Research Article

Socio-demographic characteristics and other factors associated with depressive illness among medical students at the University of Port Harcourt

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Abstract

Background: The burden of depression as a mental disorder has continued to increase and constituting an enormous public health concern among all age groups. A number of sociodemographic, and other factors including a stressful and rigorous academic programme or curriculum such as the one run in most medical schools could contribute to the occurrence of depression among medical students.

AIM: To determine the socio-demographic and other factors associated with depression among medical students in the University of Port Harcourt.

Methodology: This study was a descriptive cross-sectional study. Appropriate sample size was calculated and the stratified random sampling method was used to select the subjects. A well-structured open ended self-administered socio-demographic questionnaire was administered to the students. The Zung Self-Rated Depression Scale was used to assess the depression status of each respondent. The data were analyzed via descriptive and analytical methods.

Results: The prevalence of depression among the medical students was 5.3%. Fourteen students (4.6%) were mildly depressed while only two respondents had moderate depression. Year 3 had the highest prevalence with 10.5% followed by final year with 5.3%, while the only 2 cases of moderate depression were found among students in year 2 of their medical programme. Two hundred and seventy-one respondents (88.8%) were found to have good knowledge of depression, 32 (10.5%) were found to have average knowledge of depression and 2(0.7%) had poor knowledge of depression.

Conclusion: Depression does occur among medical students at the University of Port Harcourt albeit low, and was associated with a number of socio-demographic and other factors. The present medical curriculum and programme should be sustained and more efforts at making it less stressful and academically friendly, be made to further reduce the current rate of psychological stress and depression among the students.

Background

Depression is a leading contributor to the global burden of disease and is a common illness with an estimated 350 million people affected worldwide [1]. The World Mental Health Survey conducted in 17 countries found that an average of 1 in 20 people reported having an episode of depression in the previous year [2]. Depression is leading cause of lost years of healthy life among adolescents [3].

Medical students, by the uniqueness of their programme, is another group that has been found to have high vulnerability

More Information

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Keywords: Socio-Demographic Characteristics; Depressive illness; Medical students; University of Port Harcourt







to psychological problems particularly depression [4-11]. A recent meta-analysis showed that depression affects approximately one third of medical students worldwide [5], and it is also likely that the overall prevalence of depressive symptoms among med students is higher than that reported in the general population [12-14]. Students with depressive symptoms also suffer from other psychological difficulties, such as anxiety, burnout, suicidal thoughts, and substance abuse [15-21]. University students generally are exposed to various stressors such as academic requirements, time pressure and social adjustments, and medical students in particular, may face additional challenges such as the unique large workload, the amount of time commitment and the number of formative and summative assessments, as well as the pressures of a clinical engagement [4]. About 30% report at least one case of suicide in the previous year [20]. A university counseling center reported an increase in troubled students, counseling centers show that 85% of colleges report an increase during the past five years in students with severe psychological problems. Furthermore, attending university is a particularly stressful time due to unique emergent stressors such as changes in environment, loss or diminishment of social support networks, academic pressures, developing peer relationships, and financial management [22].

The ages of 18-25 are the prime time for serious conditions to emerge, and especially in this increasingly complex and competitive world and in the very high-pressure schools, there seem to be more student suicides [15-21]. It has been found that medical students have a higher level of depression than their colleagues in other departments in the same institution as seen in studies carried out [23,24]. The factors which predispose medical students to depression include female gender, younger age, being in lower classes, living alone and substance abuse [25-39]. Furthermore, studies have also identified common stressors that are part of normal university life, including greater academic demands; new financial responsibilities; changes in social life; exposure to new people, ideas and temptations; greater awareness of sexual identity issues; and anxiety about life after graduation [40-44]. There are other factors found to be increasingly at play. Factors including the feeling of incompetence, lack of motivation to learn and difficulty of class work can be considered as a source of stressors that may precipitate depression and anxiety [43,44]. The current educational process may have a negative effect on students' mental health, with a high frequency of anxiety among medical students [43]. Family dysfunction at home, parental drug and alcohol use and the reduced presence of adults in the home may all contribute to psychological problems particularly depression among university students including medical students [23,28]. Sexual and physical abuse definitely predisposes the likelihood of depression and students also may lack the social and emotional skills that a supportive family base provides.

