Substance Use among Medical Students Attending Two Nigerian Universities

J. M. Chinawa[1*], P. C. Manyike[2], H. A. Obu[1], O. I. Odetunde[1], S. Uwaezuoke[1], A. N. Ikefuna[1], A. E. Aronu[1] and A. T. Chinawa[3]

[1]*College of Medicine, Department of Pediatrics, University of Nigeria/University of Nigeria Teaching Hospital (UNTH), Ituku- Ozalla, Enugu State, Nigeria.*
[2]*Department of Pediatrics, Federal Teaching Hospital, Abakiliki, Ebonyi State, Nigeria.*
[3]*College of Medicine, Department of Community Medicine, University of Nigeria/ University of Nigeria. Teaching Hospital (UNTH), Ituku- Ozalla, Enugu State, Nigeria.*

Authors' contributions

This work was carried out in collaboration between all authors. Authors PCM, JMC, HAO, ATC, OIO, SU and AEA contributed to the conception, writing and proof reading of this manuscript. Author OIO contributed to the analysis of this manuscript. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Background: Medical students in Nigeria are exposed to various types of substances to enhance their academic performance .This is not without its attendant problems.
Objectives: The objectives were to identify the substances used by medical students in Nigerian universities as well as to determine the socio-demographic and gender pattern on substance use among them.
Methods: The study was carried out among medical students recruited from two medical colleges of two Nigerian universities. By a convenient sampling method, a total of 231 medical students were selected.

_____

*Corresponding author: E-mail: josephat.chinawa@unn.edu.ng;

Results: Sixty three medical students (27.3%) took more than 8units of alcoholic drinks in the last 30 days before the study while 46 (19.9%) took up to 8 units for the previous week. About 2 (0.8%) of the students used marijuana while none used cocaine. Five (2.2%) smoked up to 4 of cigarette in the past one week while four (1.7%) smoked up to 4 cigarette in the previous 30 days. Seven (3.1%) students used sedatives with diazepam and lexotan (Benzodiazepines) being the most commonly used.

There were no association between age, social class and substance use as the observed differences in use in the different age groups were not statistically significant P>0.05. Conclusion: This study has shown that medical students had varying degrees of substance use; however a longitudinal study is advisable to determine the changing pattern over time.

Conclusion: This study has shown that medical students had varying degrees of substance use; however a longitudinal study is advisable to determine the changing pattern over time.

1. INTRODUCTION

Substance abuse and substance use are sometimes interchangeably used. Both terms have a thin line of demarcation for some scholars [1]. There appears to be no universally agreed definition for substance abuse. The World Health Organization defined substance misuse as 'persistent or sporadic excessive drug use inconsistent with or unrelated to acceptable medical practice. It can also be defined as use of a substance for a purpose not consistent with legal or medical guidelines, as in the non-medical use of prescription medications with resultant effects [2].

These effects include sedation, stimulation or alteration in mood and behavior [2].

The university provides medical students with the first opportunity to be part of a larger group of peers without parental supervision [3]. It is also seen as the last period of freedom before taking on the responsibilities of adulthood [3]. This makes the medical students more susceptible to try previously prohibited and sometimes illicit substances [3-5]. Usually, among university students, medical students are more vulnerable to substance abuse and use because they are more exposed to stress from the didactic lectures and examinations they are constantly exposed to. For instance, a study in Turkey and other parts of the world have shown that excessive alcohol consumption is common among medical students and physicians with the attendant risk of adverse effects [6,7]. In addition, alcohol use is the leading cause of injury and mortality among university students and young adults in the United States of America [USA] and other countries [8,9].

Substance abuse and substance use constitute a major public health and social problem worldwide with alcohol, tobacco and marijuana being the most abused. The social impact of substance abuse among medical students are protean, ranging from feelings of abandonment, anxiety, fear, anger, concern, embarrassment, or guilt. This may continue for generations. Intergenerational effects of substance abuse can have a negative impact on role modeling, trust, and concepts of normative behavior, which can damage the relationships between generations [10]. For example, a student who abuses substances may grow up to be an overprotective and controlling parent who does not allow his or her children sufficient autonomy [10].

Substance use by medical students has been studied in many countries [11,12]. A study in the United States reported that 78% of medical students had used psychoactive drugs at some time in their lives [11].

Furthermore, in Ilorin, Makanjuola et al. [13] noted the prevalence of psychiatric morbidity among medical students who abuse substances to be 14.7% which is lower than the rate of 20.2% found among undergraduates in University of Ilorin [13]. In Enugu, there are few works on substance use among medical students. A careful search only yielded few works on this topic which were carried out decades ago [14,15]. This study therefore, is carried out in this area to strengthen the already existing few data, the result will complement earlier studies and will also serve as information base for future researches. Some of the early information on substance use among medical students are old and as such are not representative of the current situation.

