	0.145370

Descriptive statistics

General trends observed from the responses are summarized below:

- A majority of students reported feeling overwhelmed during exam periods and assignment deadlines.

- Common symptoms of stress included sleep disturbances, anxiety, and loss of motivation.

- Students with support systems (friends, family, or counseling) reported better mental well-being than those without.

The data indicates that academic pressure significantly affects students' mental health. While some stress is manageable, constantly high-pressure environments cause negative

psychological outcomes. Factors like tight deadlines, competitive grading, and high parental expectations were frequently cited sources.

Regression Diagnostics

A Durbin–Watson statistic of 1.546 indicates that there was no significant breach of the assumption of independence, according to diagnostic testing. The Jarque–Bera test, however, revealed a minor departure from normalcy (p = 0.031). The high condition number also suggests the potential for multicollinearity or scaling problems, especially with regard to revenue. These diagnostic findings encourage the use of different analytical techniques and imply that care should be taken when interpreting the regression coefficients.

Multiple Linear Regression Analysis

The impact of demographic factors, such as age, income, and family size, on the overall score was investigated using multiple linear regression analysis. Table 3.2 displays the results. With an adjusted R^2 of 0.007, the model only accounted for 2.7% of the variation in the dependent variable (R^2 = 0.027). The chosen predictors did not collectively contribute to explaining changes in the overall score, as indicated by the overall regression model's lack of statistical significance (F = 1.367, p = 0.255).

Age alone had a positive, but statistically insignificant, correlation with the outcome variable (p = 0.126). The overall score showed a negative correlation with income, although this correlation was likewise not statistically significant (p = 0.191). The dependent variable was not significantly impacted by family size (p = 0.934). These results imply that the study's overall score cannot be predicted by demographic factors alone.

Table 3.2: OLS Regression Results

R-squared:	0.027				
Model: OLS			Adj. R-squared:		0.007
Method: Least Squares			F-statistic:		1.367
Prob (F-statistic):	0.255				
Log-Likelihood:	-605.69				
BIC:	1232.		AIC:		1219.
Df Model:	3		Df Residuals:	150	

	coef	std err	t	P>|t|	[0.025	0.975]
const	47.5707	10.946	4.346	0.000	25.942	69.200
age	0.7498	0.487	1.541	0.126	-0.212	1.712
income	-0.000006	0.000005	-1.313	0.191	-0.000016	0.000003
size	0.0422	0.506	0.083	0.934	-0.957	1.041
Durbin-Watson:	1.546			Jarque-Bera (JB):	6.939	

Random Forest Regression

A Random Forest regression model was used to capture possible non-linear correlations in order to overcome the drawbacks of linear regression. Table 3.3 displays the results. With an R2 score of −0.164 and an RMSE of 14.36, the model's prediction accuracy was found to be inadequate. In spite of this, the model offered insightful information about variable relevance. The most significant predictor was found to be income, which was followed by faculty, gender, age, and family size. This implies that demographic factors may affect the result through intricate, non-linear interactions that conventional regression models are unable to capture, even while they may not exhibit strong linear effects.

Table 3.3: Random Forest regression model

Gender t-test: t-statistic: -0.83882 p-value: 0.4033	Random Forest Performance: R² Score: -0.1638 RMSE: 14.3609
Faculty ANOVA: F-statistic: 11.6115 p-value: 0.000020384	Variable Importance 1 income 0.378461 2 size 0.229624 0 age 0.178228 4 faculty 0.165248 3 gender 0.048439

Conclusion:

This study demonstrates how academic pressure has become a crucial aspect of university life, impacting students' mental and emotional health in addition to their academic achievement. The results demonstrate that anxiety, depression, sleep issues, and a lack of motivation are common among students, particularly during exam periods and deadline pressure. Crucially, students who received assistance from friends, family, or counseling services fared better, demonstrating the significant impact that social and emotional support can have on stress management. The investigation also demonstrated the multifaceted nature of academic pressure, which includes behavioral experiences, external expectations, and individual perspectives. Even though fundamental demographic characteristics like age, family size, and wealth did not directly predict students' outcomes in linear models, more intricate analysis revealed that they might still have an impact through subtle, non-linear interactions. For instance, it was found that students' perceptions of academic pressure were significantly influenced by their income.

Overall, these findings highlight the necessity for universities to take into account the human aspect of learning in addition to grades. Institutions can assist by fostering favorable learning environments, providing mentorship and counseling services, and urging students to strike a balance between their studies, leisure time, and social interactions. In order to better understand how academic pressure affects mental health throughout university life; future study might examine other environmental and personal factors and monitor students over time.

Recommendation & Suggestion:

It is advised that bigger and more varied student samples be used in future studies, and that other elements that might have an impact on academic achievement be investigated, such as social and psychological impacts.

Universities should adopt comprehensive efforts to lessen the detrimental effects of academic pressure on students' mental health in light of the study's conclusions. To assist students in creating useful coping mechanisms, educational institutions should offer easily available counseling services, stress management classes, and peer support initiatives. Resilience can be further improved by fostering robust social and emotional support systems, such as family involvement and mentorship programs. While taking into consideration individual characteristics such as financial limits, field of study, and personal commitments, academic regulations should take into account balanced workloads, fair deadlines, and flexible evaluation methodologies. In order to produce evidence-based therapies that are suited to a variety of student demographics, future research should use longitudinal designs to investigate how academic pressure changes over time as well as other contextual and psychological factors that affect students' well-being.

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