

Substance use among medical students in Edo state, Nigeria: prevalence and sociodemographic correlates

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Abstract

Background: Substance use among medical students is an emerging public health and educational concern globally. Despite their medical knowledge, students may engage in substance use due to academic stress, social pressures, and environmental influences. Evidence from Nigeria and other countries suggests substantial prevalence, yet data remain limited in some settings. This study assessed the prevalence and sociodemographic correlates of substance use among medical students at Ambrose Alli University, Ekpoma, Nigeria. Methods: A descriptive cross-sectional study was conducted among 370 consenting medical students (200–600 level). Data was collected using the modified WHO Student Drug Use Questionnaire. Information obtained included sociodemographic characteristics, lifetime and current substance use, age and educational level at first use, and parental substance use. Data were analyzed using SPSS version 25. Descriptive statistics were presented as frequencies and percentages. Chi-square and Fisher's exact tests were used to assess associations between substance use and sociodemographic variables, with statistical significance set at $p \leq 0.05$. Results: The mean age of respondents was 23.8 ± 3.29 years, and 64.9% were male. Overall lifetime use of at least one substance was 64.4%. Alcohol was the most used substance (lifetime: 62.1%; current: 21.1%), followed by cigarettes (15.9%), tranquilizers (6.8%), cannabis (5.7%), and amphetamines (5.7%). No respondent reported use of cocaine, heroin, inhalants, or hallucinogens. Male gender was significantly associated with cigarette use ($p = 0.001$). Age was significantly associated with cigarette ($p = 0.029$) and alcohol use ($p < 0.001$). Alcohol use was also significantly associated with social class ($p < 0.001$), parental marital status ($p = 0.033$), and geopolitical zone ($p = 0.001$). Tranquilizer abuse was significantly associated with level of study ($p = 0.003$) and religiosity ($p < 0.001$). Most alcohol and tobacco users-initiated use during secondary school years. Conclusion: Substance use, particularly alcohol consumption, is prevalent among medical students in this setting. Sociodemographic factors including gender, age, social class, religiosity, parental marital status, and level of study significantly influenced patterns of use. Early preventive interventions, student support systems, and institutional policies targeting substance use are recommended to safeguard student well-being and future professional standards.

Keywords: Substance use, alcohol, medical students, prevalence, sociodemographic factors, Nigeria.

Introduction

Substance use among medical students has emerged as a significant public health and educational concern globally.¹ Substance use refers to the consumption of psychoactive substances such as alcohol, tobacco, cannabis, prescription medications used non-medically, and other illicit drugs.^{2,3} According to the World Health Organization, substance use contributes substantially to

global morbidity and mortality, particularly among young adults, the age group that constitutes most university populations.⁴ The transition into tertiary education is often accompanied by increased independence, academic pressure, financial stress, and new social environments, all of which may predispose students to experiment with or regularly using substances.^{5,6}

Medical students represent a unique subgroup within the university population. Despite possessing substantial knowledge about the health consequences of substance

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use, they are also exposed to intense academic workloads, prolonged study hours, sleep deprivation, and emotional stress related to clinical training.^{7,8} These factors can increase vulnerability to substance use as a coping mechanism.^{9,10} Research indicates that substance use among medical students is not rare; a meta-analysis in India reported a pooled overall substance use prevalence of about 40%, with alcohol use at 27.1% and tobacco use at 21.9%. Cannabis use was observed in about 8% of students in that analysis, and overall use tended to be higher among male students than female students.¹ Another longitudinal study observed lifetime alcohol use in nearly 90% of medical students, with cannabis use in more than one-third (34.5%) and sedative use in about 17%.¹¹

In Nigeria, specific studies also highlight substantial substance use among medical students. In one survey at a Nigerian university, the overall lifetime prevalence of substance use was reported as 78%, and current use of one or more psychoactive substances was seen in about 40% of respondents. Alcohol and stimulants were among the most commonly reported substances.¹²

