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ASSESS THE LEVEL OF DEPRESSION, ANXIETY, AND STRESS AMONG UNDERGRADUATE PUBLIC NURSING STUDENTS, PAKISTAN

Original Research

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ABSTRACT

Background: Anxiety disorders are psychological conditions characterized by excessive worry, heightened arousal, and fear, while stress impairs cognitive functions such as focus, decision-making, and problem-solving. High levels of psychological distress can negatively affect students' academic performance and overall well-being, leading to poor health outcomes, including an increased risk of metabolic syndrome and cardiovascular diseases. Nursing students are particularly susceptible due to the dual demands of academic and clinical responsibilities.

Objective: This study aimed to assess the levels of depression, anxiety, and stress among undergraduate public nursing students in Sindh, Pakistan.

Methods: A cross-sectional survey was conducted from December 25, 2025, to January 25, 2025, across three public nursing colleges: College of Nursing (CON) Female Shikarpur, CON Male Jacobabad, and CON Female Sukkur. A total of 170 students participated, with the sample size calculated using OpenEpi at a 95% confidence interval and a 5% margin of error. A convenience sampling method was used. Data were collected using a structured questionnaire based on the DASS-21 scale, comprising demographic information and three subscales for depression, anxiety, and stress. Data analysis was performed using SPSS version 29, with descriptive statistics, including frequencies and percentages.

Results: Among the participants, 29.41% (n=50) were male, and 70.5% (n=120) were female. Age distribution revealed 17.64% (n=30) were under 20 years, 72.94% (n=124) were aged 20–25, and 9.41% (n=16) were above 25. Anxiety levels showed 55.28% (n=94) in the normal range, 12.94% (n=22) mild, 19.41% (n=33) moderate, and 12.35% (n=21) severe. In terms of stress, 90.58% (n=154) were classified as normal, 7.05% (n=12) mild, 2.35% (n=4) moderate, and 5.29% (n=9) severe. Depression levels were normal in 69.4% (n=118), mild in 17.05% (n=29), moderate in 13.52% (n=23), and no participants reported severe depression.

Conclusion: The study findings indicate a significant prevalence of anxiety, stress, and depression among nursing students, with female students appearing more susceptible to psychological distress. These results highlight the need for universities to strengthen mental health resources and implement targeted interventions, particularly for female students, to improve their psychological well-being and academic performance.

Keywords: Anxiety, Depression, DASS-21 Scale, Mental Health, Nursing Students, Psychological Stress, Undergraduate Education.

INTRODUCTION

Depression, anxiety, and stress are among the most common psychological health concerns affecting university students globally, posing significant challenges to their academic performance, mental well-being, and overall quality of life (1). These mental health issues often arise from academic pressures, personal struggles, and future career uncertainties, making students, particularly those in demanding fields like nursing, highly vulnerable (2). Depressive disorders in students manifest as persistent feelings of sadness, lack of motivation, difficulty concentrating, and emotional instability, which can severely hinder academic engagement and performance (3). Anxiety, characterized by excessive worry, fear, and heightened physiological arousal, can impair cognitive functions such as memory, focus, and decision-making, further complicating students' ability to succeed academically (4). Stress, an inevitable part of the educational journey, particularly in nursing, can diminish students' capacity for problem-solving, decision-making, and effective learning (5). Chronic stress has also been associated with adverse physical outcomes, including the development of metabolic syndrome and increased cardiovascular risk (6,7). Beyond physical health, elevated stress levels negatively impact mental health, interpersonal relationships, and social interactions, potentially leading to anxiety disorders, depression, and suicidal ideation (8,9). Nursing students often face additional psychological stress due to the dual demands of academic coursework and clinical responsibilities, making their mental well-being a matter of particular concern (10-13).

Several studies conducted worldwide highlight the global burden of mental health issues among university students. Research conducted in European countries such as Germany, Poland, and Bulgaria revealed alarming rates of depressive symptoms, driven primarily by academic pressures and concerns about future employment opportunities (14). Similarly, studies from Nepal and Malaysia indicated that a significant proportion of undergraduate students experienced varying degrees of depression, anxiety, and stress, with factors such as academic year, living arrangements, and prior medical history playing significant roles (15-17). Comparable findings were observed in Turkey, where female students and those in earlier academic years reported higher levels of psychological distress (18). In Pakistan, particularly alarming statistics were recorded in a study at GC Women University, where the prevalence rates for depression, anxiety, and stress were notably higher than in other global studies (19). Furthermore, research from China, Saudi Arabia, Bangladesh, and the UK consistently demonstrates that university students across diverse cultural and educational settings are experiencing significant mental health challenges, highlighting the global nature of this issue (20-25). These findings underscore the need for context-specific interventions aimed at addressing the mental health needs of university students, especially those enrolled in demanding programs like nursing.

