

Original Article

## Socio-Demographic And School-Related Predictors Of The Prevalence And Risk Levels Of Substance Abuse Among Adolescents In Oyo State, Nigeria

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### ABSTRACT

Adolescent substance abuse remains a significant public health concern in Nigeria. Understanding the socio-demographic and school-related factors that predict adolescent substance use is essential for targeted prevention. This study aimed to identify the predictors of substance abuse prevalence and risk levels among adolescents in Oyo State, Nigeria. A cross-sectional study was carried out among 600 senior secondary school students. Data were collected using the WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). Data were analysed using descriptive and inferential statistics. Statistical significance was determined at  $p < 0.05$ . Findings showed that the prevalence of substance use was 35.7%, with moderate risk (63, 10.5%) and high risk of substance abuse (149, 24.8%). Significant predictors of substance abuse prevalence were: male gender (AOR=2.435), polygamous family type (AOR=1.767), living alone (AOR=3.303), self-employed (AOR = 0.521) or civil servant fathers (AOR = 0.448) and self-employed (AOR = 0.464) or civil servant mothers (AOR = 0.425). For the substance abuse risk levels, male gender (AOR=2.332), polygamous family (AOR=1.519), living with a single parent (AOR=1.706), and living alone (AOR=3.219) were significant predictors of higher risk levels. Students in boys-only schools (AOR=2.517) and mixed schools (AOR=2.401) had significantly higher risk compared to girls-only schools. In conclusion, male gender, polygamous family type, living alone or with a single parent, parental unemployment, and attending boys-only or mixed schools were significant predictors of prevalence and risk levels of adolescent substance abuse. Prioritising interventions to at-risk subgroups with community service collaborations may help mitigate the menace of substance abuse in Nigeria.

**Keywords:** Adolescent, Predictors, Prevalence, Risk Level, School-related, Socio-demographic, Substance Abuse

### INTRODUCTION

Adolescence is a developmental stage in an individual's life, between childhood and before adulthood, occurring between 10-19 years of age, during which skills, abilities, emotions, attributes, acquired knowledge as well as relationships continued to adulthood are formed and established.<sup>1</sup> This stage, while marked with growth and potential, also presents heightened vulnerability to risky behaviours, particularly the initiation of psychoactive substance use which could result in sedation, stimulation or change in mood.<sup>2</sup>

Substance abuse is defined as the "state of periodic or chronic intoxication, caused by the repeated consumption of natural or synthetic drug which are detrimental to the individual and to the society".<sup>3</sup> In other words, it is the intake of substances including alcohol, tobacco, cannabis, illicit drugs such as codeine, heroine, and prescription medication without medical guidance at a quantity that is harmful or hazardous to an individual physical, social, and

mental health.<sup>4,5</sup> These substances, when consumed, have the ability to impair mood, behaviour, perception, cognition, and alter physiological, psychological functioning and social interactions through its chemical activities.<sup>6</sup>

Over 35 million people suffer from substance use disorders, with a significant proportion being adolescents.<sup>7</sup> Reports indicate that about 13.8% of adolescents aged 15–19 years have engaged in alcohol use, while 5.6% have experimented with illicit drugs, highlighting a major health and social concern.<sup>8</sup> Unfortunately, it has been reported that substance abuse among adolescents is significantly higher than among older individuals.<sup>9</sup>

Substance abuse is a global threat, and these patterns of use are not only limited to developed countries, they are not also increasingly reported across low-and middle-income countries where demographic trends and urbanisation expose adolescents to changing social norms and easy availability of and accessibility to drugs.<sup>10,11</sup> Adolescent

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substance abuse remains a significant public health concern in Nigeria, with recent studies reporting prevalence rates ranging from 29% to over 60% across different states.<sup>12-14</sup> Understanding the factors that predict which adolescents are most likely to engage in substance use and progress to higher risk levels is essential for designing targeted, cost-effective prevention interventions. This study, therefore, aimed to identify the socio-demographic and school-related predictors of substance abuse prevalence and risk levels among senior secondary school students in Oyo State, Nigeria.

