



Research article

Assessment of use of psychoactive and other non-prescription drugs among students of selected tertiary institutions in Ekiti State South West Nigeria - A baseline study

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ABSTRACT

Background: Substance abuse is causing increasing threats to the stability of young minds, from teenage to the older youths and is an issue of public health concern in Nigeria. This study was carried out to determine the prevalence of drug abuse among students of tertiary institutions in Ekiti State.**Methodology:** A comparative cross-sectional survey was carried out among students in tertiary institutions in Ekiti state with participants selected from Year 1 to Year 4. Data collection tool was the WHO questionnaire (STASSIS). Data was analysed to obtain descriptive and inferential data, Kruskal-Wallis test and chi square were used for analysis of variance and test of association.**Result:** The majority of the students reported low use of all the drugs (64–90.1%) though moderate to high use were reported for: alcohol 35.1%, marijuana 15.7%, heroine 15.3%, tobacco 13.8% and cocaine 10.2%. There was a significant association between student's moderate to high use and university type. Students in private universities reported more use, especially heroine. Difference in substance use across the four years surveyed was significant with final year students (400 level) showing highest use.**Conclusion:** Tertiary students in Ekiti state are low users of psychoactive substances with a prevalence of 60–91%. Moderate to high prevalence of 10–31% was reported with alcohol as the substance with highest usage. Substance use varied significantly with university type with highest prevalence in the private institution and students at different academic levels with final year students being the highest users.

1. Introduction

Substance abuse is causing increasing threats to the stability of young minds, from teenage to the older youths at an alarming rate and is an issue of public health concern in most parts of the world, including Nigeria. The phenomenon has become one of the most disturbing health related phenomena [1, 2, 3]. Drug abuse is defined as an excessive and persistent self-administration of a drug without regard to the medically or culturally accepted patterns [4]. It may be used interchangeably with substance abuse. The prevalence of drug abuse and its dependence requires an external agent (the drugs) and varies according to the availability and potency of these agents. However, many drugs are widely

available to teenagers and many adolescents are willing to experiment with them, an act that may be accompanied with prohibited behaviours.

Theories have been propounded to explain drug abuse but due to the complexity of interaction of factors, no theory fully explains the etiology of drug abuse [5]. Especially with youths and teenagers in tertiary institutions, identified common factors motivating students to start drug use include: experimental curiosity, peer influence, lack of parental supervision, personality problems, the need for energy to work for long hours, availability of drugs of abuse, purchasing power and cultism among others [6, 7]. Students, especially those in their teens perceive the drug user as one who is tough, bold and strong and many youngsters have been known to use drugs at the instance of peers, elders or siblings and even to achieve social acceptance.

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Table 1. Chi-square analysis of association of participants' university type with moderate to high use of psychoactive substances.

Characteristics	Sub-group	Number in sub-group	Percentage of participants reporting moderate to high use of substance within sub-group (p value).									
			Substance use	Alcohol	Tobacco	Cocaine	Marijuana	Amphetamine	Inhalant	Hallucinogen	Heroin	Others
UNIVERSITY TYPE	FEDERAL	464	17.9 (0.000)*	30.8 (0.002)*	9.7 (0.000)*	5.7 (0.000)*	8.6 (0.000)*	6.6 (0.000)*	9.7 (0.002)*	6.6 (0.000)*	11.8 (0.004)*	8.5 (0.018)*
	STATE	303	31.7	38.4	21.3	18.1	28.5	17.4	18.4	16.5	18.8	15.0
	PRIVATE	60	31.7	51.6	8.1	4.9	6.5	11.3	14.5	9.7	24.2	9.8

* p value indicated are for Chi Square test between groups of reported substance from all three university types.

Some studies have noted that the early first age of usage can be a significant predictor of any subsequent involvement in usage, abuse, addiction and dependence [8], though a survey on substance abuse in Uganda however revealed that in spite of early initiation of use for religious purpose, the children did not abuse alcohol as adolescents [9]. Drug use among secondary school students is increasingly being reported. Epidemiological studies in Brazil indicate that about 23% of Brazilian adolescents use drugs, with alcohol being the most widely consumed substance.

