

RESEACH ARTICLE

IDENTIFYING GENDER DIFFERENCES AND RISK FACTORS FOR ANXIETY AND DEPRESSION IN NURSING STUDENTS: INSIGHTS FROM BAYERO UNIVERSITY KANO

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Abstract

Background: The psychological well-being of nursing students is increasingly compromised by stressors encountered during their academic journey, leading to significant mental health challenges such as anxiety and depression. This study aimed to identify gender differences and the risk factors associated with anxiety and depression among nursing students at Bayero University Kano. **Methods:** A cross-sectional study design was employed, involving 217 nursing students selected through simple random sampling. Data were collected using structured questionnaires, including the Hamilton Anxiety Scale and Beck's Depression Inventory, and analyzed using SPSS version 28. **Results:** The findings revealed that 69.57% of participants experienced mild levels of depression, while 71.43% reported mild levels of anxiety. Key risk factors contributing to these mental health challenges included overwhelming academic demands, fear of judgment, and the impact of physical health issues. **Conclusion:** The findings underscore the urgent need for targeted interventions to support students in managing stressors effectively, enhance mental health resources, and improve educational counseling services to address the challenges faced by nursing students. By fostering a supportive environment, institutions can promote better mental health outcomes and academic success among this vulnerable population.

Keywords: Anxiety, Depression, Gender differences, Nursing students, Risk factors

INTRODUCTION

Anxiety and depression have emerged as significant mental health concerns among university students, particularly in high-pressure academic environments such as nursing programs. These psychological conditions are often exacerbated by the unique stressors faced by nursing students, including rigorous coursework, clinical rotations, and the emotional demands of patient care (Clarke *et al.*, 2019). Academic-related anxiety is a pervasive issue that affects students' performance and overall well-being worldwide, despite various interventions aimed at mitigating its impact (Lowang, 2023). Depression among

students has been closely linked to physical exhaustion and overwhelming academic pressures that can lead to severe consequences, including suicidal ideation (Abhijita *et al.*, 2024).

In India, studies have shown that over 70% of students' experience anxiety at some point due to the competitive nature of their educational system, making them vulnerable to mental health issues (Abhijita *et al.*, 2024). Globally, the World Health Organization (2024) has reported that anxiety and depression disorders are the

leading causes of illness among adolescents and young adults, with suicide being the fourth leading cause of death in individuals aged 15-29. Meta-analyses indicated that the global prevalence of depression among medical students is approximately 28%, with anxiety affecting about 33.8% of this population (Tian-Ci Quek *et al.*, 2019). A study conducted in Uganda found that 73.5% of high school students experienced mild depression and 65.5% reported anxiety (Amoko *et al.*, 2021). Furthermore, female students are often more susceptible to anxiety and depression than their male counterparts (Lowang, 2023), highlighting the need for targeted mental health interventions. In Western societies, evidence suggests that nursing students face higher risks of mental health problems compared to their peers in social sciences (Dabana *et al.*, 2018). While mild anxiety can enhance performance by increasing motivation and focus, excessive anxiety can severely impair academic outcomes. For instance, a survey indicated that 56.9% of nursing students experienced overwhelming anxiety, with 21.9% reporting that it negatively impacted their academic performance (ACHA-NCHA, 2020).

The interplay between academic stressors and mental health is critical; students with high levels of anxiety often struggle with information processing and may find it challenging to perform academically (Wegbom *et al.*, 2023). Moreover, nursing students frequently face unique stressors related to clinical practice, including exposure to traumatic situations and high expectations from both faculty and patients. These factors contribute to heightened levels of anxiety and depression within this demographic. As Nigeria's educational landscape becomes increasingly competitive, nursing students are particularly vulnerable due to high academic expectations and the fear of failure or expulsion. This study aims to identify gender differences and risk factors for anxiety and depression among nursing students at Bayero University Kano while identifying contributing factors that may inform effective interventions. Understanding these dynamics is essential for developing targeted support systems that promote mental well-being and academic success among nursing students.

