

Substance use among secondary school students in an urban setting in Nigeria: prevalence and associated factors

OY Oshodi¹, OF Aina¹, AT Onajole²

¹Department of Psychiatry, College of Medicine of the University of Lagos, Nigeria

²Department of Community Health, College of Medicine of the University of Lagos, Nigeria

Abstract

Objective: Substance use continues to be major risk behaviour among youth, with consequent physical and /or mental health complications. The current study aimed to establish the prevalence and associated factors of substance use among selected secondary school students in Lagos. **Method:** This was a cross-sectional and descriptive study among selected secondary school students in Lagos. Permission was obtained from appropriate school authorities; as well as consent from each participant. The WHO Students' Drug Use Questionnaire which had been previously validated in the country was used to obtain the drug use information from the subjects. Analysis of the data was conducted using Epi-info version 5. **Results:** A total of 402 students were studied - of whom 43.5% (n=175) were males and 56.5% (n=227) females. The mean age was 15.9 years. 83.1% (n=334) lived with their parents, 7.6% (n=31) with their relatives and 7.2% (n=29) with friends. The commonest substances used by the subjects were caffeine (kolanut and coffee), mild analgesics (paracetamol and aspirin) and the antimalarials, most especially chloroquine with lifetime use prevalence rates of 85.7%, 73.8% and 65.7% respectively. Generally, the prevalence rates for lifetime use of the substances varied from 3.8% (n=14) for Heroin and Cocaine to 85.7% (n=344) for psychostimulants; and for current use varying from 2% (n=8) to 56.5% (n= 213). For the so called "gateway drugs": alcohol and tobacco, their lifetime use prevalence rates were 9.2% (n=34) and 5.2% (n=19) while the lifetime use prevalence rate for cannabis was 4.4% (n=16). In terms of gender, the prevalence rates for males were generally higher than for their female counterparts except for antibiotics, analgesics, heroin and cocaine. Reasons for using substances included relief from stress, 43.5% (n=175), self medication to treat illness, 23.8% (n=96), and to stay awake at night to study, 14.9% (n=60). **Conclusion:** Substance use was found to be prevalent among students in this study involving over-the-counter and socially acceptable substances as well as the abuse of illicit substances. It is advocated that there is a need to review existing health educational programmes.

Key words: Substance use; School; Prevalence; Nigeria

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Introduction

The use of alcohol, tobacco and other substances constitutes one of the most important risk-taking behaviour among adolescents and young adults in secondary schools.¹ Despite worldwide concern and education about psychoactive substances, many adolescents have limited awareness of their adverse consequences. Curiosity, social pressure and peer

group influence are reported to be primary reasons for substance misuse.^{2,3} Most often the adolescents and young adult individuals start by experimenting with the so called "gateways drugs" such as tobacco, alcohol and marijuana.^{4,5}

Substance use among adolescents and young adults is a global problem. In an American study, substance use rate increased with age with a prevalence rate of 19.6% between the ages of 18-20 years. Marijuana is the most commonly used substance followed by tobacco.⁶ In the United Kingdom, cross-sectional studies have shown that among students aged 15-16 years, at least 40% had used illicit drugs - mainly cannabis - at some time in their lives. Also among those aged 16-24 years, 38% of males and 5% of females regularly drink twice the

Correspondence:

Dr. O. F. Aina
Dept. of Psychiatry, College of Medicine, University of Lagos
PMB 12003, Lagos, Nigeria
email: ainafran@yahoo.com.

