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AN INVESTIGATION INTO THE INFLUENCE OF DEPRESSION ANXIETY AND STRESS ON UNDERGRADUATE AND THEIR ASSOCIATION WITH THE UNIVERSITY EDUCATION SYSTEM

Original Article

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ABSTRACT

Background: Depression, anxiety, and stress are growing public health concerns among university students worldwide, particularly those pursuing undergraduate studies. These psychological conditions can significantly affect academic performance, quality of life, and satisfaction with the educational environment. As higher education becomes increasingly competitive, the mental well-being of students is often compromised, especially in urban academic settings like Karachi. Understanding how these mental health challenges intersect with the university educational system is essential for designing responsive support mechanisms.

Objective: To investigate the prevalence and association of depression, anxiety, and stress with the university education system among undergraduate students in Karachi, Pakistan.

Methods: A cross-sectional study was conducted among 196 undergraduate students aged 18–30 years from public and private universities in Karachi. Participants were selected using purposive sampling and completed standardized questionnaires including the Depression, Anxiety, and Stress Scale-21 (DASS-21) and the Student Evaluation of Educational Quality (SEEQ). Data were analyzed using IBM SPSS version 23.0. Descriptive statistics, Pearson Chi-square tests, and correlation analysis were employed to assess associations. Ethical approval was obtained prior to data collection.

Results: Depression was reported in 60.7% of students, anxiety in 70.9%, and stress in 20.9%. Among them, 30.6% had mild depression, 29.1% moderate, and 1.0% severe. Anxiety was classified as mild in 12.8%, moderate in 30.1%, severe in 25.5%, and extremely severe in 2.6%. Stress was reported as mild in 15.3% and moderate in 5.1%. The mean SEEQ score was 65.93 ±11.72. Pearson correlation revealed strong associations among depression, anxiety, and stress ($p<0.05$). Stress showed a significant association with educational quality ($p=0.021$).

Conclusion: Mental health issues are highly prevalent among undergraduates in Karachi and significantly impact perceptions of educational quality. Institutions must prioritize mental health services, integrating counseling, awareness campaigns, and academic support to foster healthier educational environments.

Keywords: Anxiety, Depression, Educational Measurement, Mental Health, Psychological Stress, Students, Universities.

INTRODUCTION

Mental health plays a pivotal role in determining an individual's quality of life and overall life satisfaction (1). Despite being a major contributor to the global burden of disease, mental health is often overshadowed by physical health, remaining underprioritized and under addressed in many societies (2). Among the numerous mental health disorders, stress, anxiety, and depression stand out as leading causes of illness and disability, severely impacting social, occupational, and academic functioning. In recent years, growing concerns have been raised regarding the mental well-being of students in higher education, particularly those enrolled in medical and professional degree programs, where academic rigor and competition are notably high (3,4). Research has consistently demonstrated that university students, particularly those pursuing medical and health-related disciplines, are at a heightened risk of psychological distress compared to the general population. Medical students frequently report experiencing higher levels of depression, anxiety, and stress due to the intense nature of their training, which includes demanding coursework, clinical rotations, and prolonged exposure to patient suffering and death (5). A comprehensive review highlighted that 27.2% of medical students across 47 jurisdictions showed symptoms of depression, with psychological distress levels among undergraduates ranging anywhere between 10% and 96% globally (6). These mental health challenges are often exacerbated by contributing factors such as academic overload, inadequate sleep, financial instability, and limited social support (7). In addition to academic challenges, numerous systemic and demographic factors have been found to influence students' mental health status. Literature indicates that age, gender, year of study, school infrastructure, faculty behavior, and satisfaction with the chosen academic path are all intricately linked with students' psychological well-being (8). Furthermore, elements embedded within the educational framework—such as outdated curricula, unsupportive environments, and academic pressure—further intensify emotional distress, leading to reduced academic performance and impaired personal development (9).