MATERIALS AND METHODS

Study Design: This research utilized a cross-sectional study design to assess the gender differences and risk factors for anxiety and depression among nursing students at Bayero University Kano. This design is appropriate for capturing a snapshot of the mental health status of students at a single point in time, allowing for the identification of associations between various factors and mental health outcomes.

Study Setting: The study was conducted at Bayero University Kano, located along Gwarzo Road in Kano State, Nigeria. The university comprises several faculties and departments, including the Faculty of Law, the College of Medical Sciences, the Faculty of Pharmaceutical Sciences, and the Faculty of Education. The Nursing Sciences department is located within Faculty of Allied Health Sciences graduating students with Bachelor of Nursing Science, Registered Nurse, Midwifery, and Public Health Nursing with a diverse student population predominantly comprising Hausa-Fulani individuals who speak Hausa, Fulfulde, and English.

Study Population: The target population included all nursing students enrolled in the Department of Nursing Sciences at Bayero University Kano across all academic levels (100 to 500 level). A total of 271 students were selected as participants using a simple random sampling technique to ensure that every student had an equal chance of being included in the study.

Sample Size Determination: The sample size was calculated using Taro Yamane's formula (1967):

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- i. n = sample size
- ii. N = total population
- iii. e = margin of error (0.05)

Given the total population of nursing students, the sample size was determined to be adequate for statistical analysis.

Data Collection Instrument: Data were collected using a structured self-administered questionnaire that included the following validated scales:

1. **Hamilton Anxiety Rating Scale (HAM-A):** This scale assesses the severity of anxiety symptoms. Each item is scored from 0 (not present) to 4 (severe), with total scores ranging from 0 to 56. Scores below 17 indicate mild anxiety, 18-24 indicate mild to moderate anxiety, and 25-30 indicate moderate to severe anxiety.
2. **Beck Depression Inventory (BDI):** This inventory measures depressive symptoms with scores ranging from 0 to 63. A score of 0-9 indicates minimal depression, 10-18 indicates mild depression, 19-29 indicates moderate depression, and 30-63 indicates severe depression.

The questionnaire was adapted to capture relevant variables related to anxiety and depression while minimizing biases. The validation process ensured that the instruments were suitable for the study context.

Data Collection Procedure: Data collection occurred over four weeks. Participants were informed about the study's purpose, procedures, and their rights regarding voluntary participation and confidentiality. Informed consent was obtained from all respondents before administering the questionnaires. A total response rate of 100% was achieved as all distributed questionnaires were retrieved.

Data Analysis: The collected data were entered into IBM SPSS Statistics version 28 for analysis. Descriptive statistics were used to summarize demographic characteristics and mental health outcomes. Continuous

variables were analyzed using means and standard deviations, while categorical variables were presented as frequencies and percentages.

Ethical Considerations: Ethical approval for this study was obtained from the Research Ethics Committee of the College of Health Sciences at Bayero University Kano. Participants were assured that their responses would remain confidential and used solely for research purposes. They were also informed about their right to withdraw from the study at any point without any consequences. This modified Materials and Methods section provides a comprehensive overview of the study's design, setting, population, data collection instruments, procedures, analysis methods, and ethical considerations while maintaining clarity and specificity appropriate for an academic paper.

RESULTS

Demographic overview of the participants' population, categorizing respondents based on various variables. Age distribution revealed that most respondents fall within the age range of 22-28, comprising 63.1% of the sample, followed by the 16-21 age group at 24.4%. In terms of gender, females represent a larger portion with 66.8%, while males constituted 33.2%. Regarding marital status, a significant proportion of respondents are single, accounting for 79.7%, whereas 20.3% are married. Religious affiliation predominantly leans towards Islam, with 75.6% of respondents identified as Muslim, while 24.4% identified with Christianity. Academic level distribution shown varied representation across different levels, with Level 500 students having the highest proportion at 29.5%, followed by Level 100 at 20.3%. Lastly, in terms of residence, the majority (144) resided on-campus, comprising 66.4%, while 73 students comprising 33.6% resided off-campus.

