Prevalence and Correlates of Depression, Anxiety and Academic Stress among Science Students in Oduduwa University, Ile- Ife, Nigeria

Article by Lamidi Rasheed Emmanuel
Ph.D. in Public Health, Texila American University
E mail: adelam77@yahoo.com

Abstract

Background: There is an increasing concern on the mental health of university students worldwide. The objectives of this study are to assess the prevalence and correlates of depression, anxiety and stress among science students of Oduduwa University, Ile-Ife, Nigeria.

Methods: A descriptive cross sectional study design was employed on 367 sampled undergraduate science students of Oduduwa University aged 16-30using sample of convenience. The data was collected usingself-administered questionnaires and data analysis was done using SPSS version 22. The level of significance was set at p < 0.05.

Results: The prevalence of depression, anxiety and stress among these science students were 62.6%, 67.8% and 17.8% respectively. Academic performance was found to be significantly associated with depression. Family economic situation was found to be significantly associated with stress. Marginal significant association was found between ethnicity and depression and between parent marital status and stress. No other factors have been found to be significantly associated.

Conclusions: There is a high prevalence of depression, anxiety and stress symptoms among the university students. This stands as a great concern in public health. Therefore, there is need for concerted efforts, preventive measures and sufficient supportive services to be put in place for this group.

Keywords: DASS 21, depression, anxiety, stress, university students, Nigeria.

Introduction/Literature review

University students are regarded as a special group of people that are enduring a critical transitory period in which they are going from adolescence to adulthood which can be seen as one of the most stressful times in a person's life (Eller et al, 2006). The desire to try to fit in, maintain good grades, be away from home and plan for the future often causes anxiety for a lot of students and as a reaction to this stress, some students get depressed and discovered that they cannot get themselves together. Such students may cry all of the time, skip classes or isolate themselves without realizing that they are depressed (Mahmoud et al, 2012).

University students face many problems such as accommodation problems, interpersonal relationships, competition and difficulties in academic studies, economic stress, and struggles with making important decisions (Spiessl et al., 2006; Sobocki et al., 2007). Evidence that suggests that university students are vulnerable to mental health problems has generated increased public concern in Western societies (Stanley and Manthorpe, 2001). Previous studies suggest high rates of psychological morbidity, especially depression and anxiety, among university students all over the world (Stewart-Brown et al., 2000; Tomoda et al., 2000; Ovuga et al., 2006; Wong et al., 2006). Psychological morbidity in undergraduate students represents a neglected public health problem and holds major implications for campus health services and mental policy-making (Royal College of Psychiatrists, 2003; Poch et al., 2004). Therefore, acquiring the understanding of the impact of this neglected public health phenomenon on one's educational attainment and prospective occupational success is very important. Thus, the mental health of university students has been the subject of

increasing focus in recent years with evidence demonstrating that university students experience higher levels of psychological distress, including anxiety and depression, in comparison to non-student populations (Vaez et al., 2004; Bewick et al., 2010).Moreover, research has shown approximately 40% of university students with diagnosable mental health conditions do not seek clinical services or access university support services (Gruttadaro and Crudo, 2012).

The prevalence of mental health issues in university students is of universal concern, with international studies revealing clinical levels of psychopathology, including anxiety and depression in student populations globally (Wintre and Yaffe, 2000; Chen, 2013). The prevalence rates of depression range between 11.7% and 34.4% in Nigeria (Morakinyo, 2002). Ohaeri and co-workers (1991) reported 49% at University College Hospital, Ibadan, Nigeria. Some researches show that college-aged students (18-29 year olds) experience a greater prevalence of anxiety compared to the general population (Kessler et al., 2005). Past research, as well, indicates that college students, particularly freshmen, report high levels of stress (DeRosier et al., 2013).

Various socio-demographic characteristics (for example, sex, level of education, and income) are associated with depressive and anxiety disorders. Most studies indicate that sex and socioeconomic status are the most important predictors of these disorders (Regier et al., 1993; Kahn et al., 2000). Moreover, studies have shown that the rates of mental disorders, particularly depression, are associated with various environmental stressors, including family discord (divorce or marital conflict), economic hardship, and stressful life events (Katerndahl and Parchman, 2002; Kessler et al., 2003; Turner and Lloyd, 2004). Some variables such as marital status, urban or rural status, and living arrangements have been found to be related to depressive and anxiety disorders in the literature (Haarasilta et al., 2004; Mirza, 2004) Previous studies showed that below-average income was a risk factor for depressive and anxiety disorders (Mirza, 2004; Muntaner et al., 2004).

