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Drug Abuse in Nigerian Adolescents: Patterns and Determinants among Senior Secondary School Students

Abubakar Danraka[1*], Ogundare O Omotolani[2], Chidinma A Mmaduka[3], Ifeoluwa J Kolawole[4]

[1]National Institute for Pharmaceutical Research and Development, Abuja, Nigeria
[2]Pharmaceutical Society of Nigeria – Young Pharmacists Group (PSN-YPG).
[3]Zenith Medical and Kidney Centre, Lagos
[4]Westville Enterprise, Ibadan, Oyo State

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* *Corresponding Author:*

Email address: amdanraka@gmail.com
+234 806 603 8675
https://orcid.org/0000-0002-5147-7517

ABSTRACT

Background: Nigeria has on numerous occasions, been identified as a major node in the supply chain of abused drugs and substances on the African continent. Adolescents living in Nigeria have especially been implicated and the prevalence of drug abuse is both high and on the rise among this population. The susceptibility of adolescents to pleasurable stimuli and peer-influence in habit formation makes them an important age-group in research of this nature that seeks to inform future initiatives towards reducing the prevalence and consequences of drug abuse.

Method: Secondary schools were randomly sampled within the Federal Capital Territory, and students in the senior secondary classes between the ages 13 and 18 were included in the study. A cross-sectional survey was conducted using self-administered questionnaires. The study tool was used to obtain demographic information and to collect data on the knowledge of the participants about drug abuse, their attitude towards drug abuse and its sufferers, and their practices pertaining to drug abuse.

Results: All the study participants had used drugs non-medically, but only 42% reported to have used psychoactive substances at one point or the other. The most commonly used drugs/substances include vitamin C, antibiotics, alcohol, caffeine products, and cigarettes. The participants showed a pattern of drug abuse that statistically correlated with their environmental exposure to drug abuse (characterized by the number and types of drugs they had witnessed being abused).

Conclusion: This study provides basis for more in-depth studies of the local/cultural contexts, socioeconomic and other demographic factors that may significantly contribute to the prevalence of drug abuse and modify its pattern, towards designing data-backed approaches to drug abuse prevention among Nigerian adolescents.

1. Introduction

Drug abuse constitutes a major public health issue and it poses a social burden.[1] It is a significant contributing factor for economic crises, as it results in dwindling productivity - due to its physical and mental effects on the individual user, and aggravates crime.[1,2] The social consequences of drug abuse have been extensively reported over the times in literature. O'Malley and colleagues[3] reported that drug abuse has significantly increased incarceration rates, especially among African American populations, leading to disintegration of family units and other societal ripple effects. The social consequences of drug abuse in Africa have been extensively explored in recent years by Possi[4] who used the Tanzanian youth as a case study.

A nationwide study conducted by the United Nations Office on Drug and Crime[5] in Nigeria reported that one in seven

persons aged 14-65 had used drugs (psychoactive substances) in the past year. Drug abuse remains a significant social issue in Nigeria because of its multifaceted negative impact on the health and general well-being of the individual users. Drug-related behaviours make users more likely to commit crimes and contract infectious diseases like HIV/AIDS.[6] A scoping review conducted by Jatau and colleagues[7] reported alarming findings from various epidemiological studies of drug abuse in Nigeria. Prevalence rates for example, were found to be as high as 20-40% among the youth,[8-10] and 81% among commercial drivers.[11]

Drug abuse develops gradually from experimental substance abuse and can be driven by a number of factors including experimental curiosity, the pressure to fit into a social group or class, suboptimal socioeconomic conditions, for pleasure, to gain confidence, to overcome many other social problems and for physical enhancement.

Drug abuse is not without consequences. The United Nations Office on Drugs and Crime reported in their largescale nationwide study[5] that 20% of Nigerians who had used drugs in the last year were experiencing drug-related disorders. Psychoactive substance misuse is linked to decreased coordination and a loss of self-control, in addition to an increase in drug-related hospitalizations.[12] There are countless long-term effects of persistent use of hazardous, illicit, or legal substances, including violence, criminal propensities, sexual offenses, mental health problems like delirium and dementia, social difficulties, liver diseases, polyneuropathy, and even overdose-related deaths. Psychoactive substances such as plant-based and synthetic stimulants activate the central nervous system by altering monoamine neurotransmission -including the serotonergic, dopaminergic, and cholinergic systems, resulting in restlessness, nervousness, increased aggressiveness, and anxiety that may be beyond the control of the user.[13,14] According to Klantschnig,[15] drug misuse is linked to emotional breakdown, a lack of self-control, and other problems in inner cities like crises, crime, and teenage violence.

Drugs commonly abused in Nigeria include; stimulants, hallucinogens, sedatives, and tranquilizers. One or two unregistered substances, such as a mixture of ethanol and cannabis, lizard dung and lacasera® soft drink, codeine and tramadol, are frequently abused, according to a study of the teenage population in Lafia, Nasarrawa(8°29′30″N; 8°31′00″E).[16] In terms of scope and frequency, use of these unlicensed substances is on the rise. Other psychoactive substances commonly abused in the country are cannabis, codeine, amphetamine/dexamphetamine, heroin, cocaine, diazepam, Reactivan® (fencamfamine), Mandrax®, cough syrups, and tramadol.[7] The scope of psychoactive substances commonly abused have changed over time. Drugs like proplus® (caffeine) and madrax® (methadone and diphenhydramine) which were frequently reported in earlier studies (1970s – early 2000s) have declined, possibly owing to a reduction in their availability in the country.[7]

The composition of the Nigerian population makes rates of drug abuse among youth more alarming. Desa[17] reported that people aged 15 – 24 years constitute up to 60% of the African population. About a third of the Nigerian population is made up of people in the 15 – 34 age range, a bulk (11%) of whom reside in the urban cities of Lagos and Kano states in the south-western and north-western geopolitical regions of the country respectively.[18] Being the major productive population and the most important drivers of economic progression, increasing youth involvement in psychoactive substance use and drug abuse is a major threat to national development and social security.

Adolescents react differently to adults when confronted with motivating situations like peer-influence and pleasurable stimuli. Central nervous activity studies have demonstrated that in adolescents, learning and habit formation is responsive to reward in a manner that is significantly higher than in adults. This phenomenon explains the heightened vulnerability of adolescents to drug abuse and other mental and affective disorders.[19] Based on the concept of age-related vulnerability to drug abuse, our study focuses on patterns in the attitudes and practices of adolescents regarding drug abuse among adolescents, using secondary school students within the Federal Capital Territory, Abuja as a case study.

Despite the alarming nature of reports that emanate from epidemiological studies of substance abuse patterns in adolescents, there remains a dearth of data on the determinants of the prevalence and pattern of drug use and abuse in this demographic as they concern socioeconomic status, local/cultural peculiarities and other factors. Understanding the roles these variables play in experimental and chronic psychoactive substance use is key to formulating a plan to curb drug abuse. This research is hence designed with the ultimate aim of understanding the patterns and determinants of drug abuse among adolescents in senior secondary schools within the Federal Capital Territory. Insights gained into emergent patterns are aimed at forming the bases for informed calls to action targeted at stakeholders in the mitigation of drug abuse and

its societal impact especially in the population of interest.

2. Method

2.1 Study Setting and Sampling

Statistics published by the Federal Ministry of Education[20] indicate that there are 100 senior secondary schools within the Federal Capital Territory. The study was therefore conducted among students of ten randomly sampled public and private secondary schools within four area councils of the Federal Capital Territory Abuja (9°4'14"N; 7°28'3"E); Abuja Municipal Area Council, Bwari, Gwagwalada and Kwali. A pre-tested cross-sectional self-administered survey tool designed to obtain demographic data (including age, gender, class, school department, religion, residence, and ethnicity), as well as variables that characterize the awareness, beliefs, and practice of respondents about drug abuse was administered to all the students, with the aim of obtaining data from at least 10% of the sample population, in line with recommendations of the World Health Organization on drug abuse study sampling.[21] An online version of the questionnaire was initially administered to a subset of the students population, in order to pre-test it for validity and reliability, which were assessed using factor analysis and Cronbach's alpha elucidation respectively.