Despite the abundance of international data on student mental health, there remains a dearth of localized evidence from Karachi, Pakistan, particularly exploring the intersection of depression, anxiety, and stress with university education systems. Although several studies have evaluated the prevalence of mental health disorders in Pakistani students (10), none have specifically examined how the structural and systemic aspects of university education in Karachi may contribute to these psychological conditions. This absence of region-specific research creates a critical knowledge gap that hinders the development of effective, culturally tailored interventions. Moreover, studies from diverse settings, including Malaysia, China, and Spain, have reported significant levels of moderate to severe depression, anxiety, and stress among university students (11). These psychological states have been associated with adverse outcomes such as suicidal ideation, substance abuse, academic failure, and social withdrawal (12). University students are particularly vulnerable due to ongoing developmental transitions, lifestyle changes, and increased exposure to challenging academic and social environments. The biological underpinnings of these mental health issues further reveal complex pathophysiological processes involving neurotransmitter dysregulation, neuroendocrine changes, and structural brain alterations, especially in regions governing mood, cognition, and emotional regulation (13).

Clinically, depression manifests through persistent sadness, anhedonia, fatigue, cognitive disturbances, and in severe cases, suicidal ideation (7,9). Anxiety often presents as excessive worry, restlessness, somatic symptoms, and impaired concentration (14). Stress is characterized by physical and psychological strain, sleep disturbances, gastrointestinal symptoms, and irritability (15). Though diagnosis often relies on clinical assessment rather than laboratory testing, psychometric tools such as the Depression, Anxiety and Stress Scale-21 (DASS-21) are widely employed in academic and clinical settings to screen and quantify symptom severity (16). While these tools provide valuable insights, they must be interpreted within the broader psychosocial and academic context of each student. Considering the lack of existing literature exploring the relationship between psychological distress and the university education system specifically in Karachi, this study seeks to address this critical gap. It aims to evaluate how academic pressures and systemic educational dynamics influence levels of depression, anxiety, and stress among undergraduate students in this region. The findings of this research are intended to inform institutional policies, promote mental health awareness, and support the implementation of preventive strategies in higher education. Therefore, the objective of this study is to investigate the influence of depression, anxiety, and stress on undergraduate students and examine their association with the university education system in Karachi.

METHODS

The study employed a cross-sectional research design to explore the association between depression, anxiety, and stress, and the university education system among undergraduate students in Karachi. This design was appropriate for evaluating the prevalence of psychological distress and its academic correlates at a single point in time, without establishing causal relationships. It allowed the researchers to capture real-time mental health patterns across a diverse student population. Participants were selected using a non-

probability purposive sampling technique, wherein individuals were deliberately chosen based on pre-established eligibility criteria. This method ensured the inclusion of students most relevant to the research objectives. The target population consisted of undergraduate students aged 18 to 30 years, enrolled in bachelor's degree programs at various public and private universities across Karachi. Students of all genders were included. Exclusion criteria comprised individuals with known mental health diagnoses (e.g., clinical depression, anxiety disorders, post-traumatic stress disorder), those outside the defined age range, students enrolled in programs other than a bachelor's degree, and individuals with a history of substance abuse or addiction. A total of 196 participants were included in the study. All participants were fully informed about the purpose, procedures, and voluntary nature of the research. Written informed consent was obtained from each student prior to participation (3,5). Confidentiality and anonymity were strictly maintained. Participants were given the freedom to withdraw from the study at any stage or skip questions they found uncomfortable, in accordance with ethical research standards. The study received ethical approval from the institutional review board (IRB).

Data collection was carried out over a six-month period following ethical clearance. Surveys were administered on university premises, including classrooms, libraries, and student lounges, to ensure convenience and accessibility. Two validated instruments were used. The Depression Anxiety and Stress Scale-21 (DASS-21) was utilized to assess mental health symptoms across three domains—depression, anxiety, and stress. The tool consists of 21 items, with seven items per domain, each rated on a four-point Likert scale. Scores for each subscale were multiplied by two to maintain consistency with the original 42-item version. The second instrument, the Student Evaluation of Educational Quality (SEEQ), was used to assess students' perceptions of academic quality. This 10-item tool measures components such as course organization, instructional effectiveness, discussion quality, and overall learning experience. The dependent variables in this study were the levels of depression, anxiety, and stress as determined by DASS-21 scores. The independent variables included age, gender, academic year, and the perceived quality of the educational system as measured by SEEQ scores. The sample size was estimated using the OpenEpi online calculator, based on an 85% confidence interval and 80% statistical power, yielding a required sample of 196 participants.

