

## ORIGINAL PAPER

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**Depression amongst Nigerian university students****Prevalence and sociodemographic correlates**

Accepted: 20 March 2006 / Published online: 5 May 2006

**Abstract** *Background* This study aimed to estimate the prevalence and examine the socio-demographic correlates of depressive disorder among university students in Western Nigeria. *Methods* A representative sample of students living in the halls of residence of a federal university ( $n = 1,206$ ) completed sets of questionnaires on socio-demographic details, problems encountered in the university, alcohol use and smoking. Depressive disorder was assessed using the Mini International Neuropsychiatric Interview (MINI). *Results* A total of 101 (8.3%) students met the criteria for depressive disorder with 68 (5.6%) having minor depressive disorder and 33 (2.7%) having major depressive disorder. The factors that were significantly associated with depressive disorders in the students include problems with accommodation (OR 2.72, 95% CI 1.79–4.16), very large family size (OR 2.8, 95% CI 1.42–5.73), female gender (OR 2.21, 95% CI 1.46–3.35), heavy cigarette smoking (OR 3.67, 95% CI 2.23–6.05) and high level of alcohol consumption (OR 9.44, 95% CI 3.32–26.89). *Conclusions* Depression is common among Nigerian university students and significantly associated with sociodemographic factors. An effective model for the prediction of the development of depression in university students need to be developed and evaluated and interventions aimed at reducing the incidence of

depression among this population need further research.

**Key words** depression – college students – risk factors – prevalence

**Introduction**

Depression in young adults is a serious public health problem and the source of immense human suffering. It disrupts the person's life during a critical period for learning and social development and is implicated in alcohol and drug abuse [12]. The 6-month prevalence of major depression in adults is usually estimated to range between 2.2% and 14% in the general population [5, 11, 13] while the National Psychiatric Morbidity Survey of Great Britain estimated the 1-week rate of a depressive episode to be 2.1% [25].

The university is a critical context for studying youth mental health [24]. University students are often undergoing role transitions—such as moving away from the family home for the first time, residing with other students, and experiencing reduced adult supervision—these changes may increase the risk of depression [17]. Transition to university may be particularly difficult in Nigeria where the living and academic conditions in the colleges are poor. The Nigerian students are constantly faced with problems of accommodation, overcrowded lecture halls, unavailable learning materials, repeated disruptions of academic calendar and poverty. The disruption in learning and peer relationships that occurs while a young person is depressed might be expected to leave them at an academic and social disadvantage even after the resolution of the original episode of depression [8].

The prevalence and risk factors for depression in Nigeria has not been well studied. The few available

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studies have examined depression in groups of postpartum women [2], amongst patients attending general outpatients' clinics [10], psychiatric clinic [9] and geriatrics attending clinics [22] and those in the community [23]. Although serious psychosocial problems had been noted among college students in Nigeria [14], no study has assessed the prevalence and correlates of depression in this group.

This study aimed to estimate the prevalence and examine the socio-demographic correlates of depression in a representative sample of university students living in the halls of residence in south-western Nigeria.

## Subjects and methods

### Study population

The study group consists of students of Obafemi Awolowo University, Ile-Ife, in South-western Nigeria. It is a federal university offering both undergraduate and postgraduate degrees with about 30,000 students from the three main tribes in Nigeria (Yoruba, Hausa and Igbo), and the two major religions in the country (Christianity and Islam). There are 10 faculties and 12 halls of residence. There are 8 halls of residence located inside the campus (including for male, female and postgraduate students) with 4 located outside the campus (including for medical students).

### Sample size and sampling technique

A multistage sampling technique was adopted. The 12 halls of residence consist of a total of 72 flats (average of 6 flats per hall) and a total of 866 rooms (average of 12 rooms per flat). Each room is inhabited by an average of 6–8 students. The blocks of flats in each hall were mapped out. The flats with even number were then selected. After that, even numbered rooms in each flat were subsequently selected. In the third stage, 3 students were selected at random from each of the even-numbered rooms for the interview. This sampling scheme produced a sample with approximately equal probability of selection of each member. A final sample of 1,299 students was therefore obtained. Out of this number, only 1,206 agreed to participate.

### Procedure

The Ethics and Research Committee of the Obafemi Awolowo University approved the study protocol and informed consents were obtained from the participants after the aims and objectives of the study had been explained.

The participants first completed a questionnaire asking about socio-demographic details including age, sex, marital status and religion. The questionnaire also inquired about the number of years spent in college, the monthly allowance from parents, accommodation and academic problems, smoking and the type and size of the students' family.

Accommodation problem was assessed by asking the students whether they are officially accommodated in their rooms or squatting with a fellow student. Academic problems were assessed by asking the students if they had failed any course that may lead to an extra year in school (carry-over). Level of smoking was assessed by asking the students to estimate the number of cigarettes smoked per day.

The level of alcohol consumption was assessed by asking the students to fill the Alcohol Use Disorder Identification Test (AUDIT). The AUDIT [19, 20] is a self-rated 10-item questionnaire that enquires about alcohol consumption and frequency of drinking, the presence of alcohol related problems and alcohol-dependence symptoms. Each item is scored 0–4, giving a total score of 40.

