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Exploring the Prevalence and Associated Factors of Depression among Clinical Medicine Students: A Study at Kampala International University Western Campus, Uganda

Ampiire Amon

Faculty of Clinical Medicine and Surgery Clinical Kampala International University Western Campus Uganda.

ABSTRACT

Out of the 300 million people who suffer from depression globally, 85% live in low- and middle-income countries, and Uganda was ranked among the top six countries in Africa with the highest cases of mental disorders. According to the latest WHO report, 4.6% of Ugandans suffer from depressive disorders. There was a scarcity of data in Uganda and worse still in Kampala International University Western Campus on depression and its associated factors among clinical medicine students. Thus, this study sought to find out the local burden of depression and its risk factors among clinical medicine students at KIU-WC attached to Hoima regional referral hospital for clinical placement. A descriptive cross-sectional study design among 209 BMS students at KIU-WC was carried out between the months of June 2022 and January 2023. A pretested questionnaire was used to collect background data, while Beck's Depression Inventory was used to assess the levels of depression among 209 BMS students at Hoima regional referral hospital in KIU-WC. Data was entered and analyzed using SPSS version 25. The participants' ages ranged from 19 to 28 years, with a mean of 21.8 ± 2.2 years, and the majority (60.3%) were males. The overall prevalence of depression was 39.7%, moderate depression was 34.4%, and severe depression was 5.3%. Factors associated with depression were female sex ($X2 = 133.81$; $p<0.001$), age greater than 26 years ($X2 = 60.72$; $p<0.001$), final year of study ($X2 = 94.66$; $p<0.001$), more than 100,00/= monthly upkeep ($X2 = 103.07$; $p<0.001$), retakes ($X2 = 116.93$; $p<0.001$), relationship ($X2 = 68.87$; $p<0.001$), and alcohol consumption ($X2 = 28.31$; $p<0.001$). Depression among BMS students at Hoima Regional Referral Hospital from KIU Western campus was high and was associated with female sex, old age, advanced years of study, monthly upkeep, retakes, relationships, and alcohol consumption. The study recommends the creation of support groups with counseling facilities within KIU and all medical schools in Uganda. Furthermore, there should be routine screening for depression among medical students to facilitate early detection and management. Further research using a wider population and diagnostic methods should be considered.

Keywords: Depression, Alcohol consumption, Medical students, Male, Depressive disorders

INTRODUCTION

Depression is a common mental disorder characterized by a depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep and/or appetite, and poor concentration [1]. It is a significant contributor to the global burden of disease and affects people in all countries across the world, with a global prevalence of depressive episodes of 3.2% [2]. Out of the 300 million people suffering from depression globally, 85% live in low- and middle-income countries [3]. Moreover, Uganda has been ranked among the top six countries in Africa with the highest cases of mental disorders. According to the latest WHO report, 4.6% of Ugandans suffer from depressive disorders [4]. Depressive disorders often start at a young age and are recurrent throughout life. For these reasons, depression is the leading cause of disability worldwide in terms of total years lost due to disability [2]. The demand for curbing depression and other mental health conditions is thus on the rise globally [2]. Worldwide, it has been demonstrated that 25–90% of medical students are stressed, leading to a higher prevalence of depression among medical students than the general population [5]. Several factors,

