

## Prevalence of Depression and Anxiety Among University Students in Pakistan: A Case Study of Peshawar

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### Abstract

This research investigates the prevalence of and factors associated with depression and anxiety among the university students in Peshawar, Pakistan. Based on a cross-sectional survey conducted in a sample of public and private universities, the study highlights pervasive psychological distress related to academic, financial, and interpersonal stress. The results suggest that the prevalence of mental health issues is high in female students and in students with a lower socioeconomic position. Academic pressure was also found to be a powerful predictor of both depression and anxiety, whereas being able to benefit from mental health support services reduced the severity of both stress and anxiety. It draws attention to the layered difficulties experienced by students in

conflict-affected contexts, particularly in the absence of formal mental health provision within colleges. It highlights the urgent need for action to address the mental health of those at university with a comprehensive approach to mental health in higher education, a focus on gender-sensitive services, accessible counselling and addressing the root causes of academic and financial distress. These findings help lay the groundwork for such

interventions and support programming that is based on evidence and contributes to student well-being and academic resilience.

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## INTRODUCTION

The issue of mental health in university students is increasingly being recognized as a worldwide concern, and more particularly in developing countries with scarce and inaccessible mental health resources. Depression and anxiety are most common among these concerns and contribute to compromised academic achievements, personal relationships, or well-being of the affected students (WHO, 2022). As they move through the developmental transition to adulthood, students face a variety of stressors—academic, financial, social, and emotional—that increase risk of psychological distress (Auerbach et al., 2018; Ahmed et al., 2022).

Mental health is a neglected aspect in Pakistan, neglected in terms of both stigma and structure. The Pakistan Mental Health Survey (WHO, 2021) suggests that more than one-fifth of university students meet criteria for moderate to severe psychological distress, and depression and anxiety are the most prevalent conditions. Indisciplined counselling services, poor mental health literacy, and cultural prohibition of emotional sharing aggravates the problem (Khan et al., 2021; Saleem & Mahmood, 2023).

The global state of affairs is reflected in the same concerns. A evidence-based review of Ibrahim et al. (2021) described depression (24% to 36%) and anxiety (19% to 30%) in university students. The COVID-19 pandemic has exacerbated these problems as a consequence of academic disruption, social isolation, and economic insecurity (Son et al., 2020; Charles et al., 2021). Recovery has been sluggish and especially so in developing or low and middle-income countries such as Pakistan where support mechanisms in schools are still weak or poor (UNESCO, 2023).

Mental health practitioners are disproportionately available in Pakistan ~ less than one psychiatrist per 100,000 of population (WHO, 2021). A study by Malik et al. (2020) revealed that almost 65% of the participants who experienced symptoms of depression did not look for help because they feared social stigma. The academic arena contains several factors that make the problem worse such as high expectations, poor employment prospects and inflexible educational systems that make students burn out and stress.

Peshawar, the Khyber Pakhtunkhwa province's capital, is an exception. It boasts prestigious institutions like the University of Peshawar and Islamia College University, drawing students from all over the province, even from conflict and remote regions. These students experience multiple challenges at the same time – adjust to a new cultural, manage academic workloads, financial issues, and sometimes memories of past traumatic experiences as well (Ali & Zaman, 2022). One study conducted by Afridi and Khan (2021) described that 42% of the students at a public university in Peshawar suffered from mild-to-severe depressive symptoms, while 37% had significant symptoms of anxiety.

The causal factors of these diseases are complex. Academic stress, financial strain, parental expectations, social disconnection, and history of traumatic events are some of the leading factors (Hasan & Azeem, 2023; Riaz et al., 2022). Yet, less than 20% of universities in Pakistan have functioning counseling centers (HEC, 2023), resulting in students opting for less adaptive coping strategies like drug use and emotional regulation (Khalid & Hussain, 2021).

This important gap has been addressed by the current study by assessing prevalence, and factors leading to depression and anxiety among university students in Peshawar, Pakistan. The research will also generate

practicable policy suggestions for improving mental health awareness, services and resilience building efforts in the university.

#### **OBJECTIVES OF THE STUDY**

1. To determine the prevalence of depression and anxiety among university students in Peshawar.
2. To examine the relationship between gender and the levels of depression and anxiety.
3. To assess the impact of socioeconomic status and academic stress on students' mental health.
4. To explore students' coping strategies and their access to mental health support services.

#### **LITERATURE REVIEW**

##### **GLOBAL PERSPECTIVE ON STUDENT MENTAL HEALTH**

The WHO (2022) identifies depression as the leading global cause of disability, while anxiety ranks sixth. A meta-analysis by Ibrahim et al. (2021) found that 30.6% of students globally suffer from depression, and 28% suffer from anxiety. During COVID-19, Charles et al. (2021) found that students experienced increased psychological distress due to financial instability, online learning, and isolation. UNESCO (2023) stressed the need for integrated mental health systems in education globally, especially in low-resource countries.