RESULTS

The results of this study were based on data collected from 196 undergraduate students from various universities in Karachi. The sample comprised 55.6% females and 44.4% males, with a mean age of 22.1 years (SD ±1.7). The distribution across academic years showed the majority of participants were in their 3rd year (46.9%), followed by 4th year (37.8%), while only 1.5% were in the 5th year of study. The mean score for the Student Evaluation of Educational Quality (SEEQ) was 65.93 (SD ±11.72), and the internal reliability coefficient (Cronbach's alpha) was 0.919, indicating high reliability. The DASS-21 tool also showed strong reliability with a Cronbach's alpha of 0.915. Mean scores observed for depression, anxiety, and stress were 10.61 (SD ±5.18), 10.68 (SD ±5.23), and 10.94 (SD ±4.63), respectively. Descriptive analysis revealed that 60.7% of students reported some level of depression, of which 30.6% were classified as mild, 29.1% moderate, and 1.0% severe. Anxiety was present in 70.9% of the students, where 12.8% had mild, 30.1% moderate, 25.5% severe, and 2.6% extremely severe anxiety. Stress was reported in 20.9% of students, with 15.3% having mild and 5.1% moderate stress. Most students (79.6%) fell within the normal range for stress levels. In terms of perceived educational quality, 50.5% of students rated their educational environment as "very good," followed by 23% as "good," 21.4% as "excellent," and only 5.1% as "fair." Among students rating their educational quality as fair, 50% had moderate depression and severe anxiety, while 10% had moderate stress. Among those rating it as excellent, 33.3% had moderate depression, 31% severe anxiety, and 4.8% moderate stress. A significant association was found between stress levels and perceived educational quality ($p=0.021$), while depression and anxiety did not show a statistically significant association with educational quality ($p>0.05$).

Gender-based comparisons showed no significant associations between male and female students across SEEQ scores and DASS-21 outcomes. However, descriptively, a slightly higher percentage of females (53.2%) rated their educational quality as "very good" compared to males (47.1%). Moderate depression affected 28.7% of males and 29.4% of females, while severe anxiety was slightly more common among females (25.7%) than males (25.3%). When examining academic year, significant associations were observed between year of study and SEEQ ratings, as well as all three mental health domains (depression $p=0.003$, anxiety $p=0.001$, stress $p=0.009$). For example, among 1st-year students, 43.8% had moderate anxiety and 25% moderate stress, while 4th-year students showed the highest proportion of moderate depression (36.5%) and severe anxiety (44.6%). Notably, 5th-year students, though a small subset, showed no reported stress and had high SEEQ scores. Correlation analysis revealed statistically significant positive correlations between depression and anxiety ($r=0.777$, $p<0.01$), depression and stress ($r=0.738$, $p<0.01$), and anxiety and stress ($r=0.762$, $p<0.01$). In contrast, SEEQ scores showed weak negative correlations with age ($r=-0.172$, $p=0.016$) and year of study ($r=-0.216$, $p=0.002$), indicating that older students and those in advanced academic years were less satisfied with their educational experience.