Table 1: Sociodemographic data of Respondents (N = 217)

Variables		Frequency (n)	Percentage (%)
Age	16-21	53	24.4
	22-28	137	63.1
	29-35	26	12.0
	36 and Above	1	.5
Gender	Male	72	33.2
	Female	145	66.8
Marital Status	Single	173	79.7
	Married	44	20.3
Religion	Islam	164	75.6
	Christianity	53	24.4
Residence	On-Campus	144	66.4
	Off-Campus	73	33.6

Table 4.2 shows the level of risk of developing depression, majority of the individuals comprising of 47% experienced normal level of depression with the female students having 61.76% and males at 38.24%, followed closely by mild depression accounting for 25.35% with

males having 9.09% and female having the majority of the percentage of mild depression 90.90%. Extreme depression had a percentage of 0.46% which is the lowest with no female experiencing it and 100% of them being male.

Table 2: Gender Differences on the Level of Nursing Students Depression (n=217)

Depression Level	Male	Female	Total
Normal Level	39 (17.97%)	63 (29.03%)	102 (47.00%)
Mild Depression	5 (2.30%)	50 (23.05%)	55 (25.35%)
Borderline Clinical Depression	3 (1.38%)	3 (1.38%)	6 (2.76%)
Moderate Depression	24 (11.06%)	26 (11.99%)	50 (23.05%)
Severe Depression	0 (0%)	3 (1.38%)	3 (1.38%)
Extreme Depression	1 (0.46%)	0 (0.00%)	1(0.46%)
Total	72 (33.18%)	145 (66.82%)	217 (100%)

Mild anxiety had the highest percentage of 71.43% which occurs more in females than in males followed by 22.58% of the normal level of anxiety with females having the

highest score as well. Severe anxiety had the lowest score of 2.30%.

Based on the mean scores provided alongside their respective percentages, factors such as feeling overwhelmed by academic demands and expectations (Mean: 3.51, 24.7%), fear of judgment or stigma, preventing seeking help for mental health concerns (Mean: 3.07, 14.4%), and the impact of physical health problems or chronic illnesses on mental well-being (Mean: 3.38,

41.2%) scored notably above the mean, indicating a higher level of concern in these areas. Conversely, feeling pressured to use substances to cope with stress or negative emotions (Mean: 1.68, 2.8%) scored notably below the decision mean (2.87), suggesting that it is perceived as few of the students use substances to cope with stress related to anxiety.

Table 3: Gender Difference on the Level of Nursing Students Anxiety (n=217)

Anxiety Level	Male	Female	Total
Minimal/None Anxiety	21 (9.68%)	28 (12.90%)	49 (22.58%)
Mild Anxiety	48 (22.12%)	107 (49.31%)	155 (71.43%)
Moderate Anxiety	3 (1.39%)	5 (2.30%)	8 (3.69%)
Severe Anxiety	0 (0.00%)	5 (2.30%)	5 (2.30%)
Total	72 (33.18%)	145 (66.82%)	217 (100%)

Table 5: Risk Factors for Anxiety and Depression Among Nursing Students (n=217)

