Ogunkunle TO
Gobir AA
Makanjuola AB
Ojuawo A

CC –BY # Educational status and other socio-demographic correlates of current use of psychoactive substance among Nigerian adolescents

Ogunkunle TO (✉)
Gobir AA, Ojuawo A
Department of Paediatrics,
University of Ilorin Teaching
Hospital (UITH), Ilorin, Kwara
State, Nigeria.
Email: taopheeqsheun@yahoo.com

Makanjuola AB
Drug Abuse Treatment, Education,
Research & Rehabilitation
(DATER) Centre, Department of
Behavioural Sciences, University of
Ilorin Teaching Hospital, Ilorin
Kwara State, Nigeria.

Abstract *Background:* The spate of psychoactive substance use is unprecedented. The determination of associated factors will be critical to tackling this menace. However, most studies were conducted in school which would have excluded the population of out-of-school children. Thus, this study assessed the correlates of adolescents' psychoactive substance use at the community level.

Methods: A cross-sectional study conducted among 500 adolescents (258 male and 242 female) in Ilorin West LGA between December 2016 and October 2017. A stratified multistage sampling technique was used for subject selection and a pretested WHO substance use questionnaire was used to collect data. Descriptive, bivariate and multivariate logistic regressions were employed to identify the predictors of substance use.

Results: The lifetime prevalence of psychoactive substance use is 43.4% while the prevalence of current use is 31.2%. The most commonly used substances were stimulants (caffeine); 14.4%, codeine-containing cough syrup; 10.4% and alcohol; 10.2%. Socio-economic class and the use of substances by friends were predictors of current use. The current use of alcohol and opiates is significantly higher among in-school subjects (*p* = 0.001, 0.042). Current use of cannabis, alcohol, hallucinogen, cocaine, correlated positively with educational status of respondents in school.

Conclusions: The current use rate of psychoactive substance is high among the adolescents with socio-economic class, use of substance by friends and educational status as its predictors. Urgent multipronged measures are therefore, crucial to curb this trend.

Keywords: Psychoactive substances, Adolescents, current use, lifetime use, educational status

Introduction

Globally, children are increasingly using psychoactive substances and this constitutes a major public health concern.[1] Adolescents are particularly vulnerable to initiate the use of psychoactive substances owing to their cravings for experimentation.[2,3] The potential consequences of early-onset substance use include poor academic performance, drop-out, mental disorders, violence, death, addiction, risky sexual behaviours and unintended pregnancy.[4–7]

In the United States, almost 70% of students aged 14 to 18 years would have tried alcohol, nearly 40% have smoked a cigarette and 36.8% have used marijuana.[8,9] In India, the lifetime use of tobacco, alcohol, cannabis, inhalants, and opioids among adolescents was 83.2%, 67.7%, 35.4%, 34.7%, and 18.1% respectively.[10] Furthermore, the lifetime prevalence of psychoactive substance use ranging from 57.2% to 87.3% among Nigerian adolescents have been reported, with the most frequently used substances being alcohol and tobacco.[11,12] Various socio-cultural factors (e.g., peer pressure, family structure, and economic support) have been examined for their role in the initiation and the pattern of adolescent substance use, but most of the available studies were conducted in school populations which would have excluded the population of adolescents that are out of school. Consequently, the burden of substance use may have been underestimated and the existing data may not have been accurate at guiding intervention efforts. This community-based survey, therefore, aimed to generate more representative data on the current burden of psychoactive substance use and its correlates among children in Ilorin West LGA, Kwara state.

Methods

This was a cross-sectional survey involving children aged 10 to 18 years residing in Ilorin West Local Government Area of Kwara state, an LGA with the year 2014 estimated population of 461,948 giving a projected growth rate of 3.2%.[13,14] It has four districts namely, Ajikobi, Alanamu, Magaji-Nngeri and Waraosin/Egbejila and 12 political wards namely: Adewole, Ajikobi, Alanamu, Badari, Baboko, Magaji-Nngeri, Ogidi, Oko-Erin, Oloje, Sarumi/Ojuekun, Ubandawaki, and Wara/Osin/Egbejila.

