Original Research Article

Depression and Alcohol Use Disorder Co-Morbidity among Undergraduate Students in University of Port Harcourt, Nigeria

Abstract

Background: Vulnerable developmental stage is encountered by university undergraduate students, where substantial changes happen in their body, brain, environment and socialization. This may result to increased vulnerability to develop addiction, alcohol use disorder and mental health disorders. Alcohol use disorder and Depression both pose problems in public health.

Objectives: To determine the prevalence and the socio-demographic correlates of alcohol use disorder and depression co-morbidity among undergraduate.

Methods: A cross-sectional study was conducted in the Lulu Briggs Health Centre of the University of Port Harcourt. Systematic sampling technique was used to recruit 420 respondents. Validated tools of Alcohol Use disorder Identification Inventory (AUDIT) and Patient Health Questionnaire (PHQ-9) were used to obtain information on depression and alcohol use disorder respectively from each of the respondent.

Results: The mean age of the respondents was 23.59 (±5.2) years. A total of 128 (30.5%) had alcohol use disorder, 205 (48.8%) had depression, and 22.4% (n=94) had co-morbid depression and alcohol use disorder. There was no significant relationship between socio-demographic findings and co-morbidity of depression and alcohol use disorder.

Conclusion: About 2 in10 undergraduates experience co-morbidity of depression and alcohol use disorder. Multi-strategy interventions comprising of policy and educational tactics to address these problems are advocated.

Keywords: Alcohol use disorders, depression, youths, mental health

Introduction

The co-morbidity of alcohol use disorder (AUD) and depression is a major problem in public health.[1] The co-morbidity of AUD and depression is linked with increased mortality, morbidity, suicide and functional impairment.[2] Co-morbidity of both disorders worsens the treatment of each condition and treatment should include simultaneous therapeutic management.[3] AUD and Depression contribute a vital proportion of the global disease burden measured by disability-adjusted life years (DALYs).[4] These highly disabling disorders are related with many behavioral, physical and mental health comorbidities.[5]

AUD and Depression are connected, and they are growing concerns for many university campuses across Nigeria. The majority of AUD and depression cases arise during young adulthood, making students of post-secondary institution a susceptible group.[6] Early onset of co-morbidity may disrupt the course of emotional and cognitive development and may have negative effect on student's health, life and wellbeing, such as health, relationship, education and safety. Undergraduates represent a susceptible population, where emerging abuse patterns, especially in response to stress can precipitate long-term dependence on alcohol and connected negative sequelae in physical and mental health as well as achievement in occupational and academic settings.[7,8] In addition, AUD results to numerous

adverse outcomes for undergraduate such as poor academic performance, unintentional injuries and increase in other risky behaviors.[9,10]

Notably, the total number of people living with depression in the world was estimated at 322 million, and 29.19 million (9%) in Africa in 2017.[11]The prevalence of depression by WHO regions being between 3% and 6% among young adults (15-29 years old).[11] Moreover, the reported prevalence rates of depression among Ghanaian and Nigerian cohorts, were 41.7% and 26.6% respectively.[12] There is an economic impact on societies and on the quality of life of individuals and families due to the severity of depression. Depression can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide. Close to 800,000 people die due to suicide every year. Suicide is the second leading cause of death in 15-29-year-olds.[13]

Despite the warnings of WHO on the several negative health effects of alcohol use disorder and co-morbidity with depression, very few studies have been done in South-South geopolitical zone (Niger Delta), Nigeria. There is paucity of information on the prevalence of AUD and prevalence of depression among students in Niger Delta, particularly in Port Harcourt city. The socio-demographic factors that contributes to this co-morbidity in this part of the world is of great public health significance. This will help proffer interventions in managing and preventing the co-morbidity and it will further aid physicians to access the treatment response in patients. Accurate information on alcohol use disorder co-morbidity with other specific mental disorders is significant. It is important to have information in understanding the relationship of alcohol use disorder to other mental disorders such as depression.

