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# Psychosocial Factors Associated with Substance Use among Secondary School Students in Ilorin, Nigeria

*Facteurs Psychosociaux Associés à la Consommation de Substances Psychoactives chez les Élèves du Secondaire à Ilorin, au Nigeria*

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## ABSTRACT

**BACKGROUND:** Adolescent substance use is a global concern. Identifying factors associated with it can help in preparing prevention programmes.

**OBJECTIVES:** The objectives were to determine the socio-demographic factors associated with substance use and the prevalence of associated psychiatric morbidity among secondary school students in Ilorin.

**MATERIALS AND METHODS:** Instruments used were a sociodemographic questionnaire, a modified WHO Students' Drug Use Survey Questionnaire, and the General Health Questionnaire-12 (GHQ-12) which was used to determine psychiatric morbidity, using a cut-off score of 3.

**RESULTS:** Substance use was associated with older age groups, male gender, parental substance use and poor relationship with parents, and urban location of school. Reported religiosity did not confer protection against substance use. The overall prevalence of psychiatric morbidity was 22.1% (n= 442). Psychiatric morbidity was more common among users of opioids, organic solvents, cocaine and hallucinogens, with current opioid users having ten times the odds of psychiatric morbidity.

**CONCLUSION:** Factors influencing adolescent substance use serve as a substrate for interventions. A good relationship with parents and teachers are protective factors, while parental substance use calls for holistic psychosocial support. The association of substance use with psychiatric morbidity highlights the need to incorporate behavioural treatment in substance use interventions. **WAJM 2023; 40(2): 217–226.**

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## RÉSUMÉ

**CONTEXTE:** La Consommation de Substances Psychoactives chez les Adolescents est une Préoccupation Mondiale. L'Identification des Facteurs qui y sont Associés Peut Aider à Préparer des Programmes de Prévention

**OBJECTIFS:** Déterminer les facteurs socio-démographiques associés à la consommation de substances psychoactives chez les élèves du secondaire à Ilorin. Déterminer la prévalence de la morbidité psychiatrique chez les étudiants et son association avec la consommation de substances.

**MATÉRIAUX ET MÉTHODES:** Les instruments utilisés étaient un questionnaire sociodémographique, un questionnaire modifié de l'enquête de l'OMS sur la consommation de drogues par les étudiants, et le Questionnaire de santé générale-12 (GHQ-12) qui a été utilisé pour déterminer la morbidité psychiatrique, en utilisant un score seuil de 3.

**RÉSULTATS:** La consommation de substances psychoactives était associée à des groupes d'âge plus élevés, au sexe masculin, à la consommation de substances psychoactives par les parents et à une mauvaise relation avec les parents, ainsi qu'à la localisation urbaine de l'école. La religiosité déclarée ne confère pas de protection contre la consommation de substances. La prévalence globale de la morbidité psychiatrique était de 22,1% (n= 442). La morbidité psychiatrique était plus fréquente chez les consommateurs d'opioïdes, de solvants organiques, de cocaïne et d'hallucinogènes, les consommateurs actuels d'opioïdes ayant dix fois plus de chances de souffrir de morbidité psychiatrique.

**CONCLUSION:** Les facteurs qui influencent la consommation de substances psychoactives chez les adolescents servent de substrat aux interventions. Une bonne relation avec les parents et les enseignants sont des facteurs de protection, tandis que la consommation de substances par les parents nécessite un soutien psychosocial global. L'association entre la consommation de substances et la morbidité psychiatrique souligne la nécessité d'intégrer un traitement comportemental dans les interventions en matière de consommation de substances. **WAJM 2023; 40(2): 217–226.**

**Mots clés:** Santé des adolescents, médecine des adolescents, services de santé mentale en milieu scolaire, consommation d'alcool avant l'âge légal, toxicomanie, oral, pédopsychiatrie. Traduit avec www.DeepL.com/Translator (version gratuite).

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**Abbreviations: ASU,** Adolescent Substance Use; **BS,** Bonferonni Significance; **CI,** Confidence Interval; **GHQ-12,** General Health Questionnaire-12; **OR,** Odd's Ratio; **SSA,** Sub-Saharan Africa; **SUD,** Substance Use Disorders; **SPSS,** Statistical Package for Social Sciences; **WHO,** World Health Organization.