The survey tool was employed to obtain data on the prevalence and pattern of drug abuse, as well as determinants of experimental and chronic drug abuse among the adolescent students at senior secondary schools. Hence, the study population comprised all students in senior classes of the selected secondary schools within 13 and 18 years of age. Students of the junior secondary sections of the schools were excluded irrespective of their age, students in the senior secondary classes who were younger than 13 and older than 18 were also excluded from the study.

2.2 Data collection and Analysis

Data was collected using the survey tool adapted from the standardized WHO student drug-use questionnaire, the reliability and validity of which has long been tested in Nigerian students.[22] The tool was adjusted to suit the target population and to reflect what is obtainable in the study setting, local names of commonly abused drugs and psychoactive substances were adopted. The survey was conducted as a self-administered questionnaire. A copy of the study tool can be found in appendix 1.

The data obtained from the paper-questionnaires was entered manually into a central excel worksheet where it was stored, cleaned, visualized, and analysed using various tools including Microsoft excel functionalities, IBM Statistical Package for Social Sciences (SPSS) version 25, and GraphPad Prism. Descriptive analyses were done, as well as inferential statistical tests to observe relationships between certain demographic variables and drug abuse knowledge, attitude, and practice patterns. Regression analyses were adopted to establish correlational relationships between the demographic data obtained and the continuous variables that have been used to quantify the awareness, beliefs, and practices of the study participants regarding drug abuse. These variables include Number of abused drugs known, number of abuse drugs witnessed being abused first-hand, number of drugs abused, length and frequency of abuse. In addition, categorical variables including sources of information about drug abuse, sources of drugs and psychoactive substances known, whether or not the participants would like to share classes with, study with, and befriend known drug abusers among others were compared against the various measures of their awareness and practice. A P-value less than 0.05 was accepted as the point of statistical significance for the tests conducted and, on that basis, null and alternate hypotheses formulated were assessed.

2.3 Ethical Considerations

Ethical approval was obtained for the study from the FCT Health Research Ethics Committee, Abuja (approval number: FHREC/2021/01/150/14-12-21). Subject to ethical approval, consent was obtained from authorities of the secondary schools. Individual study respondents also received adequate information on the study, its significance, the roles they play, how the data they supply will be handled, and their informed consent sought prior to the administration of the survey. Confidential and personal information of respondents was excluded from the survey tool and data was handled ethically throughout the study.

3. Results

The results obtained in the study are presented below. Descriptive analyses enabled the dataset to be accurately described in figures in order to provide context for the correlational and inferential analyses conducted. The first section presents the basic demographic data including the distribution of gender, school class, department, religion, geopolitical region of origin, and age, all of which are illustrated in Table 1. The knowledge of the study participants was assessed in a series of questions, the responses to which are presented in table 2. Similarly, tables

2 and 3 illustrate the attitude and beliefs of the study participants towards drug abuse and drug abusers. The self-reported practices of the respondents regarding drug abuse are also presented in table 5.

Table 1: Table showing the results of basic demographic variables within the study sample.

Variable	Parameter	Percentage {n = 149}
Gender	Male	43%
	Female	57%
Class	SS1	15.4%
	SS2	44.8%
	SS3	39.9%
Students' Subject Classes	Science	62.4%
	Commerce	6.0%
	Arts and Humanities	31.5%
Religion	Atheism and Non-theism	0.67%
	Christianity	87.25%
	Islam	12.08%
Geopolitical region of origin	**North Central:** *Tarok, Igala, Idoma, Bassa, Gbagi, Ebira, Tiv, Kabba, Eggon, Nupe, Kuteb, Koro, Mwaghavul, Kogi*	28%
	North-East: *Chibok, Tangale, Tera, Bura, Shuwa*	4%
	North-West: *Hausa / Fulani*	10%
	South-East: *Igbo*	24%
	South-South: *Benin, Yala, Isoko, Etsako, Cross-river, Edo, Ikwerre, Urhobo, Efik, Akoko-edo, Kalabari, Yala*	12%
	South-West: *Yoruba*	21%
Age	Average Age	15 years