Factors	Not at all	Rarely	Sometimes	Often	Always	Mean
Feeling overwhelmed by academic demands and expectations	10 (4.7%)	28 (13.0%)	72 (33.5%)	52 (24.2%)	53 (24.7%)	3.51
Financial concerns contributing to stress levels	33 (15.3%)	30 (13.9%)	95 (44.0%)	38 (17.6%)	20 (9.3%)	2.92
Feeling socially isolated	20 (9.3%)	61 (28.2%)	105 (48.6%)	18 (8.3%)	12 (5.6%)	2.73
Pressure perceived from family regarding academic or career success	38 (17.7%)	101 (47.0%)	60 (27.9%)	7 (3.3%)	9 (4.2%)	2.29
Impact of cultural norms on mental well-being	33 (15.3%)	29 (13.4%)	133 (61.6%)	14 (6.5%)	7 (3.2%)	2.69
Fear of judgment or stigma preventing seeking help for mental health concerns	42 (19.5%)	17 (7.9%)	70 (32.6%)	55 (25.6%)	31 (14.4%)	3.07
Difficulty accessing mental health support when needed	38 (17.7%)	60 (27.9%)	96 (44.7%)	14 (6.5%)	7 (3.3%)	2.50
Pressure to competitive job market.	26 (12.0%)	60 (27.8%)	63 (29.2%)	55 (25.5%)	12 (5.6%)	2.85
Impact of excessive social media use on mood or self-esteem	19 (8.8%)	53 (24.5%)	65 (30.1%)	71 (32.9%)	8 (3.7%)	2.98
Effect of physical health problems on mental well-being	41 (19.0%)	41 (19.0%)	17 (7.9%)	28 (13.0%)	89 (41.2%)	3.38
Relationship issues as a source of stress	27 (12.6%)	18 (8.4%)	148 (68.8%)	13 (6.0%)	9 (4.2%)	2.81
Feeling pressured to use substances to cope with stress	108 (50.2%)	85 (39.5%)	10 (4.7%)	6 (2.8%)	6 (2.8%)	1.68

Decision Mean = 2.87

DISCUSSION

The findings of this study reveal concerning gender differences and risk factors for anxiety and depression among nursing students at Bayero University Kano, with 71.43% of participants experiencing mild anxiety and 69.57% reporting mild levels of depression. These results are consistent with existing literature highlighting the mental health challenges students face in high-pressure academic environments, particularly in nursing programs (Tian-Ci Quek *et al.*, Li *et al.*, 2022).

The predominance of mild anxiety and depression among the respondents suggests that while these conditions may not yet be severe, they are prevalent enough to warrant attention. The high levels of anxiety reported align with findings from previous studies indicating that nursing students often experience significant stress due to academic demands, clinical responsibilities, and the emotional toll of patient care (Clarke *et al.*, 2019; Dabana *et al.*, 2018). In particular, the study found that factors such as overwhelming academic demands and fear of judgment significantly contribute to anxiety levels. The mean score for feeling overwhelmed by academic expectations was notably high (3.51), indicating that a substantial number of students perceive their academic workload as a source of stress.

The gender distribution of the study participants revealed that females constituted a larger portion (66.8%) compared to males (33.2%). This finding is consistent with previous research indicating that female students are more vulnerable to anxiety and depression than their male counterparts (Anosike, 2022). The results showed that females had higher rates of mild anxiety (69.03%) compared to males (30.97%), suggesting that gender-specific factors may influence mental health outcomes among nursing students. Hormonal fluctuations, societal expectations, and greater responsibilities related to caregiving roles may contribute to this disparity (Adabana *et al.*, 2018).

The study identified several key factors contributing to anxiety and depression among nursing students. Notably, the fear of judgment or stigma associated with seeking help for mental health concerns scored a mean of 3.07, indicating a significant barrier to accessing support services. This aligns with findings from other studies that emphasize the importance of creating an open

environment where students feel safe discussing their mental health challenges without fear of stigma (Chaplin *et al.*, 2009). Additionally, the impact of physical health problems on mental well-being was highlighted as a significant concern, with a mean score of 3.38. This suggests that chronic illnesses or health issues can exacerbate feelings of anxiety and depression, further complicating the academic experience for nursing students who are already under considerable pressure.

Given the high level of mild anxiety and depression among nursing students, there is an urgent need for effective interventions aimed at promoting mental well-being within this population. Educational institutions should consider implementing comprehensive mental health programs that include psychoeducation on managing stress, coping strategies, and access to counseling services. Additionally, fostering a supportive community within nursing programs can help mitigate feelings of isolation and fear associated with seeking help.

