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I D A INSIGHTS ON THE DEPRESSION AND ANXIETY
ISSN 2640-2882

Research Article

Prevalence of and institutional factors associated with depression among undergraduate students at Gulu University

Lucas Goodgame Anyayo[1], Amir Kabunga[1]*, Ponsiano Okalo[2], Brenda Apili[1] and Viola Nalwoga[1]

[1]Department of Psychiatry, Gulu University, Uganda

[2]Psychiatry, Gulu University, Uganda

Abstract

Background: Many institutional factors predispose University students to mental health issues, including depression. However, with no central database for depression in Uganda, literature on depression and associated institutional factors among undergraduate students is scarce. This study examined the prevalence of and institutional factors associated with depression among undergraduate students at Gulu University.

Methods: This was a cross-sectional survey among 452 undergraduate students at Gulu University in the academic year 2018/2019 in February and March 2019. A stratified simple random sampling was used to identify the participants. A self-administered questionnaire was used to collect data. Descriptive statistics, including mean and frequency, were used. We conducted a bivariate analysis to determine the association between variables employing Pearson's chi-square test or Fischer's exact test. We conducted a multivariate analysis with factors that had significant P-values of less than 0.05.

Results: The average age of the respondents was 22.4 (SD - 2.4), more than half (53.1%) were male and 38.50% were in the second year. The results show that 31.19% reported depression. After controlling for age and sex, the results showed that there was a statistically significant correlation between depression and faculty (aOR - 1.15), year of study (aOR - 0.77), happiness with the course (aOR - 0-0.49), satisfaction with academic performance (aOR - 0.45), and satisfaction with academic quality (aOR - 0.61). The results indicated that the predictors of depression among undergraduate students were faculty, year of study, satisfaction with academic performance, and satisfaction with academic quality.

Conclusion: A substantial proportion of Gulu University undergraduate students reported high levels of depression. The results, therefore, showed that depression in undergraduate students is an identifiable disorder that needs diagnosis, prevention, and treatment. Faculty, year of study, satisfaction with academic performance, satisfaction with academic quality were predictors of depression. Thus there is an urgent need for counseling, psychoeducation, and preventive mental health services as an essential part of the university setup.

More Information

***Address for Correspondence:** Amir Kabunga, Psychiatry, P. O. Box 1035, Lira University, Lira City, Uganda, Email: amirkabs2017@gmail.com

Submitted: February 05, 2022
Approved: March 10, 2022
Published: March 11, 2022

How to cite this article: Anyayo LG, Kabunga A, Okalo P, Apili B Nalwoga V. Prevalence of and institutional factors associated with depression among undergraduate students at Gulu University. Insights Depress Anxiety. 2022; 6: 001-006.

DOI: 10.29328/journal.ida.1001029

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Keywords: Academic performance; Depression; Undergraduate students; University

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Background

Depression is one of the major global disease burdens affecting young adults aged between 18 and 25 years [1]. Studies show that depression is of the top mental health issues affecting undergraduate students and the rate of depression among this very group continues to rise [2]. University students are a special group of the society largely affected by depression [3]. Studies across the globe indicate that the prevalence of depression among university students varies between 4% and 79.2% [4]. In Sub-Saharan Africa, data on depression among university students are very limited, but existing studies show depression as a serious major mental condition in the region [5]. With no central database for depression in Uganda, literature on depression and associated factors among undergraduate students is scarce.

Depression is a common mood disorder resulting in

persistent feelings of hopelessness, sadness, and loss of interest in activities that an individual once enjoyed [6]. Other symptoms include insomnia, loss of energy, weight loss, difficulty concentrating, feeling worthlessness, and suicidality [6]. A recent report indicates that depression is increasing in severity and numbers among university students [7]. It is associated with significant impairment, poor quality of life, substance abuse, comorbidity, and mortality [8,9]. It is a risk factor for suicide and suicide attempts, the third leading cause in this age group [9]. It also affects academic performance and the ability to participate in community activities [10]. A study in Chiropractic University indicated that 60% of undergraduate students dropped out due to anxiety, depression, and, maladjustment [11].

Prior studies have shown varying levels of depression among university students. Studies indicate that depression in university students ranges between 6.1% and 34.2% in Europe, between 33% and 41% in America, between 4% and 79.2%, in Asia, and between 16.2% and 67% in Africa [12-14]. Depression is associated with a multiplicity of factors including gender, marital status, age, genetics, social support, levels of parents' education, family history of mental illness, financial problems, academic achievements, the field of study, physical abuse, type of college, and substance abuse [15,16]. Studies also indicate that elevated level of stress significantly contributes to students' depression. However, these factors may vary from setting to setting and country to country [17]. Thus there is a need to understand contextual factors associated with depression among undergraduate students in the Ugandan context.