Sociodemographic factors have been shown to influence patterns of substance use among students. Age, sex, year of study, living arrangements, and socioeconomic background may all shape exposure, access, and attitudes toward substances.¹³ Male students frequently exhibit higher prevalence rates of alcohol and tobacco use, although gender differences vary by region and substance.¹⁴ Understanding the prevalence and sociodemographic correlates of substance use among medical students is essential for several reasons. Substance use can impair cognitive performance, clinical judgment, and professionalism, potentially affecting both academic achievement and patient care. Patterns established during training may also persist in medical practice. Additionally, as future health care providers, medical students' attitudes and behaviors around substance use can influence their capacity to counsel patients effectively.

Despite growing evidence, data on substance use among medical students in low- and middle-income countries, particularly in African settings, remain limited. Cultural norms, substance availability, regulatory environments, and institutional policies may further shape usage patterns in these contexts. Therefore, assessing prevalence and identifying sociodemographic correlates within specific institutional and regional settings is crucial for informing targeted interventions, student support services, and policy initiatives aimed at

promoting student well-being and professional competency.

Materials and Method

Study Design

This study employed a descriptive cross-sectional design to determine the prevalence of substance use and its sociodemographic correlates among medical students.

Study Setting

The study was conducted among medical students of Ambrose Alli University, Ekpoma, located in Esan West Local Government Area of Edo State, South-South Nigeria. The university is a state-owned institution established in 1980, with medical training divided into two years of preclinical and three years of clinical training. Preclinical students reside in Ekpoma, while clinical students are based in Irrua at the Irrua Specialist Teaching Hospital. At the time of the study, the total population of medical students (200–600 level) was approximately 430.

Study Population

The study population comprised all registered medical students in both preclinical and clinical levels (200–600 level) of the College of Medicine. All consenting preclinical and clinical medical students were included in the study. Students who declined consent or were too ill to participate were excluded.

Sample Size Determination and Sampling

The minimum sample size was calculated using the formula for single proportions. This yielded a minimum sample size of 196. However, in line with WHO recommendations for student drug surveys and to minimize sampling error, all eligible medical students (approximately 430) were recruited, making the study a census of the target population.

Study Instrument

Data were collected using the modified WHO Student Drug Use Questionnaire developed by the World Health Organization in collaboration with the United Nations Fund for Drug Abuse Control. The instrument is a validated and reliable self-administered questionnaire previously used in epidemiological surveys among Nigerian students.

- **Sociodemographic characteristics** (age, sex, level of study, parental education and

occupation, and derived social class using Olusanya's classification).

- **Lifetime and current substance use**, frequency of use, age at first use, and level of education at first use.
- Classes of substances including tobacco products, alcohol, cannabis, amphetamines, hallucinogens, inhalants, tranquilizers, sedatives, cocaine, heroin, and other opiates.
- Perceived availability of substances and peer substance use.
- Internal validity checks, including a fictitious drug item and honesty assessment questions.

Social class was derived by combining father's occupational category and mother's highest educational level according to Olusanya's classification.

Procedure for Data Collection

A pilot study was conducted among 38 medical students to assess clarity and feasibility. The main study was carried out over two weeks. Questionnaires were administered during students' free periods to avoid academic disruption. Participation was voluntary, and informed verbal and written consent was obtained. Respondents completed the questionnaires independently without discussion. Anonymity was maintained by excluding names and matriculation numbers, and completed questionnaires were collected immediately after completion.

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize prevalence rates of lifetime and current substance use. Results were presented as frequencies and percentages.

Bivariate analyses were conducted to examine associations between substance use (lifetime and current) and sociodemographic variables such as age, sex, level of study, and social class. The chi-square test was used for categorical variables, while Fisher's exact test was applied where appropriate. A p-value of ≤ 0.05 was considered statistically significant.