Table 2: Knowledge of adolescent senior secondary school students about Drug Abuse

Variable	Frequency (%)
"*which of the following drugs or substances do you think people use non-medically?"*	
Cocaine	52.38%
Weed	**56.46%**
Colorado	20.41%
Arizona	28.57%
Alcohol	48.30%
Heroine	38.78%
Cigarette	53.74%
Coffee/Caffeine	36.05%
Antibiotics	18.37%
Morphine	13.61%
Tobacco	49.66%
Amphetamine	14.29%
LSD	8.84%
PCM/Painkillers	5.44%
Codeine/Cough syrup	2.72%
Vitamin C	1.36%

"*How did you learn about the drugs or substances that people use non-medically?*"	
Television, Radio, and Signposts	39.19%
Patent Stores and Pharmacies	10.81%
Lectures and Seminars	**40.54%**
Parents and Family	31.76%
Friends	26.35%
Public	23.65%
Social Media	3.38%

"Which of the following drugs have you witnessed being used non-medically?"	
Cocaine	28.38%
Weed	47.30%
Colorado	10.14%
Arizona	14.86%
Alcohol	55.41%
Heroine	14.86%
Cigarette	**67.57%**
Coffee/Caffeine	29.73%
Antibiotics	18.92%
Morphine	3.38%
Tobacco	28.38%
Amphetamine	4.05%
LSD	1.35%
PCM/Painkillers	4.73%
Codeine/Cough syrup	2.70%
Vitamin C	1.35%
Nail Polish	0.68%

"*Why do you think people abuse drugs / use drugs non-medically?*"	
Due to Family and peer pressure	53.69%
To improve their self esteem	36.91%
The wide availability of psychoactive substances	7.38%
Depression	**69.13%**
A desire to fit in	39.60%

"*Which of these do you think drug abuse causes?*"	
Behavioural change	47.65%
Health risk and disabilities	**71.81%**
Mental effects	62.42%
Dependence and addiction	43.62%
Unsafe sexual practices	21.48%
Death	2.01%

"*What do you think can be done to help people that abuse drugs?*"	
Rehabilitation	**79.05%**
Hospitalization	18.24%
Herbal / Spiritual Interventions	12.16%
Public awareness and Sensitization	4.73%

Table 3: Table illustrating attitude of the study respondents towards rehabilitated drug abusers.

Question	Yes	No
Would you make friends with a rehabilitated former drug abuse addict / a person whose drug abuse or addiction has been treated?	74.50%	25.50%
Would you like to share class seats with a rehabilitated former drug abuse addict?	66.89%	33.11%
Would you study with a rehabilitated former drug abuse addict?	70.47%	29.53%

Table 4: Table showing the attitude of study participants towards drug abuse.

Variable	Frequency (%)
"*Where do you think drug addicts should stay?*"	
In Rehabilitation Centres	**75.84%**
With their family	14.77%
In Hospitals	10.74%
On the Streets	4.70%
"*What do you think should be done to help drug addicts and tackle drug abuse generally?*"	
Health Education	**85.91%**
Hospitalization	46.31%
Alternative medicine	14.77%
Provide them with more funds	11.41%