Despite the wealth of international research, there remains a noticeable gap in the literature concerning the mental health status of undergraduate public nursing students in Pakistan. While some studies have provided generalized data on university students in Pakistan, specific research focused on nursing students—who face unique academic, clinical, and emotional stressors—remains scarce. Given the essential role nurses play in healthcare systems, understanding and addressing their mental health challenges during their educational journey is crucial. Therefore, this study aims to assess the levels of depression, anxiety, and stress among undergraduate public nursing students in Sindh, Pakistan. The findings will not only contribute to the existing body of literature but also inform future mental health support programs tailored to the specific needs of nursing students, equipping them with effective coping mechanisms to manage psychological distress throughout their academic and clinical experiences.

METHODS

This study employed a cross-sectional survey design to assess the levels of depression, anxiety, and stress among undergraduate nursing students enrolled in public nursing colleges across Sindh, Pakistan. The research was conducted at three institutions: the College of Nursing (CON) Female Shikarpur, CON Male Jacobabad, and CON Female Sukkur. The data collection period spanned from December 25, 2025, to January 25, 2025. The study population consisted of undergraduate students enrolled in the Generic Bachelor of Science in Nursing (BSN) program across all four academic years (1st, 2nd, 3rd, and 4th year). The total population included 175 students from CON Female Shikarpur, 160 from CON Male Jacobabad, and 180 from CON Female Sukkur. The sample size was calculated using OpenEpi software, considering a 95% confidence interval and a 5% margin of error, resulting in a required sample size of 170

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participants. A convenience sampling technique was employed for data collection, allowing the inclusion of participants who were available and willing to participate during the study period.

The inclusion criteria comprised undergraduate nursing students enrolled in the Generic BS Nursing program at the time of data collection. Students who were on leave during the study period were excluded, reducing the final sample by 10 participants. A structured questionnaire was used as the primary research tool, consisting of four sections. Section A collected demographic information, including gender, age (categorized as less than 20, 20–25, or greater than 25 years), marital status, and year of study. Sections B, C, and D were dedicated to assessing stress, anxiety, and depression, respectively, with each section comprising seven items designed to capture the severity of psychological distress among the participants. The Depression Anxiety Stress Scale-21 (DASS-21) was used to measure these variables, a widely validated tool with demonstrated reliability scores ranging from 0.81 to 0.97 (26).

The DASS-21 scores were categorized into four severity levels. For depression, scores ranged from 0–9 (normal), 10–13 (mild), 14–20 (moderate), and 21–27 (severe). Anxiety scores were divided into 0–7 (normal), 8–9 (mild), 10–14 (moderate), and 15–19 (severe). Stress scores were categorized as 0–14 (normal), 15–18 (mild), 19–25 (moderate), and 26–33 (severe). The scale's high reliability and validity have been consistently supported in previous research, with DASS-21 showing greater consistency and efficiency compared to its extended version, DASS-42 (27-29). Data collection was conducted after obtaining permission from the respective college principals. Informed consent was obtained from all participants prior to participation, with the rights and privacy of students being duly protected. Consent forms were provided in both English and Urdu to ensure clarity and comprehension. Verbal instructions were given before distributing the questionnaires, and each participant was allotted approximately five minutes to complete the form. The collected data were analyzed using SPSS version 29. Descriptive statistical analysis, including frequencies and percentages, was employed to summarize the demographic characteristics and distribution of depression, anxiety, and stress levels among the students.

	Depression	**Anxiety**	**Stress**
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	28+	15-19	26-33

RESULTS

The study analyzed data from 170 undergraduate nursing students across three public colleges of nursing in Sindh, Pakistan. The gender distribution revealed that 29.41% (n=50) of the participants were male, while 70.5% (n=120) were female. Regarding age distribution, 17.64% (n=30) were under 20 years old, 72.94% (n=124) fell within the 20–25-year range, and 9.41% (n=16) were older than 25 years. In terms of academic year, 60% (n=102) of the participants were first-year students, 14.11% (n=24) were in their second year, 15.29% (n=26) were in their third year, and 10.58% (n=18) were in their fourth year. Marital status data showed that 84.70% (n=144) were single, while 15.29% (n=26) were married.

