Who Guards the Guards: Drug Use Pattern Among Medical Students in a Nigerian University

Babalola EO, Akinhanmi A, Ogunwale A

Department of Clinical Services, Neuropsychiatric Hospital, Aro, Abeokuta, Ogun State, Nigeria

Address for correspondence:
Dr. Emmanuel Olatunde Babalola,
Neuropsychiatric Hospital, Aro,
Abeokuta, Ogun State, Nigeria.
E-mail: phemmo99@yahoo.com

Abstract

Background: Several studies have examined the prevalence and pattern of substance use among medical students in Nigeria. Few of these studies have specifically examined the relationship between the psychological distress and psychoactive substance use among these students. Yet, evidence world-wide suggests that substance use among medical students might be on the rise and may be related to the level of stress among them. **Aim:** The present study is the first study aimed to determine the prevalence, pattern and factors associated with psychoactive substance use among medical students of Olabisi Onabanjo University, Ogun State, Nigeria. **Subjects and Methods:** The World Health Organization student drug use questionnaire was used to evaluate for substance use among 246 clinical medical students between September and October 2011. General health questionnaire (GHQ) 12 was used to assess for psychological distress among these students. Statistical analysis was performed using the SPSS version 16. (Chicago, USA). Proportions were compared using the Chi-square test while a value of $P < 0.05$ was considered statistically significant. Fisher exact test was used instead of Chi-square when the number in the cell is less than 5. **Results:** Lifetime prevalence of substance use among medical students was 65% (165/246). It was found that the most commonly used substances were alcohol 63.4% (156/246), mild stimulants 15.6% (38/246), tobacco 15% (37/246) and sedatives 6.1% (15/246). Substance use was associated with gender, frequency of participation in religious activities and GHQ scores. **Conclusion:** Psychoactive substance use is a major problem among medical students. Psychological well-being plays a significant role in substance use among these students. There is a need for adequate screening and assessment for substance use disorders among these students and incorporating stress management strategies in their curriculum.

Keywords: Medical students, Nigeria, Pattern, Substance use, University

Introduction

Medical education has always been regarded as highly stressful. Although, only the academically-minded youth in the society tend to be selected for medical education, the stressful academic environment can exert a negative effect on the psychological and physical well-being of medical students.[1] A major stressor for medical students is the amount and complexity of the material to be learned.[2] Relationship with consultants, fear of failure, family problems, uncertainty regarding supervisor's expectation and uncertainties regarding performance are some of the factors contributing to mental distress among medical students.[3,4]

Studies have reported that for medical students to cope with challenges that they face in the course of their study, they may resort to certain forms of "medication" to enhance both physical and cognitive performance.[5-7] Previous studies have suggested alarming rate of substance use among medical students.[8-10] In a study in Enugu, south-eastern part of Nigeria, lifetime prevalence rate of 56% was reported among a sample of medical students.[11] A two phase study among medical students also in Nigeria found a prevalence rate of 88% and 85% in 1986 and 1995 respectively.[12] In a more recent survey, lifetime prevalence of psychoactive substance use among medical students in the northern parts of Nigeria was 78%, this is a part of the country where there is generally a negative attitude to drug use due to religious disposition.[6]

Social problems associated with substance abuse among students include crime, cultism, armed robbery,[13] assault, murder, family disintegration and incomplete education,[14] gang formation and ritual killings.[15]

Nigeria is the most populous nation in Africa, with a population of 140 million people. Of this population, 64% are between the ages 0 and 25 years, that is, 2 (two) out of every three or about 87.6 million. The proportion of youths in the total population is expected to increase as younger cohorts come of age.[16] Since medical students will eventually graduate to join the workforce of the nation it is important to conduct more researches that focus on the prevalence and pattern of drug use among them. Substance abuse assumes a special significance among medical students as they are the future medical practitioners and have a potential role in treating patients with substance use disorders.

Although studies that have examined substance use among medical students may be relatively available, few of these studies in Nigeria had evaluated the relationship between drug use and psychological distress among them. Understanding the relationship between these two mental health issues is critical to defining the nature and scope of interventions that may be required for medical students who engage in drug use.

This study is aimed at determining the prevalence and pattern of psychoactive substance use among medical students and to identify factors that may be associated with substance use among these students. The emergent patterns of use will help to reveal the most relevant substances on which drug education and/or counseling should be focused on.