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including daily life stressors and stressors specific to the tedious learning environment, may account for this fact [6]. The potential negative effects of emotional distress on medical students include impairment of functioning in the classroom and clinical practice, stress-induced disorders, and deteriorating performance [7]. Depression is also associated with higher suicide rates [8]. A study done at Makerere University in Uganad found the prevalence of depression among medical students to be as high as 4.0% [9]. Similarly, research conducted among secondary school students in Mukono indicated that 21% of these students had a mental disorder, mainly depression or anxiety [10]. In Uganda and other developing countries in sub-Saharan Africa, the limited budget that mental healthcare receives annually is one of the major challenges facing mental health care. For example, in Uganda, mental health received less than 0.7% of national health spending in 2017 [11]. In addition, there is a scarcity of mental health professionals in Uganda, with most working at referral and teaching hospitals in the city [12]. This poses a challenge for timely diagnosis and management that may lead to severe complications. Medical students have been shown to develop depression under different circumstances, like chronic disease, examination stress, family, social, and economic stresses [13]. To prevent depressive symptoms among clinical medicine students, factors associated with depression in clinical medicine training need to be identified and appropriately managed [14]. However, there is a scarcity of data in Ugandan institutions, and worse still, in private ones like Kampala International University Western Campus (KIU-WC), there is no data on depression and its associated factors among clinical medicine students. Thus, there is a need to determine the prevalence of mental health problems, especially depression, among clinical medicine students and associated factors. Globally, more than 300 million people of all ages suffer from depression [2]. It is the leading cause of disability worldwide and is a major contributor to the overall global burden of disease, with a variety of devastating effects, with suicide being the most frequent [14]. Uganda is among the six African countries with the highest number of people suffering from depressive disorders, with 4.6% of Ugandans estimated to be suffering from depressive disorders [4]. Several studies [15] and [5] have demonstrated that medical students are at high risk of developing depression and depression symptoms. These studies were carried out in public institutions. It is not known whether the situation may be different in private medical schools, where there is a burden of tuition fees and other economic demands on top of academic stress. Thus, this study sought to find out the local burden of depression and its risk factors among clinical medicine students at KIU-WC to guide concerned stakeholders in providing informed, evidence-based, and timely support and care in preventing, treating, and promoting the health of students with or most likely to develop the disorder.

Methodology

Study design

The study employed a descriptive cross-sectional institution-based study design to obtain both qualitative and quantitative data.

Area of Study

The study was carried out at Hoima Regional Referral Hospital targeting students of Bachelor of Medicine and Surgeryat Kampala International University Western Campus, a Private International University located in Ishaka Town, Bushenyi district, Western Uganda, approximately 330 kilometres (210 miles), road, southwest of Kampala, Uganda's capital city and approximately 62 kilometres (39 miles), by road, west of Mbarara, the largest city in the sub-region. The University is about 6 kilometers (4 miles), west of Bushenyi Town, the location of the district headquarters. The coordinates of Kampala International University's Western Campus are 0°32'19.0"S, 30°08'40.0"E (Latitude: 0.538611; Longitude: 30.144444) Hoima District is bordered by Buliisa District to the north, Masindi District to the northeast, Kyankwanzi District in the east, Kibaale District to the south, Ntoroko District to the southwest and the Democratic Republic of the Congo across Lake Albert to the west. Hoima, the location of the district headquarters, is located approximately 230 kilometres (140 mi), by road, northwest of Kampala, the capital of Uganda and the largest city in that country [1]. The coordinates of the district are:01 24N, 31 18E.ered by Rubirizi district to the northwest.

Study population

The study involved Students doing Bachelors of Clinical Medicine and Surgery (BMS) at Kampala International University Western Campus that are attached to Hoima regional referral hospital Hoima district who meet the inclusion criteria.

Inclusion criteria

Only BMS students from fourth year to finalists who consented were included in the study.

Exclusion criteria

Known depressed BMS students on treatment and any other severely ill student were excluded.

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Sample size determination

This was determined using Kish's formula [16] which states that,

$$N = \frac{Z^2(p(100-p))}{\varepsilon^2}$$

Where;

N = the required sample size

p= Prevalence of depression (16.2%) as per a study done at Makerere University [15].

ε = margin of error on p (set at 5%)

z= standard normal deviate corresponding to 95% confidence level (=1.96)

$$N = \frac{1.96^2(0.162(1-0.162))}{0.05^2}$$

N=208.60809984

N will approximately be 209 students.

Sampling technique

The study employed systemic random sampling technique using clusters from the different BMS classes whereby the number of participants from each class depended on the number of students in that class.

Data collection tools

A questionnaire written in English was used to collect necessary associated factors from the respondents and data concerning their demographics. In addition, Beck's Depression Inventory was used to assess the levels of depression or symptoms of depression.