## INTRODUCTION

Reducing risk factors and enhancing protective factors is at the heart of prevention science, a field which has clear benefits for addressing adolescent substance use (ASU).[1] There is an urgent need to identify psychosocial factors influencing substance use, as a basis for intervention. Substance use is prevalent among adolescents globally.[2] The estimated prevalence of ASU in sub-Saharan Africa is 42%.[3]

Factors affecting ASU are exemplified by the Bronfenbrenner's ecological systems theory,[4] which describes wellbeing as an interaction between individual factors and multiple layers of the environment, namely family, school and general public.[5] Peer influence,[6] interparental conflict[7] and parental substance use[8] are proximal risk factors. Protective factors include teacher support,[9] parental monitoring[10] and disapproval of ASU,[11] as well as a good relationship with parents, especially the mother.[12]

Sociocultural factors influence patterns of substance use. This is demonstrated by the difference in alcohol consumption among Asians acculturated to America compared with native Asians.[13] Similarly, drinking patterns vary among Ghanaians living in Ghana and European countries, respectively.[14] Financial capability influences the variety of alcohol consumed among Africans.[13,15] Poverty, unemployment, communal conflicts and westernization are recognized societal drivers of ASU in West and Central Africa.[16,17]

The relationship between substance use and psychiatric morbidity is bidirectional.[18] Adolescent cannabis use is associated with psychosis.[19] Depression and substance use commonly coexist in northern Nigeria.[20] In southwest Nigeria, ASU was increased three-fold by anxiety.[21] Furthermore, transitioning from substance use to substance use disorders (SUD) appears to be swift, leaving a narrow window for intervention.[22] Consequences of ASU include poor cognitive function,[23] declining academic performance, threat to health and safety, poor mental health, impaired relationship with family and peers, crime, economic losses, and mortality,[16,24] which sometimes is in the context of suicide.[25] ASU raises the risk for sexually transmitted infections among West African adolescents[26,27] and predicts acceptance of sexual/dating violence in Africa[28] and America.[29]

Many adolescents are found in secondary schools. Secondary school students who have no plans to further their education and those with poor school connectedness are more likely to take illicit drugs.[30,31] Academic stress increases the predisposition of secondary school students to substance use.[32] Illicit drug use is predictive of victimisation in secondary schools.[33]

A previous study in Ilorin examined psychosocial factors of substance use, but that was about three decades ago.[34] ASU remains common in Ilorin, with a lifetime and current use of 83.7% and 62.4% respectively in a recent report.[35] Therefore, the present study was aimed at identifying factors associated with substance use among secondary school students in Ilorin, including the association of substance use with psychiatric morbidity.

## SUBJECTS, MATERIALS AND METHODS

The study was carried out in Ilorin East Local Government of Kwara State. Ilorin is the capital of Kwara State, a state which is located in North Central Nigeria, lying between latitude $08^0 30'$N and longitude $04^0 33'$E.[36] It has an area of 486 km² and a population of 204,310 as at the 2006 census.[37]

There are 37 junior secondary schools and 26 senior secondary schools in Ilorin East. The junior secondary schools are made up of 7,138 male students and 5,870 female students, giving a total of 13,008 junior secondary school students. The senior secondary school students consist of 5,840 males and 4,635 females, giving a total of 10,475 students. The total student population is 23,483.[38]

A cross-sectional study design was used. The inclusion criterion was all secondary school students of Ilorin East, while the exclusion criterion was any illness severe enough to interfere with the participants' ability to communicate.

Sample size estimation was done using 10% of the sampling frame.[39] A sample size between 2,000–3,000 students (irrespective of the population size) produces a reliable assessment in substance surveys.[40] Two thousand one hundred and sixty-eight secondary students were interviewed with a response rate of 92.3%, as there were 2001 respondents in the final analysis. A total of eight schools were surveyed – four junior secondary schools, and four, senior.

Multistage sampling technique was used, thus: With simple random technique by balloting, 4 of the 12 wards were selected. From each of the four selected wards, a senior secondary school and a junior secondary school were picked by simple random technique. Calculating the total number of students needed was done by proportionate stratification where the sample size of each stratum is proportionate to the population size of the stratum,[41] using the following equation:

$$n_h = \frac{N_h}{N} \times n$$

where $n_h$ is the sample size for stratum $h$, $N_h$ is the population size for stratum $h$, N is total population size, and n is total sample size.

