

Recent Survey of Psychoactive Substance Use among Students of University Of Ilorin, Nigeria

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ABSTRACT

Background: The prevalence of psychoactive substance use is increasing globally, and university students are not left behind. Self-report, using questionnaire has been the common method of assessing substance use amongst the students' population. This study assessed the use of psychoactive substance use among the students at university of Ilorin, Nigeria. Study about the extent of use of psychoactive substances by students may be very important in planning better healthcare for the students on campus.

Methods: Two thousand five hundred and fifty (2550) students at the University of Ilorin, Nigeria completed a questionnaire based on the World Health Organization (WHO) guidelines for student substance-use surveys. Substances investigated in the survey were alcohol, cigarettes, cannabis, strong and mild stimulants, hypno-sedatives, cocaine, opiates, organic solvents, and hallucinogens. The self-administered questionnaire had been used in similar studies in Nigeria, Ilorin, and amongst students. Cross tabulation, chi-square statistics, and student t-test were determined using the Statistical Package for Social Sciences (SPSS).

Results: The reported lifetime and current prevalence of the substances were: tobacco, 11.5% and 4.6%; alcohol, 38.3% and 15.2%; cannabis, 9.0% and 3.8%; stimulants 32.6% and 15.3%; sedatives 11.7%, 4.8%, opiates 25.3% and 7.2%; cocaine was 4.6% and 1.5%; Hallucinogenic substances lifetime prevalence was 6.7% and a current prevalence of

1.4%. The lifetime prevalence for solvents use was 7.6% while current use was 2.5%. While the alcohol prevalence was higher than the national figure the opiates use revealed an elevated rate than the national.

Conclusion: Prevalence figures for psychoactive substance use by the students at university of Ilorin are comparable to what obtains in previous studies and to the national figures with slightly lower figures for alcohol. However, the use of opiates calls for concern. More efforts need to be expeditiously channelled towards education of our students to curtail the seeming upward trend in the use of opiates.

Key Words: Self-Report, Psychoactive Substances, Students

INTRODUCTION

Use of psychoactive substances is a major global public health issue (1). United Nations Office on Drugs and Crimes (UNODC, 2013) reported in 2013 that between 167 and 315 million people or 3.6%–6.9% of the adult population between the ages of 15 and 64 years used an illicit substance in that preceding year (UNODC, 2018). Among the youth, it has become an epidemic problem and already impacting deleteriously on health, family, society, education, and professional life of the affected youths (Moss, 2013; Hans et al, 2018; Chadi et al, 2019). The university period is a phase when students gain relative independence and self-determination while away from direct adult and family supervision, thereby able to make some self-decision even while under academic pressures. At this time, they share living quarters with strangers, form new social groups,

balance social engagements with academic and other life responsibilities, and may be exposed to normative values cherished by the youth culture that differ from parental values (Makanjuola et al, 2007; Deressa & Azazh, 2011; Babalola et al, 2014). These apparent norms inspire the youth to indulge in harmful behaviours such as substance use (Steyl & Phillips (2011).). Similarly, University students make the transition from the restricted life dictated by parents to a more self-directed life influenced by the university environment (Skidmore et al, 2016). Hence, the possibility of substance use is increased in university environments (Skidmore et al, 2016; Viohl et al, 2019). University students are, therefore, at elevated risk of substance use due to some social and education (instrumental use) related factors.

Substance abuse in adolescence increases the possibility of harmful behaviours at that stage of development and well into adulthood (Deressa & Azazh, 2011; Steyl & Phillips, 2011; Viohl et al, 2019). Examples of behaviours that have been related with substance abuse include impaired driving, interpersonal violence, poor educational performance, disturbed family and interpersonal relationships, and criminal activity (Skiba et al, 2004). Studies have reported that students who used illegal drugs (such as cocaine LSD, amphetamine, etc.) and about the same proportion that used alcohol had committed substance-related crimes in the present academic year. The commonest offenders as it concerns both drug and alcohol-related crimes were males, those who often went out to socialize, frequent users of nightclubs off

campus, and those in poor physical or mental health (Bennett, & Holloway, 2018). They were also likely to have self-care problems and have difficulties with sleep (Colomer-Pérez, 2019; Navarro-Martínez et al, 2020). The negative effects associated with substance use in adolescence also include low school results, delinquency, and risky sexual behaviours (Ellickson et al, 2003; Baskin-Sommers & Sommers, 2006). Because of these myriads of probable adverse consequences, studying substance use and misuse among students is highly imperative.

This study examined the recent use of psychoactive substances among the students at the University of Ilorin, Nigeria.

METHODS

Settings

The study was carried out during the 2018/2019 academic session at the University of Ilorin, one of the Public Universities in Nigeria. The University had a stable academic calendar spanning close to two decades of an uninterrupted calendar and ranked among the best five Universities in Nigeria, at the time of the study. These two attributes made the institution one of the most sought in Nigeria.

Participants

The participants (respondents) were undergraduate students of the University of Ilorin who consented to take part in the study. The students must have matriculated and pursuing a course of study, preliminary students and pre-matriculation students were, thus, exempted

Sample Size

The minimum sample size was 384, and assuming an attrition rate of 10%, the final minimum sample size was 422.