##### **DEPRESSION AND ANXIETY IN SOUTH ASIA**

In South Asia, depression and anxiety among students are underdiagnosed and often unaddressed. Nayak et al. (2020) found that 35.7% of Indian students reported depression and 31.1% reported anxiety. Similarly, Rahman et al. (2022) found significant anxiety levels among Bangladeshi university students, especially during examinations. Cultural stigma and lack of access to care remain barriers to intervention.

**MENTAL HEALTH IN PAKISTAN**

Pakistan's mental health infrastructure is woefully underdeveloped (1 psychiatrist per 100,000 people) (WHO, 2021). Ahmed et al. (2022) found that 41% of students at a selection of Pakistani universities reported moderate to severe depression with 34% reporting anxiety. Many universities don't have formal psychological services (Sohail & Khan, 2021) and untreated psychological issues that impact students' functioning and lives.

**MENTAL HEALTH IN PESHAWAR**

A city like Peshawar, which has a history of conflict and economic hardship is blessed with an increased load of psychological problems. Afridi and Khan (2021) reported that almost 43% of Peshawar university students were depressed, whereas around 37% faced anxiety. Zaman et al. (2022), Conflict exposure, economic deprivation and lack of recreational spaces aggravated the mental suffering of the students.

**GENDER AND SOCIOECONOMIC FACTORS**

Restrictive gender roles are found as source of depression and anxiety due to mobility constrains and social pressures, and this was more among female learners as reported by Saleem and Mahmood (2023). Khan et al. (2021) demonstrated that less privileged students experience more psychological distress because of their financial insecurities and family responsibilities. Auerbach et al. (2018) also found higher risk for first-generation and economically disadvantaged students.

**ACADEMIC PRESSURE AND PSYCHOLOGICAL DISTRESS**

Academic stress is still playing role in student stress. Fear of failure, excessive burden of work and competition have been identified as principal stressors by Hasan and Azeem (2023). Riaz et al. (2022) connected low GPA and vocational uncertainty to depressive symptomatology, particularly among seniors.

**DIGITAL MEDIA AND MENTAL HEALTH**

Javed et al. (2024) found that students who frequently used TikTok and Instagram were more likely to report anxiety, sleep problems and low self-esteem. Farooq and Shafiq (2021) demonstrated that overuse of social media is positively related to greater depressive symptoms by way of online comparison and cyberbullying.

**COPING AND HELP-SEEKING BEHAVIOR**

Stigma or absence of support services leads many students to turn to unhealthy coping mechanisms, she added. Students in Khyber Pakhtunkhwa had the tendency to adopt the strategy of self-isolation, and substance use and emotional suppression (Khalid and Hussain, 2021). Malik et al. (2020) only 15% of the students looked for help from a psychologist, preferring peer support or online forums.

**INSTITUTIONAL GAPS**

HEC (2023) released a mental health policy encouraging universities to establish counseling services. However, implementation remains weak. A recent HEC audit (2023) found that fewer than 25% of public universities had operational mental health services, particularly in underserved areas like Peshawar.

**HYPOTHESES OF THE STUDY**

H1: A significant proportion of university students in Peshawar experience moderate to severe levels of depression and anxiety.

(Corresponds to Objective 1)

H2: There is a significant relationship between gender and the levels of depression and anxiety among university students in Peshawar.

(Corresponds to Objective 2)

H3: Socioeconomic status and academic stress significantly affect the mental health (depression and anxiety levels) of university students.

(Corresponds to Objective 3)

H4: Students with limited access to mental health support services are more likely to adopt maladaptive coping strategies.

(Corresponds to Objective 4)

## **METHODOLOGY**

This study employs a quantitative cross-sectional survey design to assess the prevalence and correlates of depression and anxiety among university students in Peshawar, Pakistan. The design is appropriate for estimating the frequency of mental health conditions and analyzing associations with demographic and psychosocial factors at a single point in time.

## **POPULATION AND STUDY AREA**

The target population comprises undergraduate and postgraduate students enrolled in higher education institutions in Peshawar. To ensure representation from both public and private sectors, the study selected four universities:

### **PUBLIC SECTOR UNIVERSITIES**

- i. Islamia College University, Peshawar
- ii. University of Engineering and Technology (UET), Peshawar

### **PRIVATE SECTOR UNIVERSITIES**

- i. Sarhad University of Science & Information Technology
- ii. Abasyn University, Peshawar

These universities were chosen due to their diverse student bodies, disciplinary variation, and accessibility for data collection.

## **SAMPLE SIZE AND SAMPLING TECHNIQUE**

Using Cochran's formula for prevalence studies with an assumed prevalence of 50% (to ensure maximum sample size), a confidence level of 95%, and a 5% margin of error, the calculated minimum sample size was 384. To account for

potential non-responses or incomplete surveys, the sample was increased to 400 students.

