PREVALENCE AND PREDICTORS OF SUBSTANCE USE DISORDER AMONG URBAN AND RURAL SECONDARY SCHOOL STUDENTS OF KHANA, RIVERS STATE, NIGERIA

Inumanye Nkechi Ojule[i],
Humble Barilugbene Te-Erebe
Preventive and Social Medicine Department,
School of Graduate Studies,
University of Port Harcourt,
Nigeria

Abstract:
Background: Substance use disorder is a major social and public health problem all over the world. This menace cuts across all age groups, but the adolescents and youths who are still undergoing physiological and psychological developments tend to be the most vulnerable and most affected. This study centred on the prevalence and predictors of substance use disorder among secondary school students in urban and rural settings of Khana Local Government Area of Rivers State, Nigeria. **Materials and Methods:** This was a descriptive cross-sectional study. Multi-stage sampling was applied in selecting 400 respondents from eight government secondary schools in the L.G.A. Interviewer-administered questionnaires were used. Collected data were analysed using SPSS version 20.0. For all analyses level of significance was set at p<0.05. **Results:** Prevalence of substance use disorder obtained was 37% for Urban and 38% for rural respondents. Alcohol was the most commonly abused in both settings 46.5% urban vs 47.2% rural followed by kola-nut, cannabis and opiate/codeine. Rural students indulged more (29.13%, 15.09%, 11.32%) than urban students (22.64%, 11.81%, 7.87%) respectively. The majority of respondents were introduced to substance use by family members and friends. The reason given for substance use by the most was to be awake, peer pressure and curiosity. Being male, age group 16-20 years, and living in polygamous and single parents' homes were noted to be predictors of substance use disorder. **Conclusion:** Based on the results from the study, it can be concluded that substance use disorder is a common problem among secondary school students in both the urban and rural settings of Rivers State.

Keywords: prevalence, predictors, substance use disorder, students

[i]Correspondence: email inumanye.ojule@uniport.edu.ng

1. Introduction

Substance Use Disorder (SUD) is a term that encompasses dependence on and abuse of drugs by individuals voluntarily for the purpose of their effect on the central nervous system. This term has been adopted to replace past popular terms such as 'illicit drug use, substance abuse and drug addiction/dependence. Two related categories, substance abuse and substance addiction/dependence constitute substance use disorder. The two terms refer to the maladaptive patterns of substance use that lead to significant impairment or distress. [1]

Substance Use Disorder is a major social and public health issue all over the world. This menace cuts across all races and all age groups, but the adolescents and youths who are still undergoing physiological and psychological developments tend to be the more vulnerable and most affected. This age groups are at a point of forging individual identities, self-discovery, and heightened curiosity and tend to have a propensity towards risk-taking. [2]

According to the 2021World drug report, roughly 275 million people used drugs worldwide in the previous year, while over 36 million people suffered from drug use disorder. In Nigeria, the 2021 report estimated 14.3 million drug users of which close to 3 million suffered from a drug use disorder. [3]

As a serious public health problem with developmental dimensions, researchers have identified several socio-demographic factors to be associated with substance use disorder. These contributory factors are related to individuals, family, community and the area of abode of the youngsters. The individual factors pinpointed include gender, age, personal beliefs, low self-esteem, abuse, depression, poor coping skills and early exposure or engagement in risk-taking behaviours. Factors related to the family have also been identified such as parental practice and attitude towards substance use, for example, watching parents/guardians engaging in use may act as an endorsement of its usefulness. Poor parental monitoring/discipline and lack of family cohesion are among other contributing factors. The community/society factors involve peer use of substances, and easy availability of substances. The legally allowed substances such as cigarettes and alcohol stand as a gateway to other more addictive substances.