There is scarce information on depression among undergraduate students in Uganda. One study undertaken at Makerere university among medical students indicated that 21.5% and 64.1% had high and moderate levels of depression respectively [5]. This study revealed that academic performance and lectures were predictors of depression [5]. This study, however, assessed depression only in medical students of Makerere University which does not represent the general student population. There is hardly any study on the prevalence of depression and its predictors in other Ugandan university general students, especially in rural settings like northern Uganda. Therefore, examining depression among university students is necessary to help make appropriate recommendations for the University administrators and other stakeholders. Thus, this study examined the prevalence of and institutional factors associated with depression among undergraduate students at Gulu University.

Materials and methods

Study setting and design

We carried out a cross-sectional survey among undergraduate students at Gulu University. This was a type of observational research that analyzed data of variables collected at one given point in time across a pre-defined subset. Across all faculties and programs in the academic year 2018/2019 in February and March 2019. The study population was undergraduate students at Gulu University. The University is a public university in Northern Uganda with over 5000 students offering both undergraduate and postgraduate courses. We sampled undergraduate students the exclusion criterion had a physical disability.

Study participants and sample size estimation

We based the sample on the population of undergraduate students across all faculties and programs in the academic year 2018/2019 in February and March 2019. In 2019, Gulu University had about 5000 registered undergraduate students. We stratified the faculties and used Krejcie and Morgan table for sample estimation [18]. Based on the table, the estimated sample size was 357. However, we collected data from the 452 participants which were above the minimum sample. We used a simple random sampling design to identify the participants.

Measures

We used the Centre for Epidemiological Studies Depression-Revised version (CESD-R) to measure depression. The first part of a self-administered questionnaire had information on sociodemographics and factors associated with depression. The CESD-R is a 20 item validated tool used for measuring symptoms of depression on a 4- Likert scale. It taps into 9 different symptom groups of Major Depressive Disorder as categorized by American Psychiatric Association Diagnostic and Statistical Manual 5th edition (DSM-V) (Klein, 2008). These symptoms are sadness, loss of interest, appetite, sleep, concentration, worthlessness, fatigue, agitation, and suicidal ideation. The score is a sum of the 20 items and the possible range is 0-60. The is a reliable tool used in northern Uganda and the Alpha is 89 [19].

Procedure

We used 3 research assistants, including 1 female and 2 males, all medical students interested in the study to collect the data. The research assistants announced the study to the students before the lectures and communicated the data collection points within the faculties. They collected the data when the participants were not engaged in classes to avoid disruption of academic activities. We got written informed consent from all participants before the administration of the questionnaire. The questionnaire, in English, was mostly self-administered and the research assistant guided where some participants had difficulties comprehending the questions.

Statistical analysis

We extracted data collected in an excel sheet and exported it into STATA version 13 software for analysis. We tabulated the descriptive statistics with continuous and categorical variables being ± summarised as mean (± standard deviation) and frequency (percentages), respectively. In addition, we conducted a bivariate analysis to determine the relationship

between the institutional factors and the outcome variable in which we employed Pearson's chi-square test of independence and Fischer's exact test, where the cell count in the table was less than 5, where both the independent and dependent variables were categorical. We recorded the unadjusted odds ratios. We further conducted a bivariate analysis while controlling for age and sex and recorded the adjusted odds ratios. In addition, we conducted a multivariate analysis with factors that had significant *p* - values and those factors that applied to the literature. We considered factors that had significant *p* - values to be predictors of the outcome variable. Throughout the analysis, we considered *p* - values of less than 0.05 to mean statistical significance.

Ethical approval and consent to participation

We conducted this study per the Declaration of Helsinki. We sought ethical approval from the Gulu University Research Ethical Committee (GUREC -025-19) and got clearance from the different University Faculty heads. We gained signed written informed consent from the participants that consented to be part of the study.

Results

Demographic information

We sampled 452 participants with an average age of 22.4 (SD-2.4), most of whom 240 (53.1%) were male. In the year of study, First-year, second-year, and Third-year students had frequencies of 174 (38.50%), 144 (31.86%), and 100 (22.12%) respectively. Fifth-year students had the least respondents with a frequency of 9 (1.99%). With the outcome variable, depression, 311 (68.81%) did not record depression while 141 (31.19%) recorded depression. Table 1 summarises the descriptive statistics of the study participants and factors in the study.