At its worst, a depressive episode can worsen leading to

suicide or resolve after a while following treatment [15,16]. Suicide is the second commonest cause of death in the age group of 15- to 35-years in the World Health Organisation's European Region and increased rates of suicide and suicidal behaviours among adolescents and young adults, bulk of whom are University students, have been reported in recent years [15,16]. Students, particularly medical students across the U.S. are battling depression at a record rate [12]. In fact, the American College Counseling Association has noticed a steady increase of students reporting struggling with their mental health [12]. According to a 2013 American Psychological Association survey, about one-third of college students have experienced depression within the past year and had difficulty functioning because of it [45,46].

Undergraduate medical education comprises strenuous study and training for 5-6 years, [43-45] and this often predispose especially the vulnerable ones to a number of psychological problems particularly anxiety and depression [46-51]. The curricular objectives are dynamic due to expanding knowledge and evolving trends and therapies [43-45]. The current educational process may have a negative effect on students' mental health, with a high frequency of anxiety and depression among medical students [44,45]. The constant drive towards perfectionism, desire to always be exceptional and the unique environment of study may all contribute additional stress to medical students [52-54]. During this period, medical students are expected to acquire adequate professional knowledge, skill, and attitudes in order to prepare themselves to deal with life-long professional challenges independently [43-45,52-54]. The demands of the learning and training might however adversely affect the student's physical and mental health [49-51]. In fact, the rigorous recruitment process into medical schools already sets the stage for higher expectation [55-62]. It has been reported that medical students, as a result of all these, tend to suffer from depression, anxiety, and stress [4-6]. A study previously reported that healthy students develop depression and stress after commencing their medical education [43].

A study also observed a high prevalence of depression among those medical students with family problems and a family history of depression [63]. A Turkish version of the Beck's Depression Inventory (BDI) administered to university students, suggested that depression rates are significantly lower in students from nuclear families, students whose mothers are alive, whose parents live together and have secondary level of education or higher, have one or more sibling(s), and students who did not abuse alcohol or smoke, absence of acne and negative family history of depression [27].

Aside the fact that depression can become chronic or recurrent and lead to substantial impairments in an individual's ability to take care of his or her everyday responsibilities, recurrence of depressive episodes is fairly common and is



greatest for those who first experience depression before the age of 15 years, hence the justification for this study. Furthermore, research suggests that mental health may deteriorate during medical school years and may continue to decline when trainees enter the workforce and may offer them a promising career [63,64]. However, it has been shown that medical students can learn to adopt an active coping approach to deal with stress and many resources are available to students that can help them manage their depression [65-69]. This unique quality can be harnessed and may act as a buffer to modulate their perceived stress levels [65]. It is therefore critical for medical educators to understand the prevalence and causes of depression among medical students, its adverse consequences, and institutional factors that can positively and negatively influence student health. Research on this topic and adequate intervention methods for depression in medical students are scarcely found in Nigeria, the Niger Delta and Rivers State in particular.

Aim

To determine the socio-demographic and other factors associated with depression amongst medical students in the University of Port Harcourt.

Methodology

Study design

This study was a descriptive cross-sectional study.

Study setting

The study was carried out at the University of Port Harcourt following ethical approval by the ethical committee of the University. The University of Port Harcourt was established in 1975 and is located along East – West Road, Choba, Rivers State. It has an estimated 35,000- 40,000 students. The College of Health Sciences created in 1978, has two main divisions related to medical students – Faculty of Clinical Sciences and Faculty of Basic Medical Sciences.