Environmental influences such as residential settings (urban, government reserved areas, rural, slums, and shanties) have also been associated with the abuse of substances by the youth. The rate of crime and gang-related activities in the neighbourhood are also linked to substance use. [4],[5],[6]

Alex-Hart *et al*. [7] in a cross-sectional school-based study of the prevalence of alcohol consumption among secondary school students in this same state, reported a prevalence of 30.6% current alcohol drinking. Their report went further to show an inverse relationship between academic grades and consumption of alcohol. They concluded that alcoholism was a serious social problem among secondary school students in Rivers State. The study also showed that cigarette smoking was positively associated with being drunk, and about 42.6% of their participants who admitted

drinking alcohol claimed they did so to experiment with the substance and 5.4% drank out of compulsion.

Researchers in our environment have long been interested in the status of substance use among the young ones so that almost two decades ago, Eneh & Stanley [8] tried to assess the pattern of substance use among secondary school students in Rivers State. They noted that substance use was common and unhidden. They found out that 87% of students had used at least one substance at the time of the survey.

According to the World Health Organization [9], psychoactive substance use disorder pose a significant threat to the health, and socio-economic fabric of families, communities and nations. Worldwide the population indulging in substance use is estimated at 2 billion, alcohol users are 1.3 billion and 185 million drug users. All these contribute to the global burden of disease.

Illegal use and abuse of substances among the youth in our secondary schools is a growing concern especially now that illegal crude oil refining is common in the region, thereby making petty cash easily available to the youths. What obtains is that financial accessibility enables them to procure whatever substance they desired with ease. With the worsening social environment of our area as a motivator, it is therefore imperative to carry out local studies like this to gather information on the present situation of substance use that can enable the implementation of tailored interventions for the control of Substance Use Disorder, especially among the youth.

The study aimed to determine and compare the prevalence and predictors of substance use disorder among secondary school students in urban and rural settings of Khana Local Government Area of Rivers State of Nigeria.

2. Materials and Methods

This study was conducted in Khana Local government Area (LGA) of Rivers State. Khana Local Government Area is one of the 23 Local Government Areas in Rivers State. Its headquarters are in Bori town which is the only urban part of the LGA. Khana LGA has an area of 560km square metres and a total population of 294,217. Males 154394 (52%) while females 139823 (48%), and an annual growth rate of 2.9%. Bori the capital city is the commercial centre for the people of Ogoni of the Niger Delta. Bori is the host of the Ken Saro-Wiwa Polytechnic, with a high percentage of civil servants, businessmen and women alongside students. The town also has a functional General Hospital. There are 21 government secondary schools in Khana Local Government Area with a student enrolment of about 20,000. The study population comprised all government secondary school students in the LGA [10].

2.1 Study design
It was a community-based descriptive cross-sectional study.

2.2 Sample size determination

The sample size was calculated using the single population proportion formula (Araoye, 2014) with a proportion of 86%, which was obtained from a previous study in Nigeria (Okwaraji et al. (2006). [11] Using a 5% margin of error at a 95% confidence level, the estimated sample size was 400.

2.3 Sampling procedure

A multi-stage sampling procedure was employed in the study.

Stage 1: Listing and segregating the LGA into urban and rural. Khana L.G.A comprises three (3) districts which are Bori, which has an urban setting, Ken-Khana and Nyo-khana both with a rural setting.

Stage 2: Khana LGA has 21 twenty-one Government Secondary Schools. Six are located in the urban area of Khana, while fifteen are located in the Rural part (Ken-Khana and Nyo-Khana) of Khana. Two schools were selected from Bori by simple random sampling of balloting. B.M.G.S and C.S.S Bori were selected. In the rural districts of Khana (Ken-Khana and Nyo-Khana) one school per district was selected by simple random sampling using balloting method. G.C.H.S Taabaa and C.S.S. Kono were selected.

Stage 3: In each selected school, 100 students participated with about 17 students from each class JSS1 to SS3. In selecting eligible participants, the class register was used. A simple random sampling method was employed by balloting to select all eligible students.

2.4 Study instrument / Data collection procedure

The questionnaire was interviewer-administered to the students in their classrooms during a break period in the absence of the teachers. Assistance was from trained research assistants who had tertiary education. A full explanation was provided for respondents who had problems understanding some of the questions.