#### SAMPLING TECHNIQUE

- A stratified random sampling method was used:
- Stratification was based on university sector (public/private) and gender.
- From each university, 100 students were selected using simple random sampling from student enrollment lists provided by university administration.
- Within each stratum, an equal number of male and female students were targeted to ensure gender balance.

#### RESEARCH INSTRUMENTS

The primary data collection tool was a structured, self-administered questionnaire comprising three sections:

**Demographic Information:** Gender, age, degree program, year of study, socioeconomic status (monthly family income), and residence type (hostel/day scholar).

#### MENTAL HEALTH ASSESSMENT

- Patient Health Questionnaire-9 (PHQ-9) for measuring depression.
- Generalized Anxiety Disorder-7 (GAD-7) scale for assessing anxiety.
- Both instruments are widely validated, reliable, and have been used in South Asian contexts with good psychometric properties.

#### COPING STRATEGIES AND HELP-SEEKING BEHAVIOR

Adapted from the Brief COPE inventory and previous local studies (e.g., Khalid & Hussain, 2021).

The questionnaire was administered in English, the medium of instruction in these universities. A pilot test was conducted with 20 students to ensure clarity and reliability (Cronbach's alpha for PHQ-9 and GAD-7 > 0.80).

#### DATA COLLECTION PROCEDURE

Approval was obtained from the respective university ethics committees.

- Informed consent was secured from all participants.
- Questionnaires were distributed in classrooms and student lounges with the support of faculty focal persons, ensuring anonymity and confidentiality.
- Data was collected over a period of four weeks.

#### DATA ANALYSIS

Data was coded and entered into SPSS version 26 for analysis.

**Descriptive Statistics:** Frequencies, means, and standard deviations to assess the prevalence of depression and anxiety.

#### INFERENTIAL STATISTICS

- Chi-square tests to examine associations between categorical variables (e.g., gender and mental health status).
- Independent t-tests and ANOVA to compare mean depression and anxiety scores across groups.
- Multiple linear regression analysis to assess the predictive impact of socioeconomic status, academic stress, and access to support services on mental health outcomes.
- Correlation analysis between depression, anxiety, and coping strategies.
- A p-value < 0.05 was considered statistically significant.

#### ETHICAL CONSIDERATIONS

- Ethical clearance was obtained from the Institutional Review Boards (IRBs) of participating universities.
- Participants were assured of voluntary participation, confidentiality, and the right to withdraw at any point.
- No identifiable personal data was collected.

## RESULTS

TABLE 1: PREVALENCE OF DEPRESSION (PHQ-9 CATEGORIES)

Depression Level	Frequency	Percentage
None	62	15.5%
Mild	135	33.8%
Moderate	121	30.3%
Severe	82	20.5%

The data on depression levels among university students in Peshawar reveals a significant mental health concern, with only 15.5% of students reporting no symptoms of depression. A large proportion, 33.8%, experienced mild depression, while 30.3% reported moderate depression, and a concerning 20.5% were found to suffer from severe depression. These results show that more than eighty percent of students are under the influence of depressive symptoms, and more than half of them belong to moderate-severe severity that is expected to have a substantial influence on their studying, socializing, and psychosocial status. This highlights the necessity of specialized mental health interventions, awareness campaigns and counseling services at universities to deal with the common problem of depression.

TABLE 2: PREVALENCE OF ANXIETY (GAD-7 CATEGORIES)

Anxiety Level	Frequency	Percentage
None	99	24.8%
Mild	144	36.0%
Moderate	104	26.0%
Severe	53	13.2%

The statistics of Anxiety among university students of Peshawar open up a huge mental health challenge as 75.2% was found to be suffering from anxiety. 24.8% only had no symptom, 36.0% mild anxiety, 26.0% moderate and 13.2% severe. These results suggest that anxiety is a common problem and can have

a significant impact on students' academic performance, emotional status, and everyday life. The high percentage of students with moderate to severe levels of anxiety catches the attention and compels a quick implementation of directed mental health initiatives, stress coping trainings and public accessible psychological support facilities at university in order to reduce this rising crisis.

**TABLE 3: GENDER VS DEPRESSION LEVELS**

Gender	None	Mild	Moderate	Severe
Male	33	72	60	35
Female	29	63	61	47

Gender analysis of depression in university students of Peshawar: So obvious and so alarming It is evident from the present study that female students were more depressed than male students. Although the number of students who do not experience symptoms is about the same (33 males versus 29 females), the severity of depression increases substantially among women. Noticeably, 47 girls felt very depressed while there were only 35 boys which implies a consistent gender gap in reporting of intense psychological distress. Females also outnumber males even at mild level of depression (117 vs. 71) whereas at the moderate level, females slightly exceed males (61 vs. 60). These results robustly imply that female students are more vulnerable to serious depressive symptoms, and emphasize the critical commitment to gender-sensitive psychiatric policies and institutional support at the universities which are on students' need of developing effective mental health services and supportive program aimed at the stressors and emotional exhaustion faced by female students.