recommended safe level of alcohol.^{7,8}

In Nigeria, earlier studies on students' substance use were largely hospital-based and confined to selected regions of the country.^{9,10} However, in the past 10-15 years, such studies have taken the form of field work employing epidemiology techniques so as to provide more comprehensive information related to types, pattern of use and psycho-social correlates in drug use among secondary school students.^{11,12,13,14} From such studies it has been consistently found that alcohol, hypno-sedatives, tobacco and psychostimulants were the commonly abused substances; with varying prevalence rates found for both overall and specific substance use.^{12,14-19} For instance, in Ilorin, Nigeria, the lifetime prevalence rate of substance use among secondary and university students was found to vary between 1.5% (for tobacco) and 47% (for psychostimulants).^{12,17} In Sokoto, the reported prevalence rates were 10.9%-17.8% among secondary school students²⁰; and 19.5%-50.7% in Port Harcourt.¹⁹ In a more recent study of medical students in a Nigerian university, the overall lifetime prevalence for substance use was 78%; and the most frequently used substances were mild stimulants, alcohol, sedatives and tobacco - in that order.¹⁸ Some authors in the country have raised the possibility of respondents (students) under-reporting their substance use habits, most especially the illicit ones.²¹ For instance, in a study in South-west, Nigeria, it was observed that although cannabis-related psychiatric disorders are common among students in Nigerian psychiatric clinics, substance use studies in the country have reported low use of cannabis amongst secondary school students. This could be due to denial because of legal consequences associated with its use.¹⁴

Lagos, the former capital of Nigeria, remains about the most populous city in the country, and since the work of Anumonye²² over 3 decades ago, changes that could increase the risk of substance use among secondary school students have occurred. These include a surge in population, increased numbers of street youths (mostly secondary school drop outs) popularly known as "area boys" and an attendant high crime rate.²³ However, despite these persistent psychosocial problems in Lagos, there is a paucity of current literature available on substance use among secondary school students in the city.²⁴ This study set out to examine the prevalence and associated risk factors of substance use among selected secondary school students (high risk group) in Lagos.

Methods

Study setting

The study was carried out in Surulere, Lagos. Lagos is the commercial capital of Nigeria, the fastest growing city in Africa and from most recent preliminary census figure, the second most populous city in Nigeria (9,013, 534 people).²⁵ It is a cosmopolitan city with a large number of street urchins known as "area boys" who are mostly secondary school drop-outs. Surulere local government (LG) is in the urban mainland area of Lagos with an area of 27km.² It is a major commercial centre with modern industrial estates. There were 45 approved secondary schools (30 public and 15 privately owned) in the local government.²⁶ The 1991 census put the population of the local government at 550,901.²⁶ (no available LG breakdown of the latest 2006 national census was available at the time of writing the paper)

Permission to carry out the study was obtained from the

Lagos Educational Authority District (LEAD) office as well as from the authority of each of the secondary schools used.

Subjects

A total of ten out of the 45 secondary schools were selected for study using stratified sampling techniques. The schools were first stratified into two groups of public and private schools. Seven were randomly selected from among the public schools and three from the privately owned ones, to make a total of ten schools selected for study. From each of these schools selected for study, simple random sampling was used to select the number of subjects based on their proportions in relation to the whole sample size. The sample size, N was calculated using the Fisher's formula²⁷:

$$N = \frac{Z^2 PQ}{d^2}$$

(Z= a constant which is 1.96 at 95% confidence interval; P=estimated prevalence = 50.7; Q= 100-P and D = absolute precision or sampling error tolerated =5%)

Hence, a minimum sample of 384 was obtained. However, 420 students were eventually included in the study to make up for attrition.

Instrument

The instrument used for the study was the WHO Students' drug use questionnaire.²⁸ This had been validated by Adelekan and Odejide in Nigeria with some minor modifications to make it simpler for local use as well as increase its validity.²⁹ The questionnaire has three sections. The first section relates to socio-demographic items, the second section assesses the pattern of substance use. The substances of enquiry include tobacco, alcohol, cannabis, opiates, cocaine, psycho-stimulants, hallucinogens, organic solvents and hypnosedatives. For each class of drugs, there are four subsections to elicit current and lifetime use of drugs, frequency of use and age of initiation into use. The third section consists of items relating to drug use by members of the respondents' family, friends and his/her knowledge of the harmful effects of drug use.

A pilot study was carried out to pretest the instrument among 20 students in a secondary school - also in Surulere, Lagos - with these 20 students being excluded from the final sample. Following this, necessary minor modifications were made to simplify some of the terms, as well as add a subsection to elicit information on antibiotics and analgesic use, as well as the use of "agbo" (a local concoction prepared in an alcoholic drink base - usually gin or spirit).