Data collection procedure

Administrative clearances and permission from the faculty for approval was sought after which research assistants were thoroughly trained and recruited. After comprehensively explaining the purpose of the study to the participants, they consented in writing and then the questionnaire and BDI were administered. Respondents were thanked for their time and insight. Filled questionnaires were counted and confirmed their code. After achieving the sample size, questionnaires were entered in computer for analysis.

Data Processing and analysis

Collected data was entered and analyzed using IBM SPSS version 25 software. Categorical variables were presented in a table of frequencies for descriptive statistics. A Bivariate regression analysis with a Chi-square test was then computed to test for the risk factors of depression and a p-value ≤ 0.05 was considered significant.

Quality control

The questionnaire for data collection was pre-tested among 10 BMS students from the BMS 4.2 class to ensure that questions were clear and allowed the gathering of information needed for the study. The questions that showed ambiguity during pre-testing were revisited and modified as required.

Ethical Consideration

Ethical approval was sought from Kampala International University Western Campus Faculty of Clinical Medicine& surgery in the form of an introduction letter after approval of the proposal by the supervisor. Written and verbal consent was sought from the students before they participated in the study. Participants were assured of confidentiality (names were not used at any point of the study) and were informed of a right to quit the exercise at any point during the process if all they changed their minds. There was no physical harm on the study participants and those who were found with depression were referred to a qualified psychiatrist for further management. The results were used for the purpose of this study only and data was stored in a password protected folder.

RESULTS

Characteristics of study participants

Data was collected from 209 participants. The participants' ages ranged from 19 to 28 years with a mean of 21.8 ± 2.2 years. Majority of the study participants consisted of males (60.3%). Results further show that majority (98.6%) of the participants were nonsmokers, while 70.8% had never got retakes. Half of the students were getting a monthly upkeep of less than 100,000/= Uganda shillings. A few (41.6%) were taking alcohol as shown in Table 1below.

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Table 1: Characteristics of Study Participants

Characteristics	Frequency	Percent
Sex		
Male	126	60.3
Female	83	39.7
Age		
≤20	70	33.5
21-25	132	63.2
≥26	7	3.3
Year of study		
1st	63	30.1
2nd	61	29.2
3rd	40	19.1
4th	45	21.5
Monthly upkeep		
<100,000/=	106	50.7
≥100,000/=	103	49.3
Pays tuition on time		
Yes	123	58.9
No	86	41.1
Got retakes		
Yes	61	29.2
No	148	70.8
In a relationship		
Yes	45	21.5
No	164	78.5
Alcohol consumption		
Yes	87	41.6
No	122	58.4
Tobacco use		
Yes	3	1.4
No	206	98.6
Chronic disease		
Yes	22	10.5
No	187	89.5

Prevalence of depression

The study shows that the overall prevalence of depression was 39.7% compared to majority (61.3%) who had no symptoms of depression.

