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Prevalence of Depression and Suicidality among Medical Students in Mwanza Tanzania; A Cross-Sectional Study

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ABSTRACT

Background*: Depression and suicidality is an alarming concern among medical students and a common cause for supplementary, failure and dropouts but the prevalence levels among Tanzanian university students are poorly understood. A better understanding of depression and its correlates is essential in planning for appropriate interventions in this population group.*

Aim: *This study aims to determine the prevalence and factors associated with depression and suicidal behavior among medical students in Mwanza Tanzania.*

Method*: This was a cross sectional study were a total of 353 medical students were recruited and interviewed by using patient health questionnaire 9 (PHQ-9). The sample size was randomly selected from each year of study.*

Results: *Study participants were 54% males with 93% of the participants being single. Of the study participants, 71.39% were sponsored by the Higher Education Students Loans Board (HESLB) while 23.51 were self-sponsored and 5.10% were receiving grants from the Ministry of health. The overall prevalence of depression was 41.36% with 26.35%, 10.76%, 3.68% and 0.57% having mild, moderate moderately severe and severe depression respectively. 11.6% of the participants had thoughts to better being dead or hurting themselves. Year of study and accommodation type showed statistically significant correlation with depression.*

Limitations*: A cross sectional study was used which relies on self-report of symptoms which could lead to recall bias. Despite that the study was done in the largest university in the lake and western zone of Tanzania which serves a diverse population, still regional differences could be there.*

Conclusion: *Depression and suicidal behaviors among medical students is an alarming concern. Students support center is essential in higher institutions of learning for earlier detection, prevention and intervention to reduce morbidity.*

Keywords

Depression, Suicidality, Medical students, Cuhas, Mwanza.

Introduction and Background

Depression is a significant contributor to the global burden of disease with almost 20% of global population live with depression and affects people in all communities across the world [1,2]. 12.9% of university students have been found with depressive symptoms globally [3] with up to 10% of student's experiencing depression and suicidal ideation [4]. The prevalence is more higher among medical students and different studies have estimated it between 20% and 50% [5]. Medical school is known to be

stressful environment for students and hence increase the risk for depressive symptoms [6]. Academic performance, pressure to succeed and post-graduation plans have been identified as main concerns among university students [7]. Students who experience depression doubt their abilities or appear less confident, may have a hard time concentrating, learning and making decisions [8], may withdraw from others, become irritable and/or aggressive towards other students, take a lot of time off, which if not intervened might end up with poor class-room performance, supplementary, failure and/or dropouts from school [9,8].

The failure to prevent, recognize and treat mental health problems in college and university has an impact on students, their families, the teaching institution and the community generally, and is associated with increased academic impairment, learning disabilities, relationship difficulties, smoking and alcohol use, suicide, and increased costs [10,11].

Study design and settings

The study was conducted at Catholic University of Health and Allied Sciences (CUHAS), a private teaching institution located in Mwanza, North-western Tanzania. It has more than 2500 undergraduate students taking medicine, pharmaceutical sciences, nursing and medical laboratory sciences. Medical students comprise about 1/3 of all students.

Sample size, participants' enrolment and data collection

The study population involved all medical students from Catholic University of Health and Allied Sciences (CUHAS). A sample size of 353 was estimated using Cochrane's formula.

Inclusion criteria

Medical student, 18 years of age and above willing to participate in the study and sign a written informed consent.

Exclusion criteria

Non-medical students, known to have mental disorders.

Participants were approached from hostels, classes or cafeteria and invited to participate in the study where a briefing of the nature and aim of the study was reviewed and then inclusion and exclusion criteria were applied. Participants who met the inclusion criteria and sign the informed consent were asked to complete self-administered research questionnaires starting with the socio demographic followed by patient health questionnaire-9 (PHQ-9). There were no drop outs.

Data analysis

Data was analyzed using Stata version 13 software for Windows where categorical variables were summarized using frequencies and percentages and continuous variables were summarized using medians with IQR. Descriptive analysis was conducted to describe the socio-demographic characteristics, the prevalence and severity of depression which was primary outcome in this study and participants were regarded to have depression if scored above 4 on the patient health questionnaire-9 [12].

Logistic regression was conducted to assess the association between socio-demographic characteristics, and depression, controlling for possible confounders. Variables in the univariate analysis that showed a significant effect on the dependent variable were included in the multivariable analysis. Unadjusted and Adjusted Odds ratio (AOR) with 95% confidence interval (95% CI) were computed and reported where appropriate

Ethics

Ethics approval to conduct and publish the findings from this study was thought from Catholic University of health and Allied Sciences/Bugando Medical Centre joint ethical committee. Permission to conduct the study was granted by BMC/CUHAS administrations. No names were used.