Subjects and Methods

This study was conducted among clinical medical students (students in their 5th and 6th year studying Medicine and Surgery at the College of Medicine) between September and October 2011 at the Olabisi Onabanjo University, in Ogun State, this is a state owned and operated institution, which admits students from all over Nigeria. Ethical clearance to carry out the study was obtained from both the Research and Ethics Committee of the Neuropsychiatric Hospital Aro, Abeokuta, Ogun State and The Hospital Research Committee of the College of Medicine, Olabisi Onabanjo University, Ogun State, Nigeria. The students were assured that their responses will be kept strictly confidential. Anonymity was maintained, as no name or identifiable information was included in the questionnaire. The students were informed about the objective of the study and a written informed consent of the respondents was obtained.

The study population was clinical medical students (5th and 6th year). Data were collected through self-administration of the questionnaire after gathering the students in the lecture hall of the faculty. The modified World Health Organization (WHO) student drug use questionnaire was used to assess drug use

among the students.[17] The instrument consists of 37 items. Items 1-6 contain respondents' demographic characteristics while 7-20 contains demographic characteristics and substance use by respondents' parents. Item 21-31 deals with frequency, age at first drug use and level of education at first drug use. Item 32 deals with fictitious drug use to check over reporting. Items 36 and 37 are deal with honesty of reporting by the students. The WHO student drug use questionnaire contain drugs like mild stimulants defined as psychoactive drugs, which induces temporary improvements in either mental or physical functions or both, minor tranquilizers like benzodiazepines (often referred to as sedative/hypnotics) that induces calmness and sedatives, which are drugs that induces sedation by reducing irritability and excitement. This instrument had been used in several studies of drug use among Nigerian students.[15,18] Psychological health of the students was assessed using the general health questionnaire (GHQ) 12. Questions in the GHQ 12 include; "Have you felt constantly under strain?" "Have you felt that you could not overcome your difficulties?" This instrument had been used previously and found to be reliable and valid among the student population in Nigeria. A score of three and above indicates psychological distress among respondents.[4]

Data was analyzed using the Statistical Package for Social Science (SPSS) version 16 (Chicago, USA). Statistical analyses including frequency distribution and cross tabulations were made. Proportions were compared using the Chi-square test while a value of $P < 0.05$ was considered statistically significant. Fisher exact test was used instead of Chi-square when the number in the cell is less than 5.

Results

Of the 278 questionnaires distributed, 246 responses were returned, corresponding to a response rate of 88.5%. One hundred and thirty respondents 52.8% (130/246) were males. Age ranged from 22 to 40 years; mean age 26.8 (2.3) years (95% confidence interval [CI] =26.51-27.09). Christianity was the predominant religion 82.9% (204/246) while 52% (128/246) reported frequent participation in religious activities. About 72% (180/246) of the respondents reported receiving a monthly pocket money of $40-$125. Over 80% (198/246) of the students reported that their parents were still married. Over 70% (174/246) of respondents' parent completed tertiary education [Table 1].

The lifetime prevalence of any drug use was 65% (160/246). Alcohol was the most commonly used substance 63.4% (156/246), followed by mild stimulants 15.6% (38/246), tobacco 15% (37/246) and sedatives 6.1% (15/246) [Table 2].

About 70% (91/130) of male and 56% (65/116) of female respondents reported lifetime use of any substance while 66% (86/130) of males and 48.3% (56/116) of females reported current drug use. A significantly higher proportion

Table 1: Socio-demographic characteristics of respondents		
Characteristics	**Frequency (*n*=246)**	**%**
Age (years)		
21-25	69	28.0
26-30	116	67.5
>30	11	4.4
Gender		
Male	130	52.8
Female	116	47.2
Type of religion		
Christianity	204	82.9
Islam	40	16.3
Others	2	0.8
Religious participation		
Frequently	128	52.0
Occasionally	54	22.0
Rarely/Never	64	26.0
Monthly pocket money		
<$40	9	3.7
$40-125	180	72.3
>$125	57	24.0

Age range: 22-40, Age, years: mean (standard deviation): 26.8 (2.29) 95%, CI: 26.51-27.09