Prevalence of depression among undergraduate

Number of participants with depression – 141, Number of participants without depression – 311, Total number of participants – 452.

$$\text{Prevalence} = \frac{number\ of\ \ participants\ with\ attribute}{total\ number\ of\ \ participants} \text{x}100$$

$$= \frac{141}{452} \text{x}100$$

= 31.19

Thus 31.19% of the respondents had depression.

The relationship between depression and selected Institutional factors.

Bivariate logistic regression analysis showed that sex, faculty that the student belonged to, year of study, CGPA, satisfaction with academic performance, being happy with the course, and choice of the university had an association with depression, as shown in Table 2.

Table 1: Descriptive statistics of institutional and socio-demographic factors.

Variable		Mean/Freq	SD/%
Age		22.41	2.41
Sex	Male	240	53.10
	Female	212	46.90
Faculty	Medicine	83	18.36
	Law	28	6.19
	Science	37	8.19
	Agriculture	81	17.92
	Business	86	19.03
	Education	137	30.31
Year of Study	First-year	174	38.50
	Second-year	144	31.86
	Third-year	100	22.12
	Fourth-year	25	5.53
	Fifth-year	9	1.99
Place of Residence	Home	52	11.50
	Hostel	400	88.50
Academic Performance	Poorly satisfied	40	8.89
	Moderately satisfied	342	76.00
	Highly Satisfied	68	15.11
as CGPA		3.568	0.535
Happiness with Course	No	47	10.49
	Yes	401	89.51
Choice of The University	No	97	21.75
	Yes	349	78.25
Satisfaction with the University	Poorly satisfied	67	14.92
	Moderately satisfied	255	56.79
	Highly Satisfied	127	28.29
Satisfaction with the Campus	Poorly satisfied	163	36.22
	Moderately satisfied	265	58.89
	Highly Satisfied	22	4.89
Satisfaction with Academic Quality	Poorly satisfied	42	9.35
	Moderately satisfied	322	71.71
	Highly Satisfied	85	18.93

Table 2: The relationship between depression and institutional factors (N = 452).

Predictor variable	*p* - value
Age	0.296
Sex	0.027*
Faculty	0.019*
Year of study	0.094*
Residence	0.698
Satisfaction with academic performance	0.002*
CGPA	0.064
Happy with course	0.027*
Choice of university	0.040*
Satisfaction with university	0.320
Satisfaction with campus	0.144
Satisfaction with academic quality	0.054

For further assessment, we carried out a multivariate logistic analysis. After controlling for age and sex, the results showed that there was a statistically significant correlation between depression and faculty (aOR - 1.15), year of study (aOR - 0.77), happiness with the course (aOR0 - 0.49), satisfaction with academic performance (aOR - 0.45), and satisfaction with academic quality (aOR - 0.61) as shown in Table 3.

Predictors of depression at Gulu University

We conducted a multiple regression analysis to predict depression. All independent variables that were significant on

bivariate analysis were entered into the model (faculty, year of study, satisfaction with academic performance, satisfaction with academic quality). These variables significantly predicted depression, F (5, 435) = 6.21, $p < 0.0005$, $R^2 = 0.066$. Results in the Table indicate that being from Faculties of Agriculture and Business was significantly associated with low levels of depression as compared to being in the Faculty of medicine. However, depression levels lowered in participants as they advanced in the years of study with those in the fourth year having lower levels of depression compared to those in year one. The results in Table 4 further show that depression was significantly and inversely associated with academic satisfaction.

Discussion

Depression has deliberating effects on university students. In this study, we examined the prevalence of and institutional factors associated with depression among undergraduate students at Gulu University. We found that 31.19% of the respondents had depression which is tandem with previous studies in America, Asia, and Africa [12-14]. The 31.19% observed in our study was higher than 21.5% reported at Makerere University [11], 23.3% in Peru [20], 23.3% in Nigeria [21], 2.6% in Germany [22], and, 21.8% in Australia [23]. Our result also is higher than 27.2% of global estimates reported by systematic review and meta-analysis [3]. This result is not surprising because Uganda is ranked among the top six countries in Africa in rates of depressive disorders [5]. However, our result was lower than 74.2% reported in Pakistan [24], 78.4% in Egypt [25], 50% observed in Cameroon [26], and 65.2% in Sudan [27]. However, it may be difficult to compare the occurrence of depression across different studies due to differences in diagnostic tools used, teaching setup, infrastructure, mental wellbeing, setting, and cultures.