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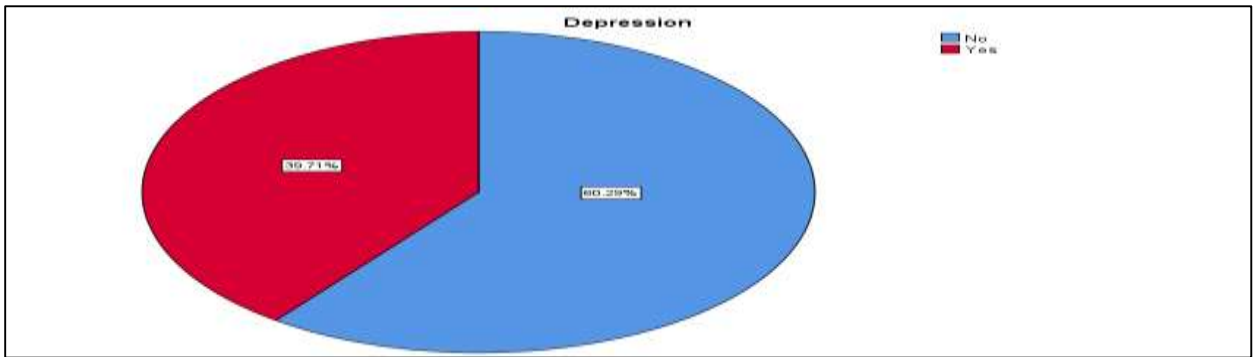
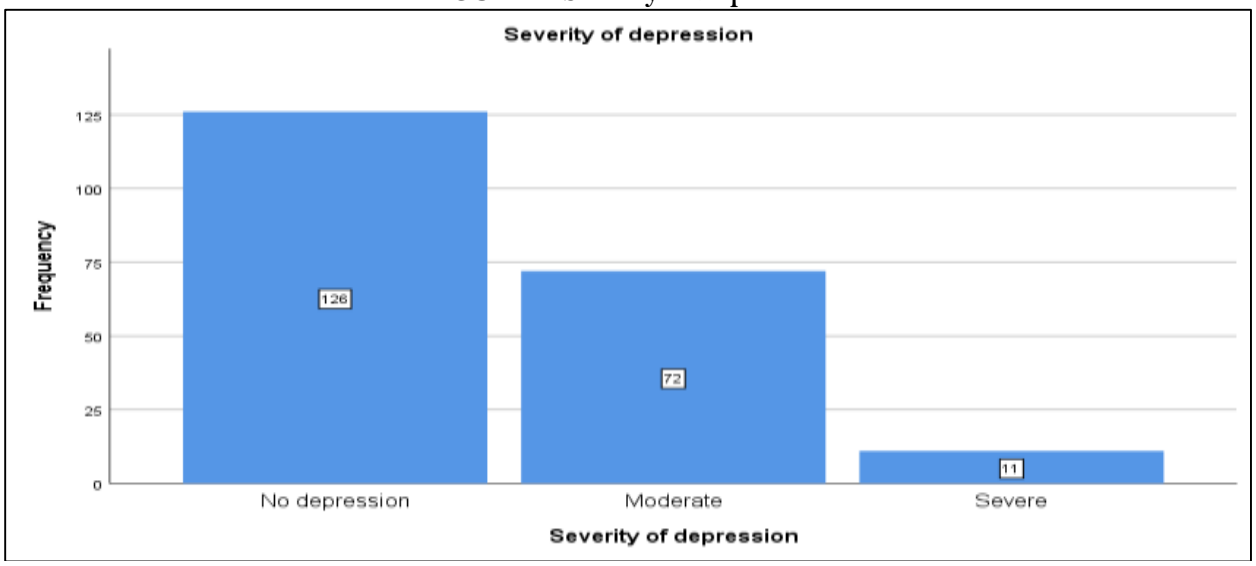
FIGURE 1: PREVALENCE OF DEPRESSION



Severity of depression

About 72 (34.4%) had moderate depression while 11 (5.3%) had severe depression as shown in the figure below.

FIGURE 2: Severity of Depression



Factors associated with depression among participants

Results from analysis of factors associated with depression are shown in table 2 below. Significant factors were: sex; females reporting depression compared to males ($p<0.001$), age; older above 26 years having depression symptoms compared to younger age ($p<0.001$), year of study; more in those in the final year than those of lower years of study ($p<0.001$), monthly upkeep; more in those who get less than 100,00/= ($p<0.001$), retakes ($p<0.001$), relationship ($p<0.001$) and alcohol consumption ($p<0.001$). Quantitatively, depression was common among females (88%), age above 26 years (100%), 4th year of study (91.1%), those with retakes (96.7%) and ones in a relationship (93.3%).