Study population and sampling

There was a total of 725 medical students in the College of Health Sciences of the University of Port Harcourt, with 119 in year 1, 124 in year 2, 104 in year 3, none in year 4, 161 in year 5, 144 in year 6b and 73 in year 6a. However, year 1 students were excluded from the study because the actual medical programme starts from year 2, hence the total students from year 2 to year 6 were 606. A stratified random sampling method was used for this study. A proportionate sample was drawn from each class of medical students from year 2 to year 6 students with the exception of year 4 (as there were no medical students in year 4) to enable for comparison. The study spanned from February to September 2016.

Study instruments

A self-administered socio-demographic questionnaire was

used. A standardized depression scale i.e. Zung Self Rated Depression Scale assessed the depression status of each respondent [70]. The Zung Self Rated Depression Scale is a 20 - item, self-rating scale used widely in screening, assessing affective, psychological and somatic symptoms associated with depression in a variety of clinical and non-clinical settings [70]. Items were framed in terms of positive and negative statements, scored on a Likert scale ranging from 1 to 4 and total scores range from 20 to 80. A score above 70 shows severe depression, 60 to 69 suggests moderate depression, 50 to 59, mild depression and 20 to 49 shows slight to no depression [70].

Statistical analysis

The data was entered using Microsoft Excel and was analyzed using SPSS version 17 and EPI INFO 7.0 and interpreted with tables. Mean and standard deviation were calculated. Chi-square and logistic regression were used for comparison of variables.

Ethical approval

Approval for the study was obtained from the ethical committee of the University and inform consent was equally obtained from all participants. The study was entire voluntary and any study who was declined participation was not victimized in any way.

Limitation

Industrial actions in the university and hospital affected the continuity of the study. The sample size was relatively small and the study is a cross-sectional type, hence, inadequate for the determination of association between depression and aforementioned factors.

Results

The study was carried out with 346 questionnaires distributed over the course of 4 weeks; 41 were not filled properly, making them invalid and bringing the total number of questionnaires returned to 305. Response rate hence, was 88%.

Socio-demographic characteristics of respondents

Respondents within the age group of 20-24 constituted the largest percentage with 146 (47.9%), followed by the age group of 25-29 with 98 (32.1%) while that of 35-39 was the least with 4 (1.3%) (Table 1). Majority of the respondents were clinical students, constituting about 189 (62.0%) with the highest proportion of respondents belonging to the year 5 class: 79 (26.0%) (Table 1).

The family position of the respondents revealed that 109 (35.9%) were first born children and 59 (19.4%) were lastborn. Only 5 (1.6%) of the medical students did not have any siblings while 2 had more than 12 siblings. However, majority of the respondents had 1 to 4 siblings (62.3%) (Table 1).



Table 1: Socio-Demographic Characteristics of respondents.

Socio-demographic Characteristics	Frequency (<i>n</i> = 05)	Percentage (%)
Age Range		
15-19		9.5
20-24	29	47.9
25-29	146	32.1
30-34	98	7.2
35-39	22	2.0
≥ 40	6	13
	4	1.0
Mean age: 24.29 ± 4.45		
Gender		
Female	138	45.2
Male	167	54.8
Faculty		
Basic Medical Sciences	116	38.0
Clinical Sciences	189	62.0
Level of Study		
Year 2	60	19.6
Year 3	57	18.7
Year 5	79	26.0
Year 6a	38	12.4
Year 6b	71	23.3
Family Position		
First	109	35.9
Middle	136	44.7
Last	59	19.4
Number of siblings		
None	5	1.6
1 – 4	190	62.3
5 - 8	103	33.8
9 – 12	5	1.6
≥ 12	2	0.7
Level of education of parents		
Father		
Primary	23	7.5
Secondary	53	17.4
Tertiary	229	75.1
Mother	27	8.8
Primary	67	22.0
Secondary	211	69.2
Tertiary		
Place of Posidones		
	1/2	16.6
On Campus	163	40.0 53.4
On Campus	163	53.4

Prevalence of depression among Medical Students

Of the respondents studied, majority, 289 (94.7%) were found to have no depression, 14 (4.6%) were mildly depressed while only two respondents were found to have moderate depression. There was no severely depressed medical student among the respondents (Table 2). Prevalence of depression was also analyzed according to year of study. Respondents in Year 3 had the highest number of cases of depression 6 (10.53%). The only 2 cases of moderate depression were found among students in year 2 of their medical programme (Table 2).