The analysis of anxiety levels indicated that 55.28% (n=94) of participants fell within the normal range, with 11.76% being male and 43.52% female. Mild anxiety was observed in 12.94% (n=22) of participants, consisting of 4.11% males and 12.94% females. Moderate anxiety was present in 19.41% (n=33), with 7.64% males and 11.76% females, while 12.35% (n=21) experienced severe anxiety, comprising 5.88% males and 6.47% females. Regarding stress levels, 90.58% (n=154) of participants were classified as having normal stress, including 24.11% males and 66.47% females. Mild stress was observed in 7.05% (n=12), with 4.11% males and 2.94% females. Moderate stress was identified in 2.35% (n=4) of participants, with males accounting for 1.17% and females 1.17%. Severe stress was recorded in 5.29% (n=9) of participants, all of whom were male, while no female participants were classified under the severe stress category.

The findings related to depression showed that 69.4% (n=118) of participants fell within the normal category, consisting of 13.52% males and 55.88% females. Mild depression was reported by 17.05% (n=29) of participants, with 6.47% males and 10.58% females. Moderate depression affected 13.52% (n=23) of the sample, with 9.41% males and 4.11% females. Notably, no participants were

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categorized under severe depression. A chi-square test was conducted to explore potential associations between the academic year and anxiety levels among undergraduate nursing students. The analysis revealed no statistically significant association between the academic year and anxiety levels ($p = 0.71$). This suggests that anxiety levels were relatively consistent across all academic years, indicating that factors other than the year of study may have a more substantial influence on anxiety levels among the participants. Further multivariate analysis is recommended to investigate other possible predictors of psychological distress, including age, gender, and marital status.

Table 1: Demographic Characteristics of Undergraduate Nursing Students (n=170)

Category	Sub-category	Frequency (%)
Gender	Male	50 (29.41%)
	Female	120 (70.59%)
Age Group	Less than 20 years	30 (17.64%)
	20–25 years	124 (72.94%)
	Greater than 25 years	16 (9.41%)
Year of Study	1st Year	102 (60.00%)
	2nd Year	24 (14.11%)
	3rd Year	26 (15.29%)
	4th Year	18 (10.58%)
Marital Status	Single	144 (84.70%)
	Married	26 (15.29%)

Table 2: Anxiety Score:

Category	Frequency	Males Percentage%	Female Percentage%	p-value
Normal	94	11.76%	43.52%	
Mild	22	4.11%	12.94%	
Moderate	33	7.64%	11.76%	≤0.05
Severe	21	5.88%	6.47%	

Table 3: Stress Score

Category	Frequency	Males Percentage%	Female Percentage%	p-value
Normal	154	24.11%	66.47%	≤0.05
Mild	12	4.11%	2.94%	
Moderate	4	1.17%	1.176%	
Severe	9	5.29%	0	

Table 4: Depression Score

Category	Frequency	Males Percentage%	Female Percentage%	p-value
Normal	118	13.52%	55.88%	≤0.05
Mild	29	6.47%	10.58%	
Moderate	23	9.41%	4.11%	
Severe	0	0	0	