Looking at it from the perspectives of public health practice, early detection of mental health problems among young adults in the universities is highly essential in the sense that understanding the psychological distress such as depression, anxiety and stress, as well as their correlates would assist in appropriate screening and intervention programs in order to prevent mental health problems among this population (Shamsuddin et al., 2013).

In Nigeria, epidemiological data about psychological morbidity among undergraduate students are not well-known and there is a paucity of research on prevalence and correlates of depression, anxiety and stress among undergraduate students in Nigerian universities. Hence, the need for this study to fill the gap.

Statement of problem

Several studies have shown that university students in other part of the world experience high levels of mental health problems such as stress, anxiety and depression. In addition, since early detection and quick prevention of these mental health problems among university students are very important in public health practices, hence, the need for this study to examine prevalence and associated factors of depression, anxiety and stress among university students in my environment.

Furthermore, through my extensive literature search and to the best of my knowledge, there is no formal study conducted on prevalence of depression, anxiety and stress among university students in Ile-Ife and also in Nigeria at large as at the time of conducting this study. Therefore, this study will serve as a baseline study on depression, anxiety and stress among university students in Ile-Ife and in Nigeria.

Research questions

The followings were the research questions for this study:
1. What prevalent is depression, anxiety and stress among the science students of Oduduwa University, Ile-Ife, Nigeria?
2. Is there any association between socio demographic variables and depression, anxiety and stress among the science students of Oduduwa University, Ile-Ife, Nigeria?

General objective

To assess the prevalence andpossible correlates and of depression, anxiety and stress among the science students of Oduduwa University, Ile-Ife, Nigeria.

Specific objectives

1. To assess prevalence of depression among the science students of Oduduwa University, Ile-Ife, Nigeria.
2. To assess prevalence of anxiety among the science students of Oduduwa University, Ile-Ife, Nigeria.
3. To assess prevalence of stress among the science students of Oduduwa University, Ile-Ife, Nigeria.
4. To assess association betweensocio demographic variables (age, gender, ethnicity, living arrangement, academic performance, social life situation, parent marital status, family economic situation)and depression, anxiety and stress among the science students of Oduduwa University, Ile-Ife, Nigeria.

Methodology

Research design

A cross sectional descriptive study design was employed for the study and was conducted among undergraduate science students of Oduduwa University, Ile-Ife, Osun State, Nigeria between the period of April and May, 2016.

Study Area

The study was carried out among the undergraduate students in the college of sciences, Oduduwa University, Ile-Ife, Osun State, Nigeria. Oduduwa University is a well-known and reputable private University located at Ipetumodu (in the Northern part of Ile-Ife), a town in Osun state which is six kilometres (6km) away from Ile-Ife. The University was named after Oduduwa, the progenitor of the Yoruba people.

Sampling size determination

Based on minimum sample size calculation using Leslie and Kish formula for descriptive studies N= p (1- p) z2/d2 (where p is the estimated prevalence rate, z= 1.96 corresponding to confidence level of 95% and d=0.05), sample size was calculated using prevalence rate (p) of 29.3% (i.e. 0.29) from a previous study (Gan.et al, 2011) and 95% confidence interval with precision of 5% to arrive at a total sample size of 316 for this study. To allow for a non-response rate of 10% which is 32 the number of the sample size was then increased to 348. A total number of 400 questionnaires were then taken to the University to be distributed for the study.

Sampling method

A convenient sample of 367 science students from Oduduwa University (135 males and 232 females) were successfully interviewed using the questionnaires to record their socio-demographic variables and their responses to the 21 question version of the Depression Anxiety Stress Scale (DASS 21).