Results

Socio demographic characteristics

A total of 353 students were recruited in this study. Of the participants, 54% (n=190) were males and 62% (n=220) of the participants were staying off-campus. 93.2% of the study participants were not married, with almost two-third (71.39%) of the study participants being sponsored by the Higher Education Students Loans Board (HESLB) while 23.51 were self-sponsored and 5.10% were receiving grants from the Ministry of health. Table 1 summarizes the socio-demographic characteristics of the study participants.

Table 1: Socio-demographic characteristics of the study participants.

Variables	Frequency (n)	Percentage (%)
Gender		
male	190	53.8
female	163	46.2
year of study		
year 1	70	19.8
year 2	99	28
year 3	92	26.1
year 4	41	11.6
year 5	51	14.4
sponsor		
HESLB	252	71.4
Self-sponsored	83	23.5
Grants	18	5.1
Residence		
Campus	133	37.7
Off-campus	220	62.3
Marital status		
Married	24	6.8
Not married	329	93.2
Total (N)	**353**	**100%**

Prevalence of depression and suicide ideation

Overall, the prevalence of depression was 41.1%, the severity of depression were found to be as follows: 26.35% were found to have mild depression, 12.76% had moderate depression, 3.68% had moderately-severe depression, and 0.57% had severe depression. 35.7% of the participants found it hard for them to cope with their studies with 11.6% of the participants reported to have suicide and self-hurting ideation where by 8.2% reported to have suicidal ideas several days in a week, 2.3% more than half of the days of a week and 1.1% nearly every day. Table 2 summarizes the severity of

depression, suicidal ideation and occupational difficulties among the study participants

Table 2: Depression, suicide ideation and occupational difficulty described by the participants.

Variable	Frequency (n)	Percentage (%)
Depressive symptoms		
No depression	207	58.64
Mild depression	93	26.35
Moderate depression	38	10.76
Moderately severe depression	13	3.68
Severe depression	2	0.57
Suicide ideation		
Not at all	312	88.4
Several days	29	8.2
More than half of the days	8	2.3
Nearly every day	4	1.1
Difficulty on studies		
Not difficult	227	64.3
Somehow difficult	125	35.4
Extremely difficult	1	0.3

Factors associated with depression

In an unadjusted model, year of study and accommodation type were significantly associated with depression with UOR 4.4, 95% CI: 2.2, 8.6, p-value=0.00 and UOR 1.6, 95% CI: 1.19, 2.5, p-value=0.045 respectively. After adjusting for other covariates year two of study was significantly more likely to develop depression (AOR 4.1, 95% CI: 1.9, 8.5, p-value=0.000) compared to other years.

Discussion

As observed in this study males continue to dominates the number of admissions in medical schools, the findings are the same to what was found in a previous study in the northern part of Tanzania [13]. Accommodation facilities continues to be a challenge among most East African universities, in this study majority of the participants were staying off-campus, the same findings observed in the same setting study in university of Nairobi [14].

Chart 1.1: Prevalanve of depression and suicide ideation; sponsor and residence.

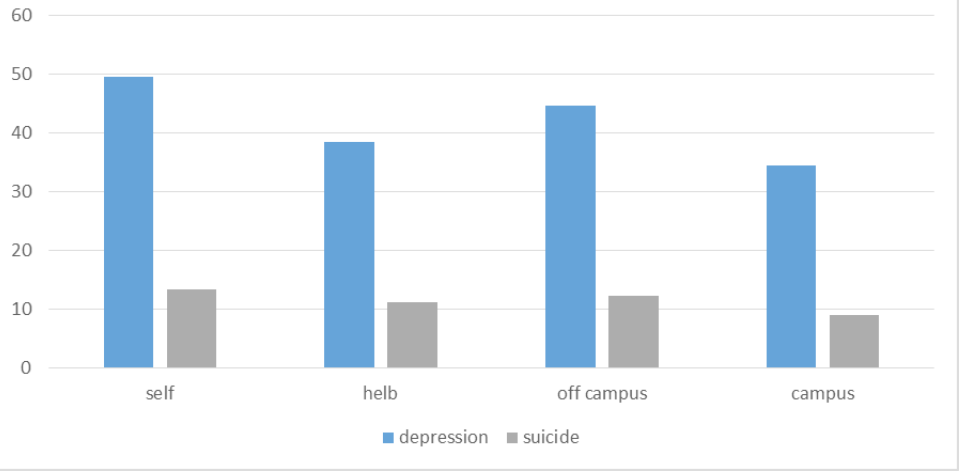
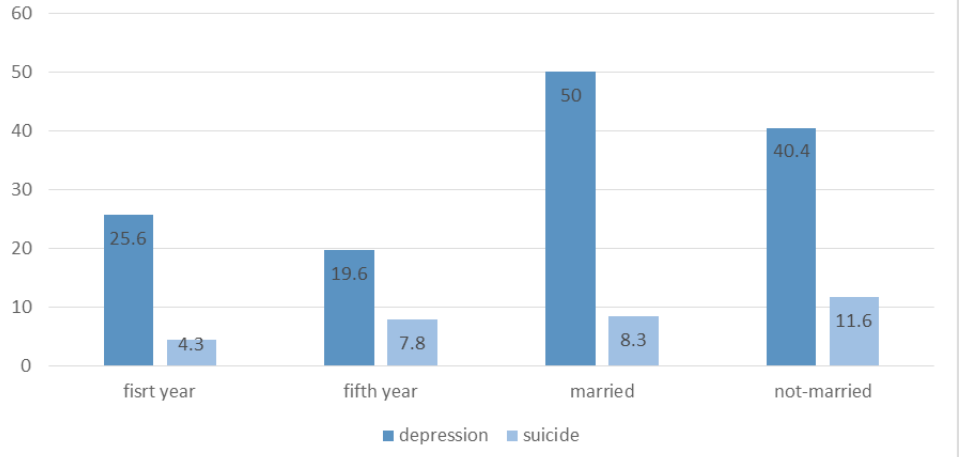


