



Pattern of Adolescent Substance Abuse among Secondary School Students in Umuahia, South-Eastern Nigeria

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Abstract

Background: Over the years different substances of abuse have been reported from one setting to the other. The availability, accessibility and affordability of these materials determine the pattern of their abuse in these areas. Gateway substance like alcohol and tobacco were commonly reported among adolescents. However, newer substances are now being abused due to their cheaper cost and difficult detection by available drug screening methods. The current study had a critical look at the current drugs being abused among adolescent students enrolled in secondary schools in Umuahia.

Methodology: A cross-sectional descriptive study of adolescent students in secondary schools in urban and rural communities in Umuahia. A modified WHO student drug use questionnaire and UDT kits were used to ascertain the drug use status of participants. Chi-square was used to test for significant association between categorical variables. p-values <0.05 were accepted as significant.

Results: The commonest licit substance by self-report was coffee in 128 (32.0%) current abusers followed by kola nut in 75 (18.8%) of them. Among the illicit substances, cannabis had a prevalence of 18.8%. The least self-reported substance was cocaine with a prevalence of 0.8%. Oxycodone was the commonest substance detected by UDT with a prevalence of 24.8%, cocaine was also the least by UDT with a prevalence of 1.5%.

Conclusion: The study revealed that coffee was the most abused licit drug followed by kolanut by self-report. Cannabis and "Lacatomom" were the most abused illicit materials with cocaine being the least by self-report. UDT obtained oxycodone, cannabis, opioids and methamphetamine with cocaine as the least.

Recommendation: Mandatory random drug use surveys should be introduced in our schools to monitor and offer mitigating actions against the rising drug demand among our adolescents.

Keywords: Illicit substances; Drug; Adolescents

Introduction

Substance abuse has remained a public health concern despite efforts by our drug law enforcement agents at reducing the trend. The rising difficulty in regulating and mitigating drug demand among our youths has taken a new dimension as new cocktail of drugs has become the major instrument used by our adolescents and young adults to get high. The detection of drug abusers can be challenging

especially if self-reported account of abuser's status is relied upon to identify perpetrators. Use of urine toxicology screen may enhance the detection of drug abusers in our environment.

Adolescent substance abuse has been extensively reported with different patterns in different climes by self-reporting [1-5]. Igwe et al. in Enugu reported alcohol, coffee, kola nut, cigarette, inhalants, tranquilizer, and cannabis as commonly abused with prevalence of 31.6%, 20.7%, 15.7%, 14.3%, 9.0%, 7.4% and 4.1% respectively [4]. However, other studies that obtained self-reported prevalence, have shown varying patterns of substance abuse from one place to the other and over time [2,3,6,7]. This underscores the need to identify the substances of abuse predominant and peculiar to each locality, to tailor preventive measures to curb its menace.

The self-report method has been the most common modality of obtaining information in most research on substance abuse but is susceptible to underreporting. Social stigma and bias associated with drug abuse and possible legal consequences are some of the reasons for the underreporting. Drug use surveys done recently in developed countries like the United States of America, apply more objective tools like toxicology screens (urine drug testing) [8,9]. Varying results have been documented by urine drug screening and self-reporting (use of questionnaires). While some studies [10,11] have found a good concordance between the two methods, others have not [8,9,12]. The United States department of education survey on the effectiveness of Mandatory Random Student Drug Testing (MRSDDT) reported a higher illicit drug rate of 22% from self-report surveys compared to a lower rate of 16% obtained from student's urine drug tests for illicit drugs [13].

Drug testing has become increasingly common over the last decade.9 Employers test their employees for alcohol and illegal drugs as a measure to improve safety within the workplace [9]. On-site drug testing is used in many healthcare settings in developed countries to monitor abstinence or offer prescriptions [9]. Parents test their children and/or family members to deter them from using illicit drugs at home [9]. Most studies [3,4,13-15], on adolescent substance abuse in Nigeria were based on self-reporting with no association with on-site urine drug testing. Onifade et al. [16] screened the urine of students for psychoactive substance and documented a prevalence of 0.1%, 0.1% and 0.4% for cannabis, methamphetamine, and opiates respectively. Since self-reports may poorly estimate the drug use status of adolescents [8,12,17], a more objective estimation needs to be used to determine the pattern of substance abuse among adolescent secondary school students in Umuahia especially since there is no reliable data on this subject in this environment.

Methodology

This is a cross-sectional study that studied the current trend of psychoactive drug abuse among adolescents in a south eastern city. It was carried out among 400 secondary school students in six urban and rural secondary schools in Umuahia, Abia State, Nigeria.

The WHO student drug use questionnaire as adapted and UDT were used to obtain data on substance abuse from study participants.

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Data were analyzed using SPSS 20. Chi-square was used as a test for qualitative variables and p-values <0.05 were accepted as significant.

Results

Pattern of substance abuse by self-report (current) and urine drug testing

Table 1 shows the type of substances currently abused by the subjects and their prevalent rates using self-report and urine drug testing. For the current abusers, using self-report, the commonest licit substance reported was coffee in 128 (32.0%) participants followed by kola nut in 75 (18.8%) participants. Among the illicit substances, cannabis had a prevalence of 18.8%. The least abused substance was cocaine with a prevalence of 0.8%.

Substances detected by urine drug testing among students in Umuahia were oxycodone, cannabis, opioid, methamphetamine and cocaine. Oxycodone was the commonest substance detected by UDT with a rate of 24.8% while cocaine was detected in six students with a rate of 1.5%. Coffee, kola nut, alcohol, tobacco and lacatomtom were not detectable by the Icup 6 urine drug test kits used.

Pattern of substance abuse using urine drug testing

Table 2 shows the pattern of substance abuse (singly or multiple) among the students using drug testing. A total of 106 (68.8%) students were single substance abusers while 48 (31.2%) students were multiple substance abusers. For single drug abusers, oxycodone was the most

abused with a prevalent rate of 37.7% while opioid was detected in one student with a prevalence of 0.6%. Mostly combined drug was cannabis, either with oxycodone, oxycodone and opioids or opioids at rates of 16(10.4%), 10(6.5%) and 8(5.2%) respectively.

Pattern of current substance abuse by self-report among urban and rural students

Table 3 shows the pattern of current substance abuse by self-report among adolescent students in urban and rural secondary schools in Umuahia. A total of 213 students attended the urban school while 187 students were in the rural schools. The proportions of rural students that abused coffee, kolanut, cannabis and tobacco were higher than those from the urban schools (47.1% vs 18.8%; 26.7% vs 11.7%; 23.5% vs 14.6%; 8.02% vs 4.7% respectively). The difference in the proportions of the students in the urban and rural schools for coffee, kolanut and cannabis was statistically significant with p=0.00001, 0.0001 and 0.02 respectively.

None of the students from the rural schools abused of cocaine.

Pattern of adolescent substance abuse by urine testing in urban and rural schools

Table 4 shows the pattern of substance abuse by urine drug testing in urban and rural secondary schools in Umuahia. Of the 213 students attending urban schools, 96 (45.1%) tested positive for substances while 125 (66.4%) students, out of the 187 students

Table 1: Pattern of substance abuse by self-report (current) and UDT.

Substances	Current abusers	Percentage	Urine drug Testing	Percentage
Coffee	128	32	***	***
Kola nut	75	18.8	***	***
Cannabis	75	18.8	77	19.3
Lacatomtom	46	11.5	***	***
Tramadol (opioid)	39	9.8	25	6.3
Alcohol	30	7.5	***	***
Tobacco	25	6.5	***	***
Cocaine	3	0.8	6	1.5
Oxycodone	0	0	99	24.8
Methamphetamine	0	0	16	4

***Not detectable by Icup 6 urine drug test kits; Some were multiple abusers

Table 2: Pattern of single and multiple drug abuse by UDT.

Pattern of abuse	Frequency	Percentage
Single drugs		
OXY (oxycodone)	58	37.7
THC (cannabis)	40	26
mAMP (methamphetamine)	7	4.5
Opioids	1	0.6
Multiple drugs		
THC-OXY	16	10.4
THC-OXY-Opioids	10	6.5
OXY-Opioids	8	5.2
THC-COC (cocaine)	4	2.6
THC-OXY-Opioids-mAMP	3	1.9
OXY-mAmp-COC	2	1.3
THC-Opioids	2	1.3
THC-mAMP	1	0.6
THC-OXY-mAMP	1	0.6
OXY-Opioids-mAMP	1	0.6
Total	154	100

Table 3: Pattern of current substance abuse by self-report in urban and rural schools.