Table 2: Prevalence of psychoactive substance use		
Drugs	**Frequency (*n*=246)**	**%**
Any drug		
Lifetime	160	65.0
Previous year	156	63.7
Current use	143	58.4
Tobacco		
Lifetime	37	15.0
Previous year	37	15.0
Current use	32	13.0
Alcohol		
Lifetime	156	63.4
Previous year	152	61.8
Current use	142	57.7
Cannabis		
Lifetime	13	5.3
Previous year	13	5.3
Current use	11	4.5
Cocaine		
Lifetime	2	0.8
Previous year	2	0.8
Current use	2	0.8
Mild stimulants		
Lifetime	38	15.8
Previous year	38	15.8
Current use	36	14.6
Tranquilizer*		
Lifetime	15	6.1
Previous year	15	6.1
Current use	11	4.5
Sedative		
Lifetime	3	1.2
Previous year	3	1.2
Current use	3	1.2
Heroin		
Lifetime	1	0.4
Previous year	1	0.4
Current use	1	0.4
Other Opiates		
Lifetime	7	2.8
Previous year	7	2.8
Current use	6	2.4

*Refers to benzodiazepines

of males than of females were current ($P = 0.03$, 95% CI = 0.01-0.04) or lifetime ($P = 0.03$, 95% CI = 0.03-0.5) users of alcohol; lifetime, previous year and current users of tobacco ($P < 0.01$, 95% CI 0.00-0.01); lifetime users of cannabis ($P < 0.01$, 95% CI = 0.00-0.03). Lifetime use of cocaine, hallucinogens, sedatives and heroin was only reported among the males [Table 3].

Most of the drugs were first used between ages 15 and 18 years. Initial drug use was relatively uncommon below age 11, although substantial proportions of respondents had tried alcohol, tobacco and cannabis before their 15th birthday. None of the students had used cocaine prior to their 11th birthday [Table 4].

Higher proportions of students above 25 years reported alcohol use, but this was not statistically significant. Alcohol use was not significantly associated with respondents monthly pocket money. Fewer medical students who reported frequent participation in religious activities had used alcohol in their lifetime.

The median GHQ score among respondents was three (interquartile range = 2-5). About 52% (130/246 had a GHQ score of three and above, indicating psychological distress. Psychological distress was significantly associated with lifetime use of alcohol ($P = 0.01$, 95% CI = 0.01-0.04) and lifetime use ($P = 0.04$, 95% CI = 0.02-0.06) of mild stimulants [Table 5].

Discussion

In this study, the lifetime prevalence of any drug use was 65%. Other studies in the country have reported similar high prevalence.[6,7,11,12] This figure was lower than 87.8% reported among 4th-year students at 13 United States medical schools,[20] 90% among medical students in a University in Sweden[21] and 86% among 2nd year medical students at the University of Leeds.[22] It is considerably lower than 22% reported among medical students of Addis Ababa University in Ethiopia,[23] and 24% among medical students in Southern Iran.[24] These differences while highlighting the complex nature of drug abuse, may also reflect the different criteria used for the diagnosis of substance abuse. Differences in methodology, socio-cultural characteristics of the various samples studied and the different numbers of drugs included probably also contributed to the observed differences in prevalence rates.

Table 3: Prevalence of psychoactive substance use by gender

Drugs	Male (n=130)	%	Female (n=116)	%	P value	95%CI
Tobacco						
Life time	30	23.0	7	6.0	<0.01	0.00-0.01
Previous year	30	23.0	7	6.0	<0.01	0.00-0.01
Current use	27	20.7	6	5.2	<0.01	0.00-0.01
Alcohol						
Life time	91	70.0	65	56.0	0.02	0.15-0.04
Previous year	88	67.7	64	55.2	0.04	0.03-0.05
Current use	86	66.2	56	48.3	0.03	0.15-0.04
Cannabis						
Life time	12	9.2	1	0.9	<0.01	0.00-0.01
Previous year	12	9.2	1	0.9	0.12	0.02-1.20
Current use	10	7.7	1	0.9	0.14	0.03-1.20
Cocaine						
Life time	2	1.5	0	0.0	0.50	0.03-0.50
Previous year	2	1.5	0	0.0	0.50	0.03-0.50
Current use	2	1.5	0	0.0	0.50	0.02-0.50
Mild stimulants						
Life time	19	14.6	19	16.4	0.70	0.42-0.73
Previous year	19	14.6	19	16.4	0.70	0.35-0.78
Current use	17	13.1	19	16.4	0.23	0.41-0.73
Tranquilizer						
Life time	7	5.4	8	6.9	0.62	0.41-0.79
Previous year	7	5.4	8	6.9	0.62	0.41-0.79
Current use	6	4.6	5	4.3	0.36	0.41-0.56
Sedative						
Life time	2	1.5	0	0.0	0.50	0.28-0.58
Previous year	2	1.5	0	0.0	0.50	0.28-0.58
Current use	2	1.5	0	0.0	0.50	0.28-0.58
Heroin						
Life time	1	0.8	0	0.0	1.00	0.53-1.00
Previous year	1	0.8	0	0.0	1.00	0.53-1.00
Current use	1	0.8	0	0.0	1.00	0.53-1.00
Other opiate						
Life time	3	2.3	4	3.4	0.71	0.43-0.71
Previous year	3	2.3	4	3.4	0.71	0.43-0.71
Current use	3	2.3	3	2.6	0.71	0.86-0.92