Sample Bias

When conducting drug studies among students, a sample size

between 2000 and 3000 students (irrespective of the population size) produces a reliable assessment of the prevalence of substance use in the target population (UNODC, 2003). The total sample was clustered based on the faculties, department and levels. At each level, after due consultations and arrangements for a suitable time, a random sample of respondents who consented to partake in the study were interviewed using the socio-demographic data collection sheet and the WHO Students Drug Use Survey Questionnaire by Smart et al (Smart et al, 1980). All consenting students completed a modified semi-structured self-report questionnaire based on World Health Organization's guidelines for students' substance use survey. The instrument had been previously used and found reliable and valid among Nigerian students (Adelekan et al, 2001; Makanjuola, 2007).

Variables

Respondents were asked questions on ever use of specific groups of psychoactive substances, to which they responded with a "Yes" or "No". They were also asked about the regularity of use of psychoactive substances with the following options: Not applicable, I have never taken it before, I took it only on a few occasions but stopped more than 12 months ago, I still take it only occasionally (1-2x/month), I take it fairly regularly (2-3x/week) and I take it daily.

Statistical methods

Data were analysed using the Statistical Package for Social Sciences twentieth edition-SPSS-20 (IBM Corp, 2011). Cross tabulation, chi-square statistics, and student t-test were determined for district and continuous variables as appropriate. P-value was set at 0.05 confidence level.

Ethical Approval

The Protocol was approved by the University Ethical Research Committee (UERC) of the University

of Ilorin. The detail of the study was explained to the participating students who signed consent to participate and were told they could opt out of the study as they wished.

The Deans of the Faculties, the Head of Departments, and the Lecturers whose terminal periods were used were also informed about this study after UERC approval. Anonymity was ensured throughout and after the study.

RESULTS

Participants

Three thousand questionnaires were distributed but only 2550 (85%) respondents' questionnaires were analysable. Of the 2550, 1159 (45.5%) were males and 1391 (54.5%) were females. The age ranged between 15 and 47 years with a mean of 20.6 and a standard deviation, 2.6. The median age was 20 years with a mode of 20 years. The mean age of male respondents was 21.06 (± 2.9) while that of the females was 20.24 (± 2.2). $F=66.93$, $p\text{-value}=0.000$. Most of the students were in the age range 20-24 (61.3%).

Table 1

Descriptive Data

About 11.5% of the respondents had used or were still using tobacco products. The lifetime prevalence of tobacco was, therefore, 11.5% while current use (regular, occasional, and daily use was 4.6%). The lifetime prevalence of alcohol was 38.3% while current use was 15.2%. The lifetime prevalence of use of cannabis was 9.0% and the current prevalence of 3.8%. About 32.6% of the students agreed to lifetime use of stimulants and current prevalence of 15.3%. A lifetime prevalence of 11.7% was obtained for sleeping drugs (sedatives) but the current prevalence was 4.8%. The lifetime prevalence of opioids use was 25.3% with a current use prevalence of 7.2%. While the lifetime prevalence of cocaine was 4.6%, the current use prevalence was 1.5%. Hallucinogenic substances had been previously used (lifetime prevalence) by 6.7% of the students, 0.3, %

occasionally, 0.4% regularly (2-3 times per week) while 0.7% used hallucinogen on daily basis (current prevalence of 1.4%). The lifetime prevalence for solvent use was 7.6% while current use was 2.5%. Table 2

Use of Psychoactive Substances and gender

As shown in Table 2, male respondents were likely to have smoked cigarette than female respondents ($S_{\chi^2} = 22.8$, $df=1$, $p\text{-value} = 0.00$). Also, male respondents were more likely to be current (occasionally, regularly or take it daily) users of cigarette than females ($S_{\chi^2} = 30.02$, $df = 4$, $p\text{-value} = 0.0000$). While more males were likely to have ever used alcohol ($S_{\chi^2} = 14.8$, $df=1$, $p\text{-value} = 0.000$), marginally more females were likely to be current users of alcoholic products ($S_{\chi^2} = 22.9$, $df=4$, $p\text{-value} = 0.0001$). More males were, similarly, likely to have ever used cannabinoids than females ($S_{\chi^2} = 12.9$, $df=1$, $p\text{-value} = 0.0003$) and more males than females as current users

Though not significant, more females reported ever use of stimulants, sleeping drugs, and opioids and were more represented among current users. There was also no statistically significant relationship between the gender of the respondents and the use of cocaine. There was an almost equal distribution of both genders in "ever use" and current use of this substance.

More males were more likely to have used hallucinogen in their lifetime ($S_{\chi^2} = 5.2$, $df=1$, $p\text{-value} = 0.0233$). The use of solvent had no relationship with gender. Table 2

Level of university education and use of psychoactive substances

More students in the 3rd and 4th grade were more likely to have used cigarettes ($S_{\chi^2}=24.3$, $df=5$, $p\text{-value} = 0.0001$) and were more likely to be current (occasional, regular, or daily) users ($S_{\chi^2} = 31.9$,

$df= 20$, $p\text{-value} 0.043$). Together with 2nd grade, they were, similarly, likely to be current users of alcohol than other levels of education ($S_{\chi^2} = 31.79$, $df= 20$, $p\text{-value} = 0.045$). Respondents in the third and fourth year were more likely to be current users of cannabis than others ($S_{\chi^2} = 35.6$, $df= 20$, $p\text{-value} = 0.017$)

No relationship existed between the use of stimulants, sleeping drugs, opioids, cocaine, and level of education but the students in the 4th year of their education were more likely to report current use of hallucinogenic substances than others ($S_{\chi^2} = 31.61$, $df= 20$, $p\text{-value} = 0.047$). Current solvent use was also more likely among respondents in the 4th year of education than in the other class levels ($S_{\chi^2} = 55$, $df= 20$, $P\text{-value} = 0.0000$). Table 4.

Age of the respondents and use of psychoactive substances

As depicted in Table 3, respondents within the age group 20-24 were likely to have ever used cigarette ($S_{\chi^2}=8.8$, $df=3$, $P\text{-value}=0.032$) and were more likely to be current users of cigarettes ($S_{\chi^2} = 40.5$, $df=12$, $P\text{-value}=0.0000$) while there was no significant relationship between the

age group of respondents and alcohol use. This same age group, 20-24 were also more likely to have used cannabis substances ($S_{\chi^2} = 10.5$, $df=3$, $p\text{-value}=0.015$) and were similar to the current users of cannabis such as Indian hemp ($S_{\chi^2} = 38.71$, $df=12$, $p\text{-value}=0.0001$). The age group of the respondents was not statistically related to the use of stimulants, sleeping drugs, and opioids. The use of the substance, cocaine, and the age groups of students were significant with respondents in the age group 20-24 being more likely to have used cocaine ($S_{\chi^2} = 17.32$, $df=3$, $p\text{-value}=0.0006$) and more likely to be current users ($S_{\chi^2} = 24.8$, $df=12$, $p\text{-value}=0.016$).

Like most of the other substances, lifetime use of hallucinogens was statistically significant to the age group of the students with students in the age group 20-24 being most likely to have used a hallucinogenic substance ($S_{\chi^2} = 11.38$, $df=3$, $p\text{-value}=0.009$) Respondents in the age group 20-24 were more likely to be current users of solvents ($S_{\chi^2} = 31.43$, $df=12$, $p\text{-value}=0.002$)

Table 1: Socio-demographic Characteristics of Respondents

Variable	Frequency	Percentage
Age group		
<20	815	31.9
20-24	1563	61.3
25-29	150	5.9
>=30	22	0.9
Total	2550	100
Gender		
Female	1391	54.5
Male	1159	45.5
Total	2550	100
Religion		
Christianity	1278	50.2
Islam	1248	49.0
Traditional	14	3.0
Non	16	5.0
Total	2550	100
Level of Education		
100L	277	10.9
200L	719	28.2
300L	791	31.0
400L	680	26.7
500L	61	2.4
600L	22	0.9
Total	2550	100

Table 2: Use of Psychoactive Substances by Respondents' Gender

	Ever used		Regularity of use				
	Yes (%)	No (%)	Never (%)	Stopped more than 12 months ago (%)	Still take it only occasionally (1-2x/month). (%)	Take it fairly regularly (2-3x/week) (%)	I take it daily (%)
Tobacco							
Female	122 (4.8)	1269 (49.7)	1269 (49.7)	84(3.3)	21(0.82)	13(0.5)	4(0.2)
Male	172 (6.7)	987 (38.7)	987(38.7)	95(3.7)	51(2.0)	17(0.7)	9(0.4)
	$\chi^2 = 22.772$, df=1 p-value = 0.00*		$\chi^2 = 30.02$, df = 4, P-value = 0.0000*				
Alcohol							
	Ever used Alcohol		Regularity of Alcohol Use				
Female	487(19.0)	904(35.5)	904(35.5)	276 (10.8)	176 (6.9)	32(1.3)	3 (0.1)
Male	492(19.3)	667(26.1)	667 (26.1)	316 (12.4)	139 (5.5)	31 (1.2)	6(0.23)
	$\chi^2 = 14.794$, df=1, p-value = 0.000*		$\chi^2 = 22.9$, df=4, p-value =0.0001*				
Cannabis							
	Ever used Cannabis		Regularity of Cannabis Use				
Female	100(3.9)	1291(55.6)	1291(50.6)	56 (2.2)	19 (0.7)	18 (0.7)	7(0.3)
Male	131(5.1)	1028(40.3)	1028(40.3)	79((3.1)	22(0.9)	21 (0.8)	9(0.4)
	$\chi^2 = 12.99$, df=1, p-value= 0.0003*		$\chi^2 = 13.45$, df=4, p-value= 0.009				
Stimulants							
	Ever used		Regularity of stimulants use				
Female	438(17.2)	953(37.4)	953(37.4)	234(9.2)	159(6.2)	34(1.3)	11 (0.4)
Male	392(15.4)	767(30.1)	767(30)	204(8.0)	144(5.6)	32(1.3)	12(0.5)
	$\chi^2 = 1.569$, df=1, p-value= 0.2108		$\chi^2 = 2.685$, df=4, p-value =0.612				
Sleeping drugs							
	Ever used sleeping drugs		Regularity of sleeping drugs use				
Female	164 (6.4)	1227 (48.1)	1227 (49.4)	94 (3.6)	50 (2.0)	18 (0.7)	2(0.08)
Male	136 (5.3)	1023 (40.1)	1023 (41.1)	86(3.4)	34(1.3)	12(0.5)	4(0.2)
	$\chi^2 = 0.002$, df=1, p-value= 0.96		$\chi^2 = 1.924$, df=4, p-value= 0.745				
Opioids							
	Ever used opioids		Regularity of opioids use				
Female	335(13.1)	1056(41.4)	1056(41.4)	229(8.9)	60(2.4)	42(1.6)	4(0.2)
Male	312(12.2)	847(33.2)	847(33.2)	236(9.4)	43(1.7)	24(0.9)	9(0.4)
	$\chi^2 = 2.686$, df=1, p-value= 0.10		$\chi^2 = 6.321$, df=4, p-value=0.1764				
Cocain							
	Ever used cocain		Regularity of cocain use				
Female	59(2.3)	1332(52.2)	1332(52.2)	39(1.5)	14(0.5)	1(0.0)	5(0.2)
Male	58(2.3)	1101(43.2)	1101(43.2)	37(1.5)	14(0.5)	2(0.1)	5(0.2)
	$\chi^2 = 0.84$, df=1, p-value= 0.359		$\chi^2 = 1.221$, df=4, p-value = 0.874				
Hallucinogens							
	Ever used hallucinogens		Regularity of hallucinogen use				
Female	78(3.1)	1313(51.5)	1313(51.5)	62 (2.4)	4 (0.2)	5 (0.2)	7 (0.3)
Male	91 (3.6)	1068(41.9)	1068 (41.9)	74 (2.9)	2 (0.1)	6 (0.2)	9 (0.4)
	$\chi^2 = 5.15$, df=1, p-value= 0.0233		$\chi^2 = 6.22$, df=4, p-value= 0.18				
Solvents							
	Ever used Solvents		Regularity of Solvents use				
Female	97(3.8)	1294 (50.7)	1294 (50.7)	68 (2.6)	12 (0.5)	13 (0.5)	4 (0.2)
Male	98(3.8)	1061 (41.6)	1061 (41.6)	66 (2.6)	9 (0.4)	20 (0.8)	3 (0.1)
	$\chi^2 = 1.949$, df=2, p-value =0.16		$\chi^2 = 4.065$, df=4, p-value = 0.397				

Table 3a: Use of Psychoactive Substances by Respondents' Age group

	Ever used		Regularity of use				
	Yes (%)	No (%)	Never	Stopped more than 12 months ago	Still take it only occasionally (1-2x/month).	Take it fairly regularly (2-3x/week)	I take it daily
Tobacco							
Age Group							
<20	73 (2.9)	742 (29.1)	742 (29.1)	41(1.6)	20(0.8)	7(0.3)	5(0.2)
20-24	195 (7.6)	1368(53.6)	1368(53.6)	132(5.2)	40(1.6)	20(0.8)	5(0.2)
25-29	23 (0.9)	127(4.9)	127(4.9)	13(0.5)	5(0.2)	3(0.1)	2(0.1)
>=30	3(0.1)	19(0.7)	19(0.7)	2(0.1)	4(0.2)	0(0.0)	3(0.1)
	X2=8.8, df=3, P-value=0.032		❖ X2=40.5, df=12, P-value=0.0000				
Alcohol							
	Ever used Alcohol		Regularity of Alcohol Use				
<20	298(11.7)	517(20.3)	517(20.3)	194(7.6)	94(3.7)	9(0.4)	1(0.0)
20-24	608(23.8)	955(37.5)	955(37.5)	353(13.8)	202(7.9)	47(1.8)	6(0.2)
25-29	66(3.6)	84(3.3)	84(3.3)	41(1.6)	16(0.6)	7(0.3)	2(0.1)
>=30	7(0.3)	15(0.6)	15(0.6)	4(0.2)	3(0.1)	0(0)	0(0)
	X2= 3.718, df=3 p-value= 0.294		❖ X2= 21.26, df=12, p-value=0.046				
Cannabis							
	Ever used Cannabis		Regularity of Cannabis Use				
<20	52 (2.0)	763(29.9)	763(29.9)	26(1.0)	12(0.5)	14(0.5)	0(0.0)
20-24	162(6.4)	1401(54.9)	1401(54.9)	102(4.0)	21(0.8)	23(0.9)	16(0.6)
25-29	15(0.6)	135(5.3)	135(5.3)	5(0.2)	8(0.3)	2(0.1)	0(0.0)
>=30	2(0.1)	20(0.8)	20(0.8)	2(0.1)	0(0.0)	0(0.0)	0(0.0)
	X2=10.49, df=3, p-value=0.015		❖ X2=38.71, df=12, p-value=0.0001				
Stimulant s							
	Ever used		Regularity of stimulants use				
<20	263(1.3)	552(21.6)	552(21.6)	127(4.4)	111(4.4)	21(0.8)	4(0.2)
20-24	507(19.8)	1056(41.4)	1056(41.4)	279(1.3)	173(6.8)	40(1.6)	15(0.6)
25-29	50(1.9)	100(3.9)	100(3.9)	27(1.1)	16(0.6)	4(0.2)	3(0.1)
>=30	10(0.4)	12(0.5)	12(0.5)	5(0.2)	3(0.1)	1(0.0)	1(0.0)
	X2=1.749, df=3 p-value=0.62		X2=12.99, df=12, p-value=0.3698				
Sleeping drugs							
	Ever used sleeping drugs		Regularity of sleeping drugs use				
<20	97(3.8)	718(28.2)	718(28.2)	58(2.3)	30(1.2)	7(0.3)	2(0.1)
20-24	181(7.1)	1382(54.2)	1382(54.2)	111(4.4)	43(1.7)	23(0.9)	4(0.2)
25-29	20(0.8)	130(5.1)	130(5.1)	9(0.4)	11(0.4)	0(0)	0(0)
>=30	2(0.1)	20(0.8)	20(0.8)	2(0.1)	0(0)	0(0)	0(0)
	X2=0.573 df=3, p-value= 0.903		X2=14.68, df=12, p-value=0.2594				
Opioids							
	Ever used opioids		Regularity of opioids use				
<20	197(7.7)	618(24.2)	618(24.2)	140(5.5)	34(1.3)	20(0.8)	3(0.1)
20-24	406(15.9)	1157(45.4)	1157(45.5)	293(11.5)	66(2.6)	40(1.6)	7(0.3)
25-29	39(1.5)	111(4.4)	111(4.4)	28(1.1)	3(0.1)	5(0.2)	3(0.1)
>=30	5(0.2)	17(0.7)	17(0.7)	4(0.2)	0(0)	1(0.0)	0(0)
	X2=1.033, df=3 p-value=0.79		X2=11.39, df=12, p-value=0.4955				

❖ Chi square does not meet Cochran's criteria. Cochran recommends accepting the chi square if:

1. No more than 20% of cells have expected value <5
2. No cell has an expected value <1

Table 3b: Use of Psychoactive Substances by Respondents' Age group

	Ever used cocaine		Regularity of cocaine use				
	Yes (%)	No (%)	Never	Stopped more than 12 months ago	Still take it only occasionally (1-2x/month).	Take it fairly regularly (2-3x/week)	I take it daily

Cocaine							
<20	33(1.3)	782(30.7)	782(30.7)	24(0.9)	4(0.2)	1(0)	4(0.2)
20-24	67(2.6)	1496(58.7)	1496(58.7)	41(1.6)	19(0.7)	2(0.1)	5(0.2)
25-29	16(0.6)	134(5.3)	134(5.3)	11(0.6)	5(0.2)	0(0)	0(0)
>=30	3(0.0)	19(0.7)	19(0.7)	2(0.1)	0(0)	0(0)	1(0.0)
	X ² =17.32, df=3 p-value=0.0001		❖ X ² =24.81, df=12, p-value =0.016				
Hallucinogens							
	Ever used hallucinogen		Regularity of hallucinogen use				
<20	47(1.8)	768(30.1)	768(30.1)	40(1.6)	0(0)	0(0)	7(0.3)
20-24	103(4.0)	1460(57.3)	1460(57.3)	80(3.1)	6(0.2)	11(0.4)	6(0.2)
25-29	19(0.7)	131(5.1)	131(5.1)	16(0.6)	0(0)	0(0)	3(0.1)
>=30	0(0)	22(0.9)	22(0.9)	0(0)	0(0)	0(0)	0(0)
	X ² =11.38, df=3 p-value=0.009		❖ X ² =27.89, df=12, p-value=0.0057				
Solvents							
	Ever used Solvents		Regularity of Solvents use				
<20	68(2.7)	747(29.3)	747(29.3)	61(2.4)	0(0)	4(0.2)	3(0.1)
20-24	110(4.3)	1453(56.9)	1453(56.9)	63(2.5)	21(0.8)	22(0.9)	4(0.2)
25-29	13(0.5)	137(5.4)	137(5.4)	7(0.3)	0(0)	6(0.2)	0(0)
>=30	4(0.2)	18(0.7)	18(0.7)	3(0.1)	0(0)	1(0.0)	0(0)
	X ² =5.06, df=3, p-value=0.1675		X ² =31.43, df=12, p-value=0.002*				
❖ Chi square does not meet Cochran's criteria. Cochran recommends accepting the chi square if:							
3. No more than 20% of cells have expected value <5							
4. No cell has an expected value <1							

Table 4a: Use of Psychoactive Substances by Respondents'Level of Education

	Ever used		Regularity of use				
	Yes (%)	No (%)	Never	Stopped more than 12 months ago	Still take it only occasionally (1-2x/month).	Take it fairly regularly (2-3x/week)	I take it daily
Tobacco							
100L	24 (0.9)	253(9.9)	253 (9.8)	11 (0.4)	8(0.3)	3 (0.1)	2 (0.1)
200L	55(2.2)	664(26.0)	664 (26.3)	34 (1.3)	15 (0.6)	5 (0.2)	1 (0.0)
300L	100(3.9)	691 (27.1)	691 (27.2)	64 (2.5)	21 (0.8)	9 (0.4)	3 (0.1)
400L	105(4.1)	575(22.6)	575 (22.6)	63 (2.5)	24 (0.9)	11 (0.4)	7 (0.3)
500L	8(0.3)	53(2.1)	53(2.1)	5 (0.2)	1(0.0)	2 (0.1)	0 (0.0)
600L	2(0.1)	20(0.8)	20 (0.8)	2 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
	X2 =24.28, df=5		❖ X2=31.96, df= 20, p-value= 0.043				
	p-value= 0.0001*						
Alcohol							
	Ever used Alcohol		Regularity of Alcohol Use				
100L	100(3.9)	177(6.9)	177(7.4)	67(2.1)	31(1.2)	1(0.0)	1(0.0)
200L	266(10.4)	453(17.8)	453(18.6)	162(5.5)	89(3.5)	13(0.5)	2(0.1)
300L	287(11.3)	504(19.8)	504(20.7)	173(5.8)	92(3.6)	19(0.8)	3(0.1)

400L	286(11.2)	394(15.5)	394(15.9)	167(6.1)	86(3.4)	30(1.2)	3(0.1)
500L	29(1.1)	32(1.3)	32(1.3)	18(0.7)	11(0.4)	0(0.0)	0(0.0)
600L	11(0.4)	11(0.4)	11(0.5)	5(0.2)	6(0.2)	0(0.0)	0(0.0)

$X^2 = 9.972$, $df=5$, p -value= 0.076

✦ $X^2=31.79$, $df= 20$, p -value= 0.045

Cannabis	Ever used Cannabis		Regularity of Cannabis Use				
100L	18(0.7)	259(10.2)	259(10.6)	13(0.1)	3(0.1)	2(0.1)	0(0.0)
200L	59(2.3)	660(25.9)	660(27.1)	33(0.4)	9(0.4)	17(0.7)	0(0.0)
300L	64(2.5)	727(28.5)	727(28.7)	41(1.0)	11(0.4)	7(0.3)	5(0.2)
400L	81(3.2)	599(23.5)	599(24.2)	42(0.9)	17(0.7)	13(0.5)	9(0.4)
500L	7(0.3)	54(2.1)	54(2.1)	4(0.2)	1(0.0)	0(0.0)	2(0.1)
600L	2(0.1)	20(0.8)	20(0.9)	2(0.0)	0(0.0)	0(0.0)	0(0.0)

$X^2=10.9$, $df= 5$, p -value= 0.054

✦ $X^2=35.64$, $df= 20$, p -value= 0.017

Stimulants	Ever used		Regularity of stimulants use				
100L	80(3.1)	197(7.7)	197(7.9)	42(1.5)	27(1.1)	8(0.3)	3 (0.1)
200L	239(9.4)	480(18.8)	480(19.4)	126 (4.5)	90(3.6)	21(0.8)	2(0.1)
300L	240(9.4)	551(21.6)	551(20.9)	123 (4.9)	92(3.7)	21(0.8)	4 (0.2)
400L	240(9.4)	440(17.3)	440(17.8)	125 (4.3)	88(3.5)	14(0.6)	13(0.5)
500L	23(0.9)	38(1.5)	38(1.4)	16(0.6)	4(0.2)	2(0.1)	1(0.0)
600L	8(0.3)	14(0.5)	14(0.6)	6 (0.2)	2(0.1)	0	0

$X^2 = 6.8$, $df=5$,
 p -value= 0.2337

✦ $X^2=27.2$, $df= 20$, p -value= 0.1298

Sleeping drugs	Ever used sleeping drugs		Regularity of sleeping drugs use				
100L	34 (1.3)	243 (9.5)	243(10.1)	25(0.6)	5(0.2)	4(0.2)	0(0.0)
200L	87 (3.4)	632 (24.8)	632(25.4)	51(1.7)	28(1.1)	6(0.2)	2(0.1)
300L	79 (3.1)	712 (28.2)	712(28.1)	46(1.2)	25(1.0)	6(0.2)	2(0.1)
400L	91 (3.6)	589(23.1)	589(24.0)	53(1.1)	24(1.0)	12(0.5)	2(0.1)
500L	5(0.2)	56(2.2)	56(2.1)	2(0.0)	1(0.0)	2(0.1)	0(0.0)
600L	4(0.2)	18(0.7)	18(0.9)	3(0.2)	1(0.0)	0(0.0)	0(0.0)

$X^2 = 5.889$, $df=5$

✦ $X^2=18.09$, $df= 20$, p -value= 0.5812

p -value= 0.317

✦ Chi square does not meet Cochran's criteria. Cochran recommends accepting the chi square if: No more than 20% of cells have expected value <5 and no cell has an expected value <1

Table 4b: Use of Psychoactive Substances by Respondents'Level of Education

	Ever used		Regularity of use				
	Yes (%)	No (%)	Never	Stopped more than 12 months ago	Still take it only occasionally (1-2x/month).	Take it fairly regularly (2-3x/week)	I take it daily
Opioids	Ever used opioids		Regularity of opioids use				
100L	81(3.2)	196(7.7)	196(8.6)	64(1.7)	10(0.4)	7(0.3)	0(0.0)
200L	172(6.7)	547 (21.5)	547(22.2)	124(4.5)	30(1.3)	14(0.6)	4(0.2)
300L	187(7.3)	604(23.7)	604(23.8)	126(4.2)	40(1.7)	19(0.8)	2(0.1)
400L	188(7.4)	492(19.3)	492(19.2)	136(5.1)	22(0.9)	23(1.0)	7(0.3)
500L	14(0.5)	47(1.8)	47(1.8)	11(0.4)	1(0.0)	2(0.1)	0(0.0)
600L	5 (0.2)	17(0.7)	17(0.6)	4 (0.2)	0(0.0)	1(0.0)	0(0.0)
	$X^2 = 6.37$, df=5, p-value=0.27		$X^2 = 23.94$, df= 20, p-value= 0.245				
Cocain	Ever used cocain		Regularity of cocaine use				
100L	13(6.6)	264(10.4)	264(10.4)	8(0.2)	1(0.0)	0(0.0)	4(0.2)
200L	27(1.1)	692(27.5)	692(27.5)	20(0.4)	6(0.2)	0(0.0)	1(0.0)
300L	64(2.5)	727(29.3)	727(29.3)	52(0.5)	6(0.2)	3(0.1)	3(0.1)
400L	40(1.6)	640(25.1)	640(25.1)	18(0.7)	15(0.6)	0(0.0)	2(0.1)
500L	0(0)	61(2.1)	61(2.1)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
600L	3(0.1)	19(0.8)	19(0.8)	3(0.0)	0(0.0)	0(0.0)	0(0.0)
	$X^2 = 10.43$, df=5, p-value= 0.064		❖ $X^2 = 53.56$, df= 20, p-value= 0.00006				
Hallucino gens	Ever used hallucinogen		Regularity of hallucinogen use				
100L	17(0.7)	260(10.2)	260(10.2)	14(0.5)	0(0)	0	3(0.1)
200L	45(1.8)	674(26.4)	674(26.4)	38(1.5)	0(0)	4(0.2)	3(0.1)
300L	49(1.9)	742(29.1)	742(29.1)	44(1.7)	0(0)	1(0.0)	4(0.2)
400L	57(2.2)	623(24.4)	623(24.4)	40(1.6)	5(0.2)	6(0.2)	6(0.2)