The findings will also form the template for intervention strategies in helping reduce this social problem and managing such cases. The current study will also generate base-line data that will guide future studies.

2. SUBJECTS AND METHODS

2.1 Study Design

This is prospective cross-sectional study that assesses the pattern of substance use among medical students attending two Nigerian universities.

2.1.1 Setting

The study was carried out among medical students recruited from two medical colleges of two Nigerian Universities.

2.1.2 Sampling

Two medical schools were selected by convenience sampling method. By a convenient sampling method, a total of 231 medical students were also selected.

The questionnaires which were administered by the researchers and completed by the medical students during lecture hours after explanation of the purpose of the study. Confidentiality was assured and maintained by informing the respondents not to write their names on the questionnaires. Questions arising from the questionnaire were answered by one of the authors (JMC) during the exercise. Only the students who gave verbal consent were included in this study. This study was aimed at identifying the substances used by medical students in Nigerian Universities as well as to determine the socio-demographic and gender pattern on substance use among them.

2.2 Instrument Used

Modified WHO Student Drug Use Questionnaire was used for this study. It was originally developed by the World Health Organization in collaboration with the United Nations Fund for Drug Abuse Control for use in different socio-cultural settings.

The families were assigned socioeconomic classes using the recommended method (modified) by Oyedeji [16]. The parents'

occupation and highest education attained were scored from 1 (highest) to 5 (lowest). The mean score for both parents gives social class falling within the 1–5 range. Those with the mean score of <2 were further reclassified into upper class while those with the mean score of >2 were reclassified into lower social class. For the occupation score, those in upper social class included parents, such as senior public officers, large-scale traders, large-scale farmers and professionals. Lower class included artisans, primary school teachers, peasant farmers, labourers and the unemployed. For the education score, those with PhD, master degree, bachelor degree and higher national diploma (HND) were categorized as upper class. Those with ordinary national diploma (OND), national certificate of education (NCE), technical education, grade II teachers' certificate, junior and senior secondary school certificate, primary school certificate and those with no formal education were classified as lower social class [16].

2.2.1 Use

Use means using one or many psychoactive substance within 7 days without giving rise to health or behavioral problems that might harm users themselves or anyone else [17].

2.2.2 Highly used

Is a term used commonly when substances are used in a month for mood alteration or intoxication ignoring the fact that overdose of such medicines have serious adverse effects [18].

A bottle of beer in this locality is about 2 units of alcohol.

2.3 Data Analysis

All data were coded, entered, and then analyzed using the Statistical Package for Social Sciences program (SPSS), version 17. Results were presented in tables. Chi-square was used as a test of significance for qualitative variables with a p-value of less than 0.05 accepted as significant.

3. RESULTS

The age range of the respondents was 16-35 years. There were 177 females and 54 males among the respondents. The predominant social class was the upper class (Table 1). Sixty three medical students (27.3%) ingested more than 8

units of alcoholic drinks in the last 30 days before the study while 46 (19.9%) ingested up to 8 units of alcoholic drinks for the previous week (Tables 3 and 4.) Five (2.2%) took a lobe of Kola nut in the previous thirty days and 1(0.4%) took more than 4 lobes for same period (Tables 3 and 4). About 2 (0.8%) of the students used marijuana while none used cocaine as shown in Table 2.

Five (2.2%) smoked up to 4 of cigarette in the past one week while four (1.7%) smoked up to 4 cigarette in the previous 30 days (Table 3 and 4).

Seven (3.1%) students used sedatives with diazepam and lexotan (Benzodiazepines) being the most commonly used (Table 5). Twenty eight point one percent (28.1%) of the respondents used the substances to alter their sleep patterns 22.5% perceived them to have side effects while 10% perceived a boost in their academic performance from substance use or abuse (Table 5). Sleepiness is the most commonly reported side effects from substance use (Table 6).