Results

Sociodemographic Characteristics of Respondents (N = 370)

A total of 370 respondents participated in the study. Males constituted 240 (64.9%) of the participants, while females accounted for 130 (35.1%), indicating a male predominance. The respondents were predominantly

within the 21–25 years age group, comprising 192 (51.9%), whereas 89 (24.1%) were aged 16–20 years and another 89 (24.0%) were older than 25 years. The overall mean age of the respondents was 23.8 ± 3.29 years. Males had a higher mean age of 24.5 ± 3.4 years compared to females, whose mean age was 22.6 ± 2.7 years.

Table 1: Sociodemographic Characteristics of Respondents (N=370)

Vari/ Category	n = 370	Percentage (%)
Gender		
Male	240	64.9
Female	130	35.1
Age Group (years)		
16–20	89	24.1
21–25	192	51.9
>25	89	24.0
Mean age \pm SD: 23.8 \pm 3.29 years		
(male: 24.5 \pm 3.4; female: 22.6 \pm 2.7)		
Religion		
Christian	308	83.2
Islam	62	16.8
Level of Study		
Pre-clinical (Years 1–3)	195	53.0
Clinical (Years 4–5)	175	47.0
Social Class*		
Class I–II (Upper)	139	37.6
Class III (Middle)	144	38.9
Class IV–V (Lower)	62	16.8
Unclassified	25	6.8
Geopolitical Zone		
South-South	281	76.0
South-West	42	11.3
South-East	40	10.8
North-Central	7	1.9
Parents' Marital Status		
Married	313	84.6
Separated/Divorced	19	5.1
One or both parents deceased	38	10.3
Students' Residence		
School hostel	240	64.9
Outside hostel	130	35.1

**Olusanya Social Classification 1984*

Regarding religion, the majority of respondents were Christians, numbering 308 (83.2%), while 62 (16.8%) identified as Muslims. In terms of academic level, 195 (53.0%) were in the pre-clinical years (Years 1–3), slightly higher than the 175 (47.0%) in the clinical years (Years 4–5).

Assessment of socioeconomic status using the Olusanya classification (1984) showed that 144 (38.9%) belonged to Class III (middle social class), 139 (37.6%) were in Classes I–II (upper social class), and 62 (16.8%) were in

Classes IV–V (lower social class), while 25 (6.8%) were unclassified. Most respondents originated from the South-South geopolitical zone, accounting for 281 (76.0%), followed by 42 (11.3%) from the South-West, 40 (10.8%) from the South-East, and 7 (1.9%) from the North-Central zone.

With respect to parental marital status, 313 (84.6%) reported that their parents were married, 19 (5.1%) indicated that their parents were separated or divorced, and 38 (10.3%) reported that one or both parents were deceased. Concerning accommodation, 240 (64.9%) resided in the school hostel, whereas 130 (35.1%) lived outside the hostel.

Distribution of Respondents by Gender and Level of Study (Figure 1)

A total of 370 respondents participated in the study, comprising 240 males (64.9%) and 130 females (35.1%), indicating a clear male predominance across the study population.

In Year 2, 53 males (14.3%) and 36 females (9.7%) were recorded. Year 3 had the highest representation overall, with 62 males (16.8%) and 44 females (11.9%). Among Year 4 students, 36 males (9.7%) and 19 females (5.1%) participated. In Year 5, there were 38 males (10.3%) and 18 females (4.9%). Year 6 students included 51 males (13.8%) and 13 females (3.5%).