A discipline-wise analysis was conducted to determine the relationship between specific academic programs and mental health outcomes, as well as students' perceived educational quality. The majority of students belonged to BDS (17.9%), followed by DPT (15.3%), BSCS (14.3%), and MBBS (9.2%). Notable variations were observed across academic streams in relation to mental health and SEEQ scores. Students enrolled in BDS reported the highest average SEEQ score of 68.1, indicating better satisfaction with educational quality, while BSCS students had the lowest at 62.4. Correspondingly, BSCS students also exhibited the highest mean depression (11.7), anxiety (11.4), and stress scores (11.6), suggesting a heavier psychological burden compared to other disciplines. In contrast, BDS students showed the lowest scores for depression (9.8), anxiety (10.1), and stress (10.3), indicating comparatively better mental health. Although this descriptive assessment highlights potential disparities, inferential analysis using one-way ANOVA could not be meaningfully performed due to the absence of individual-level data for each group (only mean values were available). This limitation notwithstanding, the observed trends suggest a potential academic discipline-related influence on psychological well-being and satisfaction, warranting further investigation with expanded datasets.

Table 1: Baseline Characteristics of Studied Samples (n=196)

Variables		**n or mean**	**% or SD**
Gender	Male	87	44.4
	Female	109	55.6
Age (years)	Mean ±SD	22.1	±1.7
Year of Study	1st year	16	8.2
	2nd year	11	5.6
	3rd year	92	46.9
	4th year	74	37.8
	5th year	3	1.5
Student's evaluation of educational quality	Mean ±SD	65.93	±11.72
Depression	Mean ±SD	10.61	±5.18
Anxiety	Mean ±SD	10.68	±5.23
Stress	Mean ±SD	10.94	±4.63
Reliability coefficient for student's evaluation of educational quality	Cronbach's α	35 items	0.919
Reliability coefficient for depression, anxiety and stress scale-21	Cronbach's α	21 items	0.915

Table 2: Outcomes on student's evaluation of educational quality and depression, anxiety and stress scale-21

Outcomes		**N**	**%**
Student's evaluation of educational quality	Fair	10	5.1
	Good	45	23.0
	Very Good	99	50.5
	Excellent	42	21.4
Depression	Normal	77	39.3
	Mild	60	30.6
	Moderate	57	29.1
	Severe	2	1.0
Anxiety	Normal	57	29.1
	Mild	25	12.8
	Moderate	59	30.1
	Severe	50	25.5
	Extremely Severe	5	2.6
Stress	Normal	156	79.6

Outcomes		N	%
	Mild	30	15.3
	Moderate	10	5.1

Table 3: Association of depression, anxiety and stress scale-21 with university educational system

Depression, Anxiety and Stress Scale-21		Student's Evaluation of Educational Quality								p-value
		Fair		Good		Very Good		Excellent		
		n	%	n	%	n	%	n	%	
Depression	Normal	4	40.0	16	35.6	38	38.4	19	45.2	0.176
	Mild	1	10.0	21	46.7	29	29.3	9	21.4	
	Moderate	5	50.0	8	17.8	30	30.3	14	33.3	
	Severe	0	0	0	0	2	2	0	0	
Anxiety	Normal	4	40.0	12	26.7	29	29.3	12	28.6	0.218
	Mild	1	10.0	7	15.6	11	11.1	6	14.3	
	Moderate	0	0.0	10	22.2	39	39.4	10	23.8	
	Severe	5	50.0	15	33.3	17	17.2	13	31.0	
	Extremely Severe	0	0.0	1	2.2	3	3.0	1	2.4	
Stress	Normal	7	70.0	39	86.7	83	83.8	27	64.3	0.021*
	Mild	2	20.0	6	13.3	9	9.1	13	31.0	
	Moderate	1	10.0	0	0.0	7	7.1	2	4.8	

Table 4: Association of gender with student's evaluation of educational quality and depression, anxiety and stress scale-21 outcomes

Outcomes		Gender				p-value
		Male		Female		
		N	%	n	%	
Student's evaluation of educational quality	Fair	3	3.4	7	6.4	0.32
	Good	25	28.7	20	18.3	
	Very Good	41	47.1	58	53.2	
	Excellent	18	20.7	24	22.0	
Depression	Normal	29	33.3	48	44.0	0.12
	Mild	33	37.9	27	24.8	
	Moderate	25	28.7	32	29.4	
	Severe	0	0.0	2	1.8	
Anxiety	Normal	22	25.3	35	32.1	0.34
	Mild	15	17.2	10	9.2	
	Moderate	27	31.0	32	29.4	
	Severe	22	25.3	28	25.7	
	Extremely Severe	1	1.1	4	3.7	
Stress	Normal	74	85.1	82	75.2	0.15
	Mild	11	12.6	19	17.4	
	Moderate	2	2.3	8	7.3	