Several studies have shown its validity and reliability in the detection of hazardous drinking, alcohol misuse and alcohol dependence [3]. It had recently been validated among Nigerian university students [1].

To assess the students for depressive disorder, trained research assistants ( $n = 12$ ), who were medical students in psychiatry postings, then used the Mini International Neuropsychiatric Interview (MINI) [21] to assess all the participants for the presence of the nine DSM-IV criteria for diagnosis of major depressive disorder. The MINI was modified to allow for the diagnosis of DSM-IV minor depressive disorder (a 2-week period of at least 2, but less than 5, symptoms of depression; depressed mood or anhedonia being mandatory). The MINI was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV. Validation and reliability studies have been done for MINI with the results showing that the MINI has acceptably high validation and reliability scores. Clinicians can use it, after a brief training session, but lay interviewers require more extensive training. It included initial screening questions for each module and only if the screening was positive was the full diagnostic questions asked. Two trained psychiatrists then randomly cross-checked 10% of the diagnoses.

The interviews were conducted in English, which is the official and the most common form of communication in Nigeria, a multilingual country with over 200 languages and dialects. Since the MINI is structured in simple, lay-language, that is easy to understand and the participants were students in tertiary institutions, no problem was encountered in administering the instrument.

### Data analysis

The Statistical package for the Social Sciences 11 (SPSS.11) program was used for statistical analysis. Cases of depression were defined according to their DSM-IV diagnosis of both major and minor depressive disorder. Student's *t*-test, Fisher's exact test and Pearson's Chi Square were all used in calculating differences between groups. All tests were 2-tailed, and the level of significance was set at  $P < 0.05$ . The variables that are definitional prior and those where the causal direction was less secure were entered separately into logistic regression analysis to determine the factors that were independently associated with depression. Odds ratio and 95% confidence interval was then calculated for the predicting variables.

## Results

### Socio-demographic data of the participants

The average age of the participants in years was 24.98 (SD = 6.56) with a range of 15–41 years. There were 694 (56.5%) males and a total of 67 (5.6%) of the participants are married. There were 868 (72.0%) Christians. Of all the students 627 (52.0%) were from a monogamous family and the average number of children in the family (family size) was 5.78 (SD = 2.55). The average number of years spent in college was 2.86 (SD = 1.37) and 832 (69.0%) students collect a monthly allowance of less than 5,000 naira. The average number of cigarette smoked per day was 1.11 (SD = 2.52) and the mean AUDIT score was 2.40 (SD = 2.91).

### Prevalence of depressive disorders

The mean inter-rated reliabilities between these interviewers, by Cohen *k* is 0.91. A total of 101 (8.3%) participants were identified as 'cases' of depression by

**Table 1** Association of sociodemographic variables with diagnosis of depression

Variables	Total	Depressed	Non-depressed	X2	Df	P value
Sex						
Female	694	40	654	14.524	1	<0.001
Males	512	61	451			
Marital status						
Single	1139	93	1046	1.175	1	0.278
Married	67	8	59			
Religion						
Christians	868	76	792	0.992	2	0.609
Moslems	313	24	289			
No indicated religion	25	1	24			
Family type						
Monogamous	607	43	564	3.356	2	0.197
Polygamous	516	48	468			
Separated/single parent	83	10	73			
Accommodation problems						
No	700	36	664	22.711	1	<0.001
Yes	506	65	441			
Academic problems						
No	806	52	754	11.713	1	0.001
Yes	400	49	351			
Allowance per month						
<5,000 naira	832	70	762	0.192	2	0.908
5,000–10,000 naira	312	25	287			
>0,000 naira	62	6	56			
Variables	Total (SD)	Depressed (SD)	Non depressed (SD)	T	Df	P value
Age	24.98 (6.56)	25.25 (6.71)	24.95 (6.55)	0.436	1204	0.663
Years spent in school	2.86 (1.37)	3.00 (1.41)	2.85 (1.37)	1.046	1204	0.296
Family size	5.79 (2.55)	6.46 (2.50)	5.72 (2.85)	2.800	1204	0.005
Cigarette smoked per day	1.11 (2.52)	2.34 (3.62)	1.00 (2.82)	5.158	1204	<0.001
AUDIT scores	2.40 (2.92)	3.30 (3.87)	2.31 (2.82)	3.240	1204	0.001

the MINI. These consisted of 68 (5.6%) cases of minor depressive disorder and 33 (2.7%) cases of major depressive disorder. In total, 40 (5.8%) males were depressed while 61 (11.9%) females met the diagnosis for depressive disorders.

### ■ Correlates of depressive disorders

The variables significantly associated with depression (both major depressive disorder and minor depressive disorder) include gender, academic problems in school, accommodation problems in school, family size, number of cigarette smoked per day and scores on the AUDIT (Table 1).