## MATERIALS AND METHODS

### Study Area

This study was conducted in the three senatorial districts in Oyo State. One boys-only school, girls-only school, and mixed school in each senatorial district were included to ensure representativeness across gender-segregated and co-educational settings.

### Study Design

This study employed a cross-sectional descriptive survey design.

### Study Population

The target population comprised all senior secondary school students (SS1-SS3) enrolled in public secondary schools in Oyo State. This study included students aged 14–19 years, enrolled in SS1–SS3, present during data collection, and whose parents/guardians provided consent, along with their informed consent, and were willing to participate in the study. Students in junior classes (JS1–JS3), and those not willing to participate were excluded from this study.

### Sample Size Determination

The sample size was determined using Fisher's formula;

$$n = \frac{Z^2 PQ}{d^2}$$

Where; n = sample size; Z = 1.96 for 95% confidence level; P = estimated proportion of the prevalence of adolescent substance abuse (using 61.6% (0.616)<sup>14</sup>. Q = 1–P; d = absolute precision or sampling error tolerated = 5% (0.05).

$$n = \frac{1.96^2 \times 0.616(1 - 0.616)}{0.05^2} = 363.5$$

n ≈ 364

### Adjusting for a design effect (DEFF);

$$n_{\text{deff}} = 364 \times 1.5 = 546$$

Attrition/Non-response rate; 10% of the sample size;

$$\frac{10 \times 546}{100} = 54.6$$

Total sample size = 546 + 54.6 = 600.6 ≈ 600

Hence, the sample size for this study was 600 senior secondary school students.

### Sampling Technique

A multistage sampling technique was employed. First, local government areas were stratified into three senatorial districts (Oyo North, Oyo Central, Oyo South). Second, schools were randomly selected from each district. Third, students were selected using stratified random sampling, with class level as the stratum.

### Study Instrument

The quantitative data for this study was collected using modified, semi-structured and validated questionnaires adapted from previous studies. Prevalence, types, substance use involvement/risk levels were assessed using the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST 3.0). The questionnaire was structured into four sections to elicit the objectives of the study.

**SECTION I:** Socio-demographic information of the respondents – this comprised 11 items age, gender, ethnicity, class (SS1-SS3), religion, living arrangements (with parents/guardians), parental occupation etc.

**SECTION II:** WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) V3.0 – this section comprised 7 items to assess lifetime and recent use, frequency of use, craving, and substance-related problems for each substance (alcohol, tobacco, cannabis, opioids, inhalants, sedatives), using a binary response "Yes or No".

**Prevalence of Substance Abuse** was calculated as the proportion of students who reported using a particular substance using at least once, with Yes = 1 (ever used) and No = 0 (never used). Overall prevalence for each substance was calculated as;

$$\text{Prevalence (\%)} = \frac{\text{Number of students who answered "Yes"}}{\text{Total number of respondents}} \times 100$$

Risk Levels of Substance Abuse were categorized according to WHO thresholds. For alcohol, scores of 0–10, other substances, scores of 0–3 indicated low risk, 11–26 moderate risk, and 27 or higher high risk. Low Risk – suggests occasional use/minimal intervention; Moderate Risk – Requires brief intervention/counselling; High Risk – Requires intensive treatment.

### Reliability of the Instrument

Test-retest reliability was used with a one-week interval was used to test the reliability of the instrument among 10% of the respondents (pre-testing 60 senior secondary students) at Iluju Community High School, Iluju, Oriire LGA of Oyo State. Cohen's kappa coefficients showed substantial to almost perfect agreement across substances; alcohol ( $\kappa = 0.801$ ), tobacco ( $\kappa = 0.757$ ), cannabis ( $\kappa = 0.950$ ), opioids ( $\kappa = 0.975$ ), inhalants ( $\kappa = 0.950$ ), and sedatives ( $\kappa = 0.875$ ).

### Data Analysis

Data analysis was done using the Statistical Package for Social Sciences (SPSS version 27). Binary multivariate logistic regression were used to identify predictors of the prevalence of substance abuse. Chi-square test and Ordinal logistic regression were used to identify predictors of substance abuse risk levels (low, moderate, high). Variables with  $p < 0.25$  in bivariate analysis were entered into multivariate models. Statistical significance was set at  $p < 0.05$ .

### Ethical Approval

Ethical approval was obtained from the Secondary Education Department of the Oyo State Ministry of Education, Science and Technology, with ethical code (reference number) (EDU215/T3/VOLII/158). Informed consent was obtained from parents/guardians, and assent was obtained from students. Confidentiality, privacy and voluntary participation were strictly adhered to throughout the research process.

## RESULTS

### Socio-demographic Characteristics of the Respondents

Table 1 presents the socio-demographic characteristics of respondents. The mean age of the respondents was 15.45±1.73 years. The majority were female (339, 56.5%) and in SSS1 (330, 55.0%), practiced Christianity (375, 62.5%) and of Yoruba ethnicity (437, 72.8%). Most respondents came from monogamous families (267, 44.5%) and lived with both parents (297, 49.5%). The highest proportion of parents had secondary education (fathers = 284, 47.3%; mothers = 291, 48.5%) and were self-employed (fathers = 291, 48.5%; mothers = 299, 49.8%).

### Prevalence of Substance Abuse

Figure 1 shows that the prevalence of substance abuse among the respondents was 35.7% in the study population.

### Risk Level of Substance Abuse among Respondents (ASSIST Risk Classification)

Figure 2 shows that the majority of respondents were at low risk of substance abuse (64.7%; n=388), while 63 (10.5%) at moderate risk, and 149 (24.8%) at high risk.

### Relationship between Socio-demographic Characteristics and Prevalence of Substance Abuse

Table 2 presents the bivariate and multivariate logistic regression results for predictors of substance abuse prevalence. In the bivariate analysis, gender (p=0.000), class (p=0.087), religion (p=0.036), ethnicity (p=0.184), family type (p=0.002), living arrangement (p=0.025 for single parent; p=0.002 for living alone), and parental occupation (p=0.007 for self-employed fathers; p=0.005 for civil servant fathers; p=0.003 for self-employed mothers; p=0.011 for civil servant mothers) met the p<0.25 inclusion criterion.

After adjusting for other variables, Table 3 shows the following remained significant predictors at the multivariate model;

Gender: Males were over twice as likely to abuse substances compared to females (AOR=2.435, 95% CI: 1.687-3.514, p=0.000).

Family Type: Students from polygamous families were significantly more likely to abuse substances than those from monogamous families (AOR=1.767, 95% CI: 1.189-2.626, p=0.005).

Living Arrangement: Respondents living alone were more than three times as likely to abuse substances compared to those living with both parents (AOR=3.303, 95% CI: 1.675-6.515, p=0.001).

Father's Occupation: Respondents with self-employed fathers (AOR=0.521, 95% CI: 0.310-0.874, p=0.014) and civil servant fathers (AOR=0.448, 95% CI: 0.250-0.802, p=0.007) were significantly less likely to abuse substances compared to those with unemployed fathers.

Mother's Occupation: Respondents with self-employed mothers (AOR=0.464, 95% CI: 0.278-0.775, p=0.003) and civil servant mothers (AOR=0.425, 95% CI: 0.238-0.761, p=0.004) were significantly less likely to abuse substances compared to those with unemployed mothers.

### Relationship between Socio-demographic Characteristics and Risk Level of Substance Abuse

Table 4 shows the ordinal logistic regression showed that several socio-demographic characteristics were significantly associated with substance abuse risk levels

among senior secondary school students at p<0.05.

Gender: Males had twice the odds of being in higher risk categories compared to females (AOR=2.332, 95% CI: 1.649-3.300, p=0.000).

Family Type: Students from polygamous families had significantly higher odds of being in higher risk categories compared to those from monogamous families (AOR=1.519, 95% CI: 1.045-2.206, p=0.029).

