MULTIVARIATE LOGISTIC REGRESSION ANALYSIS OF DEPRESSION RISK FACTORS AMONG NIGERIAN UNIVERSITY STUDENTS

[*1]O.A. WALE-OROJO, [1]S.O. OMOTAYO, [1]A.O. AJAYI, [1]O. OJEBODE, [2]O. OGUNTOKE

[1]Department of Statistics, College of Physical Sciences, Federal University of Agriculture, Abeokuta, Nigeria

[2]Department of Environmental Management and Toxicology, College of Environmental Resources Management, Federal University of Agriculture, Abeokuta, Nigeria

*Corresponding Author: wale-orojooa@funaab.edu.ng **Tel:** +234 8037394875

ABSTRACT

Depression is a growing public health issue among university students, yet limited studies in Nigeria have applied multivariate techniques to identify its key predictors across varying institutional contexts. This study employed a cross-sectional design involving 1,200 undergraduate students from three Federal Universities in South-West Nigeria— Federal University of Agriculture, Abeokuta (FUNAAB); the Federal University of Technology, Akure (FUTA); and the University of Lagos (UNILAG). Data were gathered through a structured questionnaire integrating validated instruments such as the Beck Depression Inventory-II (BDI-II), Sexual Risk Survey, Bullying Victimization Scale, Alcohol Use Disorders Identification Test (AUDIT), and self-developed measures of academic stress and performance. Depression, treated as a binary outcome, was analyzed using multivariate logistic regression. Variables with a p-value < 0.20 from univariate analysis were included in the final model. About 30% of students reported moderate-to-severe depression. Significant predictors included female gender (Adjusted Odds Ratio (AOR) = 1.62), age 21–23 (AOR = 1.41), high academic stress (AOR = 2.18), self-sponsorship (AOR = 1.72), high-risk alcohol use (AOR = 1.94), bullying victimization (AOR = 3.27), and risky sexual behavior (AOR = 1.68). The model demonstrated good fit (Hosmer-Lemeshow p = 0.48) and strong explanatory power (Nagelkerke's R^2 = 0.31). The findings highlight the multifaceted nature of depression and the importance of targeted interventions within university settings.

Keywords: Academic Stress, Behavioral Risk, Logistic Regression, Nigerian Universities, Mental Health

INTRODUCTION

Depression has emerged as a leading mental health challenge globally, particularly among university students who face the compounded pressures of academic demands, social transitions, and financial uncertainty. The World Health Organization (2023) characterizes depression as a pervasive mental disorder marked by persistent sadness, loss of interest, cognitive impairments, and functional decline. Among university populations, these symptoms are exacerbated by stressors such as high academic workload, social isolation, and the challenges of transitioning into adulthood (Beiter *et al.*, 2015).

In Nigeria, the prevalence of depression

among undergraduate students is increasingly alarming, with rates ranging widely and often intersecting with socio-economic disparities and institutional stressors. Recent studies have identified academic stress, financial hardship, bullying, victimization, substance use, and sexual risk behaviors as critical contributors to the mental health burden among Nigerian students (Wale-Orojo *et al.*, 2021; Adeleke *et al.*, 2023; Chukka *et al.*, 2024). Particularly within South-Western Nigeria, the deterioration of university infrastructure, declining economic conditions, and limited mental health support services have intensified students' vulnerability to depressive symptoms, adversely affecting their academic performance and general well-being.

Previous research has established the negative correlation between depression and academic outcomes, with depression impairing concentration, information retention, and decision-making abilities (Hysenbegasi *et al.*, 2005; Andrews & Wilding, 2004). However, there remains a need for more detailed, multivariate analyses that systematically identify which factors independently predict the presence of depression, controlling for the influence of other variables.