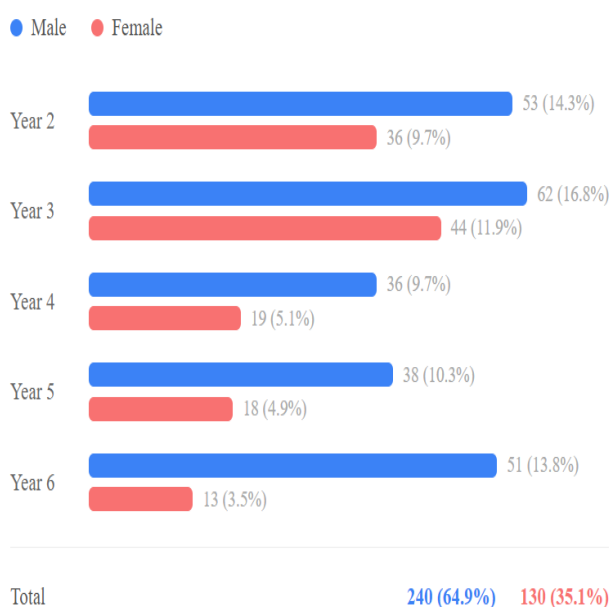


Figure 1: Sex Distribution of Respondents by Year of Study

Substance Use Patterns among Parents of Respondents (Table 2)

Regarding fathers' cigarette smoking status, 67 (18.1%) reported that their fathers smoke, while the majority, 283 (76.5%), indicated that their fathers do not smoke. A smaller proportion, 20 (5.4%), reported that the status was not applicable or unknown.

For mothers' cigarette smoking, only 16 (4.3%) reported that their mothers smoke, whereas 346 (93.5%) stated that their mothers do not smoke. Eight respondents (2.2%) indicated that smoking status was unknown.

Concerning fathers' alcohol use, 163 (44.1%) reported that their fathers consume alcohol, while 182 (49.2%) reported no alcohol use. Twenty-five (6.8%) indicated that it was not applicable or unknown.

With respect to mothers' alcohol use, 48 (13.0%) reported alcohol consumption, whereas 311 (84.0%) reported no alcohol use. Eleven respondents (3.0%) indicated that the status was unknown.

Table 2: Substance Use Patterns among Parents of Respondents

Variable / Category	n = 370	Percentage (%)
Father's Cigarette Smoking		
Smokes	67	18.1
Does not smoke	283	76.5
Not applicable / Unknown	20	5.4
Mother's Cigarette Smoking		
Smokes	16	4.3
Does not smoke	346	93.5
Unknown	8	2.2
Father's Alcohol Use		
Yes	163	44.1
No	182	49.2
Not applicable / Unknown	25	6.8
Mother's Alcohol Use		
Yes	48	13.0
No	311	84.0
Unknown	11	3.0

Prevalence of Substance Use among Medical Students (Table 3)

Alcohol was the most used substance across all time periods. Lifetime alcohol use was reported by 230 (62.1%) respondents, while 167 (45.1%) had used

alcohol in the past year, and 78 (21.1%) reported current use within the past month.

Cigarette use was reported by 59 (15.9%) respondents on a lifetime basis, decreasing to 20 (5.4%) in the past year and 11 (3.0%) in the past month. Tranquilizer use was reported by 25 (6.8%) respondents in their lifetime and 12 (3.3%) in the past year, with no current use reported.

Cannabis use was reported by 21 (5.7%) respondents in their lifetime, 8 (2.2%) in the past year, and 5 (1.4%) currently. Amphetamine use showed a similar lifetime prevalence of 21 (5.7%), with 4 (1.1%) reporting past-year use and 2 (0.5%) current use.

Other opioids were used by 10 (2.7%) respondents in their lifetime, 6 (1.6%) in the past year, and 4 (1.1%) in the past month. Sedative use was reported by 6 (1.7%) respondents both lifetime and in the past year, with 4 (1.1%) indicating current use. No use of cocaine, heroin, inhalants, or hallucinogens was reported across any of the time periods assessed.

Overall, lifetime polydrug use was reported by 238 (64.4%) respondents

reported initiating tobacco use before the age of 10 years, while only 4 (6.8%) began after 22 years.

For alcohol, which had the highest number of users (230), initiation was most frequent between 15–18 years, reported by 92 (40.0%). This was followed by 56 (24.4%) who initiated between 19–22 years. Early initiation before 10 years occurred in 37 (16.1%), and 36 (15.7%) began between 11–14 years, while only 9 (3.9%) initiated after 22 years.

Cannabis use (n = 21) was predominantly initiated between 15–18 years, accounting for 12 (57.1%), followed by 7 (33.3%) between 19–22 years. Only 1 (4.8%) reported initiation before age 10 and 1 (4.8%) between 11–14 years, with no initiation after 22 years.

Among tranquilizer users (n = 25), initiation most commonly occurred between 19–22 years, 12 (48.0%), and after 22 years, 8 (32.0%), suggesting later onset compared to other substances. Five (20.0%) initiated between 15–18 years, while none reported use before age 15.

Amphetamine use (n = 22) was largely initiated between 19–22 years, with 16 (76.2%), followed by 5 (23.8%) between 15–18 years. Only 1 (4.8%) reported initiation between 11–14 years, and none before age 10 or after 22 years.

Sedative use (n = 6) showed a dispersed pattern: 2 (33.3%) initiated between 11–14 years, 2 (33.3%) between 19–22 years, 1 (16.7%) between 15–18 years, and 1 (16.7%) after 22 years.

For other opiates (n = 10), initiation was distributed across age groups, with 3 (30.0%) beginning between 11–14 years, 3 (30.0%) between 19–22 years, 2 (20.0%) before age 10, and 2 (20.0%) after 22 years.

With respect to educational level at first use, tobacco initiation most frequently occurred during secondary school, 24 (40.6%), followed by pre-clinical university years, 14 (23.7%), and primary school, 12 (20.3%). Alcohol similarly showed the highest initiation during secondary school, 98 (42.6%), followed by pre-clinical university level, 56 (24.4%), and primary school, 38 (16.5%).

Cannabis initiation most commonly occurred during pre-clinical university years, 9 (42.9%), and secondary school, 7 (33.3%). Tranquilizer use was evenly

Table 3: Prevalence of Substance Use among Medical Students (N=370)

Substance	Lifetime n (%)	Past Year n (%)	Current (Past Month) n (%)
Alcohol	230 (62.1)	167 (45.1)	78 (21.1)
Cigarette	59 (15.9)	20 (5.4)	11 (3.0)
Tranquilizers	25 (6.8)	12 (3.3)	0 (0.0)
Cannabis	21 (5.7)	8 (2.2)	5 (1.4)
Amphetamines	21 (5.7)	4 (1.1)	2 (0.5)
Other opioids	10 (2.7)	6 (1.6)	4 (1.1)
Sedatives	6 (1.7)	6 (1.7)	4 (1.1)
Cocaine/Heroin/ Inhalants/ Hallucinogens	0 (0.0)	0 (0.0)	0 (0.0)
Overall lifetime polydrug use: 238 (64.4%)			

Cocaine, heroin, inhalants, and hallucinogens: zero use reported across all time periods.

Age and Educational Level at First Substance Use (Table 4)

Among the 59 lifetime tobacco users, initiation most commonly occurred between 19–22 years, accounting for 19 (32.2%), followed by 15–18 years with 13 (22.0%) and 11–14 years with 12 (20.3%). Notably, 11 (18.6%)

distributed between secondary school and pre-clinical university years, each accounting for 8 (32.0%), while 5 (20.0%) initiated during clinical years.

Amphetamine initiation was most frequent during secondary school, 9 (40.9%), and pre-clinical university years, 8 (36.4%). Sedative use was most commonly initiated during clinical years, 3 (50.0%), while other opiates were most frequently initiated during secondary school, 4 (40.0%).