Living Arrangement: Students living with a single parent had significantly higher odds of being in higher risk categories (AOR=1.706, 95% CI: 1.112-2.614, p=0.014). Students living alone had three times higher odds of being in higher risk categories (AOR=3.219, 95% CI: 1.716-6.038, p=0.000).

### Relationship between School Types and Risk Levels of Substance Abuse

Figure 3 shows that students in boys' only schools were more likely to have higher substance use risk compared to girls' only schools (AOR = 2.517, 95% CI: 1.692-3.740, p = 0.000). Students in mixed schools were also more likely to have higher risk levels of substance abuse compared to girls' only schools (AOR = 2.401, 95% CI: 1.568-3.677, p = 0.000).

Table 1: Socio-demographic Characteristics of Respondents (n=600)

Parameter	Characteristic	Frequency	Percent
Age: Mean (SD) 15.45±1.73	≤14years	180	30.0
	15-17years	370	61.7
	≥18years	50	8.3
Gender	Male	261	43.5
	Female	339	56.5
Class	SSS1	330	55.0
	SSS2	124	20.7
	SSS3	146	24.3
Religion	Christianity	375	62.5
	Islam	207	34.5
Ethnicity	Traditional	18	3.0
	Yoruba	437	72.8
	Igbo	66	11.0
	Hausa/Fulani	47	7.8
Family Type	Others	50	8.3
	Monogamous	267	44.5
	Polygamous	241	40.2
	Single Parent	67	11.2
	Others	25	4.2
Living Arrangement	Both Parents	297	49.5
	Single Parent	138	23.0
	Guardian	119	19.8
	Alone	46	7.7
Father's Educational Level	No Formal Education	49	8.2
	Primary Education	118	19.7
	Secondary Education	284	47.3
	Tertiary Education	149	24.8
Father's Occupation	Unemployed	94	15.7
	Self-employed	291	48.5
	Civil Servant	155	25.8
	Retired	60	10.0
Mother's Educational Level	No Formal Education	50	8.3
	Primary Education	106	17.7
	Secondary Education	291	48.5
	Tertiary Education	153	25.5
Mother's Occupation	Unemployed	93	15.5
	Self-employed	299	49.8
	Civil Servant	143	23.8
	Retired	65	10.8

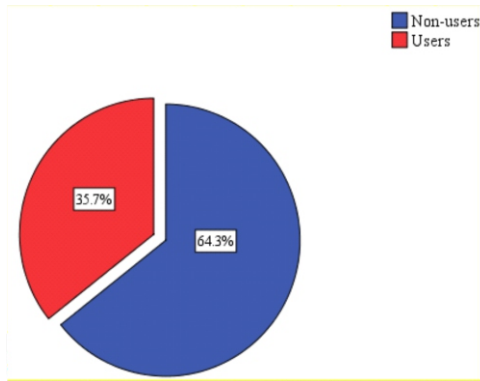


Figure 1: Prevalence of Substance Abuse among Respondents

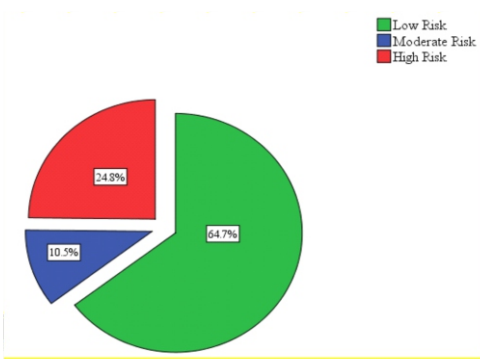


Figure 2: Risk Levels of Substance Abuse among Respondents

Table 2: Binary Logistic Regression of Socio-demographic Characteristics and Prevalence of Substance Abuse (n=600)