From a methodological perspective, applying multivariate statistical modeling to understand depression risk in university settings offers valuable insights for both educational research and institutional practice. Logistic regression enables the simultaneous estimation of the relative contributions of demographic, academic, and behavioral factors, providing an evidence base to inform targeted educational interventions. In the context of Nigerian higher education, where student well-being is increasingly linked to academic outcomes and institutional success, such quantitative analyses can guide policy decisions and enhance the effectiveness of student support services. This approach is consistent with the broader objectives of educational statistics, which seek to improve educational outcomes through the rigorous application of statistical methods.

This study applies logistic regression modeling to assess the predictors of depression among students from three major South-West Nigerian Universities—FUNAAB, FUTA, and UNILAG. Unlike descriptive or bivariate analyses, logistic regression offers the advantage of quantifying the relative odds of depression associated with multiple risk factors simultaneously, while adjusting for confounding variables. By identifying the strongest predictors, this research aimed to inform targeted mental health interventions, policy formulation, and resource allocation within Nigerian higher education institutions.

Specifically, this study addressed the following research questions:
(1) Which demographic, behavioral, and academic factors are significantly associated with depression among Nigerian University students?
(2) What is the relative strength of each predictor when controlling for other factors?
(3) How can universities use these findings to design effective mental health support systems?
In light of the escalating rates of depression among students and the critical need for early identification of at-risk individuals, this study contributes to the growing body of evidence advocating for comprehensive mental health strategies within the Nigerian tertiary education system.

MATERIALS AND METHODS

Study Design and Setting

This study employed a cross-sectional survey design to investigate the predictors of depression among undergraduate students in three Federal Universities located in South-West Nigeria: the Federal University of Agriculture, Abeokuta (FUNAAB); the Federal University of Technology, Akure (FUTA); and the University of Lagos (UNILAG). These institutions were selected using simple random sampling techniques from among the six Federal Universities in the South-West geopolitical zone, offering a representative diversity in academic environment, student demographics, and socio-economic backgrounds.

Population and Sampling Procedure

The target population consisted of undergraduate students enrolled across various faculties and disciplines in the selected universities. A total sample size of 1,200 students was determined using proportional allocation based on the student population sizes of each university: 650 from UNILAG, 300 from FUNAAB, and 250 from FUTA. Within each institution, students were selected using simple random sampling methods. This approach ensured that the sample adequately reflected the socio-demographic composition of the student bodies.

Data Collection Instruments

Data were collected using a structured questionnaire comprising standardized psychometric scales and self-developed instruments, divided into seven sections:

•**Depression Measurement:** Beck's Depression Inventory-II (BDI-II), a validated 21-item instrument with a Cronbach alpha of 0.832 from pilot testing, was used to assess depressive symptoms.

•**Sexual Risk Behavior:** The Sexual Risk Survey, a 23-item validated tool (Cronbach alpha = 0.940).

•**Bullying Victimization:** Bullying Victimization Scale, a 19-item validated instrument (Cronbach alpha = 0.916).

•**Alcohol Use:** Alcohol Use Disorders Identification Test (AUDIT), a 10-item validated scale (Cronbach alpha = 0.913).

•**Academic Stress Level:** measured via life event stress scale,

•**Academic Performance:** Self-developed 18-item academic performance scale (Cronbach alpha = 0.712).

•**Life Event Stress Levels:** Self-developed scale measuring stress from life events.

Socio-demographic data were also collected, including age, gender, marital status, financial sponsorship, level of study, and parents' educational background.

The questionnaire was subjected to both face and content validation and pre-tested among a separate group of students at the Federal College of Education, Osiele. All measurement instruments demonstrated acceptable reliability based on Cronbach's alpha coefficients above 0.7.

Ethical Considerations

Ethical approval was obtained from the relevant participating individuals. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity were ensured throughout the data collection and analysis processes.

Variable Specification
Dependent Variable

•**Depression Status** (binary): Students were categorized based on their BDI-II scores into:

◊   0 = No Depression

◊   1 = Depression (moderate to severe)

Independent Variables

•**Gender** (Male, Female)

•**Age group** (15–17 years, 18–20 years, 21–23 years, 24+ years)

•**Academic Stress Level** was categorized as: low, moderate, or high, based on tertile scores of the life event stress scale, with higher scores indicating greater perceived academic stress).

•**Financial Sponsorship** (Parent, Self, Guardian, Others)

•**Alcohol Use** (Low-risk use, High-risk use based on AUDIT scores)

•**Bullying Victimization** (Low, High based on Bullying Victimization Scale scores)

•**Sexual Risk Behavior** (Low, High based on Sexual Risk Survey scores)

Institution (FUNAAB, FUTA, UNILAG).

Data Processing and Management

Completed questionnaires were reviewed for completeness, coded, and entered into the Statistical Package for the Social Sciences (SPSS) version 20. Data cleaning was performed to handle missing values and outliers. Descriptive statistics were computed for all variables.

Statistical Analysis

The analysis was conducted in two major stages:

1. Univariate Analysis

Descriptive statistics of frequencies, percentages, means, and standard deviations were used to describe the characteristics of the study sample. Chi-square tests were employed to explore associations between categorical variables and depression status.

2. Multivariate Logistic Regression Analysis

Logistic regression modeling was performed to identify independent predictors of depression among students. Variables significant at p < 0.20 in the univariate analysis were included in the multivariate model. All selected variables were entered simultaneously into the multivariate logistic regression model to estimate adjusted odds ratios, ensuring that each covariate's contribution was evaluated while controlling for other predictors.

The responses were modeled as independent Bernoulli random variables conditional on the set of observed covariates for each student. For the ith impression, let $Y_i \in \{0,1\}$ be such that $Y_i = 1$ if student is depressed, and $Y_i = 0,$ otherwise. The research accounts for the various attributes for each response, such as the demographic characteristics of the respondent. For each ith impression, suppose that all of these attributes are encoded numerically as p covariates $x_{i1}, \dots, x_{ip} \in \mathbb{R}$.

Given the binary nature of the outcome variable (depression vs. no depression), logistic regression was deemed appropriate for modeling the relationship between predictors and the likelihood of depression. Each student's response was assumed to follow a Bernoulli distribution, with the probability of depression expressed via a logit function:

$$log \frac{p_i}{1 - p_i} = \beta_0 + \beta_1 x_{i1} + \cdots + \beta_p x_{ip}$$

where p_i denotes the probability of experiencing moderate to severe depression, β_0 is the intercept, and β_1 to β_p are regression coefficients corresponding to predictor variables x_{i1} to x_{ip} This model estimates how changes in predictor variables affect the odds of depression while accounting for other covariates. The intercept β_0 represents the "baseline" log-odds of the respondent having depression, if all of the covariates take the value 0. Each coefficient βj represents

the amount of increase or decrease in the log-odds, if the value of the covariate xij is increased by 1 unit. The above equation can be equivalently written as

$$\mathbb{P}\left[Y_i = 1\right] = p_i = \frac{e^{\beta_0 + \beta_1 x_{i1} + \cdots + \beta_p x_{ip}}}{1 + e^{\beta_0 + \beta_1 x_{i1} + \cdots + \beta_p x_{ip}}}$$

As in the case of the linear model, we will treat the covariates as fixed and known quantities. The unknown parameters are the regression coefficients $\beta = (\beta_0, \ldots, \beta_p)$. When there is only one covariate, p = 1, we simply write $x_1 = x_{11}, \ldots, \quad x_n = x_{n1}$. the logistic regression curve follows the probability function

$$p(x) = \frac{e^{\beta_0 + \beta_1 x}}{1 + e^{\beta_0 + \beta_1 x}}$$

Model Outputs:
- Odds Ratios (OR)
- 95% Confidence Intervals (CI)
- P-values for statistical significance (threshold at $p < 0.05$).

3. Model Diagnostics
Model goodness-of-fit was assessed using:
- Hosmer-Lemeshow Test
- Nagelkerke's R2R^2R2
- Classification Table Accuracy
- Multi-collinearity was checked using Variance Inflation Factor (VIF), ensuring VIF < 5.

Justification for Logistic Regression
Logistic regression is appropriate for this study because the dependent variable (depression status) is binary, and the aim is to estimate the odds of depression associated with various risk factors while adjusting for potential confounders. Logistic regression allows for simultaneous inclusion of categorical and continuous predictors, providing adjusted measures of association that are interpretable and suitable for public health and policy recommendations. The modeling approach is consistent with best practices in educational statistics, enabling the estimation of adjusted odds ratios for complex behavioral and institutional predictors within an educational framework.

RESULTS
Descriptive Characteristics of Respondents
A total of 1200 undergraduate students participated in the study, drawn from three Federal Universities in South-West Nigeria: The University of Lagos (UNILAG), the Federal University of Agriculture, Abeokuta (FUNAAB), and the Federal University of Technology, Akure (FUTA). Average age of the respondents was 21.4 years (SD = 2.7), with the majority (74.5%) falling within the 18–23 years age group (Table 1). The sample was composed of 696 males (58.0%) and 504 females (42.0%).

Regarding academic stress, approximately 62.5% of the respondents reported experiencing moderate to high levels of stress based on their life event stress scores. In terms of financial sponsorship, 78.2% of the students were supported by their parents, while 15.0% were self-sponsored, and the remaining 6.8% relied on guardians or others. High-risk alcohol use was identified in 13.5% of students, while 16.2% engaged in high sexual risk behaviors. Bullying victimization was reported by 2.5% of the sample. Institutional representation showed that UNILAG accounted for 54.2% of the respondents, followed by FUNAAB with 25.0%, and FUTA with 20.8% (Table 1).

Table 1: Socio-Demographic and Behavioral Characteristics of Respondents (N = 1200)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	696	58.0%
Female	504	42.0%
Age Group		
15–17 years	132	11.0%
18–20 years	420	35.0%
21–23 years	474	39.5%
24 years and above	174	14.5%
Academic Stress Level		
Low	450	37.5%
Moderate–High	750	62.5%
Financial Sponsorship		
Parent	938	78.2%
Self	180	15.0%
Guardian/Others	82	6.8%
Alcohol Use (AUDIT)		
Low-risk	1038	86.5%
High-risk	162	13.5%
Sexual Risk Behavior		
Low-risk	1006	83.8%
High-risk	194	16.2%
Bullying Victimization		
No	1170	97.5%
Yes	30	2.5%
Institution		
UNILAG	650	54.2%
FUNAAB	300	25.0%
FUTA	250	20.8%

Univariate Associations between Predictors and Depression

Chi-square tests were conducted to examine the association between depression status and the selected demographic, behavioral, and academic variables. The results indicated significant associations for several predictors (Table 2).

Gender was significantly related to depression status, with female students exhibiting a higher prevalence of depression compared to their male counterparts (χ^2 = 9.12, p = 0.003). Age group also showed a significant relationship, with students aged 21–23 years, demonstrating the highest rates of depression (χ^2 = 6.45, p = 0.040).

Academic stress emerged as a strong correlate, where students who reported moderate to high levels of stress were significantly more likely to experience depression than

those with lower stress levels (χ^2 = 15.78, p < 0.001). Financial sponsorship showed that self-sponsored students had a significantly higher likelihood of depression relative to those sponsored by parents or guardians (χ^2 = 8.67, p = 0.013).

Behavioral risk factors also displayed significant associations with depression. Students categorized as high-risk alcohol users had higher rates of depression compared to low

-risk users (χ^2 = 11.35, p = 0.001). Similarly, bullying victimization was strongly associated with depressive symptoms (χ^2 = 17.44, p < 0.001), as was engagement in high-risk sexual behaviors (χ^2 = 10.22, p = 0.001).

Although institutional affiliation approached significance (χ^2 = 5.89, p = 0.053), students from UNILAG showed a trend toward higher depression rates compared to those from FUNAAB and FUTA (Table 2).

Table 2: Univariate Associations between Variables and Depression Status

Variable	χ^2 Value	p-value
Gender	9.12	0.003
Age Group	6.45	0.040
Academic Stress	15.78	<0.001
Financial Sponsorship	8.67	0.013
Alcohol Use	11.35	0.001
Sexual Risk Behavior	10.22	0.001
Bullying Victimization	17.44	<0.001
Institution	5.89	0.053

Multivariate Logistic Regression Analysis

To identify independent predictors of depression, all variables significant at the p < 0.20 threshold in the univariate analysis were entered into a multivariate logistic regression model. The results revealed several factors that remained statistically significant after adjustment for potential confounders (Table 3).

Female students had significantly higher odds of experiencing depression compared to male students (Adjusted Odds Ratio [AOR] = 1.62; 95% Confidence Interval [CI]: 1.22–2.15; p = 0.001). Students aged 21–23 years also had increased odds of depression compared to those younger than 18 years (AOR = 1.41; 95% CI: 1.02–1.96; p = 0.037).

Academic stress emerged as a robust predictor, with students reporting higher stress levels being more than twice as likely to experience depression (AOR = 2.18; 95% CI: 1.54–3.09; p < 0.001). Self-sponsored students were at greater risk compared to those financially supported by their parents (AOR = 1.72; 95% CI: 1.13–2.62; p = 0.012).

Among behavioral factors, high-risk alcohol users had significantly elevated odds of depression (AOR = 1.94; 95% CI: 1.29–2.91; p = 0.002). Bullying victimization was also a strong independent predictor, with bullied students having more than three times the odds of depression compared to their non-bullied peers (AOR = 3.27; 95% CI: 1.78–6.01; p < 0.001). Students engaged in high-risk sexual behavior were significantly more likely to report depressive symptoms (AOR

= 1.68; 95% CI: 1.17–2.42; p = 0.005) – Table 3.

Institutional differences were not statistically significant in the final multivariate model after adjusting for other variables.

Model diagnostics indicated good model fit. The Hosmer-Lemeshow test yielded a p-value of 0.48, suggesting no evidence of poor fit. Nagelkerke's R^2 was 0.31, indicating that approximately 31% of the variance in depression status could be explained by the model. No issues of multi-collinearity were observed, as all variance inflation factor (VIF) values were below 2.0.

Table 3: Multivariate Logistic Regression Predicting Depression among Students

Predictor	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Female (vs. Male)	1.62	1.22–2.15	0.001
Age 21–23 years (vs. <18 years)	1.41	1.02–1.96	0.037
High Academic Stress (vs. Low)	2.18	1.54–3.09	<0.001
Self-sponsored (vs. Parent)	1.722	1.13–2.62	0.012
High-risk Alcohol Use (vs. Low)	1.94	1.29–2.91	0.002
High Sexual Risk (vs. Low)	1.68	1.17–2.42	0.005
Bullying Victimization (Yes vs. No)	3.27	1.78–6.01	<0.001

Model Summary:
- Hosmer-Lemeshow goodness-of-fit test: p = 0.48 (good fit)
- Nagelkerke's R^2 = 0.31

DISCUSSION

This study examined the predictors of depression among undergraduate students in three Federal Universities in South-West Nigeria using logistic regression analysis. The findings revealed a multifactorial interplay between demographic characteristics, academic pressures, and behavioral risk factors in shaping students' vulnerability to depression. One of the most significant findings of this study is the higher likelihood of depression among female students compared to their male counterparts. This observation aligns with earlier reports suggesting that female students are more susceptible to depressive symptoms due to a combination of biological, psychological, and social factors (Gonzalez, 2024; Pătraşcu et al., 2024). Cultural expectations that encourage emotional restraint in males while tolerating emotional expressiveness in females may also contribute to the gender disparity in reported depression rates. These findings underscore the necessity of gender-sensitive mental health interventions within university environments.

The study also established a significant association between academic stress and depression, with students reporting higher stress levels being more than twice as likely to exhibit depressive symptoms. This corroborates prior findings that high academic workloads, frequent assessments, and the pressure to achieve high grades exacerbate stress and mental health deterioration among university students (Wale-Orojo et al., 2021; Garces et al., 2024; Levine et al., 2023). In the Nigerian context, where infrastructural deficiencies and economic instability aggravate educational challenges, academic stress may be

particularly intense. Universities must, therefore, consider implementing structured stress management programs and academic counseling services to alleviate the burden of academic pressures.

Age also emerged as a significant predictor, with students aged between 21 and 23 years exhibiting higher odds of depression. This age group typically corresponds to the later stages of undergraduate education, a period characterized by heightened anxiety about graduation, employability, and life transitions. Previous studies have suggested that final-year students often experience increased psychological distress compared to their earlier-year peers, a trend attributed to anticipatory anxiety about future uncertainties (Pedrelli *et al.*, 2015). Intervention strategies should thus focus not only on early academic years but also extend mental health support intensively toward students approaching the end of their university education.

Financial sponsorship status was another critical determinant of depression, with self-sponsored students showing significantly higher odds of depressive symptoms compared to those supported by their parents. This finding is consistent with previous research indicating that financial instability and economic hardship exacerbate psychological distress among university students (Choi *et al.*, 2023; Adeleke *et al.*, 2023). Self-sponsored students may face compounded stressors, balancing academic obligations with financial survival strategies, such as part-time work, which may leave them more vulnerable to mental health challenges. Universities and policymakers should prioritize provision of scholarships, financial aid programs, and flexible study arrangements for economically- disadvantaged students to

mitigate this risk.

Behavioral factors also played a crucial role in depression vulnerability. High-risk alcohol use was found to significantly increase the odds of depression. This is congruent with evidence suggesting that substance use, often adopted as a maladaptive coping mechanism, can intensify depressive symptoms over time (Silva *et al.*, 2024; Opotamutale *et al.*, 2024). Similarly, engagement in high-risk sexual behaviors was associated with elevated depression risk, reinforcing previous studies that link risky behaviors with poor mental health outcomes due to emotional distress, guilt, and social stigma (Bordini *et al.*, 2021; Chukka *et al.*, 2024). These findings emphasize the necessity of integrating behavioral risk education into university mental health programs, addressing not only substance abuse but also responsible sexual behavior as part of comprehensive health promotion efforts.

Furthermore, bullying victimization was identified as one of the strongest predictors of depression. Students who experienced bullying had more than three times the odds of reporting depressive symptoms compared to non-victimized peers. This result is in line with many earlier reports establishing bullying as a potent risk factor for mental health deterioration, social withdrawal, and suicidal ideation among university students (Olweus, 2013; Smith *et al.*, 2008, Wale-Orojo, *et al. 2021*). The relatively low reported prevalence of bullying in this study suggests possible underreporting due to stigma; nonetheless, its strong predictive power highlights the urgent need for universities to implement robust anti-bullying policies, grievance mechanisms, and peer support networks.

Although institutional differences in depression prevalence were observed descriptively,

they did not attain statistical significance in the multivariate model after controlling for other factors. This suggests that while institutional culture and environment may influence mental health, individual-level demographic and behavioral factors exert a stronger influence on depression risk.

The model's goodness-of-fit indices, including a non-significant Hosmer-Lemeshow test and a Nagelkerke's R^2 value of 0.31, indicate a good explanatory power for the set of predictors used. Approximately one-third of the variance in depression status was explained by the model; a substantial figure given the multifactorial nature of mental health outcomes.

From an educational policy standpoint, these findings highlight the value of using advanced statistical modeling to guide institutional responses to student mental health needs. Understanding how demographic, academic, and behavioral factors interact to influence depression risk enables universities to design more targeted interventions. Incorporating such evidence-based approaches into educational planning can improve student retention, academic achievement, and overall institutional effectiveness — outcomes of central concern to both educational researchers and practitioners (Finch *et al.*, 2015).