Table 5: Drug Abuse Practices among adolescent senior secondary school students

Variable	Frequency (%)
"*Which of the following drugs have you ever used, or do you often use non-medically?"*	
Cocaine	3.36%
Marijuana (Weed, Colorado, Arizona)	10.44%
Alcohol	12.08%
Heroine	2.68%
Cigarette	12.08%
Coffee/Caffeine	32.21%
Antibiotics	16.78%
Morphine	1.34%
Steroids	2.01%
Amphetamine	0.67%
LSD	1.34%
Vitamin C	**46.98%**
Pain medications	10.07%
Cough syrups	1.34%
Antihistamines and Sleeping pills	1.34%
"*If you currently use any of the drugs/substances above, for how long have you been using them?"*	
0-6 months	**42.11%**
6-12 months	22.37%
1-5 years	11.84%
Over 5 years	22.37%
"*If you currently use any of the drugs/substances above, how often do you use them?"*	
Rarely	**58.54%**
Sometimes (every month)	19.51%
Often (every week)	14.63%
Very often (every day or every two-three days)	7.32%
"*If you have used any of the drugs/substances in D1 above, where do you obtain them from?"*	
Pharmacies and Patent Stores	**47.50%**
Hospitals	7.50%
Friends and Family	40.00%
Dealers/Distributors	7.50%

"*If you have used any of the drugs/substances in D1 above non-medically, for what reasons do/did you use them?"*	
To stay awake	**29.31%**
To get high	10.34%
To sleep better	12.07%
To boost confidence	24.14%
To reduce stress	15.52%
To cope with life	10.34%
To get better grades	5.17%
To satisfy cravings and urges	6.90%
To relieve pain	12.07%
For fun / for the pleasant taste	6.90%

"*If you currently use any of the drugs/substances in D1 above non-medically, did you recently increase the amount you regularly take?"*	
Yes	35.00%
No	**65.00%**
"*If yes, for what reasons did you increase the amount you regularly take?"*	
The normal amount is not as effective anymore	**66.67%**
I have access to high amounts of the drug	28.57%

4. Discussion

A total of 149 adolescent senior secondary school students participated in the study. Of the study participants, a slight majority were female (57%) and the average age of the participants was approximately 15 (14.9). More than half (62.4%) of the participants were students of the science department, while arts/humanities and commerce students made up 31.5% and 6% of the sample respectively. An overwhelming majority (87.25%) of the study participants were Christians while only 12.08% were Muslims and only one student reported being atheist/nontheist. North-Central ethnicities (including up to 14 distinct ethnicities) were most represented in the study with 28%, followed by the South-Eastern people of Igbo extraction that made up 24% of the dataset, and Yoruba South-Westerners (21%). Most of the respondents (54%) were resident in the Gwagwalada Area Council, and the Lugbe, Kwali, Apo, and Asokoro areas of the FCT were fairly represented as well, each making up 4.03% of the respondents' residence area.

Averagely, each respondent could identify at least 4 of the 16 presented options as drugs that are commonly abused and used for non-medical reasons. The most popular drug was weed (also commonly referred to as marijuana or *igbo* among other names), which was identified by 56.5% of the respondents. Other well-known ones are cigarette (53.7%), tobacco (49.7%), and alcohol (48.3%). Over 40% of the study respondents report that they learn about drug abuse and substances that can be abused from lectures, workshops, and seminars. Other common sources of information reported were mass and print media such as television, radio, signposts (39%), from parents and family (32%), and friends (26.4%). The study participants had witnessed an average of at least three drug/substance being abused, with cigarette abuse being the most common (67.6%). Other commonly abused drugs witnessed by the respondents include alcohol (55.4%) and weed (47.3%).

Over two-thirds of the respondents (69%) identified depression as a reason for drug abuse. In addition, more than half (53.7%) identified family and peer pressure as one of the causes of drug abuse. Other identified causes were self-esteem issues (37%), a desire to fit in (39.6%), availability of psychoactive drugs and substances (7.4%), curiosity, lack of supervision, illiteracy and inadequate education, and for recreation/pleasure. The study participants also mostly identified health risks and disabilities (71.8%) as one of the consequences of drug abuse. Majority (62.42%) agreed that drug abuse leads to mental effects.