Chart 1.2: Prevalanve of depression and suicide ideation; year of study and marital status.



Variable	Depression		Unadjusted OR (95% CI)		Adjusted OR (95% CI)	
	Yes (N %)	No (N %)	OR (95CI)	P VALUE	OR (95%CI)	P VALUE
Gender						
Female	70 (42.94)	93 (57.06)	1.0			
Male	76 (40.00)	114 (60.00)	0.8 (0.6-1.3)	0.575	0.7 (0.5-1.2)	0.192
Year of study						
Year 1	17 (24.29)	53 (75.71)	1.0			
Year 2	58 (58.59)	41 (41.41)	4.4 (2.2-8.6)	0.000	4.1(1.9-8.5)	0.000
Year 3	45 (48.91)	47 (51.09)	2.9 (1.5-5.9)	0.002	2.8(1.3-6.1)	0.007
Year 4	16 (39.02)	25 (60.98)	1.9 (0.8-4.5)	0.104	1.8(0.7-4.4)	0.223
Year 5	10 (19.61)	41 (80.39)	0.7 (0.3-1.8)	0.542	0.7(0.2-1.9)	0.454
Sponsor						
Self-sponsored	41 (49.40)	42 (50.60)	1.0			
Grant	6 (33.33)	12 (66.67)	0.5 (0.2-1.4)	0.221	1.2(0.3-4.0)	0.807
HESLB	99 (39.29)	153 (60.71)	0.7 (0.4-1.1)	0.106	0.8(0.4-1.4)	0.503
Residence						
Campus	46 (34.59)	87 (65.41)	1.0			
Off campus	100 (45.45)	120 (54.55)	1.6 (1.1-2.5)	0.045	1.2(0.3-4.1)	0.454
Marital status						
Married	12 (50.00)	12 (50.00)	1.0			
Not married	134 (40.73)	195 (59.27)	0.6 (0.2-1.5)	0.376	0.6(0.2-1.5)	0.282

Table 3: Association between socio demographic characteristics and depression.

Depression and suicidality among university students remain an alarming concern in sub-Saharan Africa, in this study the prevalence of depression was found to be 41.1% which is higher to what was observed in the same study settings in the northern part of Tanzania [13], Nairobi [14] and in developed countries [15]. The suicidality prevalence of 11.6% observed in this study was the same to what was observed in a previous meta-analysis study by L. S. Rotenstein et all. where the prevalence was found to be 11.1% [16] while D. Eisenberg et all. Observed a lower suicidality prevalence of 2% [17]. Findings from this study was lower comparing to the prevalence of 53% for depression and 9% for suicidality among college students observed by Furr et al [10].

Though not statistically significant female students were more depressed than male student (42% female vs 40% males), the same study findings observed in previous studies where females continue to be more vulnerable for depression and suicidality [10,13,14,17]. Students on their first years of study were more prone to develop depression comparing to those in their final years of study, in this study the second years were statistically more likely to develop depression, the same study findings observed in Nairobi [14] and Karachi [18] but different to what was observed in Saudi Arabia where the fifth years have an increased level of depression probably due to being loaded with clinical schedules [19]. Staying off-campus has been statistically associated with depression in this study and other previous studies [14,17].

Limitations

A cross sectional study was used which relies on self-report of symptoms which could lead to recall bias. Despite that the study was done in the largest university in the lake and western zone of Tanzania which serves a diverse population, still regional differences could be there.

Conclusion

Depression and suicidal behaviors among medical students is an alarming concern. Students support center is essential in higher institutions of learning for earlier detection, prevention and intervention to reduce morbidity.

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