CI: Confidence interval

Table 4: Age at first drug use by respondents

Drug	Age at first drug use (years)				
	10 or less	11-14	15-18	19-22	≥23
Tobacco (n=37)	1 (2.6)	9 (23.7)	15 (42.1)	9 (23.7)	3 (7.9)
Alcohol (n=156)	24 (15.4)	38 (24.4)	52 (33.0)	26 (16.7)	16 (10.2)
Cannabis (n=13)	3 (23.1)	2 (15.4)	6 (46.1)	2 (15.4)	0
Cocaine (n=2)	0	1 (50.0)	1 (50.0)	0	0
Mild stimulant (n=38)	0	2 (5.3)	8 (21.1)	16 (42.1)	12 (31.5)
Inhalants (n=5)	0	0	4 (80.0)	0	1 (20.0)
Tranquilizer (n=15)	0	1 (6.7)	5 (33.3)	6 (40.0)	3 (20.0)
Sedative (n=3)	0	1 (33.3)	0	0	2 (66.7)
Heroin (n=1)	0	0	0	0	1 (100)
Other opiate (n=7)	0	0	1 (14.3)	1 (14.3)	5 (71.4)

The most prevalent psychoactive substance used by the medical students was alcohol. This finding of alcohol being the most commonly used drug conforms with the national pattern[19] and agrees with studies among students populations within

Table 5: GHQ score and respondents drug use

GHQ score	*n*=246				
Median scored (IQL[a])	3.0 (2-5)				
0-2 (%)	116 (47.2)				
3-12	130 (52.3)				
GHQ score use *n* (%)	Lifetime use	Previous year	Current	*P* value	95%CI
Alcohol use					
0-2	64 (26.0)	63 (25.4)	58 (23.6)	0.01	0.01-0.05
3-12	92 (37.4)	89 (36.2)	84 (36.1)		
Tobacco use					
0-2	15 (6.5)	15 (6.5)	14 (5.7)	0.49	0.41-1.23
3-12	22 (8.9)	22 (8.9)	18 (7.3)		
Cannabis use					
0-2	4 (1.6)	4 (1.6)	3 (1.2)	0.22	0.11-1.32
3-12	9 (3.7)	9 (3.7)	8 (3.2)		
Mild stimulants					
0-2	12 (4.9)	12 (4.9)	12 (4.9)	0.04	0.02-0.08
3-12	26 (10.6)	26 (10.6)	24 (9.7)		
Tranquilizer					
0-2	4 (1.6)	4 (1.6)	4 (1.6)	0.10	0.05-1.40
3-12	11 (4.5)	11 (4.5)	11 (4.5)		
Other opiates					
0-2	2 (0.8)	2 (0.8)	1 (0.4)	0.50	0.04-1.10
3-12	5 (2.0)	5 (2.0)	5 (2.0)		

[a]Interquartile range, CI: Confidence interval, GHQ: General health questionnaire

Nigeria[5,12,18] and abroad.[25,28] This perhaps reflects the easy availability of this substance in many parts of the world except areas where it is prohibited on religious grounds. In many places, alcohol is generally not considered as a drug and its use is socially accepted.

The finding that mild stimulants like caffeine was the second most prevalent substances used by medical students was consistent with other studies.[6,7,12] A survey of psychoactive substance use among medical students in Ilorin Nigeria reported that the most commonly used drugs among medical students were mild stimulants. The authors opined that these students used these drugs to keep awake during the examination periods.[6] Another study among undergraduates in North-Western Nigeria found that medical students used mild stimulants more than non-medical students. The researchers were of opinion that medical school is associated with busy curriculum- with the students having to learn the art and science of medicine over a limited period of 6 years and to achieve academic excellence the students need to remain awake at night by resorting to the use of psychostimulants.[7] Mild stimulants are readily accessible and affordable, they are also socially tolerated, these may be responsible for their relatively high prevalence in this study.

