



## PREVALENCE AND DETERMINANTS OF DEPRESSION AMONG NIGERIAN FOREIGN TRANSFER MEDICAL STUDENTS IN BAYERO UNIVERSITY KANO.

*Fatima Zahrau Abdulrahman<sup>1</sup> and Hadiza Musa Abdullahi<sup>1\*</sup>*

### **ABSTRACT**

*Background: Depression is a significant mental health concern among medical students, particularly those affected by displacement due to conflict. This study assesses the prevalence and determinants of depression among Nigerian foreign transfer medical students repatriated from Sudan to Bayero University Kano (BUK).*

*Methods: A cross-sectional study was conducted among 146 foreign transfer medical students at BUK. Data were collected using a structured questionnaire incorporating the Patient Health Questionnaire-9 (PHQ-9) for depression screening. Descriptive and inferential statistical analyses were conducted using SPSS version 22.0.*

*Results: The prevalence of depression among respondents was 40.4% (mild), 26.0% (moderate), and 4.1% (moderately severe). Academic stress (45.2%), uncertainty about future career/education (33.6%), and social isolation (50.7%) were major determinants. Female students exhibited higher depression rates than males. Despite high knowledge levels about depression, limited mental health support, and financial stress worsened symptoms.*

*Conclusion: There is a high prevalence of depression among repatriated medical students, driven by academic stress, financial constraints, and displacement trauma. Targeted mental health interventions, counselling services, and financial support are crucial to improving their well-being.*

**Keywords:** *Depression, Medical Students, Foreign Transfer, Sudan, Conflict, Mental Health.*

<sup>1</sup>Department of Community Medicine, College of Health Sciences, Bayero University Kano, Nigeria

**Corresponding author:**  
[hadeezus@yahoo.com](mailto:hadeezus@yahoo.com)

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## INTRODUCTION

Conflicts and civil wars all over the world have disrupted human lives and have led to the deaths of millions of people. According to a study released in June, 2023, by the Institute for Economics and Peace, almost a quarter of a million people died in conflicts around the world in 2022 (Global Citizen, 2022). The UN refugee agency stated that more than 114 million people worldwide have been forced to flee their homes by the end of September 2023, due to conflict, persecution, and human rights violations (United Nations, 2023). As well as displacing people by the millions. Conflicts disrupt access to basic services like food and water, and force people into extreme poverty, with profound and enduring consequences that reverse progress towards achieving the UN Global Goals (Global Citizen, 2022).

The outbreak of conflicts and political instability in Sudan disrupted the educational pursuits of Nigerian students studying in the country. Students faced heightened security risks, logistical challenges, and uncertainties about their future. As a result, many Nigerian medical students who were studying in Sudan found themselves compelled to return to their home country, hoping to continue their education in Nigerian universities. Nigerians in Diaspora Commission said the total number of evacuated Nigerians from Sudan was 2,246 (The Cable, 2023).

Bayero University Kano (BUK) absorbed some of these repatriated Nigerian medical students seeking to resume their academic endeavours in a familiar environment. However, the transition from studying in Sudan to re-joining the academic community at BUK presents its own set of challenges, including academic readjustment, social integration, and psychological adaptation. Globally, mental health among undergraduate students represents an important public health entity. University students face considerable demands in school and family, resulting in significant psychological stress that may lead to serious disorders and mental health issues such as depression and anxiety (Mirza *et al.*, 2021).

Depression is a common mental disorder characterized by a sad mood, reduction in energy levels and activity (anergia), loss of interest in pleasurable activities (anhedonia), sleep disturbances, and pessimism, amongst others. Approximately 280 million people in the world have depression (Mirza *et al.*, 2021; WHO, 2024; Chikezie & Okoro, 2021).