University students experience vulnerable developmental stage, where substantial change happens in their environment, brain, body, and socialization. This may lead to development of addiction, alcohol use disorder, and mental health disorders. The occurrence of co-morbidity in university students and other understudied populations have been identified as priority research.[11] This study is among the first to understudy co-morbidity of alcohol and depression among sample of undergraduate students in southern region of Nigeria. It sought to fill the gap in knowledge, as previous studies were limited to either depression or alcohol use among undergraduate students. This study aimed to determine the prevalence and socio-demographic determinants of co-morbidity of alcohol use disorder and depression among undergraduate students attending University of Port-Harcourt, Nigeria.

Methods

Study area: The study was conducted at Lulu Briggs Health Centre in the University of Port Harcourt. The Health Centre is located around the University Park of University of Port Harcourt campus (Abuja campus). The Health Centre provides the members of the university community with primary health care. University of Port Harcourt is a federal university that is located at Port Harcourt, the capital city of Rivers State, in the South-South geopolitical zone of Nigeria (Niger Delta Region). Port Harcourt City is a metropolitan society. University of Port Harcourt was established in 1975 as University College and was given University status in 1977. The University has 12 faculties, 102 departments and has an undergraduate population of about 44,500.

Study design and study population: This study employed a descriptive cross-sectional design. The study population comprised undergraduate students of the

University of Port-Harcourt aged18 years and above, who were attendees at the primary health care in Lulu Briggs Health Centre of the university.

Sample size calculation and sampling: Using the formula for cross sectional studies, a sample size of 420 was obtained based on a co-morbid prevalence of AUD and depression of 45.8% by,[14] standard normal variance of 1.96, precision level of 0.05 and10% non-response rate. A systematic sampling technique was used to select respondents for the study, based on a calculated sampling interval of four.

Data Collection: A self-administered validated questionnaire was used to obtain information on socio-demographic characteristics, alcohol use and depression. The socio-demographic variables of interest were age, sex, marital status, year of study, religion and living arrangement (living alone, or with family/friends).

The Alcohol Use Disorder Identification Test (AUDIT) was used to obtain information on alcohol use. This is a 10-item validated tool that is self-rated, with score of 0-4 on each item. The psychometric properties yielded high validity and reliability among Nigerian population. [15,16] The AUDIT measures consequences, dependence, consumption and harm of alcohol use, and it gives a total score of 40. It was developed as part of the WHO collaborative project in primary health care on the management and detection of alcohol related issues, in order to identify harmful and hazardous use of alcohol.[13] In measuring the overall alcohol use, ten different questions were asked on varying level of alcohol use disorder and scored, based on a never, monthly or less (less than monthly), 2-4 times a month (monthly), 2-3 times a week (weekly) and 4 or more times a week (daily or almost daily) methodology. Those who indicated never to the consumption of alcohol were scored 0, monthly or less was scored 1, 2-4 times a month were scored 2, while the score of 3 was for 2-3

times a week and the score of 4 was for 4 or more times a week. The scores were summed for all participants. Participants with alcohol use disorder were scored 6-10, and those with no alcohol use disorder were scored ≤5.[13] The Patient Health Questionnaire (PHQ-9) was used to identify depression. It is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders. It assesses the frequency over the past two weeks of each of 9 symptoms based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for major depression, such as depressed mood and anhedonia; responses are on a Likert scale ranging from 0 (‘‘not at all’’) to 3 (‘‘nearly every day’’). PHQ-9 scores range from 0 to 27. The scores were summed for all participants. Participants with no depression were scored 0 minimal depression were scored 1-4, mild depression 5-9, moderate depression 10-14, moderately severe depression 15-19 and severe depression 20-27.[17] Minimal and nil depression were categorized as having no depression, while mild/moderate and severe were categorized as having depression. PHQ-9 is a validated and reliable reliability tool for assessment of depression in clinical and community care settings.[18,19]

Data analysis: Collected data were coded, collated and inputted into the Statistical Package for Social Sciences (SPSS) version 23.0. Descriptive statistics were used to investigate the data and to give results of prevalence of depression and AUD and socio-demographic data. Bivariate and multivariate analysis were used to ascertain the association between co-morbidity of AUD/depression and socio-demographic factors. Bivariate analysis employed Chi square statistics, while multivariate analysis was performed using binary logistic regression. Crude and Adjusted odds ratios were determined at the 95% level.