### Instruments

1. *The World Health Organization (WHO) Students Drug Use Survey Questionnaire[39]*:
   It is a semi-structured self-report questionnaire with three sections, addressing socio-demographic variables; prevalence/pattern of substance use, and substance use by others, respectively.

2. *General Health Questionnaire-12 (GHQ-12):*
   This is a 12-item self-administered instrument which screens for psychiatric morbidity.[42] It was validated in Nigeria[43] and has been used in the study setting.[34] Recent studies confirm its suitability in northern Nigeria[44] and among black African adolescents.[45] The cut-off point is 3, with higher scores indicative of psychiatric morbidity.

**Ethical Consideration**

Ethical approval was obtained from the Ethical Review Board of the University of Ilorin Teaching Hospital (Assigned Number: NHREC/02/05/2010), and permission was gotten from the State Ministry of Education and also from the school principals of the schools surveyed. Assent/consent was obtained from participants.

**Data Analysis**

The data was analyzed with the Statistical Package for Social Sciences (SPSS) version 25[46] and the level of statistical significance was set at 5% confidence limit. Frequency tables were generated. Chi square statistics determined the relationship between socio-demographic variables and substance use. Binary logistic regression was used to determine independent factors associated with substance use.

**RESULTS**

**Sociodemographic Characteristics**

The male respondents constituted 54.1%. Respondents were aged 10–23 years (mean age: 15.05 ± 2.39 years). There were 1,061 Christian respondents (53.0%) and 933 (46.7%) Muslims. Most respondents were living with both parents (83.5%, n= 1,671). Using the International Standard Classification of Occupations (47), most parents were traders with some formal education (Table 1).

*Sociodemographic Factors Associated with Substance Use*

Older adolescents had a significantly higher prevalence of stimulant use ($\chi^2$=10.468, $p$=0.002$^{BS}$), while organic solvent use was more common among respondents aged between 10 and 14 years ($\chi^2$=10.481, $p$=0.002$^{BS}$). Current use of stimulant, sedative and tobacco were more prevalent among males (Table 2).

While alcohol use was more common among Christians ($\chi^2$=15.435, $p$<0.001), organic solvent ($\chi^2$=7.522, $p$=0.006) and stimulant use ($\chi^2$= 4.433, $p$=0.035) were more prevalent among Muslims. There was no association between reported religiosity and substance use.

**Table 1: Socio-demographic Characteristics of Respondents**

| Variable | Frequency (N=2001) | Percentage (%) |
|---|---|---|
| **Age Group** | | |
| 10 – 14 | 867 | 43.3 |
| 15 – 19 | 1078 | 53.9 |
| >19 | 56 | 2.8 |
| Mean age (±S.D)years 16.15 ± 2.11; Range 10 – 23 | | |
| **Gender** | | |
| Male | 1083 | 54.1 |
| Female | 918 | 45.9 |
| **Religion** | | |
| Christianity | 1061 | 53.0 |
| Islam | 933 | 46.6 |
| Traditional African religion | 4 | 0.2 |
| No religion | 3 | 0.1 |
| **School Category** | | |
| Junior secondary school students | 1103 | 55.1 |
| Senior secondary school students | 898 | 44.9 |
| **Father Alive** | | |
| Yes | 1884 | 94.2 |
| No | 117 | 5.8 |
| **Mother Alive** | | |
| Yes | 1930 | 96.5 |
| No | 71 | 3.5 |
| **Parents married and live together** | | |
| Yes, married and live together | 1671 | 83.5 |
| Yes, married but live apart | 73 | 3.6 |
| No, they are separated or divorced | 82 | 4.1 |
| Not applicable (one or both of them is/are dead) | 175 | 8.7 |
| **Father's Occupation** | | |
| Trader | 857 | 42.8 |
| Professional | 691 | 34.5 |
| Civil servant | 292 | 14.6 |
| Artisan | 127 | 6.3 |
| Unemployed | 24 | 1.2 |
| Others | 10 | 0.4 |
| **Mother's Occupation** | | |
| Trader | 1190 | 59.5 |
| Professional | 462 | 23.1 |
| Civil servant | 208 | 10.4 |
| Artisan | 84 | 4.2 |
| Unemployed | 52 | 2.6 |
| Others | 5 | 0.2 |
| **Father's Educational Status** | | |
| None | 126 | 6.3 |
| Primary | 315 | 15.7 |
| Secondary school | 652 | 32.6 |
| Tertiary | 908 | 45.4 |
| **Mother's Educational Status** | | |
| None | 181 | 9.0 |
| Primary | 275 | 13.7 |
| Secondary school | 759 | 37.9 |
| Tertiary | 786 | 39.3 |