500L	1(0.0)	60(2.4)	60(2.4)	0(0)	1(0.0)	0(0)	0(0.0)
600L	0(0)	22(0.9)	22(0.9)	0(0)	0(0)	0(0)	0(0)

$X^2 = 7.903$, df=5,

❖ $X^2 = 31.61$, df= 20, **p-value= 0.047**

p-value= 0.1616

Solvents	Ever used Solvents		Regularity of Solvents use				
100L	25(0.9)	252(10.1)	252(10.1)	20(0.5)	2(0.1)	1(0.0)	2(0.1)
200L	56(2.2)	663(27.5)	663(27.5)	47(1.8)	3(0.1)	6(0.2)	0(0)
300L	56(2.2)	735(29.3)	735(29.3)	45(0.9)	5(0.2)	5(0.2)	1(0.0)
400L	55(2.2)	625(24.5)	625(24.5)	21(0.7)	11(0.5)	20(0.8)	3(0.1)
500L	2(0.1)	59(2.1)	59 (2.1)	0(0.0)	0(0)	1(0.1)	1(0.0)
600L	1(0.0)	21(0.8)	21(0.8)	1(0.1)	0(0)	0(0)	0(0)

$X^2 = 3.261$, df=5,

❖ $X^2 = 55$, df= 20, **P-value= 0.00004**

p-value= 0.659

- ❖ Chi square does not meet Cochran's criteria. Cochran recommends accepting the chi square if:
5. No more than 20% of cells have expected value <5
 6. No cell has an expected value <1

DISCUSSION

With close to ten percent of the total students' population sampled, the 2550 respondents in this study were a fair representation of the students' population with a slight female preponderance. The minimum age in this study was fifteen. This is not surprising because the age of university enrolment in Nigeria is 16 but some candidates still get admitted at a younger age as there is no legal minimum or maximum age for entering a university in Nigeria. In this study, most of the students, about six in every ten, were in the age range 20-24, with the same mean and the modal age of 20 years. However, the mean age of the females was slightly lower than the males. These findings are like the findings of similar earlier studies in Nigeria (Makanjuola et al, 2007; Onifade, et al, 2014).

Prevalence of reported psychoactive substance use

The lifetime prevalence of cigarette use was 11.5% while current use (regular, occasional, and daily use) was 4.6%. Makanjuola et al 2007 obtained a lifetime and current prevalence of tobacco use of 10.5% and 3.2% respectively. Onifade and colleagues, 2014, however, got lifetime prevalence figures for cigarettes varying between 6 and 18% among university students in Nigeria. A national prevalence of cigarette use was respectively put at 12.2% for a lifetime, 6.4% for 12-month, and 5.3% for 30-day (Adamson, 2015). Thus, our finding lies between values that have been previously obtained among university students in Nigeria and close to the national values. Cigarette (tobacco) is a licit drug in Nigeria, freely purchased and its sale not tied to age, though with instructions not to smoke in public places. So, it is not surprising to see university students and others smoke a cigarette which, to many, is a gateway substance of abuse.

The lifetime prevalence of alcohol was 38.3% while current use was 15.2%. A study among students of

three universities in Nigeria reported prevalence figures ranging from 16.7% and 47.7%. (Onifade et al, 2014). Ajayi et al (2019) found the level of ever and current use of alcohol of 43.5% and 31.1%, respectively. The lower prevalence of alcohol use in this study might be related to the effect of the community where the study was carried out. This thinking is supported by the findings of Taylor et al that found Ilorin, the host city of the university where this study was done, to have the lowest prevalence (33.3%) for alcohol among four cities in different continents of the world (Taylor et al, 2017). Despite these findings, the level of alcohol use among university students calls for caution and efforts should be made to further reduce these prevalence figures amongst our university students to the barest minimum.

The reported lifetime prevalence of use of cannabis was 9.0% and the current prevalence of 3.8% in this study is lower than the lifetime prevalence values (30.9%) reported by students in a South African University (Jain et al, 2018) but higher than 4.5% in Ethiopia (Gebremariam et al, 2018) and 2.1% among medical students in Nigeria (Makanjuola, 2007). The reason for these different figures is not known but the lower figure among Nigerian medical students might be related to the better moral standard always displayed by medical students compared to other university students (Verrinder et al, 2016).

Stimulants are perceived as performance-enhancing substances. Among students, they may be wrongly used to promote study and activities such as sports and drama or other courses where physical dexterity is desirable. About 32.6% of the students reported lifetime use of stimulants and a current prevalence of 15.3%. This lifetime figure is high compared to 6.9% in a national survey of college students in the United States (McCabe et al, 2005) but lower than 41.4% and 23.6% for coffee and

energy drinks in a study from Australia (Lucke et al, 2018). The array of stimulants studied in these reported studies ranged from methylphenidate, amphetamine, coffee, etc while the stimulants studied in our study also included local stimulants like Kolanut, a caffeine-containing nut of evergreen trees of the genus *Cola*, primarily of the species *Cola acuminata* and *Cola nitida*. This nut is traditionally taken in most Nigerian communities and is not perceived as a substance of abuse despite the knowledge that it keeps users awake when eaten. This belief might be responsible for the wider use by the students in this part of the world, hence the higher prevalence of stimulants in this study.