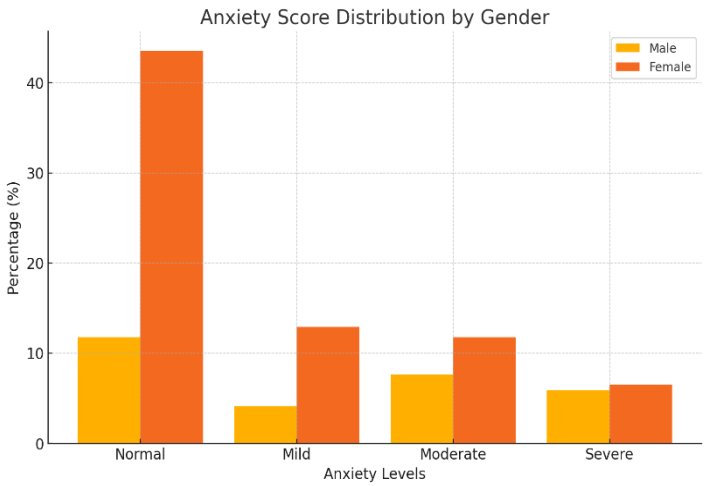

Figure 1 Anxiety Score Distribution by Gender

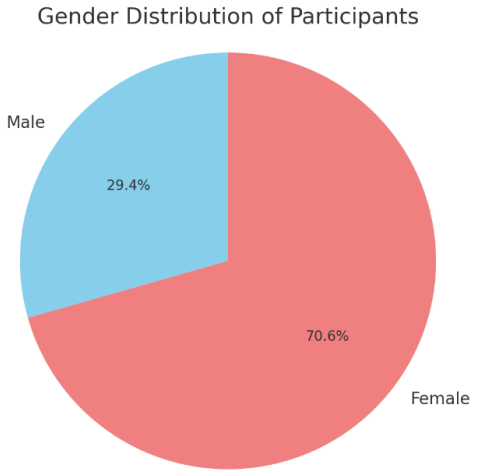

Figure 2 Gender Distribution of Participants

DISCUSSION

The findings of this study revealed significant levels of depression, anxiety, and stress among undergraduate nursing students, aligning with previous research conducted across various educational and geographical contexts. The overall prevalence of anxiety and depression observed in this study, at 55.52% and 44.09% respectively, mirrors trends reported at Menoufiya University, where higher rates of anxiety (78.4%) and depression (63.6%) were recorded among university students (30). These results suggest that nursing students in Pakistan are experiencing psychological distress at rates comparable to or slightly lower than those documented in some international contexts. In contrast, a study conducted among medical students at Mansoura University reported lower prevalence rates for depression (28.3%) and anxiety (21.2%), indicating potential differences in mental health burdens across academic disciplines (31). This discrepancy may reflect the unique pressures faced by nursing students, who often juggle both academic and clinical responsibilities, thereby exposing them to higher stress levels. Similar trends were observed in research from Hong Kong, where the majority of respondents were first- to third-year nursing students, and the prevalence of anxiety, depression, and stress was particularly pronounced among younger students aged 18 to 22 years (37). These patterns are consistent with the current study's findings, which demonstrated that students in the earlier years of study exhibited higher rates of psychological distress than their senior counterparts (32).

The present study's results align with earlier research indicating that male nursing students exhibited higher rates of stress than female students (33). However, this trend contrasts with other findings suggesting that female nursing students are more susceptible to anxiety, stress, and depression symptoms (34). These gender-based variations could be influenced by cultural, academic, or social factors that merit further exploration in future studies. The association between age and mental health outcomes was also reflected in prior research, which established that younger students were more likely to experience anxiety compared to older students (35). Although this study

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did not find statistically significant associations between academic year and anxiety levels, the trend observed suggests that younger students, particularly those in their first and second years, may face heightened psychological challenges due to academic transitions and increased workload demands.

This research provides valuable insights into the mental health status of nursing students in Pakistan; however, it is not without limitations. The use of a convenience sampling method may have introduced selection bias, potentially limiting the generalizability of the findings. Additionally, the cross-sectional design captures psychological distress at a single point in time, making it impossible to determine causality or long-term trends. The lack of multivariate analysis to assess predictors of psychological distress, such as socioeconomic status, academic performance, or family support, also represents a notable limitation (36-38). Despite these limitations, the study's strengths lie in its focus on a specific and under-researched population—nursing students enrolled in public institutions in Sindh, Pakistan. By employing a validated tool (DASS-21), the research offers a reliable assessment of depression, anxiety, and stress levels within this cohort (39,40).

Future research should incorporate longitudinal study designs to assess changes in mental health status over time and include larger, more diverse samples to enhance the generalizability of the findings. Investigating the role of coping mechanisms, social support systems, and academic workload could further illuminate the factors contributing to psychological distress among nursing students. Additionally, implementing and evaluating targeted mental health interventions could help mitigate the adverse effects of stress, anxiety, and depression, ultimately improving both academic performance and overall well-being in this vulnerable population.

CONCLUSION

The findings of this study highlight the significant mental health challenges faced by undergraduate nursing students, with female students appearing particularly vulnerable to depression, anxiety, and stress. These results underscore the need for universities to prioritize mental health support systems tailored to the specific needs of nursing students, with a focus on addressing the unique stressors experienced by female students. Strengthening institutional resources, providing accessible counseling services, and fostering supportive academic environments can help mitigate psychological distress and enhance students' overall well-being and academic success. This research contributes valuable insights into the mental health landscape of nursing students and serves as a foundation for developing targeted interventions aimed at promoting resilience and psychological health within this crucial segment of the healthcare workforce.

AUTHOR CONTRIBUTIONS

Author	Contribution
Abdul Sami Awan*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Farha Brohi	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
Hina Buriro	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Maria Soomro	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Bakhtawar Sarki	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

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