**TABLE 4: GENDER VS ANXIETY LEVELS**

Gender	None	Mild	Moderate	Severe
Male	51	78	53	18
Female	48	66	51	35

The analysis of anxiety levels by gender reveals that 51 male and 48 female students reported no anxiety, while 78 males and 66 females experienced mild anxiety. Moderate anxiety was reported by 53 males and 51 females. However, a notable gender gap appears at the severe anxiety level, with 35 female students affected compared to only 18 males. This indicates a significantly higher burden of severe anxiety among female students, emphasizing the need for gender-focused mental health interventions.

**TABLE 5: MEAN DEPRESSION & ANXIETY SCORES BY INCOME LEVEL**

Income Level	Mean PHQ-9 (Depression)	Mean GAD-7 (Anxiety)
Low	11.10	8.77
Middle	9.68	7.64
High	7.77	6.70

The data clearly shows that students from low-income backgrounds have the highest mean depression score (11.10) and anxiety score (8.77), followed by middle-income students with scores of 9.68 (depression) and 7.64 (anxiety). Students from high-income backgrounds report the lowest mean scores, with 7.77 for depression and 6.70 for anxiety. This trend indicates that as income level increases, depression and anxiety scores decrease, highlighting the significant impact of financial stress on students' mental health.

**TABLE 6: MEAN SCORES BY ACADEMIC STRESS LEVEL**

Academic Stress (1–5)	Mean PHQ-9	Mean GAD-7
1 (Very Low)	6.89	6.01
2	8.11	7.03
3	9.66	7.95
4	10.42	8.52
5 (Very High)	11.26	9.33

The table shows a clear upward trend in both depression and anxiety scores as academic stress increases. Students with very low stress (level 1) have a mean

PHQ-9 score of 6.89 and GAD-7 score of 6.01. These scores progressively rise: at stress level 3, depression is 9.66 and anxiety 7.95; and at very high stress (level 5), depression peaks at 11.26 and anxiety at 9.33. This data clearly indicates that higher academic stress leads to more severe depression and anxiety symptoms among university students.

**TABLE 7: SUPPORT ACCESS VS MENTAL HEALTH STATUS (PARTIAL SAMPLE)**

Support Access	Depression Level	Anxiety Level	Frequency
Yes	Mild	Mild	18
Yes	Moderate	Mild	13
No	Severe	Severe	27
No	Moderate	Moderate	31
No	Mild	Mild	35

The data clearly shows that among students with access to support, 18 reported mild depression and mild anxiety, and 13 reported moderate depression with mild anxiety—no severe cases were reported. In contrast, among those without support, 27 students experienced severe depression and anxiety, 31 had moderate depression and anxiety, and 35 reported mild symptoms. This demonstrates that students lacking access to mental health support are significantly more likely to experience moderate to severe mental health issues, highlighting the importance of accessible support services.

**CONCLUSION**

This study explored the prevalence, severity, and correlates of depression and anxiety among university students in Peshawar, drawing on data from both public (Islamia College University and UET Peshawar) and private (Sarhad University and Abasyn University) institutions. The findings revealed a concerning high prevalence of mental health issues, with 84.5% of students experiencing some level of depression and 75.2% showing symptoms of anxiety. Among these, moderate to severe cases were alarmingly frequent,

suggesting that a significant portion of the student population is at risk of impaired academic functioning, emotional instability, and deteriorating quality of life.

Gender-wise analysis showed that female students were more vulnerable to severe depression and anxiety than males, highlighting the need for gender-sensitive psychological interventions. Furthermore, students from low-income families recorded higher mean scores for both depression and anxiety, underlining the influence of financial stress on mental well-being. Similarly, participants with higher academic stress scores reported higher levels of mental health problems, suggesting a pivotal role for academic stress.

The research also highlighted a strong relationship between lack of access to mental health support services and severity of psychological symptoms. There were significantly more cases of moderate and severe depression and anxiety for respondents who did not have support access, but if they did have access to support then students were only mostly reporting mild symptoms. This underscores the protective effects of available mental health material in dealing with student's distress in this study.

In short, the report reflects an urgent mental health crisis in Peshawar's universities. The results indicate that action is needed and, importantly, this action must be coordinated across education, health and wellbeing and policy levels. There is an urgency about putting mental health programmes in place that are based on campuses, awareness campaigns on mental health, on reducing academic stresses and on providing financial aid to those students who are not able to pay their own way through. Valuing student mental health is more than a question of health; it's fundamental to academic success, personal achievement and societal advancement.

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