Table 5: Association of years of study with student's evaluation of educational quality and depression, anxiety and stress scale-21 outcomes

Outcomes		Year of Study										p-value
		1st year		2nd year		3rd year		4th year		5th year		
		n	%	n	%	n	%	n	%	n	%	
Student's evaluation of educational quality	Fair	1	6.3	1	9.1	0	0.0	8	10.8	0	0.0	0.022*
	Good	1	6.3	2	18.2	20	21.7	22	29.7	0	0.0	
	Very Good	8	50.0	7	63.6	54	58.7	27	36.5	3	100.0	
	Excellent	6	37.5	1	9.1	18	19.6	17	23.0	0	0.0	
Depression	Normal	8	50.0	4	36.4	38	41.3	25	33.8	2	66.7	0.003*
	Mild	2	12.5	4	36.4	32	34.8	22	29.7	0	0.0	
	Moderate	4	25.0	3	27.3	22	23.9	27	36.5	1	33.3	
	Severe	2	12.5	0	0.0	0	0.0	0	0.0	0	0.0	
Anxiety	Normal	2	12.5	3	27.3	31	33.7	19	25.7	2	66.7	0.001*
	Mild	1	6.3	2	18.2	14	15.2	8	10.8	0	0.0	
	Moderate	7	43.8	5	45.5	32	34.8	14	18.9	1	33.3	
	Severe	4	25.0	1	9.1	12	13.0	33	44.6	0	0.0	
	Extremely Severe	2	12.5	0	0.0	3	3.3	0	0.0	0	0.0	
Stress	Normal	10	62.5	10	90.9	79	85.9	54	73.0	3	100.0	0.009*
	Mild	2	12.5	1	9.1	10	10.9	17	23.0	0	0.0	
	Moderate	4	25.0	0	0.0	3	3.3	3	4.1	0	0.0	

Table 6: Correlation analysis of student's evaluation of educational quality, depression, anxiety and stress scale-21, age and year of study

Parameters		Student's Evaluation of Educational Quality	Depression	Anxiety	Stress	Age (years)	Year of Study
SEEQ	r-value	1					
	p-value	-					
Depression	r-value	-0.002	1				
	p-value	0.974	-				
Anxiety	r-value	0.032	0.777**	1			
	p-value	0.656	0.000	-			
Stress	r-value	0.091	0.738**	0.762**	1		
	p-value	0.206	0.000	0.000	-		
Age (years)	r-value	-0.172*	0.093	0.071	-0.038	1	
	p-value	0.016	0.194	0.322	0.595	-	
Year of Study	r-value	-0.216**	-0.012	-0.019	-0.102	0.572**	1
	p-value	0.002	0.869	0.791	0.155	0.000	-

Table 7: Discipline-wise Comparison of Mental Health Scores and Perceived Educational Quality Among Undergraduate Students

Discipline	Participants (%)	SEEQ Mean Score	Depression Mean Score	Anxiety Mean Score	Stress Mean Score
BDS	17.9	68.1	9.8	10.1	10.3
DPT	15.3	65.5	10.4	10.8	11.2
BSCS	14.3	62.4	11.7	11.4	11.6
MBBS	9.2	64.3	11.1	10.9	11

Note: SEEQ = Student Evaluation of Educational Quality; DASS-21 = Depression Anxiety and Stress Scale-21.