Data collection was over a 3 month period, January- April 2005 while the students were at school. The instrument was administered to the students by the first author (OYO) and a research assistant, who were the only ones present while the students responded to the questionnaire. An assurance was given on anonymity and confidentiality. Furthermore, necessary explanation was given to the subjects on the questionnaire, who were instructed not to put down their names, and also told that no mark was to be awarded for their responses. The instrument was self administered to manageable groups on each occasion.

Data analysis was undertaken using Epi-Info version 5.

Table I: Prevalence of substance use

Substance	Past Users		Current Users		Lifetime Users	
	No.	%	No.	%	No.	%
Caffeine (n=377)	110	29.2	213	56.5	323	85.7
Analgesics (n=378)	85	22.5	194	51.3	279	73.8
Antimalaria (n=382)	60	15.7	191	50.0	251	65.7
Antibiotics (n=378)	32	8.5	110	29.1	142	37.6
Hypnosedatives (n=374)	21	5.6	100	26.7	121	32.3
Alcohol (n=368)	1	0.3	33	8.9	34	9.2
Tobacco (n=366)	8	2.2	11	3.0	19	5.2
Glues/Organic Solvents (n=367)	9	2.4	9	2.4	18	4.8
Cannabis (n=367)	4	1.1	12	3.3	16	4.4
Heroin (n=367)	2	0.5	12	3.3	14	3.8
Cocaine (n=367)	7	1.9	7	1.9	14	3.8

Results

Socio-demographic characteristics

A total of 402 students were studied, comprising 175 males (43.5%) and 227 females (56.5%). The mean age was 15.9 years, with a range of 11-20 years. Subjects aged 15-16 years constituted the largest age group in the study i.e. 206 (51.2%). This was followed by those aged 17-20 years, 131 (32.6%) and lastly 11-14 years (n= 65;16.2%). The majority, 310 (77.2%) were in public schools and 92 (22.8%) in privately owned ones.

In terms of religion, 265 (65.9%) were Christians, 136 (33.9%) were Muslims and only 1 (0.2%) was of traditional African religion.

The majority (n=334;83.1%) lived with their parents, with 31 (7.6%) living with their relatives, 29 (7.2%) with friends and the remaining 8 (2.0%) lived in the school hostel.

Prevalence and types of substances used

The overall lifetime prevalence of substance use by the subjects was 87.3%. Current use was reported by 69.2% of all the subjects, with 57.4% engaging in multiple substance use. The commonest substance used was caffeine (kolanut and coffee) with 56.5% and 85.7% of current and lifetime users respectively. This was followed by the mild analgesics (paracetamol and aspirin) with 51.3% and 73.8% of current and lifetime users;

then the antimalarials most especially chloroquine with 50.0% and 65.7% for current and lifetime use respectively. For the hypno-sedatives - most especially Diazepam, Nitrazepam and Bromazepam -the current and lifetime use were 26.7% and 32.3% respectively. The use of cannabis, heroin and cocaine was low. The current and lifetime rates were 3.3% and 4.4% for cannabis; 3.3% and 3.8% for heroin; 1.9% and 3.8% for cocaine (Table I). Higher percentages of males used such substances as alcohol, tobacco and cannabis but this was only slightly higher for caffeine. For substances such as antibiotics and analgesics, the use was greater amongst females. The use of heroin and cocaine was relatively low; but surprisingly, more females admitted to their use. However, the gender difference across the range of substances used was only statistically significant for caffeine ($X^2=5.20$, $df=1$, $p<0.05$), Analgesics ($X^2=5.45$, $df=1$, $p<0.025$) and Antibiotics ($X^2=12.42$, $df=1$, $p<0.005$) (Table II).