Ethical considerations: Ethical clearance was obtained for the study from University of Port Harcourt Research and Ethics Committee, prior to the commencement of the study. Informed consent was obtained from the participants to be involved in the study after the purpose of the study has been explained to participants. This research was conducted in accordance with the guidelines in the Declaration of Helsinki. Data were kept secure and remained confidential by using data codes on questionnaires. Informed consent sheet containing identifiable information was separated from the questionnaire and kept separately with restricted access. Anonymity was maintained by not linking participant's responses to their identities. The non-participation or withdrawal from the study at any point in time after giving informed consent did not affect their care at the health centre.

Results

Socio-demographic findings

The study comprised a total of 420 undergraduate students of University of Port Harcourt, Rivers State (n = 420). The participants ranged from 18 to 32years (Mean age = 23.59 years). Table 1 describes the socio-demographic characteristics of the participants.

Table 2 shows the distribution of faculties/colleges of students. Higher proportion of the undergraduates in the study were from the faculty of science (26.4%), followed by faculty of humanities (18.1%), while the faculty of science laboratory technology and dentistry had lower proportion of participants (0.7% and 0.2% respectively).

Alcohol Use Disorder (AUD)

The study found that 128 undergraduate students had alcohol use disorder, giving a prevalence of 30.5%.

Depression

Concerning depression prevalence, 205 (48.8%) nil/minimal depression, 138(32.9%) had mild depression, 45(10.7%) had moderate depression, 26(6.2%) had moderately severe depression and 6(1.4%) had severe depression.

Co-morbidity of AUD and Depression

Table 3 shows four categories of undergraduates based on AUD and depression. A total of 94 (22.4%) had co-morbidity of AUD and depression, 34 (8.1%) had AUD without depression, 111 (26.4%) had depression but no AUD, and 181 (43.1%) had neither AUD nor depression.

Relationship between socio-demographic findings and co-morbidity of AUD and Depression

Co-morbidity of AUD and depression was higher among undergraduates aged above 25years (29.2%), males (25.8%), 300-500 level of study (22.9%), married (44.4%) and living alone (26.8%). Based on crude and adjusted odds ratios, none of the socio-demographic characteristics in the study was significantly associated with co-morbid AUD and depression. (Table 4)

Discussion

This cross sectional study determined the prevalence of depression and AUD, as well as co-morbidity of both disorders among undergraduate students in University of Port Harcourt, Nigeria. It was observed that among the 420 undergraduates in the study, 30.5% of them had AUD, 48.8% had depression and 22.4% had co-morbid depression and AUD.

The co-morbid prevalence of AUD and depression reported in this study is in agreement with other reported research findings, which have highlighted the likelihood of depression among participants with AUD.[20–22] However, co-morbid prevalence of 22.4% reported in our study is much higher than that of Okonda et al,[23] who reported a rate of 9.3%. The dissimilarity in the study population could explain the disparity, while the index study comprised of undergraduates, that of Okonoda et al included in-patient receiving medical and surgical care in hospitals. Much higher AUD and depression co-morbid prevalence of 45.8% was reported in another study, which involved general out-patient clinics.[14] Notably, these studies uncover the need to address issues of AUD and depression. More so, the study population of index study being undergraduates highlights the need for institution of university policies, and behavior change communication interventions targeted at curbing AUD and depression. However, whether AUD leads to depression, or depression predisposes to AUD cannot be ascertained in this study due to the limitation of the cross-sectional design of study. Theoretical knowledge has demonstrated a linkage between AUD and depression and its resultant negative sequel. Adoption of analytical and longitudinal study designs in further studies could enrich the body of literature on this subject matter.

Socio-demographic factors explored in this study, which comprised as age, sex, marital status, study level and living arrangement showed no significant relationship with co-morbidity of AUD and depression. Although, this finding could be described as surprising, it however, reveals that the implementation of programs or interventions to address co-morbidity of AUD and depression among undergraduates should be uniformly carried out across the different socio-demographic

characteristics. Notably, promoting optimal mental health among undergraduate students has implications on the future of a nation.

Use of self-administered anonymous questionnaires, and explanation of the benefits of the study to respondents prior to their inclusion, were measures adopted in the index study to limit social desirability bias. Social desirability bias leads to an under-reporting of a habit perceived as negative in the society by the participants in a study. Therefore, there is a possibility of an under-estimation of reported co-morbid prevalence of AUD and depression. Nonetheless, the study provides valuable evidence-based information on the subject matter, and stirs the need for further research using analytical study designs.

