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Recreational use of psychoactive substances among secondary school students in North-Central Nigeria

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ABSTRACT

Background: In the West African sub-region, the recreational use of psychoactive substances has increased. Adolescent substance use is commonly found among students. This study was aimed at determining the prevalence and pattern of substance use among secondary school students in Ilorin, Nigeria.

Methods: Using a multistage sampling technique, data from 2,001 students was analyzed. Instruments used were a sociodemographic questionnaire and a modified WHO Students' Drug Use Survey Questionnaire.

Results: The overall lifetime use of substances was 83.7%, while overall current use was 62.4%. Non-prescription use of antibiotics and analgesics was prevalent (53% and 15.8%, respectively). The psychoactive substances most commonly used were stimulants, alcohol and organic solvents, with a current use of 7.1%, 3.5% and 3.5% respectively (N = 2001). The overall mean age at first use was 13.45 ± 1.49 , while many organic solvent users started at age 10.

Conclusions: The recreational use of psychoactive substances is common among school children in Ilorin. The age of onset is in early adolescence, or earlier for substances like organic solvents that are easily accessible. The prevalent use of alcohol, a gateway drug, is a call for action.

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Adolescence; drug abuse; students; substance use; education

Introduction

The propensity of humans for psychoactive substance use dates from antiquity (Sullivan & Hagen, 2002). The reasons for use may be recreational (Ahmadi & Hasani, 2003; Bellis et al., 2002), religious (Doering-Silveira et al., 2005), or medicinal (McCabe et al., 2009). The recreational use among young people has increased (Owoaje & Bello, 2010), despite awareness of the negative consequences (Dasgupta et al., 2010). The age of exposure has reduced over time (Peltzer, 2011; Vega et al., 2002). Recent improvements among adolescents in the United States call for monitoring of drug trends in sub-Saharan Africa (Keyes et al., 2019; Randolph et al., 2018), where there is a need for student drug studies (Oshodi et al., 2010).

Psychoactive substance use is prevalent among adolescents around the world (Owoaje & Bello, 2010). Alcohol and tobacco use are common, with 933.1 million people worldwide smoking tobacco daily (Peacock et al., 2019). Early substance use is associated with suicidal behavior (Korhonen et al., 2018; Peltzer & Pengpid, 2015). Co-morbid mental illness compounds the psychosocial burden (Kattukulathil et al., 2015; Kavanagh et al., 2004).

A trans-national African study of school children between 13 to 15 years revealed that 12.6% had used tobacco in the month preceding the study (Peltzer, 2009). South African (Flisher et al., 2003; Madu & Matla, 2003), Zambian (Siziya

et al., 2013) and Kenyan (Maina et al., 2013; Otieno & Ofula, 2009) studies show that drug experimentation is common in high school. Heroin use is notably present in Kenya (Deveau et al., 2006), Mauritius (Abdool et al., 2006) and Tanzania (Timpson et al., 2006). In Uganda, nearly two out of five adolescents in high school start smoking cigarettes before the age of 10 (Mpabulungi & Muula, 2004).

In Nigeria, current use of substances among students was 56% in the far north (Shehu & Idris, 2008), 87% in the south-south (Eneh & Stanley, 2004), 33.7% in the east (Igwe et al., 2009), a range of 0.2 to 48.7% in the south west (Fatoye & Morakinyo, 2002) and 31.2% in the north central zone (Ogunkunle, 2018). This study was aimed at determining the prevalence and pattern of psychoactive substance use among secondary school students in Ilorin, Nigeria.

Materials and methods

Setting

The study was carried out in Ilorin East Local Government of Kwara State, which is made of 12 wards. Ilorin is the capital of Kwara in North Central Nigeria, with a population of 204,310 as at the 2006 census. It is a multicultural city made of Yoruba, Nupe, Fulani and Hausa dwellers (Kwara State Government, 2012; National Population Commission, 2007).

Population

There are 37 junior secondary schools and 26 senior secondary schools in Ilorin East (Kwara State Government, 2013). The sampling frame was 23,483 students from all schools in the population.

Participants

For drug studies, the WHO recommends a sample size of 10% of the total sampling frame (Smart & World Health Organization, 1980). Additionally, for student drug studies, a sample size between 2,000 to 3,000 students (irrespective of the population size) produces a reliable assessment (United Nations Office on Drugs & Crime (UNODC), 2003). Data from 2,001 secondary school students was analyzed.

Sampling technique

Following a pretest, the main study used a multistage sampling technique to select 4 junior and 4 senior secondary schools. The number of students to be interviewed from each class of randomly selected schools was determined by proportionate stratification (United Nations Office on Drugs & Crime (UNODC), 2003).

Measures

A modified WHO Students' Drug Use Survey Questionnaire was used for data collection. It is a semi-structured self-report questionnaire (Smart & World Health Organization, 1980), which has been validated for use in Nigeria (Adelekan & Odejide, 1989) and used in previous Nigerian studies in Ilorin (Abiodun et al., 1993) and elsewhere (Oshodi et al., 2010). Data was collected between October 2014 and January 2015. Students were not allowed to discuss their responses while teachers were not allowed into the interview hall.

Ethical considerations

Ethical approval was obtained from the Ethical Review Board of the University of Ilorin Teaching Hospital, while administrative approval was obtained from the Kwara State Ministry of Education and Human Capital Development, and from the school principals of selected schools. Assent/consent was obtained from participants.

Analyses

The data was analyzed with the Statistical Package for Social Sciences (SPSS) version 22 (Armonk, 2013). The level of statistical significance was set at 5% confidence limit. Frequency distribution of variables was done and frequency tables were generated. Chi square statistics determined the association between substance use and qualitative variables. Binary logistic regression analysis then identified associated independent variables.

Results

Sociodemographic characteristics: A total of 2168 students gave informed consent to be interviewed (response rate: 92.3%). Only 2001 questionnaires were completely filled and analyzed. Of the respondents, 1083 (54.1%) were male. The mean age was 15.05 ± 2.39 . Based on the International Standard Classification of Occupations (International Labour Office (ILO), 1990), most of the parents were traders.

Age of initiation: The overall mean age at first use of any substance was 13.45 ± 1.49 . Most organic solvent users started at age 10.

Prevalence and types of substances used: Overall lifetime use of any substance was 83.7% ($n = 1675$) and overall current use was 62.4% ($n = 1248$). Lifetime prevalence was 84.2% and 83.1% among male and female students, respectively. Current substance users constituted 66.6% and 57.4% of all male and female respondents, respectively. Current substance users in junior and senior classes constituted 60.0% and 65.2%, respectively.

Lifetime use was most prevalent for antibiotics (56.0%), analgesics (44.7%), stimulants (26.8%) and alcohol (19.7%). Current use was highest for antibiotics, analgesics and mild stimulants, with a prevalence of 53.0%, 15.8% and 7.1% respectively. Both alcohol and organic solvents were in current use among 3.5% of respondents (Table 1).

Pattern of current use: Daily use of cigarettes and alcohol was reported by 28.6% and 5.6% of current users. The weekly use of cigarette, alcohol and cannabis was found among 14.3%, 9.9% and 8.3% of current users respectively, while most respondents who took cigarettes (57.1%), alcohol (84.5%), cannabis (91.7%) and un-prescribed antibiotics (97.9%) reported monthly use of the substance (Table 2).

Substance use by others: There were 165 fathers, 95 mothers, 94 siblings and 181 peers of the respondents who were reported to be taking substances. Cross-tabulation showed a significant association between current organic solvent use and solvent use by the respondents' father ($\chi^2 = 58.369$, $p < .001^{BS}$), mother ($\chi^2 = 9.577$, $p < .007^{BS}$), sibling ($\chi^2 = 57.272$, $p < .001^{BS}$) and close friend ($\chi^2 = 61.205$, $p < .001^{BS}$). Current alcohol use was significantly associated with alcohol use by a sibling ($\chi^2 = 64.662$, $p < .001^{BS}$) or close friend ($\chi^2 = 61.181$, $p < .001^{BS}$). Use of cannabis was associated with father's use of cannabis ($\chi^2 = 6.650$, $p < .030^{FE}$) (Table 3).

Table 1. Prevalence of substance use.

Substance	Never Use (%)	Lifetime Use (%)	Past Use (%)	Current Use (%)
Cigarette	1765 (88.2)	236 (11.8)	222 (11.1)	14 (0.7)
Cannabis	1762 (88.1)	239 (11.9)	227 (11.3)	12 (0.6)
Alcohol	1606 (80.3)	395 (19.7)	324 (16.2)	71 (3.5)
Stimulants	1465 (73.2)	536 (26.8)	394 (19.7)	142 (7.1)
Sedatives	1715 (85.7)	286 (14.3)	219 (10.9)	67 (3.3)
Analgesics	1106 (55.3)	895 (44.7)	578 (28.9)	317 (15.8)
Antibiotic	880 (44.0)	1121 (56.0)	61 (3.0)	1060 (53.0)
Opioids	1781 (89.0)	220 (11.0)	212 (10.6)	8 (0.4)
Cocaine	1988 (99.4)	13 (0.6)	9 (0.4)	4 (0.2)
Hallucinogen	1962 (98.1)	39 (1.9)	34 (1.7)	5 (0.2)
Organic solvents	1857 (92.8)	144 (7.2)	73 (3.6)	71 (3.5)

Table 2. Pattern of current substance use.

Variables	Daily	Weekly	Monthly
	n (%)	n (%)	n (%)
Cigarette (n = 14)	4 (28.6)	2 (14.3)	8 (57.1)
Alcohol (n = 71)	4 (5.6)	7 (9.9)	60 (84.5)
Cannabis (n = 12)	-	1 (8.3)	11 (91.7)
Stimulants (n = 142)	6 (4.2)	7 (4.9)	129 (90.8)
Sedatives (n = 67)	1 (1.5)	12 (17.9)	54 (80.6)
Analgesics (n = 317)	22 (6.9)	22 (6.9)	273 (86.1)
Antibiotics (n = 1060)	11 (1.0)	11 (1.0)	1038 (97.9)
Opioids (n = 8)	-	1 (12.5)	7 (87.5)
Cocaine (n = 4)	-	1 (25.0)	3 (75.0)
Hallucinogens (n = 5)	-	1 (20.0)	4 (80.0)
Organic solvents (n = 71)	9 (12.7)	19 (26.8)	43 (60.6)

Table 3. Association between substance use by father and respondent's current substance use.

Variable	Father's use of substance			χ^2	p Value
	Yes n (%) n = 165	No n (%) n = 1399	No response n (%) n = 320		
Cigarette					
Yes	3 (1.8)	8 (0.6)	2 (0.6)	1.817	.403 ^y
No	162 (98.2)	1391 (98.5)	318 (99.4)		
Cannabis					
Yes	4 (2.4)	8 (0.6)	-	6.650	.030 ^{FE}
No	161 (97.6)	1391 (99.4)	-		
Alcohol					
Yes	25 (15.2)	39 (2.8)	4 (0.1)	72.889	<.001 ^{BS*}
No	140 (84.8)	1360 (97.2)	316 (99.9)		
Stimulants					
Yes	20 (12.1)	111 (7.9)	6 (1.9)	20.487	<.001 ^{BS*}
No	145 (87.9)	1288 (92.1)	314 (98.1)		
Sedatives					
Yes	10 (6.1)	51 (3.6)	2 (0.6)	11.480	0.001 ^{BS*}
No	155 (93.9)	1348 (96.4)	318 (99.4)		
Analgesics					
Yes	30 (18.2)	251 (17.9)	20 (6.3)	27.173	<.001 ^{BS*}
No	135 (81.8)	1148 (82.1)	300 (93.7)		
Antibiotics					
Yes	94 (56.9)	718 (51.3)	81 (25.3)	77.309	<.001 ^{BS*}
No	71 (43.0)	681 (48.7)	239 (74.7)		
Opioids					
Yes	2 (1.2)	5 (0.4)	-	2.420	0.163 ^{FE}
No	163 (98.8)	1394 (99.6)	-		
Cocaine					
Yes	2 (1.2)	1 (0.1)	-	10.030	.031 ^{FE*}
No	163 (98.8)	1398 (99.9)	-		
Hallucinogen					
Yes	2 (1.2)	2 (0.1)	-	6.610	.057 ^{FE}
No	163 (98.8)	1397 (99.0)	-		
Organic solvents					
Yes	21 (12.7)	34 (2.4)	3 (0.9)	58.369	<.001 ^{BS}
No	144 (87.3)	1365 (97.6)	317 (99.1)		