A minimum sample size of 500 was calculated based on the projected population using the Yamane formula (1967).[15] A multi-stage random sampling technique was used for subject selection: six out of the twelve political wards were randomly selected. In each of the wards, a proportionate sampling technique was used to estimate representative sample size. Thereafter, a community was randomly selected from the list of communities in each of the ward. A bottle spinning method was used to determine the index household where sampling commenced in each of the selected community.[16]

One eligible adolescent was systematically recruited per household in each of the selected communities. In instances where there were no eligible subjects in a household, subjects were recruited from the next household. Furthermore, in instances where there was more than one eligible subject in a household, one subject was randomly selected by balloting. Eligibility criteria were children aged 10 to 18 years who assented to and whose parents gave consent to participate in the study.
Lifetime/Ever-use was defined as the use of the particular substance at least once in a lifetime while current use was defined as the use of a substance at least once in the 30 days before data collection.[17] The socio-economic status of respondents was as classified by Oyedeji into high, middle and low based on the occupation and level of education of the parent.[18]

Ethical approval (ERC PAN/2017/11/1751) was obtained from the Ethics and Research Committee of the University of Ilorin Teaching Hospital. Recruitment was done on weekends and on students/pupils' holidays for 11 months (December 2016 to October 2017). Respondents who satisfied the inclusion criteria were interviewed using a semi-structured questionnaire. The questionnaire is a WHO Student Substance Use Survey tool that was modified to accommodate children out-of-school. It was pre-tested among 50 adolescents of similar age-group outside the study location and was found to be comprehensible and non-ambiguous. The average duration of the interview was about 12 minutes. The data from the questionnaire were entered into a Statistical Package for the Social Sciences (SPSS) version 20.0 spreadsheet for analysis. Descriptive, bivariate, and multivariate logistic regressions were employed to identify the predictors of substance use. The level of significance was established at a p-value of < 0.05.

Results
Socio-demographic characteristics

The mean age of the study population was 14.5 ±1.95 years; the mean age of school attendees was 14.29 ± 1.85 years while that of non-attendees was 15.58 ± 2.21 years. Two hundred and seventy-nine subjects (55.8%) were in their mid-adolescent (14 to 16 years) years and the male to female ratio is 1:1. Furthermore, 86.6% (n = 433) of the study population were in school, of which 96.8% (n = 419) were in secondary school. Two hundred and ninety-eight (59.6%) of the subjects were in vocational training, 77.5% (n = 230) of whom were also in school. Other characteristics are displayed in Table 1.

Table 1: Socio-demographic characteristics of the study population

Variables	Frequency	
	Number (500)	Percentage (%)
Age group (years)		
10 – 13	145	29.0
14 – 16	279	55.8
17 – 18	76	15.2
Gender		
Male	258	51.6
Female	242	48.4
Educational status		
In school	433	86.6
Out of school	67	13.4
Stage in School (n=433)		
Primary	14	3.2
Junior Secondary	159	36.7
Senior Secondary	260	60.1
Vocational Training		
Yes	298	59.6
No	202	40.4
Socio-economic class		
Upper Class	246	49.2
Middle class	110	22.0
Lower class	144	28.8
Family types		
Monogamous	22	4.4
Polygamous	478	95.6
Parental status		
Both alive	458	91.6
Mother dead	28	5.6
Father dead	8	1.6
Both dead	6	1.2

Prevalence and pattern of psychoactive substance use among respondents

The lifetime and current prevalence of psychoactive substance use were 43.4% (n = 217) and 31.2% (n = 156) respectively. The lifetime use prevalence of alcohol (20.2%) was the highest. The current use prevalence of stimulants, opiate, and alcohol was 14.4%, 11.2%, and 10.2% respectively. Age at first use of opiates was 11.8 ± 2.8 years (Table 2).
Ninety-seven (62.2%) of respondents who were current users of psychoactive substances were multiple users

with 67.0% of them using two substances. Among current users of cannabis, cocaine and solvents, weekly users accounted for 75.0% (n = 9), 55.6% (n = 5) and 53.3% (n = 8) respectively. However, 68.2% (n = 15), 62.7% (n = 32), 66.7% (n = 12) and 60.0% (n = 6) of current users of cigarette, alcohol, sedatives and hallucinogens respectively were monthly users.

Table 2: Prevalence and pattern of use and mean age at first use of psychoactive substance use

Variables	Lifetime use	Current use	Mean age (years) first use
	n (%)	n (%)	± SD
Cigarette	38 (7.6)	22 (4.4)	13.0 ± 2.7
Alcohol	101 (20.2)	51 (10.2)	13.0 ± 2.4
Cannabis	16 (3.2)	12 (2.4)	13.5 ± 1.6
Stimulants	93 (18.6)	72 (14.4)	12.6 ± 2.3
Sedatives	26 (5.2)	18 (3.6)	13.5 ± 2.1
Codeine cough syrup*	68 (13.6)	52 (10.4)	11.8 ± 2.8
Tramadol*	6 (1.20)	4 (0.8)	12.8 ± 2.9
Cocaine	17 (3.4)	9 (1.8)	13.1 ± 2.3
Hallucinogen	17 (3.4)	10 (2.0)	12.4 ± 2.3
Solvents/inhalants	28 (5.6)	15 (3.0)	13.0 ± 2.7

*Opiates

Factors associated with current use of psychoactive substances among respondents

Only socio-economic class and friends' usage of substances were predictive of the current use of psychoactive substance use after adjusting for confounders. Subjects from the middle socio-economic class were 65.5% less likely to be current users of psychoactive substances compared to those from the upper socio-economic class (Table 3).

Educational status of the subjects and current use of specific psychoactive substances

The current use of alcohol and opiates varied significantly across the educational status of the respondents, (p = 0.001 and 0.042 respectively). For both substances, subjects in school accounted for 62.7% (n= 32) and 91.1% (n= 51) of the current users respectively. However, the differences in the current use of other substances with educational status were not significant (Table 4). Among the respondents in school, there was a positive correlation between the current use of alcohol, cannabis, hallucinogen, solvents, and cocaine with educational status (Table 5).

Table 3: Factors associated with current use of psychoactive substances of the respondents

Variables	Current use		COR (95%CI)	AOR (95%)
	Yes	No		
Gender				
Male	85 (54.5)	33 (54.1)		
Female	71 (45.5)	28 (45.9)	1.016 (0.561 – 1.840)	1.016 (0.557 – 1.845)
Age group				
10 – 13	24 (15.4)	14 (23.0)		
14 – 16	98 (62.8)	38 (62.3)	0.665 (0.312 – 1.419)	0.666 (0.312 – 1.451)
17 – 18	34 (218)	9 (14.8)	0.454 (0.169 – 1.218)	0.458 (0.165 –1.234)
SEC#				
Upper Class	77 (49.4)	31 (50.8)		
Middle Class	24 (15.4)	19 (31.1)	1.966 (0.947 – 4.089)*	0.655 (0.294 – 1.461)*
Lower Class	55 (35.3)	11 (18.0)	0.499 (0.230 – 1.073)*	0.307 (0.124 – 0.759)
Father alive				
Yes	147 (94.2)	55 (90.2)		
No	9 (5.8)	6 (9.8)	1.782 (0.606 – 5.239)	1.777 (0.564 – 5.288)
Mother alive				
Yes	149 (95.5)	60 (98.4)		
No	7 (4.5)	1 (1.6)	0.355 (0.043 – 2.946)	0.356 (0.015 – 2.371)
Live with parent				
Yes	116 (78.9)	49 (80.0)		
No	31 (21.1)	12 (20.0)	1.002 (0.459 – 2.185)	0.916 (0.435 – 1.931)
Family type				
Monogamous	10 (6.4)	4 (6.6)		
Polygamous	146 (93.6)	57 (93.4)	0.976 (0.294 – 3.238)	0.976 (0.301 – 3.720)
Relationship with father†				
Friendly	133 (91.7)	50 (92.6)		
Not friendly	12 (8.3)	4 (7.4)	0.887 (0.273 – 2.878)	0.887 (0.237 – 2.789)
Relationship with mother††				
Friendly	144 (95.4)	56 (96.6)		
Not friendly	7 (4.6)	2 (3.4)	0.735 (0.148 – 3.645)	0.736 (0.102 – 3.420)

† (n=199), †† (n=209), # SEC: Socio-economic class

Table 3: continued: Factors associated with current use of psychoactive substances of the respondents

Variables	Current use		COR (95%CI)	AOR (95%)
	Yes	No		
Mother use				
Yes	57 (36.5)	19 (31.1)		
No	99 (63.5)	42 (68.9)	1.273 (0.676 – 2.395)	1.271 (0.678 – 2.430)
Father use				
Yes	53 (34.0)	21 (34.4)		
No	103 (66.0)	40 (65.6)	0.980 (0.525 – 1.828)	0.980 (0.526 – 1.851)
School status				
In school	128 (82.1)	57 (93.4)		
Out of school	28 (17.9)	4 (6.6)	0.321 (0.108 – 0.957)*	0.410 (0.132 – 1.275)
In- school				
Primary	2 (1.3)	2 (3.3)		
Junior secondary	30 (19.2)	18 (29.5)	0.600 (0.078 – 4.639)	0.606 (0.059 – 6.247)
Senior secondary	96 (61.5)	37 (60.7)	0.385 (0.052 – 2.838)	0.389 (0.039 – 3.845)
In Vocational training (VT)				
Yes	91 (58.3)	36 (59.0)		
No	65 (41.7)	25 (41.0)	0.972 (0.533 – 1.774)	0.972 (0.528 – 1.776)
Performance; school/VT††				
Above average	69 (48.3)	37 (62.7)		
Average	66 (46.2)	19 (32.2)	0.537 (0.281 – 1.026)	0.539 (0.277 – 1.026)
Poor	8 (5.6)	3 (5.1)	0.699 (0.175 – 2.796)	0.701 (0.143 – 2.732)
Perceived usefulness				
Useful	101 (64.7)	32 (52.5)		
Not useful	55 (35.3)	29 (47.5)	1.664 (0.913 – 3.033)	1.660 (0.907 – 3.040)
Perceived harmfulness				
Harmful	135 (86.5)	52 (85.2)		
Not harmful	21 (13.5)	9 (14.8)	1.113 (0.479 – 2.587)	1.112 (0.457 – 2.559)
Friends usage of substances				
Yes	96 (61.5)	27 (44.3)		
No	60 (38.5)	34 (55.7)	2.015 (1.106 – 3.669)*	1.827 (0.978 – 3.415)*

†† (n = 202)

Table 4: Current use of substances according to educational status of respondents

Variables	Educational status			x^2	*p*-value
	In school n (%)	Out of school n (%)	Total N		
Cigarette (n=22)					
Yes	12 (54.5)	10 (45.5)	22	2.935	0.087
No	13 (81.3)	3 (18.8)	16		
Alcohol (n=51)					
Yes	32 (62.7)	18 (37.3)	51	14.476	0.001
No	47 (94.0)	3 (6.0)	50		
Cannabis (n=12)					
Yes	4 (33.3)	8 (66.7)	12	2.116	0.146
No	3 (75.0)	1 (25.0)	4		
Opiates (n=56)					
Yes	51 (91.1)	5 (8.9)	56	4.141	0.042
No	13 (72.2)	5 (27.8)	18		
Hallucinogen (n=10)					
Yes	4 (40.0)	6 (60.0)	10	3.553	0.059
No	6 (85.7)	1 (14.3)	7		
Solvents (n=15)					
Yes	10 (66.7)	5 (33.3)	15	1.410^Y	0.235
No	12 (92.3)	1 (7.7)	13		
Sedatives (n=18)					
Yes	15 (83.3)	3 (16.7)	18	0.002^Y	0.964
No	6 (75.0)	2 (25.0)	8		
Cocaine (n=9)					
Yes	5 (55.6)	4 (44.4)	9	0.108^Y	0.742
No	6 (75.0)	2 (25.0)	8		
Stimulants (n=72)					
Yes	59 (81.9)	13 (18.1)	72	3.034^Y	0.082
No	21 (100.0)	0 (0.0)	21		

Table 5: Correlation between educational status and current use of substances among respondents in school

Variables	R	p-value
Cigarette	-0.287	0.164
Alcohol	0.021	0.857
Cannabis	0.966	0.001
Opiates	-0.030	0.816
Hallucinogen	0.356	0.312
Solvents/Inhalants	0.158	0.481
Sedatives	-0.043	0.853
Cocaine	0.311	0.353
Stimulants	-0.090	0.426

r: correlation coefficient

Discussion

The lifetime prevalence of psychoactive substance use in this study is 43.4%. This is comparable to the 40.1% rate reported in the same study location more than a decade ago.[19] Although the current study is community-based, including in-school and out-of-school adolescents; the comparability of the lifetime prevalence rates would suggest that the initial experimentation with psychoactive substances is independent of school attendance at the study location.

A higher lifetime prevalence ranging from 52.1% to 87.3% had been reported among adolescents across Nigeria, Ethiopia and India.[12,20–23] Variations in the prevailing risk factors such as availability of substances, community norms and value-system relating to the use of substances in the different study locations could account for the differences in the prevalence rates. A lower prevalence of 18.5% was found among adolescents in Benin, Nigeria. The study, however, investigated only the use of tobacco, alcohol, and cannabis among adolescents, unlike the current study that had a wider scope.

The lower prevalence of current substance use compared with lifetime prevalence is consistent with previous reports.[12,19,20,22–25] This is reminiscent of the developmental stage of the adolescents, many of who will experiment with an act or behaviour but will not continue with it. The prevalence of current use in this study (31.2%) is similar to the 30.1% reported by other workers among adolescents in Oshogbo, a town with similar characteristics as the current study site.[20] Slightly higher rates were reported from Oromia Regional State, Ethiopia, Enugu, Nigeria, and Ambala respectively.[21,22,24] Of note is that these studies equally reported higher prevalence rates of lifetime use. Perhaps, factors promoting psychoactive substance use may be more prevalent in the settings of higher prevalence rates compared to the current study location.

The mean age at the commencement of psychoactive substances is lower compared to the mean age reported from two Nigerian and a Zambian studies.[19,26,27] Opiates specifically had the lowest mean age of initiation compared to the other substances used in this study. This would suggest that opiates may be more available and easily accessible to children at a very early age. The trend towards declining age of initial exposure to substances portends grave consequences as it confers a high risk of prolonged addiction, psychiatric disorders and mortality.[28–30]

The most currently used substances were stimulants (kola nut and coffee), mostly used to improve alertness and keep awake during exams or a busy schedule. This is consistent with earlier reports.[12,19,26,31] Cocaine, hallucinogens, and cannabis were the least commonly used substances in the current study, a finding that is similar to previous findings from other substance use survey among adolescents.[19] These substances are classified as illicit drugs according to Nigerian law,[32] and it is, therefore, not surprising that the frequency of their use is low. Notwithstanding the low prevalence of the illicit substances in this study, it is known that the use of substances such as alcohol and cigarette (the third and the fifth most currently used drug) could as well serve as 'gateway' to others like cannabis, cocaine, heroin, amphetamine, and hallucinogens.[19,26] The need to dissuade adolescents from the use of the gateway substances, therefore, cannot be overemphasized if curbing the use of illicit substances is desired.

The use of opiates (mostly as codeine-containing cough syrup) surpasses that of alcohol in this report, being the second most frequently used psychoactive substance. This is a clear departure from the finding of previous study[19] in the same study location, where none of the study participants had used any form of opiate. This may be because, in the time interval between the two studies, opiates have become increasingly available in the community and, with little control over their use.[33] Nevertheless, the high prevalence of opiate use in this study underscores the need for public sensitization and regulated sale.

Most current users of all the psychoactive substances were monthly users, except for cannabis, cocaine, and solvents where more frequent use (weekly) use was reported. Although previous researchers in Ilorin and Lagos[12,19,26] had posited the preponderance of monthly usage of psychoactive substances among current users, the increased regularity of use of cannabis, cocaine, and solvents is particularly worrisome. While the ubiquitous nature of solvents (household paints, polish) may have aided the regularity of its use, the illicit status of cannabis and cocaine should have provided deterrence to their use. The increased regularity of these illicit substances, therefore, emphasizes the need for improved law enforcement against their cultivation, production, sale, and use.

In this study, gender of respondents was not predictive of psychoactive substance use in contrast to the reports by Birhanu et al[23] in Woreta, Ethiopia, Abdulkarim et al[19] in Ilorin, Nigeria, Shehu et al[34] in Zaria, Nigeria and Dida et al[24] in Oromia, Ethiopia, where a male preponderance of substance use was reported.[19,23,24,34] This may be because the current study is community-based,

involving both in-school and out-of-school adolescents, unlike the previous studies[19,23,24,34] that were conducted in the school. It is generally opined that males tend to engage more in risky behaviours which may include experimenting with psychoactive substances.[2] The finding of the near-equal frequency of substance use by both genders in the current study may be a reflection of changing societal norms and gender roles relating to sensation-seeking behaviour.

Socio-economic class and the use of substances by friends were the two predictors of current use of psychoactive substances after adjusting for confounders. Belonging to the middle socio-economic class is protective perhaps children in this social class keep friends who are non-users of substances. The significant association of friends' use is similar to the finding of Birhanu *et al*[23] and Rudatsikira *et al*[35] among Ethiopian adolescents and may be related to peer-pressure influence.

The current use of alcohol and opiates is significantly higher among in-school adolescents compared with their out-of-school counterparts. Perhaps the intensity of peer pressure may be higher in the school environment and may have been responsible for the increased rate of use.

Previous school studies in Nigeria have documented the increased use of caffeine (a stimulant) among current users of psychoactive substances, citing the need to keep awake during exams.[12,19] The trend towards the increased frequency of alcohol and opiate use among in-school adolescents in the current study is disturbing, given the fact that both substances are central nervous system depressant with high addictive tendencies. The positive correlation between the current use of illicit substances (cannabis and cocaine), alcohol and hallucinogens with the educational status of the adolescents in school is also of importance, as this may predispose to school drop-out and underachievement later in life.

In conclusion, the current use rate of psychoactive substances is high among adolescents and is predicated on socio-economic class, use of substances by friends and educational status. Urgent multi-pronged measures are, therefore, crucial to curb this trend. Such interventions e.g., advocacy, enactment, and enforcement of substance-restrictive laws and establishment of adolescent-friendly centers should target schools and children from high and low socioeconomic classes without prejudice to gender affiliation.

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