Table 1. Socio Demographic Characteristics

	Frequency N = 231	Percent
Age range		
16 – 20	8	3.5
21 – 25	139	60.2
26 – 30	78	33.8
31 – 35	6	2.6
Gender		
Male	54	23.4
Female	177	76.6
Social class		
Upper class 1	76	32.9
Middle class	56	24.2
Low class	44	19.0
Lowest class	55	23.8

Table 2. Distribution of substances used

	Used (7 days)		Highly Used(30 days)	
	Frequency N = 231	Percent	Frequency N = 231	Percent
Kola nuts	50	21.6	21	9.1
Cigarette	102	44.2	52	22.5
Alcohol	144	62.3	89	38.5
Sedatives	30	13.0	14	6.1
Mariguana	2	0.8		
Cocaiane	0	0		

Table 3. Distribution of number of substances used in the last 1 week

	Kolanuts		Cigarettes		Bottles of Beer	
	Freq N = 231	%	Freq N = 231	%	Freq N = 231	%
One	3	1.3	0	0	18	7.8
Two	0	0	5	2.2	11	4.8
Three	1	0.4	4	1.7	4	1.7
Four	2	0.9	5	2.2	13	5.6
More than four	2	0.9	3	1.3	5	2.2
None	223	96.5	214	92.6	180	77.9

Table 4. Distribution of number of substances used in the last 30 days

	Kolanuts		Cigarettes		Bottles of Beer (a bottle is equivalent to 2 units of alcohol)	
	Freq N = 231	%	Freq N = 231	%	Freq N = 231	%
One	5	2.2	1	0.4	22	9.5
Two	3	1.3	2	0.9	19	8.2
Three	0	0	0	0	18	7.8
Four	1	0.4	4	1.7	19	8.2
More than four	0	0	2	0.9	63	27.3
None	222	96.1	222	96.1	90	39.0

Table 5. Distribution of sedatives usually used by respondents

	Frequency N = 231	Percent
Diazepam	5	2.2
Lexotan	2	0.9
Don't know	162	70.1
None	62	26.8
Total	231	100.0

Table 6. Perception of effects of substances used

	Frequency N = 231	Percent
Have side effects	52	22.5
Boosts academic performance	23	10.0
Affects sleep	65	28.1
Distribution of side effects		
Tremors	8	3.5
Restlessness	18	7.8
Sleepiness	42	18.2
Insomnia	19	8.2
Headaches	33	14.3

There was no association between age and substance use as the observed differences of substance use in the different age groups were not statistically significant ($P>0.05$) (See Table 7).

Table 7. Age with substance use

Age range	Cigarette		Alcohol	
	No	Yes	No	Yes
16 – 20yrs	5	3	3	5
	62.5%	37.5%	37.5%	62.5%
21 – 25yrs	81	58	52	87
	58.3%	41.7%	37.4%	62.6%
26 – 30yrs	39	39	29	49
	50.0%	50.0%	37.2%	62.8%
31 – 35yrs	4	2	3	3
	66.7%	33.3%	50.0%	50.0%
Total	129	102	87	144
	55.8%	44.2%	37.7%	62.3%

P = 0.606; P = 0.940

Furthermore, there was no association between substance use and social class among the respondents as the observed differences were also not statistically significant ($P>0.05$) (Table 8).

The same conclusion can be made for substance use and gender, as the differences observed for both cigarettes and alcohol use were not statistically significant ($P>0.05$.) (Table 9).

Table 8. Social Class with substance use

Social class	Cigarette		Alcohol	
	No	Yes	No	Yes
Upper class 1	47	29	26	50
	61.8%	38.2%	34.2%	65.8%
Middle class	28	28	20	36
	50.0%	50.0%	35.7%	64.3%
Low class	27	17	20	24
	61.4%	38.6%	45.5%	54.5%
Lowest class	27	28	21	34
	49.1%	50.9%	38.2%	61.8%
Total	129	102	87	144
	55.8%	44.2%	37.7%	62.3%

P = 0.328; P = 0.655

Table 9. Gender with substance use

Gender	Cigarette		Alcohol	
	No	Yes	No	Yes
Male	30	24	23	31
	55.6%	44.4%	42.6%	57.4%
Female	99	78	64	113
	55.9%	44.1%	36.2%	63.8%
Total	129	102	87	144
	55.8%	44.2%	37.7%	62.3%

P = 1.000; P = 0.425

4. DISCUSSION

This present study has shown that kola nut, alcoholic drinks, tranquillizers, marijuana and cigarettes were the common substances used by medical students. Alcohol and cigarettes were used by a greater number of the students when compared to other substance.

Alcohol was the most commonly used substance among the medical students. We noted that over a third of the medical students had consumed a substantial quantity prior to the study. This is similar to the findings of Garg et al; in India who noted that about 42.5% of medical students had used alcohol in the previous 30 days [19]. Earlier reports by Akpala and colleagues in Nigeria have also shown alcohol to be the second most used substance [20]. Studies have shown that depression, anxiety, psychiatric disturbances and alcohol dependence are the major side- effects arising from alcohol intake [19].