Conclusion

In conclusion, this study highlights the significant level of anxiety and depression among nursing students at Bayero University Kano, emphasizing the need for targeted interventions to support their mental health. By addressing the risk factors identified in this research—such as overwhelming academic demands and stigma surrounding mental health—educational institutions can create an environment conducive to both academic success and psychological well-being.

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Authors Contribution

EAO, conceptualized the ideas, drafted the introduction, and proofread the final draft. MHH, conceptualized the ideas, drafted the introduction and

methodology, and proofread the final draft of the work. AA, collected and analyzed the data. NA, collected and analyzed the data. MRY, collected and analyzed the data. YAS, collected and analyzed the data. MM, literature searched, collected and analyzed the data. AH, Literature search, discussed the study findings and proofread the final draft. HSR, searched the literature, collected the data. UI, discussed the findings and drafted the methodology. AA, discussed the findings, proofread and edited the whole work and SZU, searched literature, drafted the introduction.

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REFERENCES

- Abhijita, B., Gnanadhas, J., Kar, S. K., Cherian, A. V., & Menon, V. (2024). The NCRB Suicide in India 2022 report: Key time trends and implications. *Indian Journal of Psychological Medicine*, 0(0). <https://doi.org/10.1177/02537176241240699>
- Adabana, A., & Gobir, A. A. (2018). Depression among nursing students of a Nigerian university: Prevalence and sociodemographic correlates. *Archives of Medicine and Surgery*, 1(3), 35–39. https://doi.org/10.4103/archms.archms_6_18
- American College Health Association. (2020). *Survey report on college students' mental wellbeing*. National College Health Assessment. <https://www.acha.org/ncha/data-results/>
- Amoko, A., Ayodapo, A. O., Dele, T. O., & Abitare, H. (2021). The prevalence of anxiety symptoms and associated factors among Nigerians newly posted for National Youth Service Corps programme in North-Western Nigeria. *Research Journal of Health Sciences*, 9(3), 236–244. <https://doi.org/10.4314/rejhs.v9i3.4>
- Anosike, C., Anene-Okeke, C. G., Ayogu, E. E., & Oshigbo, M. C. (2022). Prevalence of depression and anxiety, and attitudes toward seeking help among first-year pharmacy, medical, and nursing students at a Nigerian university. *Currents in Pharmacy Teaching and Learning*, 14(6), 720–728. <https://doi.org/10.1016/j.cptl.2022.06.002>
- Chaplin, T. M., Gillham, J. E., & Seligman, M. E. (2009). Gender, anxiety, and depressive symptoms: A longitudinal study of early adolescents. *Journal of Early Adolescence*, 29, 307–327. <https://doi.org/10.1177/0272431608320125>
- Clarke, E., Clarke, P., Gill, S., Paterson, T., Hahn, L., & Galletly, C. (2019). Efficacy of repetitive transcranial magnetic stimulation in the treatment of depression with comorbid anxiety disorders. *Journal of Affective Disorders*, 252, 435–439. <https://doi.org/10.1016/j.jad.2019.03.085>
- Lowang, C. (2023). *Assessing and intervening mental distress of student youth at Rajiv Gandhi University, Arunachal Pradesh*. World Mental Health Day. <https://rgu.ac.in/wp-content/uploads/2024/09/World-Mental-Health-Day-2023-2.pdf>
- Quek, T. C., Tam, W. W. S., Tran, B. X., Zhang, M., Zhang, Z., Ho, C. S. H., & Ho, R. C. M. (2019). The global prevalence of anxiety among medical students: A meta-analysis. *International Journal of Environmental Research and Public Health*, 16(15), 2735. <https://doi.org/10.3390/ijerph16152735>
- Wegbom, A. I., Edet, C. K., Ogba, A. A., Osaro, B. O., Harry, A. M., Pepple, B. G., & Fagbamigbe, A. F. (2023). Determinants of depression, anxiety, and stress among pregnant women attending tertiary hospitals in urban centers, Nigeria. *Women*, 3(1), 41–52. <https://doi.org/10.3390/women3010003>
- World Health Organization. (2024). *Adolescent and young adult health*. <https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions>