

RESEARCH ARTICLE

Prevalence of Depression among University Undergraduate Students in Federal University Dutse, Nigeria

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ABSTRACT

Background: Depression is a common health problem globally, especially among young adults, and it may lead to disability and even mortality. This study aimed to assess prevalence of depression and its associated factors among university students in Nigeria.

Methods: This cross-sectional study involved 146 university students (response rate 100%). The Patient Health Questionnaire (PHQ-9) was administered to assess the level of depression among the study participants. Chi-square (χ^2)/Fisher exact tests were used to determine the associations between depression and gender or year of study. Independent t-test and one-way ANOVA were also used to determine the mean difference of age across depression levels.

Results: The overall prevalence of depression was 74.7% among the study participants. The prevalence for mild, moderate, moderately severe and severe depression were; 31.5%, 36.3%, 6.2%, and 0.7% respectively. There was statistically significant association between depression and gender (p-value = 0.046) and student's study year (p-value = 0.028).

Conclusion: The prevalence of depression is high among university students. There is a need for appropriate interventions to support the students with these mental issues to prevent further complications.

Keywords: Depression, Risk factors, University students, Prevalence, Questionnaire, Nigeria

INTRODUCTION

Depression is a common public health problem that affects about 322 million people worldwide WHO (2017). It is a mood disorder that manifests itself in form of loss of interest or pleasure, insomnia, low appetite, undesirable mood, grief, poor concentration, low self-worth, and suicidal tendencies Orsal et al., (2013). These symptoms could last for weeks, months, and sometimes years. If left untreated, depression can lead to various psycho-social problems such as abnormal eating behaviour, school dropout, substance abuse, hysteria, delinquency and suicide Sarokhani et al., (2013), Dabana and Gobir (2018). Some chronic diseases such as cancer, diabetes, Parkinson's disease, and heart

disease can cause depression Buchanan (2012). Furthermore, depression is associated with reduced quality of life and a higher mortality rate D'Alisa et al., (2006), Islam et al., (2018). Many studies have reported a higher prevalence of depression among university students than the general population Ibrahim et al., (2013), Islam et al., (2018), Khan et al., (2006).

A large number of university students progress from the adolescent's stage to adulthood stage and this is a critical time in one's life. The pressure of self-belonging, obtaining good grades, thinking about a future career, and sometimes staying away from family may lead to stress for many students Buchanan (2012). In response to this stress, many

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students may stay away from people, miss classes, frequently cry, be unable to control their emotions and eventually get depressed Sarokhani et al., (2013). The higher prevalence of depression among university students has been a great concern worldwide. A systematic review revealed that 6.0% to 65.5% of medical students have some level of depression ranging from mild to severe Hope and Henderson (2014). In Nigeria, among Ahmadu Bello University Zaria students, 58.2% scored above the threshold for mild depression Dabana and Gobir (2018). Other studies among university students in Africa reported that 37% scored above the threshold for moderate depression in Egypt Ibrahim et al., (2012), and 23.6% showed symptoms of depression in Ethiopia Terasaki et al., (2009).

Scholars such as Suraj et al., (2021), Peltzer et al., (2013), Orsal et al., (2013) have argued that factors such as age, gender, academic performance, internet addiction, socio-economic status and year of study increase the risk of depression among university student. University students play a significant influence on society and the country at large: as such, it is of public health importance to study their psychological health. Furthermore, presently, there are few studies on university students concerning depression and its associated risk factors in Nigeria. Therefore, the present study aimed to assess the prevalence of depression and its relationship with age, gender, and students' level of study among Federal University Dutse (FUD) students, in Nigeria.

METHODS

Sampling and Sample Size

The sample size was estimated using the formula for single proportion to estimate the prevalence of depression among FUD students.

$$n = \frac{Z^2 P(1-P)}{E^2}$$

The parameters used were $Z = 1.96$ (for 0.05 level of significance), margin of error (E) = 0.05, $P = 0.083$ Adewuya et al., (2006). The calculated sample size was 117. After adding a 20% dropout rate, the adjusted samples size was 146. Therefore, 146 questionnaires were distributed to undergraduate students at FUD from all the faculties using a simple random sampling technique. Random numbers were generated using Microsoft Excel, and the participants were selected from a compressive list of students until the desired sample size was obtained.

Materials

The Patient Health Questionnaire (PHQ-9) Cameron et al., (2008), was used to examine the level of depression. The PHQ-9 consists of nine questions with Likert options ranging from "0" (not at all) to "3" (nearly every day). The maximum score was 27 and the minimum score was 0. A score of 0-4 indicates none, 5-9 indicates mild, 10-14 indicates moderate, 15-19 indicates moderately severe, and 20-27 indicates severe depression. The PHQ-9 has a sensitivity of 88% and a specificity of 88% Kroenke et al., (2001).

Statistical Analysis

A preliminary analysis was performed for data cleaning and exploration to check missing values and wrong data entry. The statistical analyses performed were descriptive analysis, Pearson's chi-square/Fisher exact test, Independent t-test, and one-way analysis of variance (ANOVA). The descriptive analysis focused on the frequency, percentages, mean and standard deviation. The Pearson's chi-square/Fisher exact test was performed to determine the association between the depression categories and gender or level of study. Independent t-test was performed to determine the mean difference of age between depression status (i.e., no depression and depression). The ANOVA was performed to determine the mean difference of age between the depression categories (i.e., no depression, mild, moderate, moderately severe, and severe). All statistical analyses were performed using the Statistical Product and Service Solution (SPSS) version 26.

RESULTS

A total of 146 participants completed and returned the study questionnaires with complete responses (100% response rate). The study consisted of 65.8% males and 34.2% females. Amongst the study participants, 74.7% have some level of depression (i.e., a total score > 4), and 25.3% have no depression (i.e., a total score < 4). The mean age was 21.3 years ($SD = 2.46$). The results indicated that there was a significant association between level of study and depression, p -value = 0.028, and females have higher prevalence of depression (84.0%) than males (69.8%) [P -value = 0.061] as can be seen in Table 1, Fig 1 and Fig 2. Furthermore, Table 2 presents the four categories of depression with 31.5%, 36.3%, 6.2%, and 0.7% prevalence for mild, moderate, moderately severe and severe depression respectively. There was a significant association between gender and depression categories, p -value = 0.046 as can be seen in Table 2 and Fig 3.

Table 1: Demographic Characteristics of the Students Across Level of Depression (n = 146)

		All	No Depression (n = 37)	Depressed (n = 109)	p-value*
Age	Mean (SD)	21.3 (2.46)	20.8 (2.27)	21.4 (2.51)	0.151
Gender	Male	96 (65.8)	29 (30.2)	67 (69.8)	0.061
	Female	50 (34.2)	8 (16.0)	42 (84.0)	
Study Level	100	55 (37.7)	20 (36.4)	35 (63.6)	0.028
	200	45 (30.8)	10 (22.2)	35 (77.8)	
	300	34 (23.3)	3 (8.8)	31 (91.2)	
	400	12 (8.2)	4 (33.3)	8 (66.7)	

*Chi-square test, SD = standard deviation, n = number of participants.

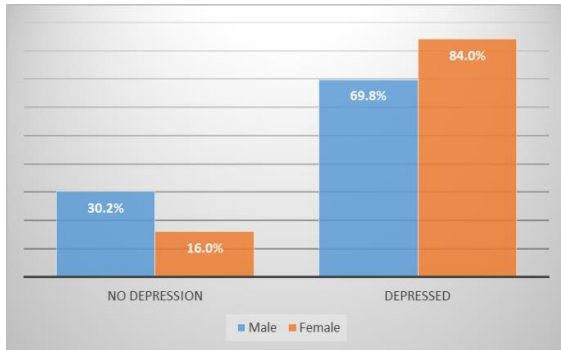


Fig 1: Status of Depression Across Gender

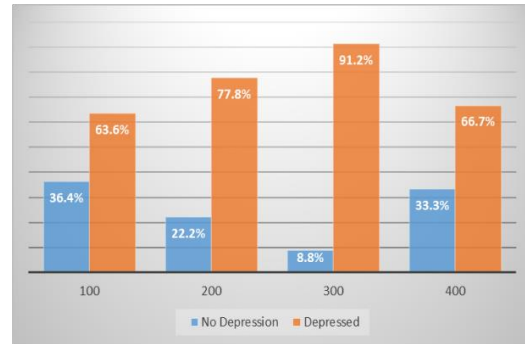


Fig 2: Status of Depression Across Year of Study

Table 2: The Association Between Depression Levels and Age, Gender and Year of Study Among FUD Students (n = 146)

	Variables	None (n = 37)	Mild (n = 46)	Moderate (n = 53)	Moderately Severe (n = 9)	Severe (n = 1)	p-value*
Age	Mean (SD)	20.8 (2.27)	21.5 (2.43)	21.4 (2.54)	21.3 (3.12)	20.0 (-)	0.642
Gender	Male	29 (30.2)	33 (34.4)	27 (28.1)	6 (6.3)	1 (1.0)	0.046
	Female	8 (16.0)	13 (26.0)	26 (52.0)	3 (6.0)	0 (-)	
Level of Study	100	20 (36.4)	18 (32.7)	13 (23.6)	3 (5.5)	1 (1.8)	0.053
	200	10 (22.2)	16 (35.6)	16 (35.6)	3 (6.7)	0 (-)	
	300	3 (8.8)	9 (26.5)	21 (61.8)	1 (2.9)	0 (-)	
	400	4 (33.3)	3 (25.0)	3 (25.0)	2 (16.7)	0 (-)	

*Fisher exact test, SD = standard deviation, n = number.

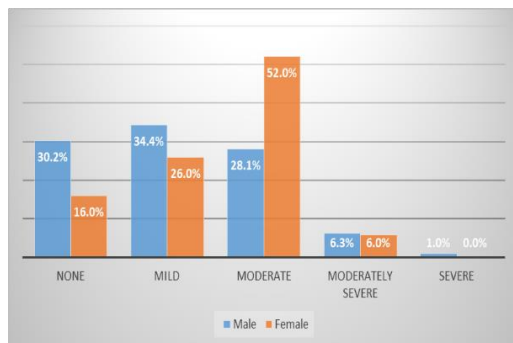


Fig 3: Categories of Depression Across Gender

DISCUSSION

The study found a considerable proportion (74.7%) of depression among FUD undergraduate students. This

indicates that majority of the respondents have a total score above 4, which is either mild, moderate, moderately severe or severe depression. Furthermore, for the different categories of depression, the prevalence for mild, moderate, moderately severe and severe depression are 31.5%, 36.3%, 6.2%, and 0.7% respectively. These appear to be comparable to previous studies conducted in ABU Zaria, Dabana and Gobir (2018), where the prevalence of depression was 58.2%, with 37.0%, 15.7%, 3.9%, and 1.6% of the respondents having mild, moderate, moderately severe and severe depression respectively. The prevalence of depression found in this study is higher than that of ABU Zaria. This is probably linked to the differences in other confounding factors such as socioeconomic status, religiosity and place of residence that may be related to depression.

Other reasons may be that the studies were performed at different time or sampling errors. However, the prevalence is similar to the 70% found among Pakistani university students Khan et al., (2006). This may be because the same questionnaire (PHQ-9) was used.

This study consisted of more male participants than females and it found that female students were more depressed (84.0%) than male students (69.8%). There was a significant association between gender and depression categories, p -value = 0.046. Only the moderate depression category has a significant difference between females (52.0%) and males (28.1%). However, males have higher prevalence of mild depression (34.4%) than females (26.0%). A previous study conducted in Nigeria, by Suraj et al. (2021), found that female students were more likely to be depressed than male students. These findings are consistent with findings by Othieno et al., (2014), Abdelwahed Shams-Eldin et al., (2019), Hardeman et al., (2015) and Mao et al., (2019). Kendler *et al* (2009) noted that this is most likely because females exhibited more sensitivity to interpersonal relationships than males; they also experience specific forms of hormonal fluctuation that may trigger depression, and they engaged more in meditative cognitive styles that makes them more predisposed to depression than males.

The present study found a significant association between year of study and depression status with a trend increasing from 100 level to 200 level and peaking at 300 level, p -value = 0.028. A considerable proportion of the third-year students have some level of depression (91.2%), followed by the second-year students (77.8%). These could arise because of increasing levels of stress and difficulties as the students' progress academically from 100 level to the final year. Bostanci *et al* (2005) argued that other explanations could be because senior students are more worried about their future uncertainties related to employment than fresh students. This study found that there was no significant association between year of study year and depression categories, p -value = 0.053. Yet, moderate depression was prevalent among the 300 level students (61.2%). Previous studies such as the ones conducted by Suraj et al., (2021) and Yusoff et al., (2013). have also reported a higher prevalence of depression among the 300 level students. We think this could be due to the nature of the course structure, that the workload of the students increases from the first year to the third year and reduces in the final year. Also, 400 level students may have already become more and more familiar with the school environment and can cope better with academic stress and other challenges. However, with the

absence of baseline difference between the study years, we cannot support this finding.

This study has some limitations. Firstly, the survey was a cross-sectional design in nature; as such, caution must be given to the causal relationships between the study variables. Secondly, a self-reported measure was used for data collection and this can result in response bias. Thirdly, the data was collected from a single university; hence, this can affect the generalizability of the study findings. However, a simple random sampling technique was employed in selecting the study participants so as to minimize this effect. Future studies should consider exploring more factors that might be associated with depression, such as the pattern of sleep, level of physical activity, socioeconomic status, academic performance, smoking and previous health conditions. It is also recommended that similar studies should also be replicated in a more diverse population of students including postgraduate students.

CONCLUSION

This study revealed a notable proportion of depression among undergraduate students in FUD (74.7%). Factors associated with depression discussed in this study were gender and year of study, with female students and students of 300 level having a higher prevalence of depression. This suggests that higher institutions and relevant agencies need to provide appropriate mental screening and counselling services to university students.

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CONFLICT OF INTREST: None declared

AUTHORS CONTRIBUTIONS

Conception and design of study: KM, MA, AK, ZFA, AS.

Acquisition of data: KM, MA, AK, AS.

Analysis and interpretation: AS.

Drafting the manuscript: KM.

Revising the manuscript critically for important intellectual content: AS, ZFA, JA, US, IS.

Approval of the version of the manuscript to be published: AS, US, ZFA.

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