Category	Substance Abuse		Binary Logistic Regression		
	Yes N (%)	No N (%)	COR	p-value	
Age	≤14years (ref)	71 (39.4)	109 (60.6)	1	
	15-17years	122 (33.0)	248 (67.0)	0.755	0.136 *
	≥18years	21 (42.0)	29 (58.0)	1.112	0.744 *
Gender	Male (ref)	123 (47.1)	138 (52.9)	2.429	0.000 *
	Female	91 (26.8)	248 (73.2)	1	
Class	SSS1 (ref)	113 (34.2)	217 (65.8)	1	
	SSS2	39 (31.5)	85 (68.5)	0.881	0.575
	SSS3	62 (42.5)	84 (57.5)	1.417	0.087 *
Religion	Christianity (ref)	145 (38.7)	230 (61.3)	1	
	Islam	62 (30.0)	145 (70.0)	0.678	0.036 *
	Traditional	7 (38.9)	11 (61.1)	1.009	0.985
Ethnicity	Yoruba (ref)	155 (35.5)	282 (64.5)	1	
	Igbo	29 (43.9)	37 (56.1)	1.426	0.184 *
	Hausa/Fulani	13 (27.7)	34 (72.3)	0.696	0.287
Family Type	Monogamous (ref)	81 (30.3)	186 (69.7)	1	
	Polygamous	106 (44.0)	135 (56.0)	1.803	0.002 *
	Single Parent	22 (32.8)	45 (67.2)	1.123	0.692
Living Arrangement	Both Parents (ref)	90 (30.3)	207 (69.7)	1	
	Single Parent	57 (41.3)	81 (58.7)	1.619	0.025 *
	Guardian	42 (35.3)	77 (64.7)	1.255	0.323
Father's Educational Level	No Formal Education (ref)	16 (32.7)	33 (67.3)	1	
	Primary Education	38 (32.2)	80 (67.8)	0.980	0.955
	Secondary Education	101 (35.6)	183 (64.4)	1.138	0.694
Father's Occupation	Unemployed (ref)	46 (48.9)	48 (51.1)	1	
	Self-employed	97 (33.3)	194 (66.7)	0.521	0.014 **
	Civil Servant	48 (31.0)	107 (69.0)	0.448	0.007 **
Mother's Educational Level	No Formal Education (ref)	15 (30.0)	35 (70.0)	1	
	Primary Education	40 (37.7)	66 (62.3)	1.414	0.346
	Secondary Education	105 (36.1)	186 (63.9)	1.317	0.406
Mother's Occupation	Unemployed (ref)	46 (49.5)	47 (50.5)	1	
	Self-employed	97 (32.4)	202 (67.6)	0.464	0.003 **
	Civil Servant	47 (32.9)	96 (67.1)	0.425	0.004 **
Ethnicity	Yoruba (ref)	155 (35.5)	282 (64.5)	1	
	Igbo	29 (43.9)	37 (56.1)	1.325	0.333
	Hausa/Fulani	13 (27.7)	34 (72.3)	0.602	0.172
Family Type	Monogamous (ref)	81 (30.3)	186 (69.7)	1	
	Polygamous	106 (44.0)	135 (56.0)	1.767	0.005 **
	Single Parent	22 (32.8)	45 (67.2)	1.331	0.360
Living Arrangement	Both Parents (ref)	90 (30.3)	207 (69.7)	1	
	Single Parent	57 (41.3)	81 (58.7)	1.533	0.064
	Guardian	42 (35.3)	77 (64.7)	1.348	0.228
Father's Occupation	Unemployed (ref)	46 (48.9)	48 (51.1)	1	
	Self-employed	97 (33.3)	194 (66.7)	0.521	0.014 **
	Civil Servant	48 (31.0)	107 (69.0)	0.448	0.007 **
Mother's Occupation	Unemployed (ref)	46 (49.5)	47 (50.5)	1	
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	Single Parent	57 (41.3)	81 (58.7)	1.533	0.064
	Guardian	42 (35.3)	77 (64.7)	1.348	0.228
Father's Occupation	Unemployed (ref)	46 (48.9)	48 (51.1)	1	
	Self-employed	97 (33.3)	194 (66.7)	0.521	0.014 **
	Civil Servant	48 (31.0)	107 (69.0)	0.448	0.007 **
Mother's Occupation	Unemployed (ref)	46 (49.5)	47 (50.5)	1	
	Self-employed	97 (32.4)	202 (67.6)	0.464	0.003 **
	Civil Servant	47 (32.9)	96 (67.1)	0.425	0.004 **
Ethnicity	Yoruba (ref)	155 (35.5)	282 (64.5)	1	
	Igbo	29 (43.9)	37 (56.1)	1.325	0.333
	Hausa/Fulani	13 (27.7)	34 (72.3)	0.602	0.172
Family Type	Monogamous (ref)	81 (30.3)	186 (69.7)	1	
	Polygamous	106 (44.0)	135 (56.0)	1.767	0.005 **
	Single Parent	22 (32.8)	45 (67.2)	1.331	0.360
Living Arrangement	Both Parents (ref)	90 (30.3)	207 (69.7)	1	
	Single Parent	57 (41.3)	81 (58.7)	1.533	0.064
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Family Type	Monogamous (ref)	81 (30.3)	186 (69.7)	1	
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	Single Parent	22 (32.8)	45 (67.2)	1.331	0.360
Living Arrangement	Both Parents (ref)	90 (30.3)	207 (69.7)	1	
	Single Parent	57 (41.3)	81 (58.7)	1.533	0.064
	Guardian	42 (35.3)	77 (64.7)	1.348	0.228
Father's Occupation	Unemployed (ref)				