Separate logistic regression analysis was then done for variables that are definitional prior (e.g. gender, family size etc.) and for variables where the causal relationship is less secure (e.g. accommodation problems, academic problems etc.). The results showed that the factors independently associated with the diagnosis of depressive disorders included problems with accommodation, family size, gender, number of cigarette smoked per day and the AUDIT scores (Table 2). The calculated odds ratio (OR) and 95% confidence interval (95% CI) for the independently associated variables is shown in Table 3.

**Table 2** Logistic regression analysis for the variables significantly associated with depression among Nigerian university students

Variables	Standard error	B	I	P
Accommodation problems	0.070	0.818	6.550	<0.001
Family size	0.005	0.199	4.547	<0.001
Gender	0.071	-0.421	-3.311	0.001
Cigarette smoking	0.005	0.097	2.280	0.023
AUDIT scores	0.005	0.110	2.134	0.033

### Discussion

To our knowledge, our study was the first to estimate the prevalence and examine the socio-demographic correlates of depression in Nigerian university students. We found the prevalence of both major depressive disorders in our sample of university students to be 2.7%. This is comparable to the findings in the British National Surveys [25]. It is, however, much lower than the 9% and 14% range found in the National comorbidity Surveys [11, 13], which had problems of over-high prevalence. The 8.3% prevalence for both major depressive disorder and minor depressive disorder found in our study is lower than the prevalence of 25% found among Nigerian patients attending general outpatients' clinics [10], or the 18.3% found among geriatrics population in Nigeria [23].

**Table 3** The calculated odds ratio (OR) and 95% confidence interval (95% CI) for the significant variables associated with depression in Nigerian college students

Variables	Total students (n = 1206)	Total depressed (n = 101)	Total non-depressed (n = 1105)	Odds Ratio (95% Confidence interval)
Accommodation problems				
Absent	700	36	664	1 (reference)
Present	506	65	441	2.72 (1.78–4.16)
Family size				
1–4	330	17	313	1 (reference)
5–8	742	66	676	1.80 (1.04–3.12)
>8	134	18	116	2.86 (1.42–5.73)
Gender				
Male	694	40	654	1 (reference)
Female	512	61	451	2.21 (1.46–3.35)
Cigarette smoking				
Non smoker	951	68	883	1 (reference)
1–5 sticks per day	137	7	130	0.70 (0.31–1.56)
>5 sticks per day	118	26	92	3.67 (2.23–6.05)
Alcohol consumption (AUDIT score)				
0	460	35	425	1 (reference)
1–4	557	36	521	0.84 (0.52–1.36)
5–10	173	23	150	1.86 (1.07–3.25)
>10	16	7	9	9.44 (3.32–26.89)

An interesting finding in our study was the significant association of depressive disorders and accommodation problems among university students. The steep rise in students' numbers and high cost of living had brought about serious problems of accommodation in Nigerian universities and colleges, with a large number of the students' population not officially accommodated and therefore squatting with their fellow students.

Another peculiar finding from our study was the significant association between large family size and depression. Although the study design did not allow us to hypothesise the reasons for this, it is the usual practise in Nigeria for parents who have many children to provide for the education of only the first child and expecting that the child will make provisions for the educational needs and care of the other siblings when he starts working. The knowledge of this awesome expectation from the parents and the society after graduating may be a source of psychological stress to the students. More studies are, however, needed to examine the specific reasons for this association.

The female gender had consistently been found to be at a higher risk of depression than males [11, 13] and this was reflected in our study. Other major findings of our study were the strong correlations between depression and the levels of alcohol use or number of cigarette smoked per day. This is in agreement with studies that have found similar associations [6, 7, 15] and in disagreement with other studies, which have not found such association [16]. It should be noted however that in our study, moderate use of alcohol (AUDIT score 1–4) and smoking of 1–5 sticks of cigarette per day were associated with a lesser risk of depression than found in non drinkers

and non-smokers. This non-linear relationship had also been found between anxiety and the use of alcohol and cigarette [4, 18]. Since these substances have anxiolytic effects, it was hypothesised that smoking and drinking are attempts to self-medicate anxiety. Our study suggests that this relationship may also apply to depression. However, it may also suggest a cross-cultural difference in emotional responses to degrees of alcohol and cigarette use. Further studies are however needed to clarify this.

Our study had been limited by our considering only students living inside the campus halls neglecting non-students of same age or students who were not residing on the campus. We had also not considered other personal factors likely associated with depression like poor self-esteem and stressful life events. In addition, our study was cross-sectional in nature, which makes it limited to assessing only associated factors and not risk. However, even in cross sectional study, some variables (e.g. gender) are prior by definition. The strength of our study was in it being the first to examine the prevalence and risk factors for depression among university students in Nigeria. We had a moderate sample size and we had used a structured diagnostic interview to measure depression.

In conclusion, depression is common among Nigerian college students especially among students with accommodation problems, large family size, females, those smoking cigarette and those with heavy consumption of alcohol. An effective model for the prediction of the development of depression in university students needs to be developed and evaluated and interventions aimed at reducing the incidence of depression among this population need further research.

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