Prevalence of factors that lead to depression

Few respondents (58; 19.0%) have their parents living separately while 20 (6.6%) had lost their mothers and 95 (31.5%) live alone (Table 3). Furthermore, 24 (7.9%) were coerced into studying medicine while 49(16.1%) have relatives who have had a history of consistently low mood and 112(39.2%) have lost a close relative or friend in the last two years (Table 3).

Association of Socio-demographic and other factors with prevalence of depression among Medical Students of the University of Port Harcourt

A higher prevalence of depression was found in students aged between 15-29 (14; 87.50%) (p = 0.517), female gender with female to male ratio of 11:5 (p = 0.097), students living on campus 10 (62.50%), p = 0.625) and those in basic medical sciences 9 (56.25%), p = 0.201. However, none was statistically significant (Table 4).

Forty-nine respondents had a close relative with a history of consistently low mood and eight out of them were found to be depressed. There was an association between depression and having a close relative with family history of depression (OR = 6) (p = 0.001) (Table 5).

Discussion

In our study, the prevalence of mild depression was 4.6%, moderate depression 0.7% and there were no respondents found with severe depression. This did not agree with the study done on Mental Depression and coping strategies among medical students in the University of Nigeria, Enugu Campus by Nwobi, et al. in 2009, which put the prevalence of mild depression at 27.6%, moderate depression at 8.9% and severe depression 1.6% [66]. It also differed from the study done by Aniebue, et al. also in the University of Nigeria, Enugu Campus which put the prevalence of depression at 23.3% [48]. It also differs from findings in other parts of the world which put the prevalence of depression among medical students between 21% – 39% [25-27,50,71-76].

Possible reasons for this disparity in findings between our study and others already done may be that our respondents possibly were not very honest with information provided in the questionnaires, they have better coping mechanisms and social support structure as most of our respondents have

Table 2: Prevalence of depression among Medical Students in the University of Port Harcourt.						
	Severe depression (≥ 70)	Moderate depression (69-60) Mild depression (59-50)		No depression (20-49)	Total	
Depression among medical students	0 (0%)	2 (0.7 %)	14 (4.6 %)	289 (94.7%)	305	
Depression according to year of study						
Year 2	0 (0%)	2 (3.3%)	1 (1.7%)	57 (95%)	60	
Year 3	0 (0%)	0 (0%)	6 (10.5%)	51 (89.5%)	57	
Year 5	0 (0%)	0 (0%)	2 (2.5%)	77 (97.5%)	79	
Year 6B	0 (0%)	0 (0%)	3 (4.2%)	68 (95.8%)	71	
Year 6A	0 (0%)	0 (0%)	2 (5.3%)	36 (94.7%)	38	



Table 3: Factors affecting the occurrence of depression among University of Port Harcourt Medical Students.

Factors affecting depression	Frequency (<i>n</i> = 305)	Percentage (%)			
Parents live together No Yes	58 247	19.0 81.0			
Mother alive (<i>n</i> = 301) No Yes	20 281	6.6 93.4			
Live alone (<i>n</i> = 302) No Yes	207 95	68.5 31.5			
Coerced to study medicine No Yes	281 24	92.1 7.9			
Family history of low mood No Yes	256 49	83.9 16.1			
Lost close relative/ friend (<i>n</i> = 286) No Yes	174 112	60.8 39.2			