2.5 Data analysis

The Statistical Package for Social Sciences (SPSS) version 20.0 was used for the analysis of the data collated. All data were presented with descriptive statistics. Association for significant risk and substance use measures was tested by chi-square test and adjusted odds ratio at a 95% confidence interval and a p-value ≤ 0.05 was considered significant.

2.6 Ethical approval

Ethical approval for the study was obtained from the Ethics Committee of the University of Port Harcourt. Approval was obtained from the State Schools Board. Also, each respondent (student) and their parents gave informed consent before participating in the research.

2.7 Study limitation

The use of self-report to assess substance use among the students may result in reporting bias, in which socially acceptable substances may have been reported more by respondents compared to illegal ones, and this might affect the results/findings.

3. Results

Table 1: Socio-demographic data of respondents

Variable	Frequency	Percentage
Age group (years)		
10 – 15	185	48.2
16 – 20	184	47.9
20 – 25	15	3.9
Gender		
Female	195	50.8
Male	189	49.2
Type of family		
Monogamous	288	75.0
Polygamous	31	8.1
Single parent	65	16.9
Upbringing of respondent		
Both parents	242	63.0
Father only	25	6.5
Mother only	97	25.2
Orphanage	10	2.6
Relation	10	2.6
Marital status of parents		
Married	233	60.9
Never married	106	27.6
Separated	30	7.8
Widowed	15	3.9
Location of school		
Urban	199	51.8
Rural	185	48.2

Table 1 shows that almost all (96.1%) of the respondents were between the ages of 10 and 20years, and half 195(50.8%) were females. Almost two-thirds of 242(63%) were brought up by both parents. Most 288(75.0%) were from a monogamous type of family.

Table 2: Socio-demographic data of respondents by the geographical location of school

Variable	Urban (n=199) n (%)	Rural (n=185) n (%)	Total n (%)
Age group (years)			
10 – 15	95 (47.74)	90 (48.65)	185 (48.18)
16 – 19	98 (49.25)	86 (46.49)	184 (47.92)
20 – 25	6 (3.02)	9 (4.86)	15 (3.91)
Mean age	16.5±0.3	17.6±1.2	

x^2; p value	5.747 (0.0565)**	5.2147 (0.2144)**	
Gender			
Female	100 (50.25)	92 (49.73)	195 (50.78)
Male	99 (49.75)	93 (50.27)	189 (49.22)
x^2; p value	0.1654 (0.6842)**	d0.1425 (0.2451)**	

Table 2 shows the mean age of respondents to be 16.5±0.3 and 17.6±1.2 in the urban and rural areas respectively. There were 97% urban 95% rural 10 - 19 years old in the study. Slightly more female participants in the urban than rural areas (50.25% and 49.73% respectively). This difference was not statistically significant.

Table 3: Family-related characteristics of respondents by the geographical location of school

Variable	Urban (n=199) n (%)	Rural (n = 185) n (%)	Total (n = 384) n (%)
Type of family			
Monogamous	150 (75.38)	138 (74.59)	288 (75.00)
Polygamous	15 (7.54)	16 (8.65)	31 (8.07)
Single parent	34 (17.09)	31 (16.76)	65 (16.93)
x^2; p value	44.41 (4.2555)**	2.14 (0.1475)**	
Upbringing of respondent			
Both parents	150 (75.37)	92 (49. 73)	242 (63.02)
Father only	20 (10.05)	5 (2.70)	25 (6.51)
Mother only	17 (8.54)	80 (43.24)	97 (25.26)
Orphanage	8 (4.02)	2 (1.08)	10 (2.60)
Relations	4 (2.01)	6 (3.24)	10 (2.60)
x^2; p value	128.0 (<0.0001)*	3.2142 (0.0012)*	
Marital status of parents			
Married	143 (71.86)	90 (48.65)	233 (60.68)
Never married	38 (19.10)	68 (37.76)	106 (27.60)
Separated	12 (6.03)	18 (9.73)	30 (7.81)
Widowed	6 (3.02)	9 (4.86)	15 (3.91)
x^2; p value	24.13 (<0.0001)*	21.25 (0.01245)*	