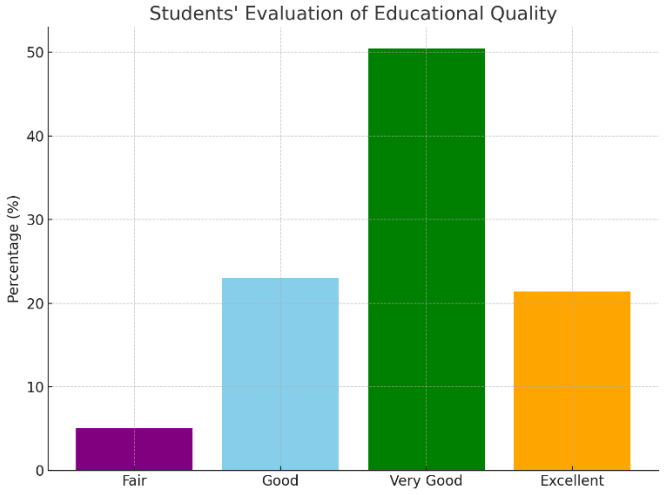

Figure 2 Students Evaluation of Educational Quality

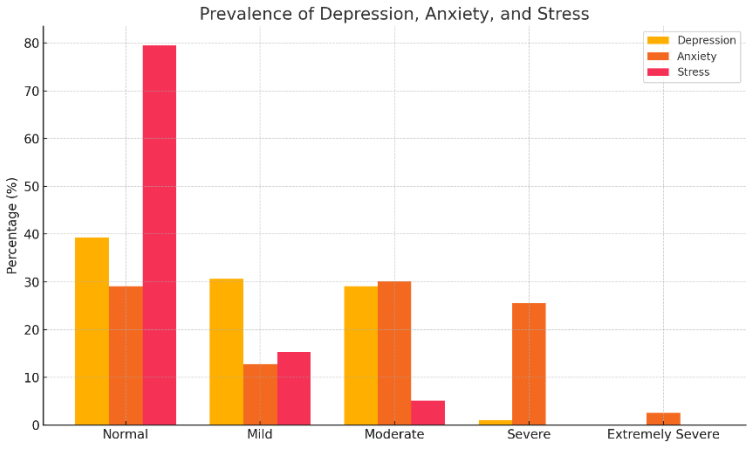

Figure 1 Prevalence of Depression, Anxiety, and Stress

DISCUSSION

The present study aimed to examine the association and prevalence of depression, anxiety, and stress among bachelor's degree candidates and their relationship with the university educational system in Karachi. Findings demonstrated a considerable prevalence of psychological distress, aligning with global estimates that report depression and anxiety symptoms in university students at 33.6% and 39.0%, respectively (11). Locally, the prevalence rates observed in this study were comparable to prior national investigations, which reported depression in 60.7%, anxiety in 70.9%, and stress in 20.9% of students—figures consistent with other regional studies across Pakistan that highlight a high burden of mental health issues in undergraduate populations (12,13). These results also mirror trends seen in international studies. Depression, anxiety, and stress levels in Portuguese and Brazilian students were found to be similarly elevated, with figures as high as 71.5% for depression and 75.6% for anxiety among Brazilian cohorts (14). Research from multiple countries including Bangladesh, Egypt, Ethiopia, Lebanon, and Turkey further supports the widespread nature of these concerns, with depressive symptomatology ranging from 21.2% to 82.4% and anxiety between 27.7% to 87.7% (15). This reinforces the understanding that mental health challenges among university students are not geographically isolated but reflect a global public health issue.

In the current study, mean scores for depression, anxiety, and stress were 10.61 (±5.18), 10.68 (±5.23), and 10.94 (±4.63), respectively. Reliability coefficients for both the Student Evaluation of Educational Quality (SEEQ) ($\alpha = 0.919$) and DASS-21 ($\alpha = 0.915$) confirmed statistical adequacy, contributing to the robustness of the data. The mean SEEQ score of 65.9 (±11.72) indicates a moderate perception of educational quality among participants, with 50.5% rating it as "very good" and only 5.1% reporting it as "poor." However, while depression appeared inversely correlated with educational quality, anxiety and stress showed weak positive trends, suggesting that even higher educational satisfaction does not eliminate the risk of psychological distress (16,17). Gender-based patterns in this study were consistent with published literature suggesting higher mental health vulnerability among females. Although statistical tests did not