Table 4: Comparison of prevalence of Depression by socio-demographic factors.						
	Depression (<i>n</i> = 16)	No depression (<i>n</i> = 289)	Chi-squared		p - value	
Age range						
15-29	14 (87.50%)	259 (89.62)			0.517 (#)	
≥ 30	2 (12.50%)	30 (10.34)			0.517 (#)	
Gender						
Female	11 (68.75%)	127 (43.94%)	2.92	1	0.092	
Male	5 (31.25%)	162 (56.06%)	2.03			
Faculty						
Basic medical sciences	9 (56.25%)	107 (37.02%)	1.62	1	0.001	
Clinical sciences	7 (43.75%)	182 (62.98%)	1.03	I	0.201	
Place of residence						
Off campus	6 (37.50%)	136 (47.06%)	0.24	1	0.605	
On campus	10 (62.50%)	153 (52.94%)	0.24	I	0.025	
Mother alive						
Yes	16 (100.0%)	265 (91.70%)		1	0 222 (#)	
No	0 (0%)	20 (8.30%)			0.323 (#)	
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Table 5: Logistic regression analysis of Clinical and other Factors and Depression.						
Factors associated with depression	Total	Dep	pression	OR	p - value	95% Confidence Interval
Coerced into studying medicine		Yes	No			
Yes	24	2	22			
No	281	14	267			
Total	305	16	289	1.73	0.364	0.0 - 8.82
Consistent low mood in a close relative						
Yes	49	8	41			
No	256	8	248			
Total	305	16	289	6.05	0.001	1.93 – 18.99
Use of nicotine-containing substances						
Yes	11	1	10			
No	294	15	279			
Total	305	16	289	1.86	0.453	0.26 - 12.31
Drinks alcohol						
Yes	114	10	114			
No	173	6	173			
Total	305	16	287	2.53	0.123	0.82 - 8.08
Cannabis use						
Yes	8	1	7			
No	262	15	247			
Total	270	16	254	2.35	0.390	0.33 -14.57
Death of a close relative						
Yes	112	9	103			
No	174	7	167			
Total	286	16	270	2.08	0.239	0.69 - 6.44
Parents living together						
Yes	247	12	235			
No	58	4	54			
Total	305	16	289	0.69	0.362	0.20 - 2.65
Live alone						
Yes	95	3	92			
No	207	13	194			
Total	302	16	286	0.49	0.396	0.11 – 1.89

parents who live together [66-69]. Also, the low prevalence of depression found could also be due to the fact that our study was done at a time when access to the internet, social media and other forms of relaxation are easier to access. Information is just a click away from the average medical student, the volume of work to be studied is available as soft copy on smart phones and the availability of e-library in the institution of study, thus helping to reduce the burden of learning on the medical student. This was different from what was obtainable a decade ago.

Majority of our respondents who were found to be depressed were female and there were more students found to be depressed in the lower classes (basic medical sciences), though these factors were not statistically significant. This agreed with many other studies on prevalence of depression, which associated an increasing rate of depression with the female gender, younger age and students in lower classes [34-36]. However, it has been shown that medical students can learn to adopt an active coping approach to deal with stress as they move up higher classes, which may act as a buffer to modulate their perceived stress levels [64]. This is important, as students with lower stress levels are less likely to report suicidal thinking [20]. A recent study showed that students are more likely to engage in active coping by their final year of medical school than they were in their earlier years [5]. It is hard to discern if students learn these skills as they progress due to their medical school experiences, their training, or simply by maturing, but the evidence suggests that junior medical students are more at risk of suicidal thoughts or attempts. This underscores the importance of learning and applying healthy coping mechanisms early on in medical training [67]. Research has shown that active coping strategies, such as positive framing, talking to family and friends, leisure activities, and exercising, can reduce the level of perceived stress among college students [67,68].

However, in our study, most of those found to be depressed fell into the age bracket of 25 to 29 years with a lower level of depression among the very young (15 -19years) and those greater than 30 years.