χ^2 : Chi square; *: Statistically significant (i.e. $p < 0.05$), y: Yates correction, FE: Fisher's Exact test, BS: Bonferonni significance, - not analyzed

Perception about harm: The current use of solvents was significantly associated with a perception that it was not harmful ($\chi^2 = 9.711$, $p < .003^{BS}$). Likewise, current alcohol users were more likely to consider alcohol as not harmful ($\chi^2 = 15.355$, $p < .001^{BS}$) and readily available ($\chi^2 = 14.963$, $p < .001$).

Age of Initiation to substance use: The overall mean age at first use of any substance was 13.45 years $\pm$ 1.49. Users of hallucinogen and opioids started around 14 years of age, while most organic solvent users started at age 10. Other substance users began at 13 years.

Discussion

The sociodemographic characteristics were similar to that from previous drug studies (Abdulkarim et al., 2005; Igwe et al., 2009; Oshodi et al., 2010). The overall lifetime use was higher than that reported by Abdulkarim a decade ago (Abdulkarim et al., 2005). This appears to be a pointer to an increasing prevalence of drug use in the study setting.

The lifetime prevalence was similar among male and female students, suggesting that the gender difference (Abiodun et al., 1993) is closing up (Oshodi et al., 2010). Drug use was higher among senior students, in keeping with previous reports that drug use increases with age (L. Johnston et al., 2009a).

The lifetime use of substances was highest for antibiotics, analgesics, stimulants and sedatives. This was unsurprising as these substances are relatively more accessible to adolescents. Lifetime opioid use was 11.0%. A more recent survey in the same setting shows a rise in lifetime opioid use, specifically codeine-containing cough syrup (13.6%) (Ogunkunle, 2018).

The most currently used substances, in descending order, were antibiotics (53.0%), analgesics (15.8%), and stimulants (7.1%). Previous Nigerian studies in Kwara (Abiodun et al., 1993), Ogun (Adelekan, 1989) and Lagos (Oshodi et al., 2010) have shown a similar pattern of drug use among secondary school students. These drugs are readily available, affordable and accessible (Sherazi et al., 2012). Pharmacological agents may have also been misused to relieve perceived academic stress.

Current use of antibiotic of 53.0% was much higher than the prevalence of 24%, 27%, and 16% in 1988, 1993 and 1998 respectively, reported in the same study setting (Adelekan et al., 2000). Opioids (0.4%) as well as hallucinogens and cocaine were the least commonly used drugs in the current study. This is also similar to previous findings from other secondary school drug surveys (Fatoye & Morakinyo, 2002; Oshodi et al., 2010). Ogunkunle's recent Ilorin study shows a notable rise in current opioid use, specifically codeine cough syrup (10.4%) and tramadol (0.8%) (Ogunkunle, 2018).