Survey instruments and procedures

Survey instrument for this study consisted of self-administered questionnaire which was divided into two sections: demographic data and Depression Anxiety Stress Scale (DASS 21) questions. Information on socio-demographic data consisted of eight questions based on age groups, ethnicity, gender, living arrangement, academic performance, social life situation, parent marital status and family economic situation were obtained from the participants. The Depression Anxiety Stress Scale (DASS 21) is a 21 item self-reported questionnaire designed to assess and measure the severity of a range of symptoms common to depression, anxiety and stress. The DASS-21 has been well accepted worldwide as a reliable and easy-to-use screening instrument. It is a modified and shorter version of the original version of DASS-42 and it has been reported to have better psychometric properties than DASS-42. In administering the Depression Anxiety Stress Scale, the students were asked to rate the extent to which they have experienced various symptoms over the past one week. Each item was scored on a 4-point Likert scale and each item ranging from 0 (did not apply to me at all over the past one week) to 3 (applied to me very much or most of the time over the past one week).

Data analysis

A total number of 400 questionnaires were then taken to the University to be distributed for the study A total number of 367 were completed, returned and used for the study (given 37 students as non-respondents). All the completed questionnaires were collated and data processing was performed using Microsoft Excel 2010. All statistical analyses were carried out using the Statistical Package for the Social Sciences, (IBM SPSS software version 22.0). Data analysis for this study involved the use of both descriptive and inferential statistics. Analysis of socio-demographic variables were presented using frequency distributions and percentages. Means and standard deviation were used to present the scores of the outcome variables which are depression, anxiety and stress symptoms scores. Independent sample t-tests were used to test the differences in means of depression, anxiety and stress symptom scores by age group and gender variables obtained from the study. One-way ANOVA tests were used to test the significant relationship between ethnicity, living arrangement, academic performance, social life situation, parent marital status, family economic situation and mean depression, anxiety and stress scores. Post Hoc test was then further performed to ascertain which means of each group were significantly different from each other. The level of significance was set at $p < 0.05$.

Ethical consideration

Permission to conduct the study was sought and obtained from the University. Informed consentwas obtained from every participant and confidentiality was given to them.

Results

The score ranges of level of severity of DASS scale were shown in Table1. Table 2 showed the socio-demographic variables of these undergraduate science students with their total number and percentages. The total number of undergraduate science students of Oduduwa university that participated in this study were 367 students of which 36.8% of them were males (N = 135) and 63.2% were females (N = 232). They were between the ages of 16 and 30 years. Majority of these participants were in the age group 20– 30 years (65.4%) while others were in the age group 15–19 years (34.6%). Their mean age was 20.69 years (SD = 2.65). The largest portion of the ethnic group among these students were Yoruba (74.7%), followed by others (12.8%), Igbo (10.6%) and lastly Hausa (1.9%). Other socio-demographic variables with their total number and percentages were also shown in Table 2.

Table 1. Level of severity of depression, anxiety and stress

Rating	Depression	Anxiety	Stress
Normal	0-9	0-8	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Table 2. Descriptive statistics of socio-demographic factors among undergraduate science students (n =397).

Variables	N (%)
Age:	
15-19	127 (34.6)
20-30	240 (65.4)
Gender:	
Male	135 (36.8)
Female	232 (63.2)
Ethnicity:	
Yoruba	274 (74.7)
Igbo	39 (10.6)
Hausa	7 (1.9)
Others	47(12.8)
Living arrangement:	
Living with parents	162 (44.2)
Living with friends/ in hostels	112 (30.4)
Living alone	93 (25.4)
Academic Performance:	97 (26.5)
Highly satisfied	97 (26.5)
Moderately satisfied	232 (63.3)
Least satisfied	38 (10.2)
Social Life Situation:	
Highly satisfied	102 (27.7)
Moderately satisfied	226 (61.6)
Least satisfied	39 (10.7)
Parent Marital Status:	
Married	240 (65.3)
Separated/Divorced/Widowed	32 (8.7)
Never married	95 (26.0)
Family Economic Situation:	
Good	177 (48.2)
Moderate	185 (50.4)
Poor	5 (1.4)

The prevalence of depression, anxiety and stress among undergraduate science students of Oduduwa University were as shown in Table 3. Depression, anxiety and stress are divided into 5 categories of severity namely normal, mild, moderate, severe and extremely severe. Mean ± standard deviation for depression, anxiety and stress were also displayed in table 3.

Table 4 showed the relationships between socio- demographic factors and mean depression, anxiety and stress scores among the students. No statistical significant relationship was found between age, gender and the mean depression, anxiety and stress scores among the students. Similarly, there was no statistical significant relationship between living arrangement, social life situation and the mean scores of depression, anxiety and stress.