Most of the participants ascertained that they would be open to befriend (74.5%), share class seats with (67%), and study with (70.5%) rehabilitated drug abusers/addicts. The respondents also majorly posited that drug addicts should receive attention in rehabilitation centres (75.8%), rather than with their family (15%), in hospitals (10.7%), or on the streets (4.7%). They also majorly identified health education as a key strategy in tackling drug abuse. The

phrase "prescription drug abuse" has also been used in literature to refer to the non-medical use of prescription medications used normally in treating pain, infections, anxiety, and other clinical disorders.[23] Similarly, Girotto and colleagues[24] used "psychoactive substance abuse" to refer to the non-medical and recreational use of psychotropic medications and substances, including amphetamines, alcohol, marijuana, and cocaine among others.

In this study, a broad definition of drug abuse to include both the non-medical use of non-psychotropic prescription medications (vitamin C, antibiotics, steroids, pain medications, and cough syrups), and the recreational use of psychoactive substances (cocaine, marijuana, alcohol, heroine, cigarette, caffeine, morphine, amphetamine, LSD, and antihistamines/sleeping pills) was adopted. Vitamin C (ascorbic acid) unsurprisingly emerged as the most abused drug, with about 47% of the participants reporting that they use it non-medically. Perhaps more alarmingly, Coffee/Caffeine products (32%), antibiotics (16.8%), alcohol (12.1%), and cigarette (12.1%) were also commonly abused by the study participants. While all study participants had used one or more drugs/substances non-medically, the prevalence of psychoactive substance abuse was 42%. Our findings are in partial agreement with Florence and colleagues[25] who reported Coffee, Alcohol, cigarette, tobacco, Marijuana (Weed), and Cocaine as the most commonly abused drugs among university students in Benin City, Nigeria. Osa-Edoh and Egbochukwu[26] also identified alcohol, cigarettes, and kola nut as commonly abused substances among secondary school students in Edo State, Nigeria.

Almost half of the students (42.11%) who currently use drugs non-medically had been doing so for about six months or less when the study was conducted, and about 59% only use the drugs rarely (defined as once in several months). Most of the study respondents obtain drugs/substances of abuse either from pharmacies and patent stores (47.5%) or from friends and family (40%). The common reasons for which the participants used drugs non-medically include to stay awake (29%), to boost their confidence (24%), and to reduce stress (15%). About two-thirds (65%) of the participants had not increased the number of drugs they took, while 66.67% of those who had increased the number, stated that they did so due to tolerance.

Inferential analysis showed a highly statistically significant direct correlation ($\beta = 0.49$; $p = 2.3348E\text{-}10$) between the drugs and substances the respondents reported to have witnessed being abused, and the ones they could identify as commonly abused drugs and substances. This makes a case for social exposure to drug abuse being a contributor to knowledge about drug abuse. Similarly, witnessing drugs being abused correlated positively with abusing drugs ($\beta = 0.218$; $p = 0.02$). While this does not imply causation, it reifies the role of environmental factors in drug abuse patterns. The validity of this correlation is better affirmed when we put in context, the percentage of participants who reported family and friends as sources of abused drugs and substances (40%), second only to pharmacies and patent stores (47.5%). This corroborates familial environmental factors of drug abuse that have long been identified and reported in literature.[27]

A study also revealed that Community Pharmacists within the Abuja Municipal Area Council of the FCT often come across drug abuse victims in the community setting and play a role in counselling youths to reduce the menace of drug abuse in the society.[28]

5. Conclusion

The study showed an alarmingly high prevalence of both non-medical prescription medication use and psychoactive substance abuse among secondary school students in the Federal Capital Territory. Our findings are in conformity with drug abuse prevalence rates reported by the United Nations, and patterns identified in two studies conducted among adolescents in Benin, Edo State as stated earlier. This study potentially identifies an important mechanism through which social factors, especially pertaining environmental exposure to drug abuse can contribute to the prevalence of drug abuse. This stimulates policy debates over the direction of future drug abuse prevention initiatives, especially those that adopt a social marketing method. Importantly, statistically significant correlation could not be established between socioeconomic and other demographic factors and patterns of drug abuse. This may be justification for further research conducted over a wider geographical range of the target age-group within the country.

Conflict of Interest: There is none declared.

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