Conclusion

About 3 in 10 undergraduate students have alcohol use disorders, approximately 5 in 10 have depression, and about 2 in10 of them have co-morbid alcohol use disorder and depression. Co-morbidity of alcohol use disorder and depression is not significantly associated with socio-demographic characteristics of age, sex, marital status and level of study of the undergraduates. The need to institute university policies and programs to address alcohol use disorders and depression among students is hereby advocated.

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Table 1: Socio-demographic characteristics of participants

Variables	Frequency (n=420)	Percentages
Age (in years)		
18-22	137	32.6
23-27	257	61.2
28-32	26	6.2
Mean age	***23.59(±5.2)***	
Sex		
Male	255	53.6
Female	195	46.4
Department Level		
100	44	10.5
200	114	27.1
300	152	36.2
400	101	24.0
500	9	2.1
Marital status		
Married	9	2.1
Single	411	97.9
Religion		
Christianity	403	96.0
Islam	15	3.6
Others	2	0.5
Who do you live with		
Live alone	123	29.3
Roommates	126	30.0
Sibling(s)/relative	55	13.1
Parents/guardian(s)	107	25.5
Spouse	9	2.1

Table 2: The distribution of faculties/colleges of undergraduates in the study (n=420)

Faculty/College	Frequency (n)	Percentages
Sciences	111	26.4
Humanities	76	18.1
Social Sciences	48	11.4
Management Sciences	37	8.8
Education	36	8.6
Health Sciences	25	6.0
Agriculture	23	5.5
Engineering	23	5.5
Law	19	4.5
Pharmaceutical Sciences	18	4.3
Science Laboratory Technology	3	0.7
Dentistry	1	0.2

Table 3: Alcohol Use Disorder among undergraduates (n=420)

Alcohol Use Disorder	Freq (n)	Percentages (%)
Yes (AUDIT 6-10)	128	30.5
No (AUDIT ≤5)	292	69.5

Table 4: Depression among undergraduate students (n=420)

Depression	Frequency (n)	Percentages (%)
Nil/Minimal depression	205	48.5
Mild depression (PHQ 5-9)	138	32.9
Moderate depression (PHQ 10-14)	45	10.7
Moderately severe depression (PHQ 15-19)	26	6.2
Severe depression (PHQ 20-27)	6	1.4

Table 5: Categorization of undergraduates in the study based on AUD and Depression

		Alcohol Use Disorder (AUD)		
		Yes	**No**	**Total**
Depression	**Yes**	94 (22.4%) *Co-morbidity of AUD and Depression*	121 (28.8%) *Depression but no AUD*	215 (51.2%) *Total number with depression*
	No	34 (8.1%) *AUD but no Depression*	171 (40.7%) *No depression and no AUD*	205 (48.8%) *Total number without depression*
	Total	128 (30.5%) *Total number with AUD*	292 (69.5%) *Total number without AUD*	420 (100.0%) *Total number of undergraduates*

Table 6: Relationship between Socio-demographic characteristics and Co-morbidity of alcohol use disorder and depression (n=420)

Variable	Co-morbidity AUD & Depression		Crude OR (95%C.I.)	Adjusted OR (95%C.I.)
	Yes n (%)	No n (%)		
Age (years)				
18-25	68(20.5)	263(79.5)	0.63(0.37-1.08)	0.68 (0.39-1.18)
Above 25	26(29.2)	63(70.8)	1	1
Sex				
Male	58(25.8)	167(74.2)	1.53(0.96-2.45)	1.45(0.89-2.36)
Female	36(18.5)	159(81.5)	1	1
Level				
100-200	34(21.5)	124(78.5)	0.92(0.57-1.49)	0.90(0.66-1.80)
300-500	60(22.9)	202(77.1)	1	1
Marital status				
Married	4(44.4)	5(55.6)	2.85(0.75-10.85)	3.69(0.88-15.45)
Single	90(21.9)	321(78.1)	1	1
Residence				
Living alone	33(26.8)	90(73.2)	1.42(0.87-2.31)	1.43(0.90-2.37)
With others	61(20.5)	236(79.5)	1	1