**Table 2: Association between Age, Sex and Current Substance Use**

| Variable | Age Group | | | $\chi^2$ | p Value | Sex | | $\chi^2$ | p Value |
|---|---|---|---|---|---|---|---|---|---|
| | 10 – 14 n (%) | 15 – 19 n (%) | 20 – 23 n (%) | | | Male n (%) | Female n (%) | | |
| **Cigarette** | | | | | | | | | |
| Yes | 7 (0.8) | 6 (0.6) | 1 (1.8) | 1.413 | 0.493 | 13 (92.9) | 1 (7.1) | 8.519 | 0.004* |
| No | 860 (99.2) | 1072 (99.4) | 55 (98.2) | | | 1070 (53.9) | 917 (46.1) | | |
| **Cannabis** | | | | | | | | | |
| Yes | 6 (0.7) | 5 (0.5) | 1 (1.8) | 1.779 | 0.411 | 8 (66.7) | 4 (33.3) | 0.765 | 0.382 |
| No | 861 (99.3) | 1073 (99.5) | 55 (98.2) | | | 1075 (54.0) | 914 (46.0) | | |
| **Alcohol** | | | | | | | | | |
| Yes | 24 (2.8) | 46 (4.3) | 1 (1.8) | 3.678 | 0.159 | 38 (53.5) | 33 (46.5) | 0.011 | 0.917 |
| No | 843 (97.2) | 1032 (95.7) | 55 (98.2) | | | 1045 (54.1) | 885 (45.9) | | |
| **Mild Stimulants** | | | | | | | | | |
| Yes | 46 (5.3) | 88 (8.2) | 8 (14.3) | 10.468 | **0.005*** | 91 (64.1) | 51 (35.9) | 6.108 | 0.013* |
| No | 821 (94.7) | 990 (91.8) | 48 (85.7) | | | 992 (53.4) | 867 (46.6) | | |
| **Sedatives** | | | | | | | | | |
| Yes | 24 (2.8) | 41 (3.8) | 2 (3.6) | 1.600 | 0.449 | 48 (71.6) | 19 (28.4) | 8.568 | 0.003* |
| No | 843 (97.2) | 1037 (96.2) | 54 (96.4) | | | 1035 (53.5) | 899 (46.5) | | |
| **Opioids** | | | | | | | | | |
| Yes | 4 (0.5) | 4 (0.4) | 0 (0.0) | 0.330 | 0.848 | 5 (62.5) | 3 (37.5) | 0.227 | 0.634 |
| No | 863 (99.5) | 1074 (99.6) | 56 (100.0) | | | 1078 (54.1) | 915 (45.9) | | |
| **Cocaine** | | | | | | | | | |
| Yes | 2 (0.2) | 2 (0.2) | 0 (0.0) | 0.165 | 0.921 | 3 (75.0) | 1 (25.0) | 0.704 | 0.402 |
| No | 865 (99.8) | 1076 (99.8) | 56 (100.0) | | | 1080 (54.1) | 917 (45.9) | | |
| **Hallucinogen** | | | | | | | | | |
| Yes | 2 (0.2) | 3 (0.3) | 0 (0.0) | 0.188 | 0.910 | 4 (80.0) | 1 (20.0) | 1.352 | 0.245 |
| No | 865 (99.8) | 1075 (99.7) | 56 (100.0) | | | 1079 (54.1) | 917 (45.9) | | |
| **Organic Solvents** | | | | | | | | | |
| Yes | 44 (5.1) | 26 (2.4) | 1 (1.8) | 10.481 | **0.005*** | 44 (4.1) | 27 (2.9) | 1.826 | 0.177 |
| No | 823 (94.9) | 1052 (97.6) | 55 (98.2) | | | 1039 (95.9) | 891 (97.1) | | |

$\chi^2$, Chi square; *, Statistically significant (i.e. p value < 0.05).