Table 4: Ordinal Logistic Regression of Socio-demographic Characteristics and Risk Level of Substance Abuse (n=600)

	Category	Substance Risk Level			AOR (95% CI)	p-value
		Low	Moderate	High		
Gender	Male	140 (53.6)	33 (12.6)	88 (33.7)	2.332 (1.649-3.300)	0.000*
	Female (ref)	248 (73.2)	30 (8.8)	61 (18.0)	1	
Class	SSS1 (ref)	214 (64.8)	34 (10.3)	82 (24.8)	1	
	SSS2	89 (71.8)	10 (8.1)	25 (20.2)	0.704 (0.442-1.122)	0.140
	SSS3	85 (58.2)	19 (13.0)	42 (28.8)	1.324 (0.880)-1.992	0.178
Ethnicity	Yoruba (ref)	285 (65.2)	47 (10.8)	105 (24.0)	1	
	Igbo	36 (54.5)	5 (7.6)	25 (37.9)	1.654 (0.972-2.812)	0.063
	Hausa/Fulani	33 (70.2)	6 (12.8)	8 (17.0)	0.670 (0.336-1.336)	0.256
	Others	34 (68.0)	5 (10.0)	11 (22.0)	0.909 (0.474-1.742)	0.774
Family Type	Monogamous (ref)	185 (69.3)	25 (9.4)	57 (21.3)	1	
	Polygamous	139 (57.7)	27 (11.2)	75 (31.1)	1.519 (1.045-2.206)	0.029*
	Single Parent	44 (65.7)	10 (14.9)	13 (19.4)	1.251 (0.696-2.248)	0.454
	Others	20 (80.0)	1 (4.0)	4 (16.0)	0.533 (0.188)-1.505	0.234
Living Arrangement	Both Parents (ref)	210 (70.7)	27 (9.1)	60 (20.2)	1	
	Single Parent	78 (56.5)	22 (15.9)	38 (27.5)	1.706 (1.112-2.614)	0.014*
	Guardian	79 (66.4)	9 (7.6)	31 (26.1)	1.351 (0.850-2.147)	0.202
	Alone	21 (45.7)	5 (10.9)	20 (43.5)	3.219 (1.716-6.038)	0.000*
Father's Occupation	Unemployed (ref)	50 (53.2)	15 (16.0)	29 (30.9)	1	
	Self-employed	194 (66.7)	28 (9.6)	69 (23.7)	0.626 (0.386-1.016)	0.058
	Civil Servant	106 (68.4)	10 (6.5)	39 (25.2)	0.613 (0.357-1.052)	0.076
	Retired	38 (63.3)	10 (16.7)	12 (20.0)	0.705 (0.355-1.400)	0.318

1: reference category; AOR: Adjusted odd ratio; CI: Confidence Interval; \*p<0.05