Statistical significant relationship was found between academic performance and the mean depression score only with Post Hoc analysis showing significance difference between students who were least satisfied and those who were moderately satisfied with their academic performance (F (2,366) = 4.117; p = 0.017). Also, statistical significant relationship was found between family economic situation and the mean stress score only with Post Hoc analysis showing significance difference between students from good and moderate family economic situation (F (2,366) = 3.247; p = 0.040).

Table 3. Prevalence of depression. Anxiety and stress among undergraduate science students

Variables	N (%)
Depression:	
Normal	137 (37.4)
Mild	79 (21.5)
Moderate	104 (28.3)
Severe	30 (8.2)
Extremely severe	17 (4.6)
Mean ± Standard Deviation	12.31± 7.18
Anxiety:	
Normal	118 (32.2)
Mild	41 (11.1)
Moderate	95 (25.9)
Severe	48 (13.1)
Extremely severe	65 (17.7)
Mean ± Standard Deviation	11.83± 8.02
Stress:	
Normal	265 (72.2)
Mild	34 (9.3)
Moderate	44 (12.0)
Severe	16 (4.3)
Extremely severe	8 (2.2)
Mean ± Standard Deviation	11.02± 8.31

Table 4. Socio- demographic factors and their relationship with depression, anxiety and stress scores.

Factors	N (%)	Depression, mean (SD)	Anxiety, mean (SD)	Stress, mean (SD)
All	367 (100.0)	12.31 (8.31)	11.83 (3.33)	11.02 (8.31)
Age:				
15-19	127 (34.6)	12.61 (7.07)	11.75 (7.53)	10.96 (7.98)
20-30	240 (65.4)	12.15 (7.24)	11.88 (8.29)	11.05 (8.49)
		$t = 0.579; p= 0.563$	$t = -0.144; p= 0.886$	$t = -0.093; p= 0.926$
Gender:				
Male	135 (36.8)	11.41 (6.44)	11.63 (7.17)	10.12 (7.53)
Female	232 (63.2)	12.83 (7.54)	11.95 (8.49)	11.54 (8.70)
		$t = -1.824; p= 0.012$	$t = - 0.367; p= 0.714$	$t = - 1.583; p= 0.101$
Ethnicity:				
Yoruba	274 (74.7)	11.76 (6.86)	11.34 (7.73)	10.76 (7.88)
Igbo	39 (10.6)	14.97 (8.56)	13.85 (8.34)	12.51(9.67)
Hausa	7 (1.9)	13.71 (9.89)	10.86 (10.51)	12.00 (12.11)
Others	47(12.8)	13.01 (6.95)	13.19 (8.88)	11.11 (9.02)
		$F (3,366) = 2.619; p = 0.051$	$F (3,366) = 1.663; p = 0.175$	$F (3,366) = 0.540; p = 0.655$
Living arrangement:				
Living with parents	162 (44.2)	13.05 (7.47)	11.94 (8.13)	11.39 (8.40)
Living with friends/ in hostels	112 (30.4)	11.61 (6.66)	11.67 (7.70)	10.54 (8.11)
Living alone	93 (25.4)	11.74 (7.11)	11.74 (8.20)	10.79 (8.10)
		$F (2,366) = 1.657; p = 0.192$	$F (2,366) = 0.040; p = 0.961$	$F (2,366) = 0.377; p = 0.686$
Academic Performance:				
Highly satisfied	97 (26.5)	12.00 (7.35)	11.85 (8.89)	10.44 (8.31)
Moderately satisfied	232 (63.3)	11.87 (6.74)	11.51 (7.41)	10.94 (7.75)
Least satisfied	38 (10.2)	15.46 (8.80)	14.32 (9.32)	13.43 (11.35)
		$F (2,366) = 4.117; p = 0.017*$	$F (2,366) = 1.957; p = 0.143$	$F (2,366) = 1.793; p = 0.168$
Social Life Situation:				
Highly satisfied	102 (27.7)	12.03 (7.48)	11.64 (8.45)	10.26 (8.29)
Moderately satisfied	226 (61.6)	12.03 (6.96)	11.73 (7.96)	11.12 (8.28)
Least satisfied	39 (10.7)	14.92 (7.25)	13.28 (7.26)	11.92 (8.42)