In this study, a lifetime prevalence of 11.7% was obtained for sleeping drugs (sedatives) with a current prevalence of 4.8%. Earlier studies among Nigerian university students showed varying figures. While Makanjuola and colleagues reported a lifetime prevalence of 27.0% and current use of 7.3% for sedatives (Makanjuola et al, 2007). Another study reported a lifetime use of 12% for tranquilizers (Onifade et al, 2014). Nigeria's national lifetime prevalence of 11.3%, past year 5.5%, and past month 2.9% prevalence of tranquilizers were reported by Adamson et al, 2015. Our findings for sedatives are, therefore, about that of the national prevalence figure for Nigeria and comparable to other research findings in Nigeria.

The lifetime prevalence of opiates use was 25.3% with a current use prevalence of 7.2%. Earlier studies on the use of substances by university students had reported varying figures. While Makanjuola et al, 2007 reported a lifetime prevalence of 0.7% for heroin use among medical students in Nigeria; Onifade et al, 2014 reported 11.9%. A study from the United States reported a lifetime prevalence of nonmedical prescription use of

opioids of 12% and a past-year prevalence of 7% (McCabe et al, 2005). Similarly, a study from China put the lifetime prevalence of opioids at 14.6% (Tang et al, 2016). Our figure is higher than those in the cited studies from Nigeria, the United States, and China. It is also higher than the national lifetime opioid use prevalence of 7.2 % (Adamson 2015). This is possibly an upward trend in the use of opioids. It is bothersome and needs to be checked in order not to witness an opioid scourge amongst our students.

Our respondents reported a lifetime prevalence of use of cocaine of 4.6% and a current use prevalence of 1.5%. A national survey in Nigeria reported 3.3% lifetime use of cocaine. Therefore, our finding nearly agrees with a previous study in Nigeria, which reported a range of 1.9% - 4.0% (34). It was higher than the 0.7% and 0.14% (Makanjuola et al, 2007; Gureje et al, 2007) reported earlier in Nigeria respectively but lower than the figures (4.0% – 16.2%) reported for the countries in Oceania and Americas (Degenhardt et al, 2008).

Anecdotal idea had been that hallucinogenic substances use was rare in Nigeria. This study showed that this may be transitory or showing a new trend. It showed that one form of hallucinogen had been previously used (lifetime prevalence) by 6.7% of the students, 0.3 % occasionally, 0.4% regularly (2-3 times per week) while 0.7% used hallucinogen on daily basis (making a current prevalence of 1.4%). LSD and other hallucinogens lifetime national prevalence of 2.8% and 3.3% respectively were reported by Adamson, 2015 making a total lifetime prevalence of 6.1%. This is similar to what this study found among the responding university students.

The lifetime prevalence of solvents use was 7.6% while current use was 2.5%. This is like the Nigerian national finding (Adamson, 2015)

that reported a lifetime prevalence of 6.8 % for the use of solvents/inhalants in Nigeria. It thus appears that for cocaine, hallucinogens, and solvents the prevalence figure among our students mirrors the national prevalence values.

Gender of respondents and use of psychoactive substances

Male respondents were likely to have smoked cigarettes than female respondents and male respondents were more likely to be current (occasionally, regularly, or take it daily) users of cigarettes than females. This male dominance in the use of cigarettes had been reported by many previous studies (Makanjuola et al, 2007; Adelekan et al, 2001; Onifade et al, 2014; and Adamson, 2015). While more males were likely to have ever used alcohol, marginally more females were likely to be current users of alcoholic products. This partly confirmed the finding (Wilsnack et al, 20097) that drinking was consistently more prevalent among men than among women but differed from the finding of the same study that showed that lifetime abstention from alcohol was consistently more prevalent among women.

More males were, similarly, likely to have ever used cannabinoids than females and more than females as current users. This finding of male dominance in the use of cannabis has been variously made in earlier studies and this further attests to the fact of male dominance.

Level of University Education and Use of Psychoactive Substances

This study showed that more students in the 3rd and 4th grades were more likely to have used cigarettes and were more likely to be current (occasional, regular, or daily) users. Similarly, students in the 3rd and 4th years were likely to be current users of alcohol than other levels of education. Similar findings of the use of other

psychoactive substances by the senior students were also reported for hallucinogens and solvents use. These findings have been supported by an Ethiopian study that found students of the fourth year and above to be 2.4 times more likely to use substances than first-year students (UNDP, 199). These were senior students in the final or penultimate graduating year in the university for those pursuing a four-year course. A probable reason for the more prevalent use of substances by the senior students could be for performance (study) enhancement.

Age Group of Respondents and Use of Psychoactive Substances

Respondents within the age group 20-24 were likely to have ever used cigarettes and were more likely to be current users of cigarettes. They were also more likely to have used cannabis and cocaine and were similarly to be current users of cannabis and cocaine. The age group was not related to the use of stimulants, sleeping drugs, or opioid use. Like most of the other substances, lifetime use of hallucinogens was statistically significant to the age group of the students with students in the age group 20-24 being most likely to have used a hallucinogenic substance and likely to be current users of solvents. Since most students graduate at about age 23/24, it tends to correlate with the earlier finding that students in the 3rd or 4th years of their study were more involved in substance use.

Because of the large population of the students, larger sample or a total students' survey would have been better. However, the 2550 sample in this study was more than the calculated sample size.

CONCLUSION

Students of the University of Ilorin, Nigeria engage in use of psychoactive substances like their counterparts in other universities of

the world. The rate of use is comparable to rates from previous studies with a slightly lower use of alcohol but a seemingly upward trend in the use of opiates. There is, thus a need to step up psychoactive drug use education amongst the students.

Competing interests

No competing interest.

Authors' contributions

This was one of the projects for the department while Baba Awoye Issa was the Head of Department. Despite that, the authors played equal role in the conceptualization, execution, writing, reading of the manuscript and submission of the final manuscript.

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