The reported prevalence of current alcohol use was 3.5%. This was low compared with 13.4% reported by Fatoye, 14.5%, by Abdulkarim, 8.9% by Oshodi, and 12% by Abiodun (Abdulkarim et al., 2005; Abiodun et al., 1993; Fatoye & Morakinyo, 2002; Oshodi et al., 2010). The relatively low prevalence of current alcohol use in the present study may be due to the positive effect of drug education. This finding may also be due to the societal prohibition of alcohol purchase by adolescents and the proliferation of religious groups in Ilorin over time as most religious groups have firm doctrine against alcohol use (A. B. Mekanjuola et al., 2007).

Culture and religion are important factors in alcohol consumption (Castaldelli-Maia & Bhugra, 2014; Taylor et al., 2019b, 2017). Culture affects not only substance use behavior but also, the nature of symptoms expressed (Escobar & Vega, 2006). Knowledge of cultural differences has implications for research and clinical practice (Lu et al., 1995; Oldham & Riba, 1996).

On the other hand, there may have been underreporting of the actual prevalence of current alcohol use. Reporting negative aspects of alcohol use is influenced by culture (Taylor et al.,

2019a). The ban of alcohol on Nigerian campuses may encourage use of other substances which are more readily available.

While the prevalence of illicit drugs such as hallucinogens and cocaine was low in this study, it is known that drugs such as alcohol and cigarettes serve as gateway drugs to others like cocaine, heroin, amphetamine, inhalants and hallucinogens (Omigbodun & Babalola, 2004).

In the present study, there was current use of all substances surveyed. This is in contrast with a previous study in which there was no current use of opioids, hallucinogens and organic solvents (Fatoye & Morakinyo, 2002). It could be that these substances have become more available, accessible, with users being influenced by significant others who also use them.

Cocaine and hallucinogens were not taken daily. This may have been due to non-availability, non-accessibility or non-affordability of the substances. Cocaine may have been particularly expensive to purchase. Nonetheless, daily, weekly, and monthly use was reported for cigarette, alcohol, stimulants, analgesics, antibiotics and organic solvents. This is similar to the findings from previous studies in Ilorin (Abdulkarim et al., 2005; Abiodun et al., 1993). Alcohol and cigarettes, which are gateway drugs, were used on a daily basis by some respondents, a finding that may be indicative of the risk for multiple substance use.

Weekly users of cannabis, cocaine and solvents were 8.3%, 25% and 26.8% respectively. This is in contrast to more recent findings which revealed that weekly users of cannabis, cocaine and solvents constituted 75%, 55.6% and 53.3% respectively (Ogunkunle, 2018). This may be indicative of a higher frequency of substance use in the study setting. Solvent use could have been due to the commercial availability of inhalants (Matsushita et al., 1996).

Most substance users first used the substance in childhood, with the mean age of initiation in this study being 13.45 ± 1.49 . Furthermore, organic solvent users started at about ten years of age. These findings are in tune with global trends. Western studies (L. D. Johnston et al., 2009b; Substance Abuse Mental Health Services Administration (SAMHSA), 2007) have demonstrated early initiation of substance use. East (Mpabulungi & Muula, 2004) and West African studies (Abdulkarim et al., 2005) have also described childhood initiation into substance use.

Initiation may begin with experimentation and progress to a substance use disorder. In a longitudinal American high school study, only 5% of daily cigarette smokers were certain that they would sustain the habit for another 5 years. However, about 70% were still daily smokers close to a decade afterward (L. D. Johnston et al., 2009b). Early onset of substance use may also be associated with substance dependence and psychiatric morbidity later in life (A. Makanjuola et al., 2014).

Conclusion

This study revealed early initiation into drug use. The overall substance use reported in this study is of concern and there was a current use of all substances surveyed. We suggest that concerted efforts against drug abuse should target minors. Drug-free clubs in

schools will increase awareness among students and school teachers. Also, government should enact and implement policies that prohibit the sale of substances to minors.

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Data statement section

The data used in this study is attached to the submission of the manuscript.

Disclosure of potential conflict of interest

We have no conflicts of interest to disclose.

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