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TABLE 2: FACTORS ASSOCIATED WITH DEPRESSION AMONG PARTICIPANTS

Variables	Depression		Chi-square (X^2)	P value
	No	Yes		
Sex			133.81	**<0.001***
Male	116 (92.1%)	10 (7.9%)		
Female	10 (12%)	73 (88%)		
Age			60.72	**<0.001***
≤20	67 (95.7%)	3 (4.3%)		
21-25	59 (44.7%)	73 (55.3%)		
≥26	0 (0%)	7 (100%)		
Year of study			94.66	**<0.001***
1st	62 (89.4%)	1 (1.6%)		
2nd	30 (49.2%)	31 (50.8%)		
3rd	30 (75%)	10 (25%)		
4th	4 (8.9%)	41 (91.1%)		
Monthly upkeep			103.07	**<0.001***
<100,000/=	28 (26.4%)	78 (73.6%)		
≥100,000/=	98 (95.1%)	5 (4.9%)		
pays tuition on time			3.12	0.086
Yes	68 (55.3%)	55 (44.7%)		
No	58 (67.4%)	28 (32.6%)		
Got retakes			116.93	**<0.001***
Yes	2 (3.3%)	59 (96.7%)		
No	124 (83.8%)	24 (16.2%)		
In a relationship			68.87	**<0.001***
Yes	3 (6.7%)	42 (93.3%)		
No	123 (75%)	41 (25%)		
Alcohol consumption			28.31	**<0.001***
Yes	71 (81.6%)	16 (18.4%)		
No	55 (45.1%)	67 (54.9%)		
Tobacco use			0.92	0.562
Yes	1 (33.3%)	2 (66.7%)		
No	125 (60.7%	81 (39.3%)		
Chronic disease			1.09	0.359
Yes	11 (50%)	11 (50%)		
No	115 (61.5%)	72 (38.5%)		

***Significant factor.**

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DISCUSSION

Prevalence of depression

The findings indicate that depressive symptoms are common and affect 39.7% of the BMS students. This rate is comparable to results from other studies among students in Saudi Arabia [17] and Davangere [18], but higher than the global estimated rate of 4% [3] and that reported in Uganda [8]. The high rates of depression were also reported in a systematic review study among university students [19]. The higher results could be because this is a private institution and the medical course has a long duration of four years compared to other non-medical undergraduate courses. Despite this variation in the prevalence of depression around the world, studies have consistently shown a high prevalence of depression in medical students. Several factors can contribute to this variation. These include differences in the length of training programs, the cost of studies, the use of different depression scoring tools, and cultural differences around the world [6]. In this study, the majority of students presented with moderate depression (34.4%), while a few presented with severe depression (5.3%). These findings concur with findings in a study in Turkey by Bostanci and colleagues, where 35.8% of participants were scored as having moderate and 6.7% as having severe depression [5].

Factors associated with depression

A higher proportion of females had depression than males, and this was statistically significant. This concurs with the findings of other studies, which have shown that there are more females who suffer from depression than males. A study by [19] in the USA found that, compared to males, females were significantly more likely to have depression. Similar findings are reported by studies in Uganda [8] and Rwanda [20]. The similarity could be due to the similar characteristics of the study participants (medical students). Depression prevalence was observed to increase with age, which was found to be significant in this study ($X2 = 60.72$; $p<0.001$). Previous studies have shown that depressive symptoms are higher in students who are older and at higher levels of study [7], [8]. This could be due to added responsibilities above academics, for example, family and other stressors like work that may increase the burden on the student. Some of these may be working and studying at the same time. Furthermore, depression was significantly associated with monthly upkeep. Students who reported an upkeep of <100,000/= presented a higher prevalence of depression. This fact is supported in a China study by [21]. Having less money for upkeep creates a kind of financial insecurity for the students, who are not sure of the next meal or accommodation. This study also found a significant association between relapses and depression. Other studies have also reported similar findings [22]. This could be explained by the fact that students with depressive symptoms have reduced concentration spans and are less motivated to study or retake themselves, which stresses the students and ultimately leads to poor performance.

CONCLUSION

Depression among BMS students on the KIU western campus is high and is associated with female gender, old age, final year of study, reduced monthly upkeep, retakes, being in a relationship, and alcohol consumption.

RECOMMENDATIONS

Based on the study findings, it is recommended to establish support groups with counseling facilities within medical schools, including Kampala International University, to provide essential psychological support to students. Additionally, routine screening for depression should be integrated into the academic curriculum to facilitate early detection and intervention. Future research endeavors should involve larger sample sizes and incorporate qualitative methodologies to further explore associated factors and enhance the understanding of depression among medical students.

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