Substance	Urban		Rural		Total		χ ²	p
	n	(%)	n	(%)	n	(%)		
Coffee	40	18.8	88	47.1	128	32	36.59	≤ 0.01*
Kolanut	25	11.7	50	26.7	75	18.8	14.71	≤ 0.01*
Cannabis	31	14.6	44	23.5	75	18.8	5.26	0.02*
Lacatomtom	30	14.1	16	8.6	46	11.5	2.99	0.08
Tramadol	25	11.7	14	7.5	39	9.8	2.04	0.15
Alcohol	21	9.9	9	4.8	30	7.5	3.15	0.07
Tobacco	10	4.7	15	8	25	6.3	1.88	0.17
Cocaine	3	1.4	0	0	3	0.8	2.65	0.25

Table 4: Pattern of substance abuse by urine drug testing in rural and urban schools.

Substance Abused	Urban n (%)	Rural n (%)	Total (%)	χ ²	p
OXY	37 (17.4)	62 (33.2)	99 (24.8)	13.32	0.001*
THC	34 (16.0)	43 (23.0)	77 (19.3)	3.16	0.075
Opioid	18 (8.4)	7 (3.2)	25 (6.3)	3.76	0.042*
mAMP	3 (1.4)	13 (7.0)	16 (4.0)	7.96	0.004*
COC	6 (1.9)	0 (0.0)	6 (1.5)	3.54	0.126

*Statistically significant

in the rural schools, tested positive for substances. For individual substances, 37 (17.4%), 34 (16%), 18 (8.5%), 4 (1.9%) and 3 (1.4%) students attending urban schools tested positive for oxycodone, marijuana, opioids, methamphetamine, and cocaine, respectively. For those attending rural schools, 62 (33.2%), 43 (23%), 13 (7.0%), 7(3.2) and 0 (0.0%) students tested positive for oxycodone, marijuana, methamphetamine, opioids, and cocaine, respectively. The difference in the prevalent rates of oxycodone, opioid and methamphetamine abuse among students in urban and rural schools were statistically significant with p=0.001, 0.042 and 0.004, respectively.

Discussion

The pattern of substances abused in current study was at variance with commonly reported pattern by many authors [16,18,19-21]. It was interesting to note that coffee and kolanut were the commonest substances abused by the participants. Oshodi et al. had noted that the commonest substance used was caffeine (kolanut and coffee) with 56.5% and 85.7% of current and lifetime users, respectively [22]. Reason could be the use of both substances as stimulant to keep awake during studies. Manyike et al., in 2016, in Enugu, reported kolanut as the most abused substance among boarding secondary school students [19]. Alcohol and nicotine are often reported as the most abused licit drugs [18]. These are gateway drugs for substance abuse among the adolescents. 6 However, the current prevalence of alcohol in this study was 7.5%. This was lower than reports by previous authors [2,5,22,23-25]. Abdulmalik from Northern Nigeria documented low alcohol prevalence of 4.1% for lifetime use [26]. This was attributed to the cultural and religious inclination of the area. It was noted that Islamic Faith which prohibits the use of alcohol was most likely responsible for the low prevalence. The lacatomtom prevalence of 11.5% in present study might indicate the preference of this beverage to alcoholic drink by these students. It is easier to deceive the uniformed parents and guardians with “lacasera” drink than with an outright alcoholic drink.

On the other hand, Fatoye et al. in 2002, studied substance use among adolescent secondary school students in rural and urban communities in Ilesa [23], South Western Nigeria and showed a different pattern where salicylate analgesic was the drug of most abuse. It is therefore likely that substance use by adolescents depends on the immediate environment and availability of substance .

The pattern of abuse revealing oxycodone, cannabis, opioids, methamphetamine, and cocaine abuse by UDT was at variance with previously reported pattern in our environment. 16 Presence of oxycodone in participants’ urine despite no report from the questionnaires could be due to the use of the chemical name. A lot of these analgesics come in combination forms with different brand names. For instance, Co-codamol is a combination of codeine and paracetamol. These substances are illegally dispensed freely across the counter in patent medicine stores, especially in the rural areas. Opioid had a prevalence of 6.3% by UDT. This is lower than 8.8% documented by Bassiony et al. in Egypt. There was no pre-information regarding the urine testing, so the students screened by Bassiony et al. were taken unawares. Early knowledge of such tests might result in abstinence from the use of such a substance for the period of the study. Study participants in current study were pre-informed about the test and this may have resulted in the refusal of some current abusers to participate. There is however an alarming report on the rising trend of opioid (tramadol) use by youths in Africa [27]

In addition, no student reported the use of meta-amphetamine (a derivative of amphetamine) in this study. Over-the-counter medications such as antihistamines, nasal decongestants, Vicks inhaler and herbal supplements have been previously reported in the literature to cause a false-positive result for amphetamines on urine drug screen 28 Onifade et al. 16 screened the urine of students for psychoactive substances and documented a prevalence of 0.1%, 0.1% and 0.4% for cannabis, methamphetamine, and opiates, respectively.