**Table 3: Relationship between School Location and Current Use of Substance**

| | School Location | | $\chi^2$ | p Value |
|---|---|---|---|---|
| Variable | Urban n (%) | Rural n (%) | | |
| **Cigarette** | | | | |
| Yes | 12 (0.7) | 2 (0.6) | 0.109 | 0.741 |
| No | 1636 (99.3) | 351 (99.4) | | |
| **Cannabis** | | | | |
| Yes | 10 (0.6) | 2 (0.6) | 0.008 | 0.929 |
| No | 1638 (99.4) | 351 (99.4) | | |
| **Alcohol** | | | | |
| Yes | 70 (4.2) | 1 (0.3) | 13.350 | <0.001* |
| No | 1578 (95.8) | 352 (99.7) | | |
| **Mild stimulants** | | | | |
| Yes | 128 (7.8) | 14 (4.0) | 6.371 | 0.012* |
| No | 1520 (92.2) | 339 (96.0) | | |
| **Sedatives** | | | | |
| Yes | 63 (3.8) | 4 (1.1) | 6.499 | 0.011* |
| No | 1585 (96.2) | 349 (98.9) | | |
| **Organic solvents** | | | | |
| Yes | 26 (7.4) | 45 (2.7) | 18.249 | <0.001* |
| No | 327 (92.6) | 1603 (97.3) | | |

$\chi^2$, Chi square; *, Statistically Significant (i.e. p value < 0.05), N= 2001

There was a significant association between respondents' reported poor relationship with their mother and the current use of cocaine ($\chi^2$=8.152, p=0.006[BS]) and organic solvents ($\chi^2$=34.278, p<0.001[BS]). Respondents who reported a poor relationship with their father had a higher prevalence of sedative ($\chi^2$=14.238, p=0.001[BS]), opioid ($\chi^2$=9.773, p<0.002[BS]), cocaine ($\chi^2$=24.765, p<0.001[BS]), hallucinogen ($\chi^2$=18.730, p<0.001[BS]) and organic solvent use ($\chi^2$=14.535, p<0.001[BS]). Current hallucinogen, stimulant and sedative use were associated with use in a sibling/friend, while current use of cannabis, cocaine and stimulants was associated with father's use of the substance.

Urban school location was significantly associated with the current alcohol ($\chi^2$=13.350, p<0.001[y]), stimulant ($\chi^2$=6.371, p=0.012), sedative ($\chi^2$=6.499,

**Table 4: Association between Perceived Harmfulness and Current Substance Use**

| Variable | Perceived Harmfulness | | | | $\chi^2$ | p Value |
|---|---|---|---|---|---|---|
| | Not Harmful n (%) | Mildly Harmful n (%) | Very Harmful n (%) | I don't know n (%) | | |
| **Cigarette** | | | | | | |
| Yes | 4 (1.2) | 3 (1.5) | 4 (0.5) | 0 (0.0) | 2.830 | 0.587 |
| No | 324 (98.8) | 195 (98.5) | 801 (99.5) | 3 (100.0) | | |
| **Cannabis** | | | | | | |
| Yes | 5 (1.5) | 2 (1.0) | 4 (0.5) | 0 (0.0) | 4.615 | 0.329 |
| No | 323 (98.5) | 196 (99.0) | 801 (99.5) | 3 (100.0) | | |
| **Alcohol** | | | | | | |
| Yes | 20 (6.1) | 17 (8.6) | 24 (3.0) | 0 (0.0) | 18.457 | 0.001* |
| No | 308 (93.9) | 181 (91.4) | 781 (97.0) | 3 (100.0) | | |
| **Mild Stimulants** | | | | | | |
| Yes | 18 (5.5) | 26 (13.1) | 69 (8.6) | 0 (0.0) | 11.797 | 0.019* |
| No | 310 (94.5) | 172 (86.9) | 736 (91.4) | 3 (100.0) | | |
| **Sedatives** | | | | | | |
| Yes | 14 (4.3) | 16 (8.1) | 30 (3.7) | 0 (0.0) | 18.049 | 0.001* |
| No | 314 (95.7) | 182 (91.9) | 775 (96.3) | 3 (100.0) | | |
| **Opioids** | | | | | | |
| Yes | 1 (0.3) | 1 (0.5) | 2 (0.2) | 0 (0.0) | 2.546 | 0.637 |
| No | 327 (99.7) | 197 (99.5) | 803 (99.8) | 3 (100.0) | | |
| **Cocaine** | | | | | | |
| Yes | 0 (0.0) | 1 (0.5) | 1 (0.1) | 0 (0.0) | 2.167 | 0.705 |
| No | 328 (100.0) | 197 (99.5) | 804 (99.9) | 3 (100.0) | | |
| **Hallucinogen** | | | | | | |
| Yes | 1 (0.3) | 1 (0.5) | 1 (0.1) | 0 (0.0) | 1.147 | 0.887 |
| No | 327 (99.7) | 197 (99.5) | 804 (99.9) | 3 (100.0) | | |
| **Organic solvents** | | | | | | |
| Yes | 20 (6.1) | 11 (5.6) | 14 (1.7) | 0 (0.0) | 17.145 | 0.002* |
| No | 308 (93.9) | 187 (94.4) | 791 (98.3) | 3 (100.0) | | |