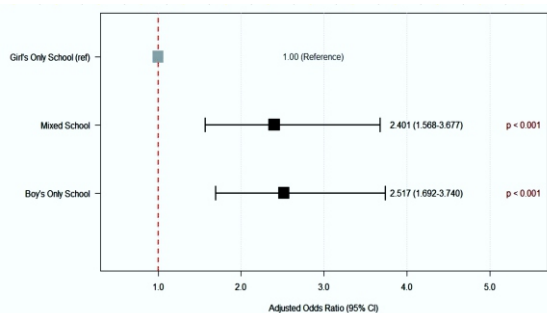


Figure 3: Forest plot of ordinal logistic regression showing the association between school type and substance abuse risk level (Low, Moderate, High). Adjusted odds ratios with 95% confidence intervals and p-values are presented. Girl's Only schools are the reference category.

**DISCUSSION**  
**Socio-demographic Predictors of the Prevalence and Risk Levels of Substance Abuse among Adolescents**

This study revealed that gender, family type, living arrangement, and parental occupation were significant predictors of both substance abuse prevalence and higher risk levels among adolescents. The significant association between gender and substance abuse, with males being more likely to engage in substance use and fall into higher

risk categories than females, may be explained by gender-related socialisation patterns that encourage risk-taking behaviours among males while discouraging such behaviours among females. Males are generally more exposed to peer networks that promote experimentation and may experience fewer social restrictions, thereby increasing their likelihood of substance use and progression into moderate and high-risk categories. This finding is consistent with previous studies that have identified male gender as a key predictor of adolescent substance use. Male students were found to be significantly more involved with substance abuse in Bayelsa State, and among tobacco users, 53.85% were males aged 18-19 years in Karnataka, India.<sup>14,15</sup> Being male was also significantly associated with substance use in Ethiopia and Nepal, and male students showed higher rates of tobacco (91.9%) and alcohol (75%) use in India.<sup>9,16,17</sup> Being male was also identified as a predictor of substance use disorder in Rivers State, Nigeria, indicating not only higher prevalence but also greater progression into higher risk categories.<sup>18</sup> However, this finding contrasts with a study in Kaduna State which observed that female students were more predominant in abusing drugs, indicating contextual variations in gender patterns.<sup>19</sup>

Family structure emerged as a significant predictor of both substance abuse prevalence and risk level, with students from polygamous families being more likely to engage in substance abuse and exhibit higher risk levels compared to those from monogamous families. This may be attributed to divided parental attention, reduced monitoring, increased exposure to intra-family conflicts, and family-related stress often associated with larger or polygamous family systems. This finding agrees with a study in Rivers State which found that living in polygamous and single-parent homes were predictors of substance use disorder.<sup>18</sup> Parent negligence was also identified as a significant factor responsible for drug abuse in Kwara State, and family background (57.1%) was a major cause of drug abuse in Kenya, with students from unstable family structures at higher risk.<sup>20,21</sup> Family history of substance use was significantly associated with substance use in Ethiopia, and lack of support was identified as a primary factor contributing to drug abuse in Ekiti State.<sup>16,24</sup> Frustration and mental stress relief, often stemming from family issues, were key motivators for drug addiction in Bangladesh.<sup>25</sup>

Similarly, living arrangement was found to be a strong predictor of both substance use and higher risk levels, particularly among respondents living alone or with a single parent. Adolescents who do not reside with both parents may experience reduced supervision, emotional support, and guidance, thereby increasing their vulnerability to risky behaviours and progression to higher risk categories. Living alone, in particular, represents a significant lack of parental control, which may create an enabling environment for substance use due to increased autonomy and exposure to peer influence without adequate monitoring. This aligns with findings that identified parent negligence as a significant factor responsible for drug abuse in Kwara State, and poor parental supervision as a reason that promotes drug abuse.<sup>4,20</sup> Students living with others than family members in Nepal were significantly associated with substance abuse, and family history of

substance use was significantly associated with use in Ethiopia.<sup>16,17</sup> Family background and upbringing were major factors influencing drug abuse in Kenya, and lack of parental awareness was associated with illicit substance use in South India.<sup>21,22</sup>

