Prevalence of Substance Abuse among Secondary School Students in Lagos State of Nigeria

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Abstract

Background: Substance abuse among Nigerian in-school youth has been on the rise in recent times with attendant physical and mental health consequences. This study aimed at determining the awareness and knowledge of, attitude to, and prevalence of substance abuse among senior secondary school students in Lagos State of Nigeria. Methods: This was a descriptive cross-sectional study conducted among senior secondary school students in Lagos using the multistage sampling technique. A pre-tested structured, self-administered questionnaire was used to collect data which was analyzed using Statistical Package for Social Science (SPSS) version 21. The level of significance for statistical analysis was set at p ≤0.05 at a 95% Confidence Interval. Pearson's Chi square and Fisher's exact tests were used to determine the association between categorical variables. Results: A total of 422 students participated in the study with a mean age of 16.30 ± 1.72 years. Three hundred and seventy-eight respondents (89.6%) indicated that they were aware of

substance abuse with television being the commonest first source of information, 134 (35.5%). The overall knowledge of students on substance abuse was good (66.9%) and the attitude to substance abuse was positive among 233 respondents (61.6%). The overall prevalence of substance abuse was 8.3% and the most commonly used substances were opiates such as codeine-containing cough syrup and tramadol (11.6%), followed by tranquilizers (9%), hallucinogens (5.6%) and amphetamines (5.3%) with the influencers of use being mainly family friends (31.4%), parents (22.9%) and peers (22.9%). Conclusion: The study revealed that despite overall good knowledge and positive attitudes, substance abuse remained a practice in this group. There is a need to implement school-wide positive behavioral programs to reduce prevalence and supply reduction interventions to reduce the availability of these substances. There is also a need for further studies to explore the other drivers and facilitators of this phenomenon.

Keywords: Senior secondary school, students, knowledge, attitude, prevalence, substance abuse, Nigeria

Introduction

Substance abuse is the hazardous use of psychoactive substances, including alcohol and illicit drugs in a manner that is unrelated to acceptable medical practice. (Degenhardt et al. 2019) It sometimes undermines moral restraints and encourages deviant or criminal behavior, especially among youth (Chilo, 2018). Obarisiagbon and Ajayi found out that substance abuse was an important determinant of risky sexual behavior among youths in Benin City, Nigeria (Obarisiagbon and Ajayi, 2019) Researchers in Lagos, Nigeria also showed that Nigerian youths have limited knowledge of the adverse effects of substance abuse and widely abused tobacco, alcohol, opiates, cannabis, amphetamines and benzodiazepines (Odukoya et al. 2018). Many of these youths eventually end up abusing more addictive substances (Oshodi et al. 2019).

The 2010 World Drug Report states that some 200 million people or 5 percent of the world's population aged 15 – 64 had abused a substance at least once in the prior year (UNODC 2010). Ediomo-Ubong et al (2017) concluded that there was a need to urgently improve substance abuse policy in developing countries because health problems associated with substance abuse result in poorer outcomes. In addition, there is evidence of an increase in the prevalence of the use of cannabis and non-medical prescription opioids especially cough syrups having some codeine or dextromethorphan as ingredients among Nigerian youth (Odukoya et al. 2018, Oshodi et al. 2019). Substance abuse among youth generally results in poor academic performance, anti-social behaviors, and mental illness (Degenhardt et al. 2013). In addition, surveys

conducted in psychiatric hospitals in western Nigeria indicate that most of the patients who present with schizophrenia, anxiety disorders, and other mental health problems had a history of drug abuse (Degenhardt et al. 2013, Ali et al.2019, Unuogu et al. 2017).

Eti Osa LGA is in an urban area of Lagos State with upper-scale neighborhoods merging with urban slums, many of which are located near beaches and marshy areas. The population of Eti Osa LGA is estimated at 308,767 inhabitants (About Lagos 2021). In some cases, open air bars in shanties on these beaches serve food and drinks, but also sell substances of abuse and are sometimes the base for commercial sex work. The free availability of substances of abuse in these fun spots lining the beaches and the anonymity associated with beach life may have a link with substance abuse, especially among school-age youth. Some international studies have shown that in-school youths have identical levels of exposure to substance abuse with their out-of-school peers (Hawkins et al, 2016, Smyth and Saulnier 2015, Hahn et al. 2019). Our study therefore sought to assess the knowledge of, attitude to, and prevalence of substance abuse among secondary school students in Eti-Osa LGA in Lagos Nigeria.

1.   **Methodology**
a.   *Description of Study Area*

Lagos State is located in the south-western geopolitical zone and is the most populous city in Nigeria. It is a metropolitan area, which originated on the islands and currently is divided for administrative purposes into twenty (20) Local Government Areas (LGA) (Lagos State Local Government Areas 2023). This study was conducted in Eti-Osa LGA of Lagos State which comprises residential and commercial areas and twelve public secondary schools owned and managed by the state government (Lagos Bureau of Statistics 2020).

b.   *Study Design*

This was a descriptive cross-sectional study.

c.   *Study Population*

The study population was Senior Secondary (SS) Students in SS1 to SS3 of Secondary Schools in Eti-Osa LGA.

i.Inclusion Criteria

2.   Students between the ages 10-19 years from SS1- SS3.
3.   Students who had been registered in the school for a least 6 months prior to the commencement of the study.

a.   *Sample Size Determination*

The minimum sample size was determined using the Cochran formula ($n=z^2 \times p \times q/d^2$), with a standard normal deviate z at a 95% confidence interval of 1.96, prevalence p from a pre-study estimate of the proportion of illicit drug use in secondary schools = 50.7% = 0.5070[4] and the error of precision set at ± 5% (0.05). q is the estimated proportion of subjects without attribute = 1-p = 0.493

Therefore, the calculated minimum sample size was n = 384

The possibility of attrition during the study made it imperative to add an extra 10%, therefore, increasing the questionnaire size to 422.

b.   *Sampling Technique*

A multistage sampling technique was used to select respondents for this study.

Stage 1 (Selection of schools): A simple random sampling technique via balloting was used to select a total of four Senior Secondary Schools out of the registered public secondary schools in Eti-Osa Local Government Area using the list of schools obtained from the Local Government Education Authority. Namely, Kuramo Senior Secondary School with 504 Students, Gbara Community Secondary School with 474 Students, Ilasan Senior Secondary School students, and finally Victoria Island Senior Secondary School with 388 Students.

Stage 2 (Number of Respondents): The population of the Senior Secondary School Students in each school was obtained from the school authorities. A proportionate sampling technique was used to recruit the number of respondents across the schools.

Stage 3 (Selection of Respondents): The respondents were then recruited by systematic sampling using a sampling interval of 4 till the desired sample size was achieved.

The sampling interval was calculated using the formula: K (sampling interval) = N/n

Where N (Total Population of Senior Secondary School students in the four schools) = 1815

n (Desired sample size) = 422.
K = 1815/422 = 4. Therefore K = 4

c.   *Method of Data Collection*

Self-administered questionnaires were used to collect data. The structured questionnaire was adapted from studies that used the WHO student drug use questionnaire that had been previously validated in Nigeria and slightly modified for simpler local use (Odukoya et al. 2018). The questionnaire had four sections: Socio-demographic information of the

respondents, including age, sex and family size, knowledge of substance abuse, attitude to substance abuse and commonly abused substances with the influencers. Copies of the questionnaire can be obtained on request from the corresponding author.

Pretesting of Questionnaire

The questionnaire was pre-tested on forty-two Senior Secondary School students from Comprehensive High School Isolo in Oshodi-Isolo LGA which has a similar setting to the study population., after which the questionnaires were modified.

d. *Research Assistants*

Two research assistants with minimum qualification of Senior Secondary School Certificate were trained four hours daily for 2 days on the objectives of the study and the most scientific methods of distributing the questionnaires.

e. **Data Analysis**

A standard scoring system was used to assess both the knowledge of substance abuse and attitude toward illicit drugs (Geramian et al. 2014). The knowledge of substances that could be abused or were currently being abused was elicited by using 12 questions. Each correct response was allocated a score of 1 and an incorrect response or not sure was scored 0. Any score equal to the mean and above the mean or average score for the group was graded 'Good' and the score below the mean was graded as 'Poor'.

Attitude to substance abuse was assessed using 10 questions on a 3-point Likert scale. The attitudinal scores were two points for agreement, one point for disagreement, and zero points for respondents who were not sure or gave no response. The students who got cumulative scores from 18 to 36 were considered as having positive attitudes and those with less than 18 were considered as having negative attitudes.

Data was analyzed using SPSS Version 21 with results presented in tables showing frequencies and proportions. The Chi-square and Fisher's exact tests were used to test the associations between categorical variables, while the level of significance was set at ($p < 0.05$). Fisher's Exact Test was used to determine whether there was a significant association between two categorical variables in some cases where the sample sizes were small.

f. **Ethical Considerations**

Ethical approval was obtained from the Health Research and Ethics Committee of the Lagos University Teaching Hospital with the assigned number ADM/DCST/HREC/APP/2968. Written approval to conduct the

study in the schools was also obtained from the office of the Head of Public Service and the Ministry of Education. Written consent for participation was obtained from at least one parent or guardian of students below 18 years of age by giving out a simplified and adapted version of the Research Ethics protocol. In addition, written consent. was obtained from students who were above 18 years of age. Oral consent was obtained from all participants regardless of the age after the provision of detailed information about the objectives, merits, and risks associated with the study with the assurance that findings would be treated with confidentiality and used only for research purposes. There were no names on the questionnaire and data obtained were de-identified with the Principal Investigator (PI) being the only one who had access to codes of other personal data identifiers.

Results

Table 1. Socio-demographic characteristics of respondents

Variable	Frequency (n=422)	Percentage (%)
Age group (years)		
10 – 14	48	11.4
15 – 19	374	88.6
Mean ± SD	16.30 ± 1.72	
Sex		
Male	205	48.6
Female	217	51.4
Highest level of Education of the father		
Primary	43	10.2
Secondary	203	41.8
Tertiary	131	31.0
None	45	10.7
Highest level of Education of the mother		
Primary	63	14.9
Secondary	231	57.1
Tertiary	80	19.0
None	38	9.0

Table 1 represents the socio-demographic characteristics of the respondents. The highest number of respondents, 374 (88.6%) were between 15 – 19 years of age. The mean age was 16.30 ± 1.72 years with an age range of 10 to 19 years. The highest level of education of both parents was secondary school (57.1%).

Table 2: Awareness of substance abuse and the first source of awareness

Variable	Frequency	Percentage
Awareness of Substance abuse	**(n=422)**	
Yes	378	89.6
No	44	10.4
First source of awareness	**(n-378)**	**Percentage**
Internet	25	6.6
Health facility	10	2.6
Health workers/health outreaches	16	4.2
Newspapers	51	13.5
Radio	52	13.8
School	86	22.8
Telephone messages	4	1.1
Television	134	35.4

Table 2 presents the number of respondents who had heard or seen messages on illicit drugs. The majority of the respondents 378 (89.6%) stated that they had heard or seen messages on illicit drugs. A greater proportion of these respondents 134 (35.4%) stated that their first source of awareness of substance abuse was the television. Awareness through school-based curriculums of programs ranked second with 86 students (22.8%) stating that school was their first source of information. However, the lowest number of the respondents 4 (1.1%) stated that their first source of information on illicit drugs was via telephone messages.

Table 3. Respondent's overall knowledge and attitudinal score on substance abuse

Variable	Frequency (n=378)	Percentage (%)
Knowledge		
Good	253	66.9
Poor	125	33.1
Attitude		
Positive	233	61.6
Negative	145	38.4
Total	**378**	**100**

The knowledge score of substance abuse was good among 253 respondents (66.9%) and the attitudinal score was positive among 233 respondents (61.6%).

Table 4. Substances abused by respondents and influencers of the action

Variable	Frequency	Percentage (%)
Tranquilizers (n =35)		
Peers	8	22.9
Parents	8	22.9
Family friends	11	31.4
Community	2	5.7
Non response	6	17.1
Amphetamines like stimulants (Methamphetamines, ecstasy: n =20)		
Peers	1	5.0
Parents	5	25.0
Family friends	5	25.0
Community	4	20.0
Others e.g pharmacy	2	10.0
Non response	3	15.0
Hallucinogens (Lysergic Acid Diethylamide, Mescaline: n = 21)		
Peers	3	14.3
Parents	7	33.3
Family friends	3	14.3
Community	4	19.0
Non response	4	19.0
Opiates (codeine-containing cough syrup, tramadol: n = 44)		
Peers	6	13.6
Parents	6	13.6
Family friends	8	18.2
Community	15	34.1
Non response	9	20.5

Table 4 outlines the substances abused by the respondents and the influencers of such behaviors. Opiates such as codeine-containing cough syrup and tramadol were the substances most frequently abused by the respondents. The influence of the community ranked highest in the abuse of opiates (34.1%) compared to other substances.

Table 5. Association between knowledge scores and substance abuse

Variable	Substance abuse		Total n=378	X^2	df	p-value Fishers exact (F)
	Yes n=35	No n=343				
Knowledge (tranquilizers)						
Good	21 (60.0%)	322 (67.6%)	253	0.837	1	0.231
Poor	14 (40.0%)	111 (32.4%)	125			
Knowledge (amphetamines)						
Good	10(50.0%)	243(67.9%)	253	2.735	1	0.082
Poor	10(50.0%)	115(32.1%)	125			

Knowledge (hallucinogens)						
Good	10(47.6%)	243(68.1%)	253	3.747	1	0.048
Poor	11(52.4%)	114(31.9%)	125			
Knowledge (opiates)						
Good	27(61.4%)	226(67.7%)	253	0.697	1	0.251
Poor	17(38.6%)	108(32.3%)	125			

Table 5 shows the association between the knowledge score and substance use. There was no statistically significant association between the knowledge score of the respondents and the use of tranquilizers, amphetamines, and opiates. However, there was a statistically significant association between the use of hallucinogens and the knowledge score of the respondents (p= .048).

Discussion

The public health burden of substance abuse among Nigerian youth is of concern, especially with the changing pattern and demographics of users, associated crime, and the possibility of reduced productivity (Geramian et al. 2014). The mean age (16.3 years) in our study fell within adolescence (10-19 years) which is a high-risk period for substance abuse observed in a previous study conducted in Lagos (Odukoya et al. 2018). Oladele and Olufunmilayo in a study published in 2013 reported a mean age of 21 years (Oladele and Olufunmilayo 2013). The marked difference in age reported in this study may be related to anecdotal reports of easier access to substances of abuse and increased social and psychological pressure on Nigerian youth over the past decade.

In this study, the majority of respondents (89.6%) stated that they had seen and heard messages on the dangers of substance abuse, out of which 35.4% reported their major source of information being the television followed by 22.8% alluding to the fact that they got their first information on substance abuse from school. This finding is consistent with data reported from an Indian study (Heydarabadi et al. 2014). Interventions that are designed to make use of this opportunity presented by this access to television by the students should be considered. In addition, school-wide interventions should be explored bearing in mind the large percentage of students who got their first information from these institutions.

Furthermore, this study revealed that the majority of respondents (66.9%) had good knowledge of substance abuse which agrees with the results of a similar study conducted in Kenya (Carolyne 2018). In addition, the overall

attitude of the respondents toward illicit drugs was good, with close to two-thirds of the respondents (61.6%) having a positive attitude toward substance abuse. The good knowledge may have had some influence on the attitude of the participants in this study. This finding agrees with data obtained in a study conducted in the Imo State of Nigeria (Nwosu and Ezejindu 2017) and another conducted in Minna, Nigeria (Mohammed et al. 2021).

Generally, the prevalence of substance abuse was low among the respondents with 35 out of the 422 respondents reporting that they engaged in substance abuse (8.3%). This is lower than the figure of 20.9% which was reported in a previous Nigerian survey (Gobir et al 2017). In addition, although various substances had been abused by the students; few of them (9.3%) stated they had ever abused tranquilizers (sedatives and hypnotics) and 5.3%, 5.6%, and 11.6% reported having abused amphetamines, hallucinogens, and opiates respectively. The overall most frequently abused substances were opiates (codeine-containing cough syrup and tramadol) which is similar to the findings of a study conducted in Imo, Nigeria (Nwosu and Ezejindu 2017). Findings from this study were also identical to a U.S. report where the prevalence of abuse of codeine, hallucinogens, and ecstasy was put as 11.0%, 6.5%, and 5.0% respectively (Agnich et al. 2013).