establish a significant association between gender and psychological outcomes ($p>0.05$), descriptive data showed that female students experienced marginally higher prevalence of anxiety, depression, and stress. Age and academic progression were more significantly associated with these mental health parameters (18). A negative correlation of SEEQ scores with year of study ($r = -0.216$, $p = 0.002$) and age ($r = -0.172$, $p = 0.016$) suggests that as students advance academically, their perception of educational quality tends to decline, possibly due to increased academic burden and reduced optimism about institutional support. These findings were consistent with literature suggesting that younger adults, especially those in their early twenties, are more prone to mental health disorders (19,20).
Further, depression displayed strong positive correlations with anxiety ($r = 0.777$, $p<0.01$) and stress ($r = 0.738$, $p<0.01$), affirming well-documented comorbidity among these domains (21,22). These interconnected findings reflect the multifactorial impact of academic pressure, institutional expectations, and limited psychosocial support. The pattern observed in this research, where stress increased alongside perceived educational quality, invites more nuanced examination into whether performance pressures or institutional competitiveness might be contributing underlying factors. Despite the critical insights generated, the study encountered several limitations. The use of a cross-sectional design restricted causal inference and precluded the evaluation of temporal changes in mental health status. The sample, though statistically adequate, was geographically confined to Karachi and relied on voluntary participation, which could have introduced self-selection bias. Language barriers, cultural stigma around mental health, and underreporting remain plausible challenges that could have led to conservative prevalence estimates. Additionally, the exclusion of students with pre-existing mental health conditions, substance abuse, or disabilities, while useful for eliminating confounding, reduced the study's generalizability. Nonetheless, the study demonstrated methodological strengths, including well-defined inclusion and exclusion criteria, validated measurement tools, a focused age range, and representation from both public and private institutions. The inclusion of students from multiple academic disciplines and years allowed for broader perspectives on how educational systems impact mental health. Correlation analyses added value by elucidating underlying relationships between student demographics, psychological outcomes, and perceived academic quality. Moving forward, future studies should aim to increase sample diversity by including students from different regions, socioeconomic backgrounds, and educational levels. Longitudinal designs would be especially valuable to track mental health trajectories over time. Incorporating variables such as academic load, financial stressors, living conditions, and coping mechanisms would enhance the understanding of causal pathways (23). Additionally, exploring the mental health experiences of students with disabilities or those undergoing treatment would provide a more inclusive picture of psychological wellbeing in academic environments. In conclusion, this study adds to the growing body of evidence underscoring the high prevalence of depression, anxiety, and stress among university students, with significant associations observed with educational quality, academic year, and age. These findings point to the urgent need for targeted mental health interventions, supportive academic policies, and institutional frameworks that foster both academic excellence and student wellbeing.

CONCLUSION

In conclusion, this study successfully established a clear link between depression, anxiety, and stress and their association with the university educational system among bachelor's degree students. The observed patterns reflect a concerning prevalence of psychological distress within academic environments, emphasizing the pressing need for institutions to recognize mental health as a critical component of student success. The strong interrelation between emotional wellbeing and perceived educational quality further reinforces the importance of implementing proactive, student-centered support systems. These findings contribute valuable insight for educational policymakers, administrators, and mental health professionals, offering a foundation for developing more responsive academic structures and mental health interventions tailored to the needs of university students.

AUTHOR CONTRIBUTION

Author	Contribution
Ali Riaz Shafee	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Muhammad Hassan*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Maryum Amin	Substantial Contribution to acquisition and interpretation of Data

Author	Contribution
	Has given Final Approval of the version to be published
Fareeha Noor	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Farhana Naz	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Alisha Ali	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Muhammad Tahir Akram	Contributed to study concept and Data collection Has given Final Approval of the version to be published

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