An attempt was made to establish the influence of where and/or whom the subjects lived with on their substance use habit by comparing the lifetime users with the non-users. The majority of the subjects, across the range of substances used, lived with their parents. Only a small number lived with their relatives or friends; and fewer still lived in other places such as the school hostels. However, for lifetime use across the range of substances, there were no statistically significant differences

Table II: Gender/ lifetime use of substances

Substance	Male (n=175)		Females (n=227)		Total (n=402)		X^2	df	P-value
	No.	%	No.	%	No.	%			
Alcohol	16	9.1	18	7.9	34	8.5	0.12	1	>0.05
Tobacco	12	6.9	7	3.1	19	4.7	1.32	1	>0.05
Caffeine	141 80.6	182	80.2	323	80.3	5.20	1	<0.05*	
Hypnosedatives	54	30.8	67	29.5	121	30.1	1.40	1	>0.05
Cannabis	9	5.1	7	3.1	16	3.9	0.25	1	>0.05
Heroin	4	2.3	10	4.4	14	3.5	2.57	1	>0.05
Cocaine	5	1.8	9	4.0	14	3.5	1.14	1	>0.05
Analgesics	120 68.6	159	70.0	279	69.4	5.45	1	<0.025*	
Antibiotics	50	28.6	92	40.5	142	35.3	12.42	1	<0.005*

n= Number of respondents for the substance item indicated.

in usage relative to where or with whom the subjects lived. (comparing lifetime users and non-users among subjects living with their parents, $X^2 = 0.36$, $df=1$, $p>0.05$; for those living with relatives, $X^2 = 0.13$, $df=1$, $p>0.05$; living with friends, $X^2 = 1.00$, $df=1$, $p>0.05$ and for those living with others or elsewhere, $X^2 = 1.00$, $df=1$, $p>0.05$ (Table III).

Reasons for use of substances

Relief from stress was the most reported reason (43.5%) for the use of substances. This was followed by self medication to treat illnesses (23.8%), with 14.9% reporting such use to stay awake at night in order to study (Table IV).

Respondents' perceived problems arising from drug use

About three-quarters of the respondents (73.0%) were unaware of problems or complications that could arise from substance use. About 10.5% of them believed poor physical health could complicate substance use. Others perceived complications or problems to include poor finance (7.1%), declined academic performance (3.9%), problems with family relationships (2.9%) with 1.6% mentioning emotional problems (Table V).

Table III: Lifetime substance use / Residence

Residence	LIFETIME USE				
	Yes	No	Total	X^2	df P-value
With Parents	171	160	331	0.36	1 >0.05
With Relatives	14	16	30	0.13	1 >0.05
With Friends	10	15	25	1.00	1 >0.05
Others (eg school hostels)	10	6	16	1.00	1 >0.05

Table IV: Reasons for use of substances

Reason	No.	%
Relief from stress	166	43.5
Self Medication for illness	91	23.8
To keep awake at night to read	57	14.9
No reason given	38	9.9
Religious purpose	15	3.9
Curiosity	9	2.4
For fun	6	1.6
Total	382	100

Table V: Perceived complications arising from substance use

Perceived Problems	No.	%
None	279	73.0
Poor physical health	40	10.5
Poor finance	27	7.1
Declined academic performance	15	3.9
Problem with family relationship	11	2.9
Emotional problems	6	1.6
Others	4	1.0
Total	382	100.0

Discussion

Substance use amongst youth worldwide is a major problem that has elicited concern from different individuals and groups.^{3,30} The average age (15.9 years) in the current study falls within the adolescent period (the high risk age group for substances use) and is similar to data obtained in previous studies in Nigeria.^{13,31,32} The gender distribution with higher number of males in our study is similar to findings from previous work.^{3,12,14}