$\chi^2$, Chi square; *,Statistically significant (i.e. p value < 0.05).

$p=0.015^y$) and organic solvent use ($\chi^2 = 18.249$, $p<0.001$) (Table 3). The latter was associated with poor academic performance ($\chi^2=9.148$, $p = 0.002$) and poor relationship with teacher ($\chi^2=21.692$, $p<0.001$).

### Perception about Harm

A significant proportion of students who used solvents had a perception that it was not harmful ($\chi^2=9.711$, $p=0.003^{BS}$). Current users of alcohol largely considered it unharmful ($\chi^2=15.355$, $p<0.001^{BS}$) and readily available ($\chi^2=14.963$, $p=0.001$). Conversely, a perception of harmfulness was significantly associated with current sedative use ($\chi^2=16.593$, $p<0.001^{BS}$) (Table 4).

### Association between Substance Use and Psychiatric Morbidity

Lifetime use of cocaine ($\chi^2=11.833$, $p=0.001$), hallucinogens ($\chi^2=10.684$, $p=0.001$), and organic solvents ($\chi^2=19.527$, $p<0.001$) were significantly associated with psychiatric morbidity (Table 5). Current use of tobacco ($\chi^2=10.066$, $p=0.002$), opioids ($\chi^2=13.066$, $p<0.001$), cocaine ($\chi^2=6.520$, $p=0.002$), hallucinogens ($\chi^2=9.768$, $p=0.002$) and organic solvents ($\chi^2=12.872$, $p<0.001$) were significantly associated with psychiatric morbidity (Table 6).

On logistic regression, current use of opioids and organic solvents were independent factors associated with psychiatric morbidity. Current opioid users had ten times the odds of having psychiatric morbidity [OR: 10.191(2.033–

51.090)] while current solvent users had more than two times the odds of having psychiatric morbidity [OR: 2.344(1.434–3.832)].

## DISCUSSION

Factors associated with substance use among school-going adolescents are useful for identifying intervention points. Interventions for ASU in Africa in the last two decades have mostly been school-based, as many adolescents can be accessed simultaneously in schools.[48] Various factors associated with substance use were identified, including personal (e.g. age, gender, religion), family and school-related factors.

Older adolescents were one and a half times more likely to use a substance. This is consistent with previous findings.[21] The propensity of older adolescents for exploration and independence may account for this observation.[49] Unfortunately, there is a paucity of age-appropriate substance prevention programmes designed for older adolescents.[50] School mental health policies should make effective interventions mandatory, as this age group may mark the final critical period before these students are released into the wider world.

Younger adolescents were more likely to use organic solvents, as also found in America.[51] Solvents were the most prevalent substance in current use among Egyptian adolescents.[52] The relative popularity of solvents could be due to societal prohibition of alcohol and drugs among minors. The uniqueness of solvent use lies in its high availability and high risk of harm. Solvent users may be unaware[53] of the potential harm, including psychosis, depression and suicidality.[54,55]

Gender associations revealed that overall lifetime and current substance use were higher among male respondents. This is congruent with reports in Nigeria[56] and other sub-Saharan African countries,[57] and may be due to gender differences in societal expectation of drug-taking behavior.[58] While the gender gap in substance use is closing,[59] the general observation of its preponderance among males calls for more research into meditational models among African

**Table 5: Association between Psychiatric Morbidity and Lifetime Substance Use**

| Substance | General Health Questionnaire (GHQ) | | | $\chi^2$ | p value | OR (95% CI) |
| --- | --- | --- | --- | --- | --- | --- |
| | $\geq 3$  n (%) | < 3  n (%) | Total  n (%) | | | |
| **Cigarette** | | | | | | |
| Yes | 44(10.0) | 192(12.3) | 236(11.8) | 1.845 | 0.174 | 0.787(0.557–1.113) |
| No | 398(90.0) | 1367(87.7) | 1765(88.2) | | | |
| **Cannabis** | | | | | | |
| Yes | 45(10.2) | 194(12.4) | 239(11.9) | 1.677 | 0.195 | 0.798(0.566–1.124) |
| No | 397(89.8) | 1365(87.6) | 1762(88.1) | | | |
| **Alcohol** | | | | | | |
| Yes | 86(19.5) | 309(19.8) | 395(19.7) | 0.029 | 0.865 | 0.977(0.749–1.276) |
| No | 356(80.5) | 1250(80.2) | 1606(80.3) | | | |
| **Mild stimulants** | | | | | | |
| Yes | 118(26.7) | 418(26.8) | 536(26.8) | 0.002 | 0.961 | 0.994(0.783–1.262) |
| No | 324(73.3) | 1141(73.2) | 1465(73.2) | | | |
| **Sedatives** | | | | | | |
| Yes | 55(12.4) | 231(14.8) | 286(14.3) | 1.584 | 0.208 | 0.817(0.596–1.120) |
| No | 387(87.6) | 1328(85.2) | 1715(85.7) | | | |
| **Opioids** | | | | | | |
| Yes | 42(9.5) | 178(11.4) | 220(11.0) | 1.291 | 0.256 | 0.815(0.572–1.161) |
| No | 400(90.5) | 1381(88.6) | 1781(89.0) | | | |
| **Cocaine** | | | | | | |
| Yes | 8(1.8) | 5(0.3) | 13(0.6) | 11.833 | 0.001* | 5.729(1.865–17.601) |
| No | 434(98.2) | 1554(99.7) | 1988(99.4) | | | |
| **Hallucinogen** | | | | | | |
| Yes | 17(3.8) | 22(1.4) | 39(1.9) | 10.684 | 0.003* | 2.795(1.471–5.310) |
| No | 425(96.2) | 1537(98.6) | 1962(98.1) | | | |
| **Organic solvent** | | | | | | |
| Yes | 53(12.0) | 91(5.8) | 144(7.2) | 19.527 | <0.001* | 2.198(1.539–3.140) |
| No | 389(88.0) | 1468(94.2) | 1857(92.8) | | | |

$\chi^2$, Chi square; *, Statistically significant (i.e. p value < 0.05); OR, Odds Ratio; CI, Confidence Interval.

adolescents, as well as gender-sensitive interventions. These are important for both male and female adolescents, being that the prevalence of ASU may be higher in males, but the fewer females affected may have greater risk factors and consequent problems.[60]

Current alcohol use was significantly associated with being a Christian. There is a strict prohibition of alcohol use in Islam,[61] which may have been associated with an actual reduction in prevalence of alcohol use or underreporting of its use among Muslim respondents. On the other hand, the current use of organic solvents and stimulants were significantly associated with being a Muslim. This may have been due to accessibility, affordability, and in the case of mild stimulants, acceptability of the substances.

The general observation that religiosity is inversely associated with psychoactive substance use[62] was not replicated in this study. Further studies need to explore the influence of religiosity on substance use in the study setting. Drug interventions need to involve religious homes.

Unsurprisingly, substance use was more common among students who had a poor relationship with their parents. Poor parental/guardian supervision is an established predisposition to ASU.[63] This highlights the role of parental awareness and presence in the prevention of adolescent substance use. Research reveals that it is advantageous to provide guidance to parents of adolescents, irrespective of the age, gender or race of their adolescent.[64]

Substance use was more common if a friend or family member was also using the substance. Similar findings have been described.[65] Parental substance abuse is a major public health concern.[66] Parents with substance abuse problems as well as their children need psychosocial support. More research is needed to determine the extent of this problem in Nigeria. Policies of the Child Protection Sub-Sector of the Ministry of Women Affairs and Social Development should be expanded to cater for such parents and their children.