Many factors are associated with depression worldwide, including stress. Stress contributes to a higher prevalence of depression among medical students than in the general population. Other factors demonstrated to be associated with depression include the presence of chronic medical conditions, alcohol

consumption, level of study, and smoking (Onyemaechi, 2024). The impact of armed conflicts on mental health is of significant global concern. These issues are particularly relevant in the context of the ongoing armed conflict in Sudan, where both direct and indirect effects of conflict can have severe and long-lasting impacts on mental health and sexual violence (Ngasa *et al.*, 2020). The direct impacts of armed conflict on mental health are extensive and can include post-traumatic stress disorder (PTSD), depression, and anxiety (Aderinto & Olatunji, 2023).

The estimated frequency of depression or its manifestations in medical students around the world was 27.2%, according to a recent systematic review and meta-analysis. In medical students, previous systematic reviews have shown that the prevalence of depression ranged between 6-66.5% in North America, while a more global systematic review and meta-analysis study reported a prevalence of 27.2% (Mirza *et al.*, 2021). In Africa, there is still a paucity of data on depression among medical students, and worse, no systematic reviews have been done to collate evidence from different studies done in Africa (United Nations, 2023). A study among medical students in South Africa showed that nearly one in four students reported depression/anxiety diagnoses and were on psychotropic medication, significantly more than age-based expectations (Suraj *et al.*, 2021). Among medical students in Cameroon, a study showed that about one out of every three medical students is depressed, with a considerable number being moderately to severely depressed (Van der *et al.*, 2020). In a study conducted among medical students in Bayero University Kano, the prevalence of depression among the participants was found to be 15.1%, with females more likely to be depressed than males (Mirza *et al.*, 2021). After the transfer of these students to Bayero University, there had been no mental status evaluation, psychotherapy, or counseling sessions for them. Therefore, this study aimed to address the significant gap in the literature concerning the mental health of Nigerian foreign transfer medical students from regions affected by the Sudan Civil War. By investigating the prevalence and determinants of depression and anxiety within this population, this study aimed to generate evidence that can inform targeted interventions and support services aimed at promoting mental well-being and academic success among the foreign transfer medical students.

## MATERIALS AND METHODS

**Study Design and Sampling:** A cross-sectional descriptive study was conducted at Bayero University Kano, Nigeria, among foreign transfer medical students. The university admitted 200 students

repatriated from Sudan due to the civil war. The sample size was estimated using Fisher's formula (Ngasa *et al.*, 2017), the prevalence of depression from a previous study (33.7%) (Lwanga & Lemeshow, 1991), a 95% confidence level, and a 5% error margin. The calculated minimum sample size, 132, was increased by 10% to address non-response and rounded up to 146. A stratified random sampling method was used. Participants included foreign transfer medical students who consented to participate. Exclusion criteria included students unwilling to participate and those with severe illnesses.

**Data Collection:** Data was collected using an interviewer-administered semi-structured questionnaire. This questionnaire was designed based on the Patient Health Questionnaire-9 (PHQ-9), a widely validated tool for assessing depression. This was modified to suit the objectives of the current study. It incorporated Socio-demographics, the PHQ-9 scale for depression assessment, and Factors influencing depression (academic stress, financial status, social support).

The PHQ-9 is a validated tool for screening, diagnosing, monitoring, and measuring the severity of depression. It consists of 9 items, each corresponding to one of the DSM-IV criteria for major depressive disorder. Respondents are asked to rate the frequency of each symptom over the past two weeks on a scale from 0 (not at all) to 3 (nearly every day). The total score ranges from 0 to 27, with higher scores indicating greater severity of depression: 0-4: Minimal or none, 5-9 Mild, 10-14 Moderate, 15-19: Moderately severe, 20-27: Severe.

**Data Analysis:** Data were analysed using SPSS version 22.0. Descriptive statistics summarized categorical variables, while Chi-square and logistic regression identified associations between depression and independent variables. A p-value <0.05 was considered statistically significant.

**Ethical Considerations:** The Bayero University Kano Research Ethics Committee gave ethical approval. All participants gave informed consent.

## RESULTS

**Socio-Demographic Characteristics of Respondents:** The mean age of respondents was  $22.90 \pm 2.37$  years. Most were female (81.5%), Hausa (68.5%), and all were Muslim. Additionally, 94.5% were single, and 44.5% lived on campus, while 39.7% stayed with parents or relatives.