According to the US department of health and human service, there was a drop in the use of drugs especially tobacco, alcohol and marijuana during the late 1980s but a recent upsurge has been reported with youngsters beginning experimentation with psychoactive drugs as early as the 8th grade (JSS 2) [10].

In Nigeria, common drugs of abuse have been categorized as social drugs (alcohol and tobacco), stimulants (caffeine and amphetamines), hallucinogens, Narcotics (heroin, codeine, opium and other synthetic derivatives like tramadol), sedatives, tranquilizers (benzodiazepines etc) and miscellaneous inhalants [6]. Another survey among students in a public secondary school in Lagos, Nigeria found an overall life-time prevalence of substance use of 39 percent [11] while in Abakaliki, Southern Nigeria, a prevalence of substance abuse of 32.9% was reported amongst secondary school students, with alcohol being the most commonly abused substance [12]. Another set of secondary school students in both high and low income areas of Lagos, (the capital and a highly urbanised city in Nigeria) self-reported the use of psychoactive substances with the main difference in drug choice being a factor of cost and affordability [13]. Observation studies have revealed that the increasing incidence of drug abuse among secondary school students is a contributory factor in the ugly confrontation between school administration and students [14]. Many of these secondary school students

proceed into the tertiary institutions and the ugly trend of drug abuse could probably be continued; a factor which should be of concern to management of tertiary institutions.

This study was carried out to determine prevalence of drug abuse among students of tertiary institutions in Ekiti State, a place far removed from the urban areas and big cities in Nigeria. The findings will contribute data on differences in drug use between the students of public and private institutions which before now, was not available in the literature. The data will be useful to the authorities of the institutions and the state to initiate possible early preventive interventions in order to guard against a later need for management of addiction.

2. Methodology

2.1. Selection of study sites

The study, a comparative cross-sectional survey using the WHO model drug use survey questionnaire (STTASIS) was carried out among students in tertiary institutions in Ekiti state. A total of four institutions made up of the only Federal university (FUO), the State university (ESU), the Federal Polytechnic (FPA) and the private Polytechnic CPA were conveniently selected.

2.2. Sample size calculation

Samples were taken from amongst Year 1 to Year 4 students of the institutions. The total population of students in the four institutions as at the time of study was 47,318. Sample size was calculated using the Cochran (1977) [15] formula for sample size determination in a large population.

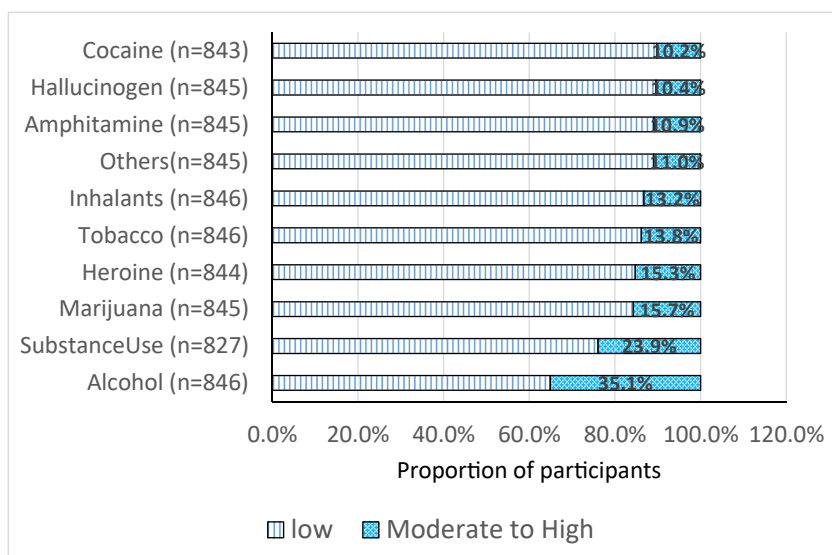


Figure 1. Distribution of participants with reported moderate to high use of psychoactive substances.

Table 2. Relationship of participants University type with substance use score.

Characteristics	Sub-group	Number of in sub-group	Mean rank based on Kruskal-Wallis test for sub-group comparison of substance use score													
			Substance Use mean rank	P value	Tobacco use mean rank	P value	Marijuana use mean rank	P value	Cocaine use mean rank	P value	Amphetamine use mean rank	P value	Heroin use mean rank	P value	Alcoholic use mean rank	P value
UNIVERSITY TYPE	FEDERAL	464	393	.004	406	.000	392	.000	403	.000	404	.000	408	.005	405	.005
	STATE	303	435		456		479		456		451		437		440	
	PRIVATE	60	471		397		381		398		423		460		482	

Calculated sample size obtained using the on-line Cochran calculator = 385.

However, 850 questionnaires were administered to provide for attrition and ensure the survey is powered to detect important differences between the institution categories.

2.3. Data collection

The sampling was done by allocation of 850 in direct proportion with student population in each institution. All eligible students were presented with information about the study in a classroom and those willing to participate were assembled in another classroom, paper questionnaires administered for self-reporting and retrieved as soon as completed. The students were assured of confidentiality since no personal identification was indicated on the form. Data was collected over a two-month period and each institution had a senior researcher as gatekeeper for data collection.

2.4. Study instrument

The instrument used for this study was a standardized, structured WHO questionnaire comprising of two sections; A and B. Section A elicited socio-demographic information of the participants, such as age, gender, academic year (e.g. year 1 or fresh students) among others. Section B contains the Alcohol, Smoking and Substance Screening Test (ASSIST) developed by the World Health Organisation. Validity was tested through Chronbach's alpha assessment. Internal consistency with chronbach's alpha of 0.803 (0.796–0.810) was reported [16] for the global continuum of illicit drug risk - excluding alcohol & tobacco and 0.812 (0.805–0.819) for the global continuum of substance risk - including alcohol & tobacco. It had also been indicated that the Cronbach's α for the scales ranged 0.64–0.71. The full-length scales were strongly associated with the corresponding short scales, r ranging 0.85–0.87.

2.5. Data analysis

Data was analyzed using SPSS version 20 to obtain descriptive and inferential data. Kruskal-Wallis test for subgroup comparison and chi square analysis were used for the analysis of variance and test of association among the.

2.6. Ethical considerations

Ethical clearance was obtained from the Ethics Approval Committee of Federal University Teaching Hospital Iddo-Ekiti (the only certified institution in the state), with reference no ERC/2019/10/30/294B. Approval was also obtained from each tertiary institution before commencement. Informed consent was received from all participants while participants below 18 years gave assent. Participation in the survey was purely voluntary.

3. Results

The prevalence of drug use was obtained from students of four tertiary institutions in Ekiti state through a self-reporting questionnaire. The following are the drugs listed in the survey questionnaire: tobacco, alcohol, marijuana, amphetamines, cocaine and heroine, other hallucinogens, inhalants and sedatives.

The prevalence of drug use as reported by the total population of students in the survey is presented in Table 1. The majority of the Students reported low use of all the drugs (64–90.1%) Moderate to high use of the drugs were reported for a sizeable number of students, alcohol (35.1%), marijuana 15.7%, heroine 15.3% tobacco 13.8% and cocaine 10.2%.

Table 3. Chi-square analysis of association of participants' level with moderate to high use of psychoactive substances.

Characteristics	Sub-group	Number in sub-group	Percentage of participants reporting moderate to high use of substance within sub-group (p value).									
			Substance use	Alcohol	Tobacco	Cocaine	Marijuana	Amphetamine	Inhalant	Hallucinogen	Heroin	Others
Level	1.00	177	24.3 (0.003)*	39.1 (0.006)*	15.6 (0.000)*	-	12.8 (0.000)*	10.6 (0.004)*	11.7 (0.008)*	10.6 (0.002)*	15.1 (0.002)*	13.5 (0.018)*
	2.00	406	20.2	29.9	8.0	-	10.6	7.5	10.1	7.2	11.4	8.0
	3.00	196	27.0	38.3	19.4	-	25.0	15.9	18.9	13.9	20.9	13.7
	4.00	46	43.5	51.0	32.7	-	32.7	18.4	20.4	22.4	27.1	16.7

* Figures in bracket is the p value for the respective columns.