The use of different types of substances increased with age. This agrees with report from other authors [2,19,22,24, 27,28,29]. The late adolescent age was reported commonly by these authors and this is not surprising. At this age, parental control is less, and peer influence is more. Illicit drugs are also commonly used by this age group because the drugs are more accessible to this group of individuals than their younger counterparts [20,22,30,31].

Male gender was significantly associated with substance abuse than the female gender by self-report. It was noticed that except for Kolanut, males abused all the substances than their female counterparts. More association with males than females corroborate with reports from other authors [22,23,31-34]. The cultural tendency

of strictly supervising the female child and getting her stay at home for house chores more than the male counterpart may be the reason. The abuse of kolanut by females compared to the males is not clear. However, since most students use it to keep awake for studies, females who are often more studious may be prone to kolanut abuse.

Students in rural schools significantly abused coffee, kolanut and cannabis compared to those in urban schools. This is not clear. However lower socioeconomic class has been documented to be associated with a higher risk of substance abuse [32,35]. Most children in the rural schools are from the lower socio-economic class. Oxycodone, Opioid and Methamphetamine were significantly abused in urban than these rural secondary schools. The reason for this could be economic as these substances cannot be purchased easily by students in the rural areas. Other drugs like marijuana, was not significantly different in its abuse in rural and urban areas. The cheap nature and availability of the latter (Marijuana) in both areas may account for its accessibility and similarity of abuse among students in both areas.

The present study also shows that some undetected substances (due to kit used) such as caffeine, kolanut and tobacco were mostly self-reported. This may have been due to personal convictions in the subjects that the disclosure of their substance abuse status to their parents would not attract any punishment, as most of these parents take similar substances like caffeine and kolanut at home.

Drug use surveys using self-administered questionnaires and urine drug tests [36-38] reported varying patterns just as has been recorded in this study. Oxycodone was the mostly abused drug as obtained by UDT, followed by cannabis in both genders. When more than one drug was identified, cannabis formed the mostly combined drug with either oxycodone, opioid, or with oxycodone in combination with opioids. Cocaine was the least abused which was also found in abusers of cannabis. The availability and cheap nature of cannabis may have accounted for its higher level of abuse, compared to the lower rate of cocaine obtained. Furthermore, both licit and illicit mood altering drugs were sought in current study and this may have accounted for the wider spectrum of substances such as lacatomtom, tobacco, cannabis, kolanut, coffee, tramadol and cocaine reported by participants. Opioids, methamphetamine, cannabis, and cocaine were obtained in subjects' urine. The finding of lacatomtom, cannabis, tramadol, kolanut, oxycodone, tobacco, methamphetamine, and cocaine in current study, shows that the pattern of adolescent substance abuse varies from setting to setting. It also shows a different pattern of abuse from what has been previously documented [2,4,19,23,39]. The pattern of substances abused by adolescents is as dynamic as adolescents' ability to discover and move from one available and identifiable drug, to another yet to be discovered one, underscoring the need for regular drug use surveys to ensure early identification and further reduction of adolescent substance abuse.

Urine drug tests finding, showed a clear deviation from self-reported substance abuse among study participants. Oxycodone, opioid and methamphetamine unreported by these participants but surprisingly identified by UDT have been abused. An important substance of abuse obtained from subjects' urine was a locally compounded mood-altering substance obtained by mixing La Casera beverage with TomTom (Lacatomtom or Gigabyte solution). This metabolite is like methamphetamine as it was picked by Icup 6 test cups in a significant number of urban students. This finding agrees with recent publications that documented many novel substances have been currently abused [40,41].

Conclusion

The present study revealed that coffee and kolanut were the common self-reported licit substances of abuse while cannabis, Lacatomtom, tramadol and methamphetamine were the most abused illicit substances among adolescent secondary school students in Umuahia. Oxycodone, cannabis, methamphetamine and opioids were most obtained substances by UDT suggesting the need for an objective urine drug screen to accompany self-reportedly obtained pattern of substance abuse.

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