School variables surveyed included the school location, reported academic performance and relationship with teachers. Urban location of school was associated with a five-fold increase in prevalence of substance use. Similar results had been gotten in the same study site.[67] Organic solvent use was

**Table 6: Association between Psychiatric Morbidity and Current Substance Use**

**N=2001**

| Current Substance Use | (GHQ) | | $\chi^2$ | p value |
|---|---|---|---|---|
| | ≥ 3 (%) | < 3 (%) | | |
| **Cigarette** | | | | |
| Yes | 8 (1.8) | 6 (0.4) | 10.066 | 0.002* |
| No | 434 (98.2) | 1553 (99.6) | | |
| **Cannabis** | | | | |
| Yes | 5 (1.1) | 7 (0.4) | 2.689 | 0.101 |
| No | 437 (98.9) | 1552 (99.6) | | |
| **Alcohol** | | | | |
| Yes | 16 (3.6) | 55 (3.5) | 0.009 | 0.926 |
| No | 426 (96.4) | 1504 (96.5) | | |
| **Stimulants** | | | | |
| Yes | 32 (7.2) | 110 (7.1) | 0.018 | 9.894 |
| No | 410 (92.8) | 1449 (92.9) | | |
| **Sedatives** | | | | |
| Yes | 19 (4.3) | 48 (3.1) | 1.583 | 0.208 |
| No | 423 (95.7) | 1511 (96.9) | | |
| **Opioids** | | | | |
| Yes | 6 (1.4) | 2 (0.1) | 13.066 | <0.001* |
| No | 436 (98.6) | 1557 (99.9) | | |
| **Cocaine** | | | | |
| Yes | 3 (0.7) | 1 (0.1) | 6.520 | 0.002* |
| No | 439 (99.3) | 1558 (99.9) | | |
| **Hallucinogen** | | | | |
| Yes | 4 (0.9) | 1 (0.1) | 9.768 | 0.002* |
| No | 438 (99.1) | 1558 (99.9) | | |
| **Organic Solvent** | | | | |
| Yes | 28 (6.3) | 43 (2.8) | 12.872 | <0.001* |
| No | 414 (93.7) | 1516 (97.2) | | |

$\chi^2$, Chi square; *, Statistically significant (i.e. p value < 0.05).

associated with reported poor academic performance, in tandem with previous research.[68] Solvent use was also associated with a poor student-teacher relationship. Interventions in the prevention of ASU need to consider the role of teachers.

Current alcohol use and current organic solvent use were inversely associated with a perception of harmfulness. Perception of harm is a key factor in substance engagement.[69] However, the perception of harmfulness was not protective against sedative and stimulant use in this study. The implication of this finding is that adolescents may engage in risky behavior despite awareness of the potential harm. Psychiatric morbidity was associated with current use of tobacco, cocaine, hallucinogens, and especially with

current use of opioids and organic solvents. This is in line with current evidence.[70,71] Given the availability of these solvents, advocacy efforts in reducing the prevalence of use should be intensified. There is an inverse relationship between substance use and good mental health.[72] Early ASU is associated with self-reported mental problems.[73] Comorbid psychiatric morbidity in ASU portends poorer prognosis[74] and predicts mental problems in the future.[75]

The limitation of our study, being cross-sectional, was that it could not establish causality. Also, specific psychiatric diagnoses were not determined. Further research could measure this. Nonetheless, the findings could be useful for substance use interventions, which could incorporate

behavioural treatment[76] and drug education, which shapes the global positive expectancies of adolescents, resulting in substance avoidance.[77]

**CONCLUSION**

Sociodemographic factors associated with adolescent substance use were determined. These factors form the basis for interventions, which should be tailored according to age and gender needs. Parental substance use calls for holistic psychosocial support. Further research is needed to identify the role of religiosity. Substance use is related to psychiatric morbidity, and behavioural treatment should be incorporated into substance use interventions.

**Duality of Interest**

We have no duality of interest.

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