The prevalence rate of drug use by gender in both groups confirmed the previous findings of other studies among undergraduates in Nigerian Universities that drug use was a predominantly male activity.[4-7,12,18] Although, the use of alcohol and cigarette by Nigerian women is still not tolerated by society, but accepted as part of the social lives of men, but the incidence among female is on the rise. These differences may suggest that some aspects of the culturally prescribed gender role may have a protective effect against drug use behaviors for both male and females.[7]

Most of the respondents initial drug use was between ages of 15 and 18 years. This is consistent with studies done among undergraduates in South African Universities[26,27] and overlap with 13-16 years reported among adolescents in America.[28]

Majority of these students started using alcohol and tobacco while in the secondary school. This confirms the high level of substance use among secondary school students as reported in various sentinel studies carried out in this country. This means that any drug abuse preventive measures need to start much earlier in the student's academic lives to achieve desired objectives. Currently, in Nigeria, formal policies on drug abuse are not available in the school curriculum. The situation on the ground is still unfortunate as reported by a survey among secondary school teachers, where 60% of them were not exposed to any form of drug education and 70% were not offering drug education to their students.[29] There is a need for a formal policy including drug education and counseling as part of health promotion drive in primary, secondary and tertiary schools in Nigeria.

Several authors have reported that students who participated regularly in religious activities were less likely to use psychoactive substances.[6,7,12,18] This was also replicated in this study. A recent review of over 150 studies on drug and

alcohol abuse found that people who are highly religious are less likely to use substances and are less likely to experience substance related consequences.[30] Possible ways religion may influence substance use include establishing moral order, providing opportunities to acquire learned competencies and providing social and organizational ties.[31] Another study reported that the overall results in their study suggests that for both male and female students, those who were not religious were more likely to consume both licit and illicit drugs. In general, students who had "other" or no religious preference, were also more likely to use licit and illicit substances.[31]

In this study, 52.3% of these students experienced psychological distress. This is consistent with findings among medical students in different parts of the world. A study comparing the level of psychological distress among medical and law students reported that 57% of the medical students reported psychological distress.[32] Another survey in Malaysia reported that 41.9% of the medical students in a University suffered from psychological distress.[1] Abdulghani reported that the prevalence of all types of stress among medical students in a University in Saudi Arabia was 57%.[33]

Opinions differ as to the sources of stress among medical students. A study identified high parental expectation, vastness of syllabus, living in the hostel, tests/exams, lack of time and facilities for entertainment as the causes of stress among medical students. A study among 4th year medical students in Britain cited the most recent stressful events as talking to a psychiatric patient, effects on personal life, presenting cases and dealing with death and suffering.[3]

Psychological distress was significantly associated with lifetime use of alcohol and mild stimulants among these students. It is however difficult to indicate the direction of causality between substance use and psychological distress on account of the cross-sectional nature of our study. Studies on this complex relationship have also not been conclusive. A study among medical students in Macedonia reported that despite the stress experienced by these students, substance use was not increased among them. The authors also found that there was no significant increase in the rates of alcohol, tobacco and illicit drug use among the medical students.[35] Furthermore, a survey among medical students from Nepal reported that drug abuse was the least coping strategy resorted to by distressed students.[34] On the contrary, other authors reported that psychological distress among medical students may contribute to substance abuse, broken relationship and suicide among medical students.[36] Longitudinal studies among carefully selected cohorts with some of the risk factors highlighted in this study may assist greatly in conclusively determining the direction of causality between psychological distress and substance use.

Conclusion

This current study, in consonance with previous studies of drug use among medical students, draws attention to the magnitude of drug use among undergraduates of institutions of higher learning. The significant association found between psychological distress and drug use raises major challenges to school authorities as they may justifiably take steps, which will ensure that students are exposed to less stressful learning and living environments in order to help them cope with stress in a more adaptive way rather than resorting to drug use.

The findings from this study indicate the need to formally incorporate drug education and counseling into the academic curriculum of primary and secondary schools since many of the students in our study started drug use prior to commencing tertiary education.

On account of the cross-sectional nature of this study, it is impossible to indicate the direction of causality between psychological distress and psychoactive substance use. Future research, prospective in nature may help indicate the direction of causality. Collaboration involving multi centers may give more robust findings.

The adoption of some of the recommendations arising from the findings of this study should go a long way to guard the medical students who have a potential role of guarding others in the future and help produce drug-free medical practitioners in the future.

Acknowledgment

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