The high prevalence of abuse of codeine-containing cough syrup and tramadol can be linked to the reports of wide availability and large-scale illegal sales in local drug markets and pharmacies in Nigeria. Peer influence could also be a major factor as most of the respondents stated that their abuse experience was largely influenced by peers. It should be noted that for tranquilizers, an equal number of the respondents 8 (22.9%) reported that parental and peer influence contributed to the onset of abuse of these substances. This finding is important bearing in mind the high rates of misuse of commonly prescribed tranquilizers reported among older persons experiencing insomnia (McMillan et al. 2013). Thirteen of the respondents in this study (37.1%) stated that they abused these substances both individually and in groups. Likewise, a large proportion of respondents who abused substances (33.3%) stated that their use of hallucinogens (Lysergic Acid Diethylamide, Mescaline) was influenced by their parents. This is similar to the outcome of a study conducted in the United States which showed a relationship between parental use of hallucinogens and substance abuse among youth (Kann et al. 2016). This implies that the presence of a family member involved in substance abuse has some bearing on the initiation of substance abuse by the student. This observation also relates to the involvement of family and friends in influencing the substance abuse behavior of the respondents. A total of 11 students (31.4%) admitted that family friends were the major influencers of their abuse of tranquilizers and 8 (18.2%) admitted that their family friends influenced their use of opiates. This also

agrees with the observed trend of misuse of some over-the-counter medication by adults which has been found to influence youth substance abuse behavior in previous studies (McMillan et al. 2013, Kann et al. 2016). Evolution in substance abuse behavior and the variety of drugs of abuse available to these students call for new approaches to prevention and treatment, especially from a family perspective.

Limitations

These data were collected in one LGA out of 20 such in Lagos State and may not be the best representation of the entire state. The generalizability of these data is further limited by the fact that data was obtained from consenting students in a mixed-gender, government-owned educational institution which had no boarding facilities. The picture of privately owned, single-sex institutions or schools offering boarding facilities for students may have been different. In addition, we had no scientific way of determining the veracity of the information about substance abuse provided to us by the participants. Finally, this study was conducted among students during school hours when some participants may have given false information due to the fear of retribution. Although we tried to mitigate this by giving every participant the opportunity of filling out the questionnaires in private and assuring respondents that the information they shared will remain confidential. In order to further reassure the students of the protection of their privacy, there were no names on the questionnaires and only the PI had access to codes of other personal data identifiers.

Conclusion

This study revealed that despite overall good knowledge and positive attitude, substance abuse remained a practice among secondary school students. The findings point to the potential importance of the media especially television in improving the awareness and knowledge about substance abuse among the youth. It also indicates the importance of peers and family in the initiation and continuation of abuse of commonly-prescribed tranquilizers. Finally, the study identifies the importance of focusing on the family when considering youth substance abuse due to heightened vulnerability during this phase in life.

Recommendations

Positive behavioral change interventions could be an option for addressing this problem of substance abuse among these students. School-wide positive behavioral intervention programs have been adopted in Europe and America with reports of reduction in behavioral problems and improvements in social behavior (Fareo 2012, Yeung et al. 2016, Fallon et al.

2012). The relevant authorities may also need to implement initiatives that can lead to supply reduction while exploring demand-reduction alternatives in order to reduce the prevalence of substance abuse among youth. This is important because there are few substance abuse treatment centers and government de-addiction programs in Nigeria, and the few services offered by psychiatric hospitals and Non-governmental Organizations have been found to be inadequate (Onifade et al. 2011). Finally, there is a need for some qualitative studies to further explore other drivers and facilitators of substance abuse in this population.

Funding: No external funding source was reported by the authors.

Conflict of interest: No conflict of interest was declared by the authors.

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