Beyond its relevance for public health, this study contributes to the field of educational statistics by demonstrating the value of multivariate logistic regression in modeling complex student outcomes within higher education environments. The ability to quantify the interplay between academic, behavioral, and demographic factors provides a powerful framework for informing institutional strategies. Educational re-

searchers and practitioners can leverage such statistical insights to design more effective interventions aimed at improving student mental health, promoting academic resilience, and enhancing overall educational performance. Embedding data-driven approaches into educational policy and program development is particularly critical in resource-constrained settings, where targeted interventions can maximize impact.

Overall, findings from this study reinforce the conceptualization of depression among university students as a multifaceted issue influenced by gender, age, academic stress, financial challenges, behavioral risks, and social experiences. These insights are crucial for guiding targeted mental health interventions, institutional policies, and student support systems within Nigerian higher education institutions.

CONCLUSION

This study examined the predictors of depression among undergraduate students in selected South-West Nigerian Universities using logistic regression analysis. The findings revealed that depression among students is influenced by a complex interaction of demographic, academic, and behavioral factors. Gender, age, academic stress, financial sponsorship, alcohol use, bullying victimization, and sexual risk behaviors emerged as significant independent predictors of depression.

Female students were found to be at greater risk of depression, highlighting the need for gender-sensitive mental health interventions. Students aged between 21 and 23 years, those experiencing higher levels of academic stress, and those who were self-financing their education exhibited significantly increased odds of depression. Behavioral fac-

tors, including high-risk alcohol use and engagement in high-risk sexual activities, further elevated the likelihood of depressive symptoms. Students who reported experiences of bullying victimization demonstrated the strongest association with depression, underscoring the severe psychological consequences of social victimization within university environments.

The results underscore the urgency for Nigerian universities to prioritize student mental health by designing comprehensive support systems. Institutions must recognize that depression is not solely an individual issue but is shaped by systemic academic, economic, and social environments.

These results provide robust statistical evidence to guide targeted mental health interventions within Nigerian universities. Future research should build upon this model by incorporating longitudinal data and exploring potential interaction effects among predictors.

The study underscores the importance of quantitative methods in informing evidence-based educational and mental health policies in low- and middle-income country contexts. By applying multivariate statistical modelling to this important public health issue, the study contributes evidence that may inform both educational policy and targeted interventions within Nigerian and broader global higher education contexts.

RECOMMENDATIONS

Based on the findings, these recommendations are proposed:
Universities should enhance the availability and accessibility of mental health services on campus. This includes establishing well-resourced counseling centers staffed by trained mental health professionals capable of delivering gender-sensitive and age-specific interventions.

Academic institutions must implement structured stress management programs, especially targeting students approaching the later stages of their undergraduate education.

Workshops on coping strategies, academic planning, and resilience building should be incorporated into student orientation and ongoing support programs.

Financial support structures must be strengthened. Universities, in collaboration with governmental and private sector stakeholders, should expand scholarship opportunities, financial aid schemes, and work-study programs to alleviate the financial burden on self-sponsored students.

Targeted behavioral health promotion initiatives are critical. Awareness campaigns addressing the risks of substance use and unsafe sexual practices should be developed and integrated into university health services. Peer-led interventions and behavior change communication strategies could enhance the reach and effectiveness of such programs.

Universities should enforce strict anti-bullying policies, accompanied by confidential reporting mechanisms and restorative justice programs. Creating a safe and inclusive campus environment is essential to reduce the incidence and impact of bullying victimization.

Further research is needed to explore institution-specific mental health needs and to evaluate the effectiveness of implemented interventions. Longitudinal studies tracking men-

tal health trajectories across students' academic careers would provide deeper insights into causality and long-term outcomes. By adopting a multi-faceted and evidence-based approach, Nigerian universities can better address the mental health needs of their students, thereby fostering a healthier, more resilient academic community.

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