We noted from this study that about 22.5% of medical students frequently smoke cigarettes while 78.5% never smoked cigarette. This is in keeping with the study in China by Xinguang

[21], who reported the prevalence of cigarette use among medical students as 28.1%. Various factors are possibly responsible for this substance use among medical students; these include stress, depression, anxiety and pleasure. Smoking remains main cause of preventable, death worldwide; causing about 440,000 deaths annually in the US [22,23]. Despite the mounting evidence in reports relating smoking to disease, rates of morbidity and mortality attributable to cigarette smoking have continued to increase due to its abuse [24].

The use of kola nuts by medical students was very minimal in this study probably because it was mainly used prior to major examinations to achieve long hours of wakefulness for reading. Kola nut is reportedly used for short-term relief of fatigue, depression, chronic fatigue syndrome (CFS), melancholy, lack of normal muscle tone (atony), exhaustion, dysentery, a type of diarrhea called atonic diarrhea, weight loss, and migraine headaches [25]. The caffeine in kola nut can cause insomnia, nervousness and restlessness, stomach irritation, nausea and vomiting, increased heart rate and respiration, and other side effects. Large amounts might cause headache, anxiety, agitation, ringing in the ears, and irregular heartbeats [25].

Sedatives were also used by students in this study; especially diazepam and lexotan. The strict government control on the use of these drugs could have contributed to the low usage of these substances [26].

Cannabis and marijuana were the least used substances with a lifetime prevalence of 0.8%. The current prevalence agrees with 0.5% reported by Adelekan but differs from that obtained in Sokoto, espectively [20]. The low percentage reported in this study may be due to under-reporting because the use of these substances are associated with psychosis and criminal activities and the law in Nigeria also prohibits both the use and sale of both substances.

We noted no association between age, gender and social class and substance use in this study. This is contrary to many studies which noted a male preponderance. For instance, it is documented that males are more likely than females to report marijuana and alcohol use whereas females are more likely than males to report nonmedical use of prescription drugs [27-29]. This is also corroborated by Babalola

and Famuyiwa et al. who at different times noted male preponderance in their study [30,31]. It was also noted that differences in substance abuse patterns among gender vary by age, for example, data from the 2011 National Survey on Drug Use and Health show that men aged 18 and above have almost twice the rate of substance dependence as their female counterpart, but among adolescents aged 12 to 17, the rate of substance dependence for both genders was the same (6.9 percent) [29].

The non significant gender difference obtained in this study when compared to others could be due to several factors such as high number of females in the medical school used for the study, small sample size used for the study and possibly geographical differences.

6. CONCLUSION

This study has shown that medical students had varying degrees of substance use; however a longitudinal study is advisable to determine the changing pattern over time.

CONSENT

Verbal consent was sought and obtained from the students after the exercise was duly explained by the researchers.

ETHICAL APPROVAL

Not applicable.

COMPETING INTEREST

The authors hereby declare that there were no competing interests.

REFERENCES

1. Ana Maria C, Mesquita, John Dunn. Drug misuse among medical students: Letter from Brazil. Psychiatric Bulletin. 1996;20:612-613.
2. Vlahov D, Galea S, Resnick H. Increased use of cigarettes alcohol and marijuana among Manhattan, New York, residents

after the September 11th terrorist attacks. Am J Epidemiol. 2002;155:988–96.

3. Attah-Johnson FY. Attitudes of Nigerian medical students towards use and abuse of tobacco, alcohol and drugs. Drug Alcohol Dependence. 1985;15:323–334.

4. Adelekan ML, Abiodun OA, Imuokhome-Obayan AO, et al. Psychosocial correlates of alcohol, tobacco and cannabis use; findings from a Nigerian university. Drug Alcohol Dependence. 1993;33:247–256.

5. Aje SA, Akanbi A, Folorunsho I. Ilorin: Indemac. Problems of cultism in Nigerian schools; 2000.

6. Frank E, Elon L, Naimi T, Brewer R. Alcohol consumption and alcohol counseling behavior among US medical students: Cohort study. B M J. 2008;337.

7. Akvardar Y, Demiral Y, Ergor G, Ergor A. Substance use among medical students and physicians in medical school in Turkey. Soc Psychiatry Psychiatr Epidemiol. 2004;39:502-6. Karam E, Kypri K, Salamoun M. Alcohol use among college students: An international perspective. Curr Opin Psychiatry. 2007;20(3):213-21.