Parental occupation also showed a significant relationship with substance abuse prevalence, with respondents whose parents were employed being less likely to engage in substance use compared to those with unemployed parents. This finding may reflect the role of socio-economic stability in shaping adolescent behaviour. Employment is often associated with improved household resources, structured family environments, and better parental capacity for supervision and support. In contrast, parental unemployment may be linked to financial stress, reduced supervision, and psychosocial strain within the household, all of which may increase adolescents' susceptibility to substance use. This is consistent with previous studies which identified higher monthly household income as significantly associated with substance abuse in Nepal, and socio-economic factors were found to be significant contributors to substance abuse among female students in Sokoto State, Nigeria.<sup>17,23</sup> Geographical economic distribution was a predictor of drug use prevalence in Lagos State, with significant differences in cocaine use prevalence between low-income and high-income areas.<sup>13</sup>

#### **School Type as a Predictor of the Risk Level of Substance Abuse among Adolescents**

The present study demonstrated that school type was a significant predictor of substance abuse risk, with students attending boys-only and mixed schools exhibiting higher odds of substance abuse risk levels compared to those in girls-only schools. This suggests that the school environment, particularly its gender composition, plays an important role in shaping substance use behaviours. The higher likelihood of risk observed among students in boys-only schools may be explained by gender-related behavioural patterns and peer dynamics. Male-dominated environments are associated with increased risk-taking behaviours reinforced through peer interactions and social norms that valorize experimentation. The absence of gender diversity may intensify group conformity and competition. This is consistent with previous studies which found a statistically significant relationship between the type of school a student attends and their tendency to abuse drugs, and significant differences in the abuse of tobacco and opioids documented among students in private and public schools in Nigeria.<sup>13,26</sup>

The elevated risk among students in mixed schools may be attributed to increased social interaction and exposure to diverse peer influences. Mixed-gender environments facilitate broader social networks, increasing opportunities for substance use initiation and reinforcement. The interplay between male and female students introduces complex social dynamics, including impression management and peer approval, which can influence engagement in risk behaviours. Mixed schools may present more heterogeneous behavioural norms, increasing exposure to substance-using peers. This agrees with a study which found substance use was high risk among students from urban schools compared to rural schools, and female students in mixed school environments may face unique

pressures.<sup>23</sup> In contrast, the lower risk levels among students in girls-only schools may reflect stronger social controls and behavioural expectations that discourage substance use among female adolescents. Girls-only school environments may foster closer supervision and peer support systems that discourage substance use and promote adherence to school rules. This corroborates by a study in Sokoto, Nigeria which found that 15% of female students in Sokoto State reported engaging in substance use, with senior students (ages 15-18) reporting higher usage rates than junior students, indicating that while female use occurs, it may be lower than male counterparts.<sup>23</sup>

#### **CONCLUSION**

This study revealed that male gender, polygamous family structure, living alone or with a single parent, parental unemployment, and attending boys-only or mixed schools are significant predictors of adolescent substance abuse and higher risk levels in Oyo State, Nigeria.

#### **RECOMMENDATIONS**

Substance use prevention should prioritise male students, those from polygamous families, and students living alone or with a single parent, and children of unemployed parents. Boys' only and mixed schools require enhanced interventions addressing peer dynamics. Schools should also provide additional support for at-risk students and collaborate with community services.

#### **LIMITATIONS OF THE STUDY**

This study has some limitations. First, the cross-sectional design precludes causal inference. Second, self-reported data may be subject to social desirability bias, potentially leading to underreporting of prevalence or risk levels of substance abuse. Since the study was conducted only in public schools in Oyo State, it cannot be generalised to private schools in the state or other states.

#### **DECLARATIONS**

##### **Author Contributions**

All authors contributed to the study's conception and design. Ayanyinka A.A., and Adeloje A.A. wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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**Data Availability:** The datasets for this study are available upon reasonable requests from the corresponding author.

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