Table 3 shows that majority of respondents were from monogamous families 150(75.38%) urban and 138(74.59%) rural. The least proportion came from polygamous families 15(7.54%), 16(8.6.5%) urban and rural respectively, though, there were no statistical differences. Respondents' upbringing showed that the majority were brought up by both parents 150(75.37%) for urban and 92(49.73%) for rural and only 2(1.08%) among the rural respondents were brought up in the orphanage, while 4(2.01%) of the urban respondents were brought up by relations. For marital status of parents, the majority of their parents were married in the urban but less so in rural areas [143(71.86%) and 90(48.65%)] respectively, while the least proportion were widows 6(3.02%) in the urban and 9(4.86%) from the rural.
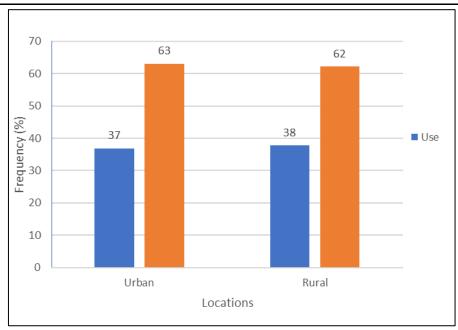
Figure 1: Distribution of substance use among respondents

Figure 1 shows that 37% of urban and 38% of rural respondents used substances.

Table 4: Distribution of respondents' substance use status

Variables	Urban (n=199) n (%)		Rural (n=185) n (%)	
	Used	**Not Used**	**Used**	**Not used**
Sex				
Male	55 (61.11)	48 (32.65)	46 (56.79)	49 (47.12)
Female	35 (38.89)	61 (67.35)	35 (38.46)	55 (52.88)
Total	**90 (100.0)**	**109 (100.0)**	**81 (100.0)**	**104 (100.0)**
Age group (years)				
10 – 15	30 (34.09)	58 (52.25)	28 (34.57)	54 (51.92)
16 – 20	57 (64.77)	45 (40.54)	51 (62.96)	45 (43.27)
20 – 25	3 (3.41)	6 (5.41)	2 (2.47)	5 (4.81)
Total	**90 (100.0)**	**109 (100.0)**	**81 (100.0)**	**104 (100.0)**

Table 4 shows that more males 55(61.11%) urban and 46(56.79%) rural respondents used substances more than the females, and the majority started within the age of 10-15 years.

Table 5: Distribution of Substances commonly used by geographical location of school

Substance*	Urban n (%)	Rural n (%)
Alcohol	59 (65.6)	50 (61.7)
Cigarette	3 (3.3)	2 (2.5)
Kolanut	24 (22.64)	37 (29.13)
Heroine	0 (0.0)	0 (0.0)
Hemp	15 (16.7)	16 (19.8)
Opiate / Codeine	10 (11.1)	12 (14.8)
Others	3 (3.3)	1 (1.2)
Total	**127 (100.00)**	**106 (100.00)**

* Multiple responses applied.

Table 5 shows that alcohol, kola nut and hemp are the most commonly used substances, of which more urban 59 (65.6%) used alcohol than the rural 50(61.7%), Also more rural respondents used Indian hemp 16(19.8%) than the urban respondents, while more urban used less kola nut than the rural.

Table 6: Distribution of age at introduction and source
of introduction to substances by the geographical location of the school

Variable	Urban n (%)	Rural n (%)
Age group (years)		
10 – 15	65 (72.2)	60 (74.1)
16 – 20	19 (21.1)	17 (21.0)
21 – 25	6 (6.7)	4 (4.9)
Total	**90 (100.0)**	**81 (100.0)**
Source of introduction*		
Friends	40 (44.4)	38 (46.9)
Others	10 (11.1)	8 (9.9)
Parents	40 (44.4)	36 (44.4)
Relatives	10 (11.1)	8 (9.9)
Siblings	24 (26.7)	24 (29.6)

* Multiple responses applied.