Table 4: Age and Educational Level at First Substance Use (N=370)

	Tobacco	Alcohol	Cannabis	Tranquilizers	Amphetamines	Sedatives	Other Opiates
Age at first use							
<10 years	11 (18.6)	37 (16.1)	1 (4.8)	0 (0.0)	0 (0.0)	0 (0.0)	2 (20.0)
11–14 years	12 (20.3)	36 (15.7)	1 (4.8)	0 (0.0)	1 (4.8)	2 (33.3)	3 (30.0)
15–18 years	13 (22.0)	92 (40.0)	12 (57.1)	5 (20.0)	5 (23.8)	1 (16.7)	0 (0.0)
19–22 years	19 (32.2)	56 (24.4)	7 (33.3)	12 (48.0)	16 (76.2)	2 (33.3)	3 (30.0)
>22 years	4 (6.8)	9 (3.9)	0 (0.0)	8 (32.0)	0 (0.0)	1 (16.7)	2 (20.0)
Total users	59	230	21	25	22	6	10
Educational level at first use							
Primary school	12 (20.3)	38 (16.5)	1 (4.8)	0 (0.0)	1 (4.5)	0 (0.0)	2 (20.0)
Secondary school	24 (40.6)	98 (42.6)	7 (33.3)	8 (32.0)	9 (40.9)	2 (33.3)	4 (40.0)
Pre-clinical (univ.)	14 (23.7)	56 (24.4)	9 (42.9)	8 (32.0)	8 (36.4)	0 (0.0)	2 (20.0)
Clinical (univ.)	3 (5.1)	12 (5.2)	0 (0.0)	5 (20.0)	2 (9.1)	3 (50.0)	0 (0.0)
Other†	6 (10.2)	26 (11.3)	4 (19.0)	4 (16.0)	2 (9.1)	1 (16.7)	2 (20.0)

Values are n (% of users of that substance). † Others = Pre-degree, A-level, first-degree undergraduate.

Sociodemographic Correlates of Lifetime Substance Use among Medical Students (Table 5)

Lifetime cigarette use was significantly associated with gender ($\chi^2 = 10.19, p = 0.001$). Males recorded 49 (20.4%) lifetime users compared to 10 (7.7%) females, indicating a markedly higher prevalence among male students. Age group was also significantly associated with cigarette use ($\chi^2 = 7.11, p = 0.029$), with prevalence increasing progressively from 8 (9.0%) among those aged 16–20 years to 30 (15.6%) among those aged 21–25

years and 21 (23.6%) among those older than 25 years. Religiosity demonstrated a significant association ($\chi^2 = 6.65, p = 0.036$); students who described themselves as “just religious” reported 17 (26.6%) lifetime cigarette use compared to 42 (13.8%) among those who were “very religious.” Although students with one or both deceased parents had the highest prevalence, 11 (28.9%), compared to 46 (14.7%) from married families and 2 (10.5%) from separated/divorced families, this association did not reach statistical significance ($p = 0.062$). The geopolitical zone was also not statistically significant ($p = 0.079$), though 9 (22.5%) South-East students and 48 (17.1%) South-South students reported higher use compared to 2 (4.8%) South-West students. Social class, level of study, religion, and residence were not significantly associated with lifetime cigarette use.

Lifetime alcohol use showed a strong association with age group ($\chi^2 = 38.32, p < 0.001$). Alcohol use rose sharply from 31 (34.8%) among students aged 16–20 years to 132 (68.8%) among those aged 21–25 years and 67 (75.3%) among students older than 25 years. Social class demonstrated a highly significant association ($\chi^2 = 28.05, p < 0.001$), with upper-class students reporting 92 (66.2%) use and middle-class students 104 (72.2%), compared to 22 (35.5%) among lower-class students. Parents’ marital status was also significant ($\chi^2 = 6.82, p = 0.033$); students with one or both parents deceased recorded the highest prevalence, 31 (81.6%), compared to 188 (60.1%) from married families and 11 (57.9%) from separated/divorced families. Geopolitical zone showed a significant association ($\chi^2 = 16.17, p = 0.001$), with 7 (100%) North-Central students reporting lifetime alcohol use, followed by 35 (83.3%) South-West and 171 (60.9%) South-South students, while South-East students recorded the lowest prevalence at 19 (47.5%). Gender, level of study, religion, religiosity, and residence were not significantly associated with alcohol use.