**Table 1: Sociodemographic characteristics of respondents**

Variable	f(n=146)	%
<b>Age Groups</b>		
16-20	18	12.4%
21-24	93	64.1%
25-30	31	21.4%
>30	3	2.1%
<b>Sex</b>		
Male	27	18.5%
Female	119	81.5%
<b>Tribe</b>		
Hausa	100	68.5%
Fulani	46	31.5%
<b>Religion</b>		
Islam	146	100.0%
<b>Marital Status</b>		
Married	8	5.5%
Single	138	94.5%
<b>Place of Residence</b>		
On Campus	65	44.5%
Off-Campus	23	15.8%
With Parents/ Relatives	58	39.7%

**Table 2: Prevalence of depression among respondents**

Depression Severity	PHQ-9 Score Range	f (n=146)	%
Minimal Depression	0-4	43	29.5%
Mild Depression	5-9	59	40.4%
Moderate Depression	10-14	38	26.0%
Moderately Severe Depression	15-19	6	4.1%
Severe Depression	20-27	0	0.0%

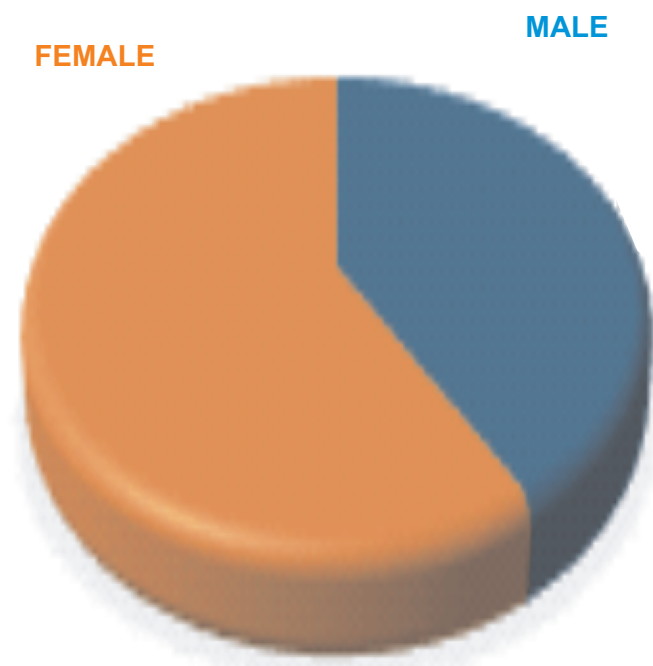
Tables 3a and 3b show that nearly half of the respondents (40.4%) experienced mild depression, followed by minimal depression (29.5%) and moderate depression (26.0%). Only 4.1% had moderately severe depression, and no respondents were classified as having severe depression.

**Table 3a: Determinants of Depression**

Factor Type	Factor	Yes (%)	No (%)
<b>Academic Factors</b>	Disruption in studies increased academic stress	80 (55)	66 (45)
	Adjustment to the new academic environment has been stressful	90 (61.6)	56 (38.4)
	Limited academic support in Nigeria has affected studies	70 (48)	76 (52)
<b>Social and Cultural Factors</b>	Separation from friends/support networks affected emotional well-being	85 (58.2)	61 (41.8)
	Cultural differences have made emotional adjustment difficult	75 (51.4)	71 (48.6)
	Support from local students/faculty has helped with adaptation	60 (41.1)	86 (58.9)

**Table 3b: Determinants of Depression**

Factor Type	Factor	Yes (%)	No (%)
<b>Economic Factors</b>	Financial difficulties since the transfer have increased stress	95 (65)	51 (35)
	Increased living expenses have impacted daily life and stress levels	80 (55)	66 (45)
	Lack of financial support/scholarships has impacted studies and stress levels	70 (48)	76 (52)
<b>Psychological Factors</b>	Uncertainty about future career and education caused anxiety/depression	85 (58.2)	61 (41.8)
	Conflict in Sudan reduced concentration and focus on studies	75 (51.4)	71 (48.6)
	Trauma from Sudan negatively impacted emotional resilience and coping	65 (44.5)	81 (55.5)
	Limited mental health support in Nigeria worsens stress/emotional challenges	78 (53.4)	68 (46.6)