The differences in degree of usage was significant for all the psychoactive substances and there was an association between student's moderate to high use of all psychoactive substances tested and the university type they attend (Table 1). Students attending private universities consumed more of alcohol and heroine compared to state and federal university students, respectively. State university students however consumed tobacco, cocaine, marijuana, amphetamines, hallucinogens, inhalants and other substances more than their colleagues in private and federal universities respectively.

Table 2 presents the test of comparison between subgroups and it again shows an association between the type of university attended by the student, and substance used. With students in private universities more likely to use substances than state and less than federal universities. Similarly, Heroine and alcohol use also followed the trend for substance use. However, there was significantly more use of tobacco, marijuana, cocaine and amphetamines in State universities than private and federal universities respectively (Table 2).

Table 3 reports the association of moderate to high consumption of psychoactive substances with the students' year of study. Final year students (Year four) reported the highest likelihood to use these substances, compared to other levels.

The difference among the sub-level was again tested using Kruskal-Wallis test. There was a statistically significant difference in substance use across the four years surveyed, with final year students (400 level) again showing the highest use of substances (mean rank) and across all drugs of abuse, except cocaine. Second year students who represented almost half of respondents in the study, reported the lowest use of substances (Table 4).

Undergraduates aged 14–19 displayed significantly lower levels of tobacco use than all other age groups. Same lower levels of use were displayed by this age group for marijuana use ($N = 16, \bar{X} = 9.63$) than other age groups. Similar results were also obtained for cocaine, amphetamines, hallucinogens, heroine and inhalants. With sedatives however, there was no significant variations with age in the use among the undergraduates.

4. Discussion

According to WHO, some data on psychoactive substance use among young people and adolescents are available in high-income countries, similar information on alcohol and other psychoactive substances is not available to the same extent in less resourced countries. Availability of psychoactive substances catalyze their use among adolescents and the assumption is that availability and use will therefore be high in urban areas [17]. This study was therefore carried out to fill these gaps and examine possible psychoactive use among students of tertiary institutions in a semi-urban region of South-western Nigeria in order to obtain baseline data for this region. This study assessed use of some commonly used psychoactive substances: tobacco, alcohol, marijuana, cocaine, hallucinogens, heroine and inhalants. Students' response, (categorized into low, moderate and high), established the use of all these substances in all the surveyed institutions (Figure 1). While use was mostly low,

moderate to high use was reported for marijuana, alcohol, tobacco and heroin (15.7%, 35% and 23%, 15%, 13.8%), alcohol being the most used. The factors of age, academic level and institution type affected degree of use of the substances.

A meta-analysis [18] reported a high use of psychoactive substances among adolescents in Sub-Saharan Africa. The use of caffeine containing products (including coffee or kola nut) was most predominant at 41.2% (95% CI 24.3–58.1) but limited to West Africa. These were followed by alcohol at 32.8%, tobacco products 23.5%, khat 22.0% and cannabis 15.9%. Other abused substances included depressants at 11.3%, amphetamines 9.4%, heroine 4.0% and cocaine 3.9% The drugs listed here are the same ones reported in our Ekiti study though in varying degrees of usage. Another study which reported baseline assessments on psychoactive substance use conducted in selected sites in South Africa, Tanzania and Zambia showed that a wide range of substances were also used, especially alcohol, tobacco and painkillers, though cannabis (marijuana) use was low [19]. Use of alcohol seems to be quite rampant among the young adults. Other studies with smaller sample sizes, in Federal tertiary institutions in some other states of Nigeria had also reported use of these psychoactive substances among the students. The prevalence of psychoactive substance use was 65.5% and the odds for use of the drugs was highest with alcohol 178 (60.8%) and least for inhalational solvents 75 (25.6%) [20]. However, the particular study did not categorize usage into low, moderate and high. Even in the UK, a random sample of ~26 000 students and non-students on drug misuse showed that students were 4.3 times more likely than non-students to have consumed certain drugs in the last 12 months. These findings show that students might be particularly at risk of drug use as a result of features relating to university lifestyle [21].

The result of chi square analysis of substance use according to university type showed that there was a significant university type difference in the substance being predominantly used. Students attending private universities consumed more of alcohol and heroine compared to state and federal university students, respectively. State university students however consumed tobacco, cocaine, marijuana, amphetamines, hallucinogens, inhalants and other substances more than their colleagues in private and federal universities (Table 1). Using the mean score for the comparison, students in private universities have higher likelihood to use substances ($p = 0.004$) (Table 2) and the trend is confirmed with the reported use of heroine, an expensive substance. Students in private universities, with relatively high tuition fees are presumably from richer homes and therefore with higher disposable income. In comparison, tuition is almost free in Federal institutions, though state institutions charge a little more than the federal. The findings here compare with the observations among public and private secondary schools' students in Lagos where use of more expensive drugs like amphetamine, cocaine and heroin was more prevalent in the private secondary schools located in high-brow neighborhoods in the city of Lagos [13].

There was statistically significant difference in substance use across the four years surveyed, with final year students (400 level) showing the highest use of substances (mean rank) and across all drugs of abuse,

Table 4. Relationship of participants Level in the University with substance use score. Significant levels of variation were reported in the combined use and the specific psychoactive substances among the various age groups.

Characteristics	Sub-group	Number of in sub-group	Mean rank based on Kruskal-Wallis test for sub-group comparison of substance use score													
			Substance Use mean rank	P value	Tobacco use mean rank	P value	Marijuana use mean rank	P value	Cocaine use mean rank	P value	Amphetamine use mean rank	P value	Heroin use mean rank	P value	Alcoholic use mean rank	P value
Level	1.00	177	432	.002	431	.000	410	.000	418	.001	421	.004	422	.003	447	.001
	2.00	406	388		398		400		406		408		405		397	
	3.00	196	429		446		460		449		443		443		434	
	4.00	46	495		503		498		442		456		470		499	

except with cocaine use (Tables 3 and 4). Second year students reported the lowest use of substances and represented almost half of respondents in the study (Table 4). With final year students, there is the likelihood of increased academic pressure or anxiety, anxiety for the future, coupled with perceived independence and social pressures that increase the risk for initial drug use or persisting use of substances of abuse. These and factors relating to genetics, socio-economic background and ease of access may increase the likelihood for final year students to begin or continue to use substances. The trend seen with first year students may be more connected with experimental substance use since they are younger, more curious and therefore more likely to want to try new experiences. Students from secondary schools are the ones that gain admission into the universities with indications that the use of drugs which had started in secondary school as reported in several studies is probably being carried into the tertiary institutions.

Age is a factor of variation in substance use as reported in this study. Significant levels of variation were reported in the use of specific psychoactive substances among the various age groups (Tables 5a and 5b). Undergraduates, aged 14–19 display significantly lower levels of tobacco and marijuana use than the older age groups 20–24, 25–29 and 30–34 ($P < 0.05$). Similar results were obtained for cocaine, amphetamines, hallucinogens and heroin and the variations were significant across the various age categories. With sedatives, there was no significant difference with age in the use among the undergraduates. Alcohol as a substance of abuse seems to be quite popular among students but more established among the older ones. The findings on age correlates with the one on students' year of study which are usually closely linked. A study on prevalence of drug abuse among students in a tertiary institution in Edo State, Nigeria, in which age was considered, found that 46.6% of the sample respondents (age group of 20–25 years) had taken drugs for non-medical purposes at least once with coffee and alcohol as the most commonly abused drugs [22]. This is similar to findings among students at the Lagos State University, in which the majority (77.9%) of the students were aged 19–30 years. Students reported current use of one or more drugs of abuse with coffee (43.1%) and alcohol (25.8%) being the most common [23]. Another survey among public secondary school students in Lagos with age range 14–24yrs found an overall life-time prevalence of substance use of 39% and alcohol was the most commonly used psychoactive substance (29.1%). There was an association between drug use and young age. The same findings were also reported amongst secondary school students in Abakaliki, Southern Nigeria. The prevalence of substance abuse was 32.9% with alcohol being the most commonly abused substance [12]. In East Africa, psychoactive drug use documented among adolescents in Ugandan public schools (mean age 15.2), the rate of use of proscribed addictive substances, cannabis, heroin, and cocaine, ranged between 4.0 and 4.8% though these pupils are even much younger than the tertiary institution students in this study [4].

Students with moderate to high rate of use of substances are likely to persist for longer and they may have associated violence and health effects (short and long term). This will impact quality of life, increase health disparities and worsen health indices. This is important as efforts to curtail or intervene must take cognizance of the underlying reasons for this extent of substance use among youths. Interventions that have been shown to be effective, usually provided in schools, must be intensive, sustained and address the risk factors that promote persistent use. Preventive policies and actions need to be effected at the secondary school level so that this malaise can be nipped in the board.

5. Conclusion

Most of the tertiary students in Ekiti state are low to moderate users of the psychoactive substances with a prevalence of 60–91% for low substance usage and moderate to high prevalence of 10–31% with alcohol as the substance with highest usage. Substance use varied significantly with university type with highest prevalence seen in the private institution

Table 5a. below shows a significant multivariate effect for the combined psychoactive substance of use in respect of age: $\lambda = 0.058$, $F(30, 2448) = 1.607$, $p < 0.05$.

Multivariate Tests						
Effect		Value	F	Hypothesis df	Error df	Sig.
Age	Pillai's Trace	.058	1.607	30.000	2448.000	.020
	Wilks' Lambda	.943	1.610	30.000	2389.927	.019

Table 5b. Multivariate Analysis of Variance of Psychoactive Substance use by Age.

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Age	Tobacco	85.043	3	28.348	5.419	.001
	Marijuana	163.696	3	54.565	5.811	.001
	Cocaine	79.565	3	26.522	4.317	.005
	Amphetamine	58.199	3	19.400	3.450	.016
	Inhalant	55.050	3	18.350	2.694	.045
	Sedative	54.720	3	18.240	2.099	.099
	Hallucinogen	99.310	3	33.103	6.061	.000
	Heroin	84.593	3	28.198	3.701	.012
	Others	61.835	3	20.612	2.719	.044
	Alcoholic	171.606	3	57.202	5.184	.001

included in the survey and heroin moderate use was highest in this private institution. Significant variation was also observed among students at different academic levels with final year students being the highest users while the students in second year of their academic programs were the lowest users. Age, which correlates largely with academic level, was also a significant factor in usage with moderate use reported among the youngest age category of 14–19, an indication that the habit being imported into tertiary institutions, is increased by the relative freedom students enjoy in the university environment. Use of sedatives was quite common irrespective of age, academic level and institution type. Heroin, a more expensive substance recorded more use among the students of the private tertiary institution.

With the moderate to high prevalence of substance use among the tertiary students in Ekiti, a landlocked state located in the hinterlands, there is an urgent need for students to be screened as they come into tertiary institutions and appropriate measures developed and backed with effective implementation in all institutions to guide these adolescents.

6. Limitations of the study

Only four out of the five universities and Polytechnics in the state were surveyed. Approval could not be obtained from the fifth institution hence it could not be included in the study. The results presented, though representative can therefore still not be generalized.

Declarations

Author contribution statement

R. Soremekun: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

O.E. Omole and A.M. Oshatimi: Performed the experiments.

O. Adeyemi: Analyzed and interpreted the data..

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Data availability statement

Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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