		F (2,366) = 2.455; p = 0.087	F (2,366) = 0.699; p = 0.498	F (2,366) = 2.950; p = 0.054
Parent Marital Status				
Married	240 (65.3)	11.97 (7.49)	11.66 (8.13)	10.41 (8.05)
Separated/Divorced/Widowed	32 (8.7)	10.88 (5.10)	11.00 (6.37)	10.19 (7.86)
Never married	95 (26.0)	13.60 (6.86)	12.63 (8.27)	12.78 (8.93)
		F (2,366) = 2.455; p = 0.087	F (2,366) = 0.699; p = 0.498	F (2,366) = 2.950; p = 0.054
Family Economic Situation				
Good	177 (48.2)	11.52 (6.65)	8.09 (0.61)	8.27 (0.62)
Moderate	185 (50.4)	12.94 (7.62)	7.97 (0.59)	8.17 (0.60)
Poor	5 (1.4)	16.80 (5.21)	9.01 (4.04)	11.01 (4.92)
		F (2,366) = 2.792; p = 0.063	F (2,366) = 0.353; p = 0.703	F (2,366) = 3.247; p = 0.040*

Discussion

The objective of this study is to assess the prevalence and correlates of depression, anxiety and stress among undergraduate science students of Oduduwa University, Ile-Ife, Nigeria. In this study, the prevalence obtained for the presence of depression, anxiety and stress among these science students were 62.6%, 67.8% and 17.8% respectively. This showed that prevalence of depression and anxiety are higher in comparison to that of stress among the science students of Oduduwa University, Ile- Ife, Nigeria. This prevalence is higher compared to the one obtained among university students in Turkey where the prevalence of depression, anxiety and stress were found to be 27.1%, 47.1% and 27.0%, respectively (Bayram and Bilgel, 2008). Similarly, the result of this study was also higher than that obtained by Shamsuddin et al (2013) who obtained prevalence of 37.2%, 63.0% and 23.7% for depression, anxiety and stress respectively in their study among Malaysian university students. This shows that prevalence of depression and anxiety are existing in higher rate among the science students in this study as compared to some other environment outside Nigeria.

In this study, no statistical significant relationship was found between age, gender and the mean depression, anxiety and stress scores among the students. This result is similar to that obtained by Lester (1990) in his study among college students. He reported that significant relationship was found between age and depression scores.In this study, there is no statistical significant relationship between living arrangement, social life situation and the mean scores of depression, anxiety and stress. This result is supported by the one obtained by Shamsuddin et al (2013) who found out that living arrangement had no significant association with mean depression, anxiety and stress scores. Likewise Teh et al (2015) found out that there were no significant association between mean depression and anxiety with social life situation. In this study, there is a significant relationship between family economic situation and the mean stress score. This outcome is supported by Shamsuddin et al (2013) who reported a significant difference in stress score and family income. This study also shows that there is a significant relationship between academic performance and mean depression score but Teh et al (2015) in their study obtained no significant relationship between academic performance and mean depression, anxiety and stress score.

Limitation

This study has some limitations. The questionnaire was based on self- reported measures. Therefore, the accuracy of the information provided in the questionnaire can be influenced by imprecise self- reports and mistaken perceptions of a situation by the respondents. This limitation was controlled to some extent by making the questionnaire a closed ended type. Secondly, this study is a cross-sectional study in which conclusions about causal relations concerning depression, anxiety and stress among the study population could not be drawn. Also, since the study was conducted in a single university among the science students of the institution, the outcome of this study cannot be generalized on the entire population of all university students in Nigeria.

Conclusion

This study shows that there is high prevalence of depression, anxiety and stress among undergraduate science students of Oduduwa University, Ile-Ife, Nigeria. This implies that depression, anxiety and stress are neglected public health problems in this institution and can lead to adverse effects on the mental health, quality of life and academic achievement of these students. This study also shows association of depression with academic performance and ethnicity. Finally, in this study, stress was also found to be associated with family economic situation and parent marital status.

Recommendation

The followings are therefore recommended:
1. There is need for concerted efforts by health care professionals and the university administrative staff to develop appropriate support services catering to this group of students.
2. There is also need for greater attention to the psychological wellbeing of undergraduate students in order to improve their quality of life.
3. Appropriate screening and intervention programs should be allowed especially during orientation so as to prevent mental health problems among students admitted into the universities.
4. Early diagnosis, treatment and counselling as the case may be should be offered to vulnerable students.

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