**Figure 1: Prevalence of Mild Depression by gender**

Over half of respondents (55%) experienced increased academic stress, and two-thirds (61.6%) struggled with adjusting to a new environment. Emotional distress from separation (58.2%), cultural differences (51.4%), financial difficulties (65%), anxiety about their future (58.2%), and limited mental health support (53.4%) were also found to be very common among them.

**DISCUSSION**

The study revealed a high prevalence of depression among Nigerian foreign transfer medical students, with 70.5% exhibiting some level of depressive symptoms. This aligns with findings from similar populations in conflict-affected regions, where forced displacement and academic pressure contribute to poor mental

health (Abdulhamid *et al.*, 2024; Mohammed *et al.*, 2018). Depression prevalence in this study (40.4% mild, 26.0% moderate) is consistent with studies in Kano (Suraj *et al.*, 2021), Afghanistan (39.2%) (Mohammed *et al.*, 2018), and Sudan (33.7%) (Abdulhamid *et al.*, 2024). The prevalence of depression observed in this study aligns with research conducted in Afghanistan and Sudan, where displaced students were found to experience higher levels of mental health challenges due to the compounded stress of academic disruptions and personal trauma (Mohammed *et al.*, 2018; Murthy and Lakshminarayana, 2006). Medical students, particularly those displaced by conflict, are at a higher risk of mental health disorders, as the uncertainty of their academic and personal future, coupled with the trauma of displacement, often leads to psychological distress. In this study, the high levels of depression highlight the urgent need for targeted mental health interventions aimed at displaced medical students.

The study identified several key factors contributing to the high levels of depression observed among respondents, including academic stress, financial difficulties, and social isolation. Academic stress was also a significant determinant, similar to findings among South African and Nigerian medical students. Additionally, 33.6% of respondents cited uncertainty about their future careers and education as a significant source of anxiety and depression. This finding mirrors results from studies conducted among displaced students in conflict-affected regions, where the disruption of academic and career plans due to conflict exacerbates mental health challenges (Lim *et al.*, 2022). Social isolation was also a major factor, with more than half of the respondents (50.7%) reporting feelings of sadness due to separation from their support networks. This is in line with studies conducted in Nigeria and South Africa, where students who lack strong social support systems are more vulnerable to mental health issues (Van der *et al.*, 2020; Ngasa *et al.*, 2017). For displaced students, the loss of these support networks due to forced relocation further compounds the emotional strain, leading to increased levels of depression.

However, 24.7% of respondents reported that their experiences in Sudan had strengthened their coping mechanisms, highlighting the duality of trauma and resilience. While some individuals develop greater emotional resilience in response to adversity, others experience prolonged psychological distress. This dual response to trauma has been well-documented in psychological studies, where resilience is seen as a dynamic process influenced by individual, social, and environmental factors (Mohammed *et al.*, 2018). This study also underscored the importance of mental health support systems in addressing depression among

displaced medical students. While 37.0% of respondents felt supported by local students and faculty, 14.4% reported increased stress due to a lack of sufficient support. This finding is consistent with studies conducted in Germany and the United States, where the availability of mental health services has been shown to significantly mitigate the effects of depression among medical students (Voltmer *et al.*, 2012). In the context of displaced students, who may face unique challenges such as trauma from conflict and disrupted academic careers, access to mental health services is crucial for their well-being.

This descriptive study is among the first to assess the prevalence and determinants of depression among foreign transferred medical students in Northern Nigeria. It highlights the significant burden of depression among repatriated Nigerian foreign transferred medical students, primarily due to academic stress, financial difficulties, and social isolation. Improving availability and access to mental health support remains the key to combating these findings.

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