8. Hingson RW, Heeren T, Zakocs RC, Kopstein A, Wechsler H. Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24. J Stud Alcohol. 2002;63:136-44.

9. Hingson R, Heeren T, Winter M, Wechsler H. Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24, changes from 1998 to 2001. Annu Rev Public Health. 2005;26:259-79.

10. Sahraian A, Sharifian M, Omidvar B, Javadpour A. Prevalence of Substance Abuse Among the Medical Students in Southern Iran. Shiraz E-Medical Journal. 2010;11:180-184.

11. Mohammadpoorasl A, Fakhari A, Rostami F, Vahidi R. Predicting the initiation of substance abuse in Iranian adolescents. Addict Behav. 2007;32:3153-9.

12. Hingston RW, Zha W, Weitzman ER. Magnitude of and trends in alcohol-related mortality and morbidity among US. college students ages 18-24, 1998-2005. J Stud Alcohol Drugs. 2009;16:12-20. (Suppl).

13. Makanjuola AB, Daramola TO, Obembe AO. Psychoactive substance use among medical students in a Nigerian university. World Psychiatry. 2007;6:112-114.

14. Ihezue UH. Alcohol and drug taking among medical students at a Nigerian university campus: Part 2. Sociodemographic factors of etiologic significance. Journal of the National Medical Association. 1988;80:191-5.

15. Ihezue UH. Drug abuse among medical students at a Nigerian university: Part 1. Prevalence and pattern of use. Journal of the National Medical Association. 1988;80:81-5.

16. Oyedeji GA. Socio- economic and cultural background of hospitalized children in llesha. Niger J Paediatr. 1985;12:111-117.

17. Substance use and abuse. Obtainable from Available on:www.cqld.ca/livre/en/en/04-druguse.htm.assessed on 10th August 2014.

18. Barrett SP, Meisner JR, Stewart SH. What constitutes prescription drug misuse? problems and pitfalls of current conceptualizations. Curr Drug Abuse Rev. 2008;3:255–62.

19. Garg A, Chavan BS, Singh GP, Bansal E. Patterns of alcohol consumption in medical students. J Indian Med Assoc. 2009;107:151-2.

20. Akpala CO, Bolaji IBO. Drug abuse among secondary school students in Sokoto, Nigeria. Psychopathologie Africaine. 1991;23:197-204.

21. Xinguang C, Xiaolan T, Bonita S, Hanwu L, Weiqing C. Cigarette smoking among medical students in China and modifiable risk factors for smoking prevention. Health Education. 2002;112:333-349.

22. Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Tobacco Information and Prevention Source (TIPS). Tobacco Use in the United States; 2004.

23. US Department of health and human services. The health consequences of smoking: A report of the surgeon general. Atlanta: US department of health and human services, centers for disease control and prevention, national center for chronic disease prevention and health promotion, office on smoking and health; 2004.

24. Cigarette Smoking among Medical Students-American Journal. Available: http://ajph.aphapublications.org/doi/pdf/10.

2105/AJPH.70.2.169 assessed on 13th June 2014.

25. Cola Nut: Uses, side effects, interactions and warnings – Webmd. Available:http://www.webmd.com/vitamins-supplements/ingredientmono-937-cola%2bnut.aspx%3FactiveIngred- Assessed on 12 June 2014.

26. Al-Sabaie AS, Abdul-Rahim FA, Oni GA, Hawari RA. The use of sedative-hypnotic drugs in a university hospital in Saudi Arabia. Annals of Saudi Medicine. 1994;14:379–382.

27. Greenfield SF, Back SE, Lawson K, Brady KT. Substance abuse in women. Psychiatric Clinics of North America. 2010;33:339-355.

28. Cotto JH, Davis E, Dowling GJ, Elcano JC, Stanton AB, Weiss SR. Gender effects on drug use, abuse, and dependence: A special analysis of results

from the National Survey on Drug Use and Health. Gender Medicine. 2010;7:402-413.

29. Rockville MD. Substance Abuse and mental health services administration center for behavioral health statistics and quality. Results from the 2011 national survey on drug use and health: Summary of national findings (HHS Publication No. SMA 12-4713 Nsduh Series H-44).

30. Babalola E, Akinhanmi A, Ogunwale A. Who guards the guards: drug use pattern among medical students in a nigerian university. Ann Med Health Sci Res. 2014;4:397-403.

31. Famuyiwa O, Aina OF, Bankole-Oki, OME. Pidemiology of psychoactive drug use amongst adolescents in metropolitan Lagos, Nigeria. Eur Child Adolesc Psychiatry. 2011;20:351-9.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=660&id=29&aid=6768