No sociodemographic variable was significantly associated with lifetime cannabis, sedative, or other opiate use. Parents’ marital status was the only significant correlate of lifetime amphetamine use ($\chi^2 = 9.59, p = 0.008$). Students from separated/divorced families reported 4 (21.1%) use, markedly higher than 14 (4.5%) among those from married families and 3 (7.9%) among those with one or both parents deceased.

Lifetime tranquilizer use was significantly associated with level of study ($\chi^2 = 9.04, p = 0.003$), with clinical students reporting 19 (10.9%) use compared to 6 (3.1%) pre-clinical students. Religiosity also showed a strong association ($\chi^2 = 18.26, p < 0.001$); 8 (12.5%) students

who were “just religious” reported use compared to 16 (5.2%) among those who were “very religious.” Parents’ marital status was similarly significant ($\chi^2 = 6.53, p = 0.038$), with the highest prevalence among students from separated/divorced families (4, 21.1%), compared to 19 (6.1%) from married families and 2 (5.3%) from families with deceased parents.

Table 5: Sociodemographic Correlates of Lifetime Substance Use among Medical Students (N=370)

Variable	Category	n	Cigarette	Alcohol	Cannabis	Amphetamine	Tranquilizer	Sedative	
			p-value						
Gender	Male	240	0.001*	856	0.112	0.516	0.101	0.3	0.7
	Female	130					39	44	
Age Group (years)	16–20	89	0.029*	0.001*	0.148	0.151	0.617	0.3	0.3
	21–25	192					25	35	
Social Class	>25	89							
	Upper (I–II)	139	0.431	0.001*	0.861	0.861	0.925	0.5	0.9
	Middle (III)	144					07	44	
	Lower (IV–V)	62							
Level of Study	Un classified	25							
	Pre -clinical	195	0.226	803	0.613	0.613	0.003*	0.8	0.4
Religion	Clinical	175					83	05	
	Christian	308	0.121	149	0.300	0.300	0.094	0.9	0.5
Religiosity	Muslim	62					92	01	
	Very religious	305	0.036*	198	0.133	0.133	<0.001*	0.9	0.1
Parents’ Marital Status	Just religious	64					91	56	
	Not religious	1							
	Married	313	0.062	0.33*	0.643	0.008*	0.038*	0.3	0.0
Residence	Separated /Divorced	19					58	96	
	One/both deceased	38							
Geo political Zone	School hostel	240	0.331	280	0.445	0.445	0.925	0.9	0.7
	Outside hostel	130					26	44	
Geo political Zone	South-South	281	0.079	0.001*	0.58	0.44	0.675	0.7	0.9
	South-West	42			4	5	90	71	
	South-East	40							
	North-Central	7							

p-values computed using Pearson’s χ^2 test (without Yates’ correction). * $p < 0.05$ (statistically significant, shown in bold red). p-values are reported for the first category row of each variable; the test applies to the full variable. Note: cells for Sedatives and Other Opiates should be interpreted with caution due to low cell counts ($n < 5$ in several categories).

Discussion

Substance use among medical students in this study was common, with nearly two-thirds reporting lifetime use of at least one psychoactive substance. Alcohol emerged as the most frequently used substance, followed by cigarettes and smaller proportions for tranquilizers, cannabis, amphetamines, and other opioids. These findings reinforce growing evidence that substance use remains a relevant behavioral health concern even among future healthcare professionals who are expected to possess adequate knowledge of its health consequences.

The predominance of alcohol use is consistent with findings from several international and local studies. Roncero et al.¹⁵ reported high lifetime alcohol use among medical students in Spain, while Deressa and Azazh¹⁶ found alcohol to be the most commonly used substance among Ethiopian medical undergraduates. In Abuja, Nigeria, Oyeniran et al.¹⁷ similarly documented alcohol as the predominant psychoactive substance among medical students. The high prevalence observed in this study likely reflects the social acceptability and legal status of alcohol, as well as its strong integration into university social life. The persistence of past-year use suggests ongoing exposure and potential risk for hazardous drinking patterns.