The majority of the urban and rural respondents started using substances within the age of 10-15 years. Most of them were introduced to the habit by family members.

Table 7: Reasons for use of substances by the geographical location of the school

Reason	Urban n (%)	Rural n (%)
To keep awake	37 (41.1)	36 (44.4)
Entertainment	30 (33.3)	19 (23.5)
Curiosity	23 (25.6)	22 (27.2)
Sexual enhancement	8 (8.9)	5 (6.2)
Self-esteem / elevate mood	10 (11.1)	9 (11.1)
Others	4 (4.4)	4 (4.9)

Table 7 shows that the majority of the respondents used substances to keep awake/to be alert 37(41.1%) urban and 36(44.4%) rural, others were for entertainment, out of curiosity and to boost image/elevate mood, with the least for sexual enhancement.

Table 8: Sources of substances by the geographical location of the school

Source of substance	Urban n (%)	Rural n (%)
Relations	4 (4.4)	3 (3.7)
Friends	10 (11.1)	8 (9.9)
House / home	8 (8.9)	8 (9.9)
Neighbours	4 (4.65)	3 (3.90)
Others	7 (7.8)	8 (9.9)
Shops / bars	61 (67.8)	53 (65.4)

Table 8 shows that majority of the respondents obtained the substances from shop/bar in the urban and rural areas (67.8% and 65.4% respectively).

Table 9: Multivariate analysis of substance use among urban respondents

Variable	Use of substance		OR (95% CI)	p-value
	Yes (n=86) n (%)	No (n=147) n (%)		
Age group (years)				
10 – 15	20 (23.26)	97 (65.99)	0.1 (0.08 - 0.28)	<0.0001*
16 – 20	55 (63.95)	44 (29.93)	4.1 (2.3 - 7.3)	<0.0001*
20 – 25	3 (3.49)	6 (4.08)	0.8 (0.2 - 3.4)	1.000**
Gender				
Male	55 (63.95)	48 (31.58)	3.8 (2.2 - 6.7)	<0.0001*
Female	31 (36.05)	104 (68.42)	0.2 (0.1 - 0.4)	< 0.0001*
Type of family				
Nuclear	60 (69.77)	139 (95.56)	0.1 (0.05 - 0.31)	<0.0001*
Polygamous	9 (10.47)	3 (2.04)	5.6 (1.4 - 21.3)	<0.0103*
Single parent	17 (19.77)	5 (3.40)	6.9 (2.4 - 19.7)	<0.0001*
Parents marital status				
Married	53 (61.63)	124 (84.35)	0.2 (0.1 – 0.5)	0.0001*
Never married	24 (27.91)	14 (9.52)	3.6 (1.7 - 7.5)	<0.0001*
Divorced	7 (8.14)	5 (3.40)	2.5 (0.7 - 8.1)	0.1320**
Widowed	2 (2.33)	4 (2.72)	0.8 (0.1 - 4.7)	1.000**

Table 9 shows that among the urban respondents, 86 were substance users, of which the majority were within the age of 16-20 years with an odd ratio, OR [95% CI] 4.1(2.3-7.3)] p>0.0001 indicating that there is increased likelihood of substance abuse among respondents within that age, and the value was statistically significant. In assessing gender input in substance use disorder, we noticed that males 55(63.95%) with OR [95% CI] 3.8(2.2-7.3)] p<0.0001 are three times more likely to use substances than the females 31(36.05%). With regards to family type, there are six times increased likelihood of substance abuse among respondents from single-parent homes, five times those from

polygamous families OR [95% CI] 6.9[(2.4-19-7)] p<0.0001 and OR [95% CI] 5.6[(1.4-21.3)] p<0.0103 the difference was statistically significant. Pertaining to parents' marital status, there is an increased chance of substance abuse among respondents whose parents were never married and divorced, OR [95% CI] 3.6(1.7-7.5) p<0.0001 and OR [95% CI] 2.6(0.7-8.1), though the value is not statistically significant for the divorced.

Table 10: Multivariate analysis of substance use among rural respondents

Variable	Use of substance		OR (95% CI)	p-value
	Yes (n=57) n (%)	No (n=94) n (%)		
Age group (years)				
10 – 15	18 (31.58)	42 (44.68)	0.5 (0.2 - 1.1)	0.1250**
16 – 20	37 (64.91)	45 (47.87)	2.0 (1.0 - 3.9)	0.045*
20 – 25	2 (3.51)	5 (5.32)	0.6 (0.1 - 3.4)	0.7106**
Gender				
Male	37 (64.91)	49 (52.13)	1.6 (0.8 - 3.3)	0.1315**
Female	20 (35.09)	45 (47.87)	0.5 (0.2 - 1.2)	0.1240**
Type of family				
Nuclear	23 (40.35)	57 (60.64)	0.4 (0.2 - 0.8)	0.0188**
Polygamous	28 (49.12)	12 (12.77)	6.5 (2.9 - 14.6)	<0.0001*
Single parent	6 (10.53)	25 (26.60)	0.3 (0.1 - 0.8)	0.0217**
Parents marital status				
Married	29 (50.88)	51 (54.26)	0.8 (0.4 - 1.6)	0.7388**
Never married	22 (38.60)	32 (34.04)	1.2 (0.6 - 2.4)	0.6023**
Divorced	4 (7.02)	4 (4.26)	1.6 (0.4 - 7.0)	0.4675**
Widowed	2 (3.51)	7 (7.45)	0.4 (0.09 - 2.2)	0.4840**

Table 10 shows that 57 of the rural respondents used substances and 94 are non-users. Also, substance abuse increases from the age of 16-20 years. OR [95% CI] 2.0(1.0-3.9), this was statistically significant as p<0.05. Respondents from polygamous families (49.12%) were 2.9 times more likely to abuse substances, and this was statistically significant p<0.0001.

4. Discussion

The prevalence of substance use was 37% among the urban respondents and 38% among the rural respondents. However, the difference was not statistically significant. This is similar to another comparative study [13] in a nearby state which reported that 38.8% of urban and 34.6% of rural students abused substances. Almost two decades earlier, Eneh and Stanley set out to find out how common substance use was among young persons in Rivers State [8]. They reported that 87% of students in their study had tried at least one substance at the time of the study. In our study, the majority of the respondents were initiated into the activities within the age of 10-15 years, in both the urban and rural areas. This corresponds with similar studies carried out at different time frames [13, 14]. Our results indicate that more males abused substances in both the urban and rural areas, and

this is similar to other Nigerian studies [12,15]. It can be explained by the fact that males play more social and cultural roles that most times involve use substance such as alcohol and kola-nuts. Also, more males are likely to experiment with risky behaviours than females. Females seem to be closer to their mothers and therefore always under stricter supervision. Girls also tend to keep to parental instructions especially those relating to socially approved ways of behaviours.

4.1 Reasons given for the use/abuse of substances

The majority of the students reported using substances to keep awake or to be alert, for the urban and the rural respondents. This report is similar to a study among secondary school students in a Local Government Area of Anambra State. The majority of the students admitted abusing substances to enable them stay awake to study especially during the examination period. Other reasons were to please friends, relieve stress, and boost self-esteem/elevate mood and curiosity [5, 3, 7, 13]. Similar reasons were reported by other studies [16, 17, 7]. This may be a result of examination tension and unpreparedness ahead of the examination period. As a teenager's brain and psyche are not fully developed to make correct decisions all the time, negative peer pressure could drive them into risky activities such as substance use. Peer pressure has much influence on students who keep bad company, especially those with low self-esteem. Young persons tend to experiment with substances and other sundry risky practices in order to feel socially up to date or be seen as big boys.

4.2 Substances commonly used among respondents

According to our study findings, commonly used substances among urban and rural respondents were alcohol, kola-nut, Cannabis, codeine and the least was cigarettes. This result agrees with similar reports [7, 13, 12, 18]. These studies reported that the most commonly used/abused substances were alcohol and kola-nut. The high prevalence of alcohol consumption noted maybe because it is widely available and affordable. Alcoholic beverages and kola-nuts also occupy a unique and revered place in our culture and tradition. It can also be attributed to the common practice among some parents who usually send their children to purchase alcoholic beverages for the consumption of their visitors and themselves, and as such, the child is exposed to it at a very tender age. This corresponds to the study by Okwaraji [12] and Oshodin [19]. In their respective work, they noted that children whose parents openly consume alcohol were most likely to indulge early. Alcohol and kola-nut are among the socially acceptable substances that are readily available and cheap. In rural areas, kola nuts are mostly planted in some compounds which make them more accessible to young people. Secondly, it is central to social entertainment during traditional rites and culture. Parents, friends and siblings have been noted to be major sources of introduction to using psychoactive substances. Among both urban and rural respondents, the majority started using substances within the age of 10-15 years and the major sources of introduction were friends, parents and siblings.

4.3 Predictors of substance use disorder among respondents

Respondents aged 16-20 years of age who are senior students were four times more likely to abuse drugs than younger students in the urban area while in the rural areas senior students were twice more likely to abuse substances. This is similar to a comparative study on the use of the psychoactive substance, among students in two local government areas of Akwa Ibom state [18].

Gender also appeared to be associated with respondents' substance use as urban males are three times more likely to use substances than females, while in rural areas males are two times more likely to use substances than females. This result is correlated to the study [14] in South Western Nigeria that showed lifetime use of alcohol and tobacco to be much commoner among male students than females. The study also corresponds with another study [20] that showed that 52.9% of males abuse drugs compared to 47.1% of females. The higher rate of male indulgence may be attributed to natural gender roles whereby they tend to take on the more difficult and risky activities/behaviours that may necessitate the use of substances to remove inhibitions and enhance their power to carry out the intended task. It can also be a result of frequent social outings with friends during the evening hours to watch a football match or for parties and as such may use substances as a way to relax during the process, as compared to the females who are more domestically inclined and stick more at home.

Another socio-demographic factor associated with substance use from this study result was the type of family the students came from. As respondents from polygamous and single parents were noted to be five to six times more likely to use substances compared to those from a nuclear family. Also, respondents whose parents were never married and divorced parents are three times more likely to use substances compared to those whose parents were married. This is similar to a Brazilian study by Tavares and colleagues [21]. They pointed out how family relationships and environment have a co-relationship with substance use disorder. In their study, participants whose parents were divorced had more than 50% greater use of substances than those whose parents lived together. The reasons behind the high rate of substance use among respondents whose parents are divorced, never-married and those from polygamous families may be due to lack of parental care, attention and supervision, which results from any dysfunctional home. Parental attitude has a greater effect on the life of young people (adolescents) because they are at a very flexible age and things happening around them can easily influence their behaviours. Therefore, family as an agent of primary socialization has a special role to play in the lives of the young ones for a better future.

5. Conclusion

From our study findings, we conclude that substance use disorder exists and is of public health concern among secondary school students in both the urban and rural areas of Khana local government area of rivers state, with a prevalence rate of 38.0% rural and

37.0% urban. The most prominent predictive factors were; being male, age 16-20 years, family type and parent's marital status.

Authors' contributions

This work was carried out collaboratively by both authors. OIN wrote the proposal and designed the study, THB performed the statistical analysis, and wrote the protocol. Both authors wrote, read and approved the manuscript. We are responsible for the integrity of the work as a whole.

Conflict of interest statement

The authors report no conflicts of interest.

About the Authors

Inumanye Nkechi Ojule is a Public Health Physician, senior lecturer and researcher in Epidemiology and social medicine University of Port Harcourt, Nigeria.

Humble Barilugbene Te-Erebe is a Public Health Practitioner, a researcher and Data Scientist with Clinton Health Access Initiative.

References

1. Hasin DS, O'Brien CP, Auriacombe M, Borges G, Bucholz K, Budney A. DSM-5 criteria for substance use disorders: recommendations and rationale. Am J Psychiatry. 2013 Aug;170(8):834-51.
2. United Nations Office on Drug and Crime: Drugs and Associated Issues among Young People and Older People. Available from: https://www.unodc.org/wdr2018. [Last accessed on 2020 August 26].
3. United Nations Office on Drug and Crimes (UNODC) 2021 World Drug Report.
4. Idowu A, Aremu AO, Olumide A, Ogunlaj AO. Substance abuse among students in selected secondary schools of an urban community of Oyo-state, South West Nigeria: implication for policy action. *African Health Sciences* 18 (2018): 776 - 785.
5. Samson FA. Exploring Factors Influencing Substance Abuse among Young Individuals Receiving Treatment for Substance use Disorder in Ogbomoso, Nigeria. Covenant International Journal of Psychology (CIJP). Vol. 3 No. 2, Dec. 2018
6. Azi EI, Maduka O. Substance use and associated factors among junior students in a public secondary school in an urban local government area in Rivers State, Nigeria. Niger J Med 2021; 30:532-7
7. Alex-Hart BA, Opara P I, Okague J. Prevalence of alcohol consumption among secondary school students in Port Harcourt, southern Nigeria. Nig. Journal of paediatrics. 2012 vol. 42, No 1.
8. Eneh AU, Stanley PC. Pattern of substance use among secondary school students in Rivers State, Nigeria. Niger J. med. 2004; 13:36-39

9. World Health Organisation (WHO, 2016). Regional report on substance abuse: http://www.who.int/substance.abuse/publication/en

10. Universal Basic Education Board (UBE), Bori zonal office Khana Local Government area of Rivers State. Enrollment data 2016.

11. Araoye M. O. Sample size determination in research methodology with statistics for health and social sciences 2004;115-122, Nathadex, Illorin, Nigeria.

12. Okwaraji FE. Substance abuse among secondary school adolescents in Enugu. J Coll Med 2006;11:130-5.

13. Nwabueze SA. Substance abuse among secondary school students in an Urban and Rural L.G.A in Anambra State, Nigeria. Int, journal for Med. Sciences.2016

14. Fatoye FO. Psychosocial correlates of substances use among secondary school students in South-Western Nigeria. EastAfr Med J. 2003;80:154-158.

15. Birhanu AM, Bisetegn TA, Woldeyohannes SM. High prevalence of substance use and associated factors. Bm cpublic health. 2014;14,1186.

16. Whitesell M, Bachand A, Peel J, Brown M. Familial, social, and individual factors contributing to risk for adolescent substance use. J Addict 2013;2013:579310

17. Odukoya OO, Sobande OO, Adeniran A, Adesokan A. Parental monitoring and substance use among youths: A survey of high school adolescents in Lagos State, Nigeria. Niger J Clin Pract 2018;21:1468-75

18. Abasiubong, F, Idung, AU, Udoh, SB, & Ekanem, US. Parental Influence on substance use among young people in the Niger Delta Region, Nigeria. African Journal of Drug and Alcohol Studies. 2012 11 (1): 9-16.

19. Oshodi OY, Aina OF, Onajole AT. Substance use among secondary school students in an urban setting in Nigeria: Prevalence and associated factors. Afr J Psychiatry (Johannesburg) 2010;13:52-7.

20. Oladele A Atoyebi. Pattern of substance abuse among senior secondary school students in a Southwestern Nigerian City. International review of social sciences and Humanities vol 4, No, 2 (2012), pp.54-65. From www.irssh.com

21. Tavares BF, Beria JU, Lima MS. Factors associated with drug use among adolescent students in southern Brazil. Rev Saude Publica. 2004; 38(6):787-96.