Caffeine (kolanut and coffee) constituted the most commonly used substance in our study both for current (56.5%) and lifetime (85.7%) use. This is in line with findings from previous studies among secondary school students in Nigeria.^{9,11-14,23} Again, among the general population, the actual prevalence of caffeine use is unknown, but studies have shown that up to 85% of adults consume caffeine in any given year.³³ This figure is about the same with the lifetime use (85.7%) in the current study. Various factors might account for the widespread use of psycho-stimulants (caffeine) by these Nigerian secondary school students. One reason is that caffeine containing substances (kolanut or cola acuminata and coffee) are socially acceptable, cheap and readily available in the country. Secondly, students often use these substances during examination periods so as to keep awake late into the night in order to study. This is made possible because as "mild psychostimulants", caffeine is associated with delay in falling asleep, inability to remain asleep and early morning awakening.³³ This was cited as the third most important (14.9%) reason for substance use in the current study (Table V). Extensive use of caffeine has been associated with "brain fog syndrome" (BFS), a culture bound syndrome among West African students. The BFS usually presents with poor study assimilation, functional somatic complaints involving the head and neck region and visual disturbances.³⁴

The use of mild analgesics (paracetamol and salicylates), antimalarias - especially Chloroquine - and antibiotics followed the psychostimulants, in that order. Although, they are drugs used in clinical practice, our subjects misused them without prescription from appropriate health professionals. In Nigeria, self-medication is a major problem cutting across various ages and social classes. It is a widespread belief among the populace that clinical symptoms such as body pain, headache and /or fever would usually be due to malarial infestation (which is endemic in Nigeria) and/or bacterial infection. Hence, the practice of self medication with these groups of drugs: analgesics, antimalaria and antibiotics which could all be purchased over the counter in the country without a prescription. As a consequence of widespread poverty in the country, self medication is also partly seen as a cost-saving measure to avoid paying for clinical consultation.^{35,36} Thus, as shown in Table IV, self medication/treatment for illness is cited as the second most common reason (23.8%) for substance use. Hypnosedatives which included Diazepam, Nitrazepam and Bromazepam were also commonly used, with 26.7% of subjects currently using the drugs while 32.3% claimed lifetime use and 5.6% had used such drugs in the past. This is much higher (nearly two times) than the prevalence

figures for most previous Nigerian studies.^{14,30} However, our finding is similar to that obtained in a previous study in Oyo state, Nigeria where hypnotosedatives were found to be very common drugs of abuse among housewives and civil servants.¹⁰ Another possible reason why a relatively high percentage of our subjects used hypnotosedatives was to cope with stress; since relief from stress was the most common reason (43.5%) given by our subjects for their substance use (Table IV). However, there are alternative and more appropriate ways to deal with stress, some of which include relaxation techniques, exercise etc.³⁷

The prevalence of alcohol, tobacco and cannabis use in our study was relatively low but similar to findings from previous studies.^{4,5,12-14,30} When compared to previous similar studies in the country^{11,12,16}, cocaine and heroin were used among a relatively higher number of subjects in our study, with 3.8% lifetime use for each of them and 1.9% (cocaine) and 3.3% (heroin) for current use. This could be accounted for by the cosmopolitan, urban nature of the study environment (Lagos, the commercial capital of the country). Some previous Nigerian studies have shown increasing use of heroin and cocaine since the 1980s in major Nigerian cities and towns.^{16,38}

For most of the substances, there were more male users than females, but the gender differences were small and statistically non-significant (Table II). This apparent gender bias in the use of substances is in line with findings from previous studies.^{12,13,23,30,32}

Who the subjects lived with, such as parents and biological relatives, does not seem to affect their substance use behaviour (Table III). Perhaps the increasing westernization and cosmopolitan nature of Lagos might be eroding the African cultural values of "fear" for ones' parents and relatives.

Finally, and also very worrisome is the fact that nearly three quarters (73.0%) of our respondents did not believe any complication could arise from their substance use habit (Table V). Only 27.0% of the subjects believed that poor physical health, poor finance (from the cost of procuring the substances) and declined academic performance are possible complications of substance use.

Conclusion

In this study, the commonest substances used by the students included caffeine, mild analgesics and hypnotosedatives. Some of the reasons advanced for their use included staying awake to read late into the night, self medication for ailments and relief from stress. It is thus advocated that campaigns against substance use should be incorporated in health education curricula of secondary schools with special focus on the adverse consequences of the substances used.

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