Cigarette use, though markedly lower than alcohol, showed a significant gender association, with males more likely to report use. This aligns with findings from a systematic review by Bankole et al.¹⁸ among Nigerian youths, who reported higher tobacco use among males. These differences likely reflect sociocultural norms in which smoking is more socially tolerated among males.

Age was significantly associated with both cigarette and alcohol use, with older students more likely to report lifetime use, suggesting a cumulative exposure effect. Similar trends were described by Igirigi¹⁹ in Delta state a,pmg undergraduate students, showing that alcohol and tobacco use increased with increasing age. Of particular concern is the early initiation pattern observed, with many students reporting first use during secondary school years. Early initiation has been linked to increased risk of later dependence, as demonstrated by Grant and Dawson, who showed that early alcohol onset significantly predicts later alcohol dependence.²⁰

Social class showed a significant association with alcohol use, comparable to findings by Collins in a multi-country meta-analysis, and Adenugba and Ijagbone in Oyo, Nigeria.^{21,22} Students from higher socioeconomic backgrounds may have greater disposable income and

broader social exposure conducive to alcohol use. Nonetheless, substance use cut across all social strata, indicating that it is a widespread behavioral issue.

Level of study was significantly associated with tranquilizer use, with higher occurrence among clinical students. This may reflect increasing academic pressure and emotional burden during clinical training. Religiosity emerged as a protective factor for cigarette and tranquilizer use, as students with stronger religious commitment were less likely to report use. This supports findings by Sanchez et al.²³, who emphasized the protective influence of religiosity through moral norms, social accountability, and supportive community structures.

Parental marital status was significantly associated with alcohol, amphetamine, and tranquilizer use. Students from separated, divorced, or bereaved family backgrounds may experience psychosocial stressors that increase vulnerability to maladaptive coping behaviors. Similar associations were reported by D'Onofrio and Emery.²⁴ Furthermore, intergenerational influences may play a role, as demonstrated by Japheth et al.²⁵ in Rivers State, Nigeria, who documented strong links between parental and offspring substance use behaviors.

Residence did not show a significant association with substance use, suggesting that peer and environmental influences may operate similarly across living arrangements. This contrasts with findings by Aguocha and Nwefoh²⁶, who observed higher alcohol consumption among off-campus students, indicating that contextual dynamics may vary by setting.

The absence of reported cocaine, heroin, inhalants, and hallucinogen use is notable. While this may reflect low availability or strong sociocultural deterrents, underreporting cannot be entirely excluded. However, internal validity checks strengthen confidence in the reliability of the responses.

Overall, the findings highlight that substance use, particularly alcohol, remains prevalent among medical students, with identifiable demographic, familial, and psychosocial correlates. The early initiation pattern and associations with stress-related variables underscore the need for targeted preventive strategies, strengthened counselling services, and structured support systems within medical training institutions.

Conclusions

Psychoactive substance use was common among medical students in this study, with nearly two-thirds reporting lifetime use of at least one psychoactive substance. Alcohol was the predominant substance, followed by cigarettes, tranquilizers, and cannabis, while no use of cocaine, heroin, inhalants, or hallucinogens was reported. Initiation of alcohol and tobacco largely occurred during secondary school years, indicating early exposure before university admission.

Significant associations were observed with male gender, age, social class, religiosity, parental marital status, and level of study. These findings suggest that substance use among medical students is influenced by a combination of demographic, familial, and academic factors. Given the implications for academic performance, mental health, and future professional practice, institutional preventive strategies, early screening, and strengthened student support services are recommended.

Limitations

The cross-sectional design limits causal inference; longitudinal studies are recommended for future research. Self-reported data may be affected by recall and social desirability bias; however, anonymity and internal validity checks were used to improve response accuracy. Low cell counts for some substances limited statistical power, and findings for those categories were interpreted cautiously. Finally, being a single-institution study may limit generalizability; multi-center studies would enhance external validity.

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