A study carried out among undergraduate medical students in the United States of America found that 23% had clinical depression and 57% were under psychological stress [12]. The prevalence of psychological stress was only slightly higher among the females (42.2%) compared to the males (41.4%) [12]. In the study on the prevalence of depressive symptoms among Nigerian medical undergraduates in University of Nigeria, Enugu Campus, results showed that females had higher levels of depression although those findings were not significant [48]. Another study however did not find any significant gender differences for anxiety and depression [49]. It associated female gender with lower levels of anxiety and depression due to higher proportion of female students in the medical college, females being less forthcoming about their feelings of anxiety or depression and that females utilize more effective coping mechanisms to deal with anxiety and depression [49].

The respondents whose parents had tertiary level of education were 75% (fathers) and 69% (mothers) but this had no significant relationship with depression and it agreed with the study done in New Delhi, India which found no significant association between depression and the level of education of parents [49]. However, it differed from the findings in a study using the Turkish version of the Beck's Depression Inventory (BDI) administered to university students which suggested that depression rates were significantly lower in students whose parents live together and have secondary level of education or higher [12].

In this study, there was no established relationship between depression and other factors like having mother alive, respondents living alone, if respondents were living on or off campus, if they were coerced into studying medicine and if they had lost any close friends or relatives in the last two years. This differed from the findings obtained in a study done in a medical college in Karachi, Pakistan, which found that those who had lost a close relative in the last year, were 3.4 times more likely to be depressed and suffer from anxiety as compared to those who did not experience such [77]. A Turkish version of the Beck's Depression Inventory (BDI) administered to university students, suggested that depression rates are significantly lower in students from nuclear families, students whose mothers are alive and whose parents live together [26]. This finding is consistent with studies which report that dysfunctions at home have also been blamed on mental health problems among students [21,34,35]. Parental drug and alcohol use and the reduced presence of adults in the home also contribute to stress among medical students. Sexual and physical abuse definitely predisposes the likelihood of depression. Students also may lack the social and emotional skills that a supportive family base provides.

It was also found that the level of depression was highest among first born children and least among last born children [12]. Those with a family history of consistent low mood were associated with depression (p = 0.001). This is expected as family history may indicate genetic predisposition to the disease which may further be worsened by subtle stress of medical school and is in keeping with findings reported by Kumar, et al. and other studies that the prevalence of depression was high among those medical students with family problems and a family history of depression [13,79]. It is further buttressed by similar studies carried out in South Korea [77], Pakistan [78] and Turkey [26].

Psychoactive substances used by the medical students in our study were Tobacco (3.6%), Alcohol (40.9%) and Cannabis (3.0%). It was found that those who used alcohol were 2.53 times more likely to be depressed than those who did not take



alcohol; those who use cannabis were 2.35 times more at odds of being depressed than those who did not use cannabis and that those who used nicotine were 1.86 times more at odds of being depressed than those who did not take nicotine. This was however not statistically significant and hence did not agree with studies done by Gulee, et al. which found a positive correlation between psychoactive substance use and depression [33]. It was more in keeping with the study done by Mancevska, et al. who reported non-significantly higher depression rates in those who used psychoactive substances compared to those who did not [28]. Most of the students used these substances occasionally and this may be why there was no correlation to depression in our study. Our study in consonance with the New Delhi study was able to establish that there is indeed a significant relationship between dwindling academic performance and depression [49].

Recommendations

It is needful for the school authorities, student bodies, religious associations and families to be aware of the risks of depression and continually reach out to, and provide emotional support and encouragement for medical students vulnerable or living with depression.

The student-advisor-mentorship structure should be improved upon so that students may be able to relate their academic challenges to their mentors, who in turn can offer solutions to them.

Students should be encouraged to pursue extracurricular activities of interest to help ease off the stress of medical training.

There are strong arguments for the inclusion of wellbeing in a medical curriculum, such as the impact of doctors' personal health practices on their communication and patient care.

Conclusion

Depression remains a major cause of morbidity and reduced productivity the world over, including medical students. The relatively low prevalence of depression among medical students in the University of Port Harcourt may be due to an adaptable curriculum as well as the availability of learning materials to which the students are exposed. Efforts should be put in place to further reduce the prevalence and encourage healthy living among our future doctors.

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