Table 3: Multivariate analysis of factors associated with depression at Gulu University (N = 452).

Predictor variable	Unadjusted		Adjusted for age and sex	
	OR	*p* - value	OR	*p* - value
Faculty	1.162	0.009*	1.151	0.016*
Year of study	0.772	0.016*	0.773	0.026*
Residence	1.134	0.698	1.087	0.803
Satisfaction with Academic performance	0.463	0.001*	0.450	0.000*
CGPA	0.679	0.064	0.685	0.073
Happy with course	0.504	0.029	0.496	0.026*
Choice of university	0.614	0.041*	0.649	0.073
Satisfaction with university	0.803	0.169	0.816	0.203
Satisfaction with campus	0.713	0.066	0.712	0.067
Satisfaction with academic quality	0.619	0.017*	0.606	0.013*

Table 4: Predictors of depression at Gulu University (N = 452).

Variable	Coef.	*p* - value
Faculty	0.277	0.021*
Law	0.084	0.426
Science	0.141	0.136
Agriculture	0.158	0.034*
Business	0.239	0.001*
Education	0.121	0.075
Year of study	-0.443	0.045*
Second-year	-0.029	0.588
Third-year	-0.071	0.239
Fourth-year	-0.202	0.050
Fifth-year	-0.099	0.547
Satisfaction with academic performance	-0.113	0.015*
Moderately satisfied	-0.135	0.089
Highly satisfied	-0.242	0.011*
Satisfaction with academic quality	-0.095	0.026*
Moderately satisfied	-0.069	0.366
Highly satisfied	-0.174	0.057
Having chosen Gulu No	-0.104	0.047*
Yes	-0.095	0074

Our results in the multivariate regression showed that sex, faculty, year of study, CGPA, satisfaction with academic performance, being happy with the course, and having chosen the university had an association with depression. This finding is in line with previous studies which have shown that year of study, academic performance, grade, and choice of the University predicted depression among university students [5]. Our results also mirror the findings of studies conducted at Arsi University in Ethiopia and a pharmacy school in Ghana [28,29].

The results indicated that the predictors of depression among undergraduate students include the faculty to which the student belonged, the year of study, the subjective satisfaction with academic performance, and satisfaction with academic quality. The levels of depression in the different groups vary throughout the university. The students in lower years have a moderate level of depression from admission to the later year of the University, and the highest level of depression during the later years. This result expands the literature regarding the important predictors of depression among undergraduate students. Given the range of stressors affecting undergraduate students, there is a need to pay attention to contextual factors predicting depression. The attention to these factors is an avenue of significant utility to the undergraduate students as the number of them who will present with symptoms of depression regularly increases during the university years [30]. Consistent with previous studies [31,32], our findings support a correlation between higher levels of depression and poor academic performance. These results also confirm the results of other studies which identify predictors of depression [33,34].

Our results revealed that students from Faculties of Agriculture and Business had low levels of depression than students from the Faculty of medicine. Although the reasons are not clear it may be that medicine-related courses are quite demanding as compared to courses in both Faculties of Agriculture and Business. Medical students may face additional difficulties such as a large workload, number of assessments, and pressure of clinical environment [35]. In line with our findings, studies that have compared the rate of depression in medical students with their non-medical peers

have discovered that medical students had higher levels of depression than non-medical peers [14]. Also, our results showed that a substantial proportion of first-year students experienced higher rates of depression compared to students in advanced years of study. Possibly first-year students are yet to adapt to the university conditions. In addition, first-year students have just moved away from their families, to new places, and to a new environment which affects them mentally [36].

Conclusion

A substantial proportion of Gulu University undergraduate students reported high levels of depression. The results, therefore, showed that depression in undergraduate students is an identifiable disorder that needs diagnosis, prevention, and treatment. faculty, year of study, satisfaction with academic performance, satisfaction with academic quality were predictors of depression. Counseling and preventive mental health services should be an essential part of the university setup.

The current study is not without limitations that should be taken into consideration when interpreting the data. One of the limitations of this research is that the findings may not be generalizable to all undergraduate students in Uganda since the study was conducted at only Gulu University in northern Uganda. Secondly, the current study was a cross-sectional design so the issue of cause and effect was not possible.

Acknowledgment

The authors wish to acknowledge the participants includes in this study.

Availability of data and materials: The datasets used or analyzed during the current study are available from the corresponding author on reasonable request.

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