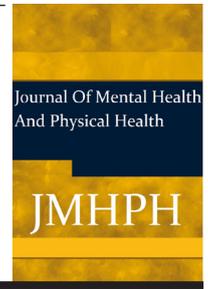


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Prevalence, Pattern, and Motivational Factors Associated with Stimulant Usage Among Medical Students in University of Ilorin, Kwara State

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ABSTRACT

Background: The use of stimulants by young adults is an increasing public health concern, especially in university settings where high consumption rates are a result of academic pressure. Due to their rigorous academic schedules, long hours, and clinical obligations, medical students may be particularly vulnerable. There are limited research on medical students at the University of Ilorin despite evidence of widespread stimulant usage in Nigerian universities.

Aim: This study assessed the prevalence, patterns, and motivational factors associated with stimulant usage among medical students at the University of Ilorin, Kwara State.

Methodology: A descriptive cross-sectional study was conducted among 251 medical students selected through convenience sampling. Data were collected using a semi-structured, self-administered questionnaire. Variables assessed included socio-demographics, stimulant use patterns, types consumed, motivations, and perceptions. Data were analysed using SPSS, with descriptive statistics summarising responses and chi-square tests assessing associations. A significance level of $p < 0.05$ was applied.

Results: Lifetime stimulant usage was reported by 59.4% of respondents, however only 8.4% were current users. Caffeine (29.5%) and energy drinks (13.9%) were the most widely taken stimulants. The majority of use was sporadic and exam-related, with the main motivators being staying up late (43.0%) and studying for extended periods of time (31.0%). The majority of responders (92.0%) said they were worried about the adverse effects, and 82.9% said they would quit if there were healthier options. Regression analysis showed a significant association between gender and stimulant use.

Conclusion: At the University of Ilorin, stimulant use is common among medical students, but it is primarily situational and motivated by academic pressure rather than persistent reliance. The results emphasize the need for focused interventions that support better time management, healthier coping mechanisms, and university-level awareness initiatives.

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Background: Substance use among young people is a growing public health concern. Stimulants, a category of psychoactive substances that act on the central nervous system to increase alertness, reduce fatigue, and elevate mood, are widely consumed for both medical and non-medical purposes. Common examples include caffeine, nicotine, amphetamines, tramadol, and energy drinks. Their misuse is associated with psychological and physical health risks, including dependence and impaired mental well being [1].

University students belong to a high-risk population due to academic pressure and stress. Medical students face even greater workload intensity, long study hours, and clinical responsibilities, predisposing them to stimulant consumption [2]. National statistics have reported that substance use among young adults in Nigeria remains a significant public health challenge [2].

Evidence from Nigerian universities supports these concerns. A study among medical students in the University of Ilorin found that mild stimulants, were the most commonly used substances (33.3%), with higher use associated with progression into clinical training, which may reflect increased workload in clinical years [3]. Also, a 69.2% lifetime prevalence of stimulant use among undergraduates was reported, highlighting widespread exposure to stimulants across student populations [4].

Patterns of substance use often begin early and persist into higher education. Longitudinal research in Ilorin secondary schools demonstrated a continuous pattern of substance use over a 10-year monitoring period [5]. Other studies among Nigerian medical students have also linked substance use with stress, psychological distress, and the need to cope with academic challenges [6]. Furthermore, among young adults in Nigeria, enhancement-related motivations have been reported, including improving performance in academic or demanding situations [7]. Among secondary school populations, associated factors include peer influence, curiosity, and social pressure [8].

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Despite growing evidence, limited research specifically explores stimulant use among University of Ilorin medical students. Considering their critical role as future healthcare professionals, institutional specific research is crucial to support targeted, context-appropriate prevention and intervention strategies.

This study therefore aims to determine the prevalence, usage pattern, and motivational factors influencing stimulant use among medical students in the University of Ilorin, Kwara State.

Objectives

1. To determine the prevalence of stimulant use among medical students in the University of Ilorin.
2. To describe the patterns of stimulant consumption among medical students in the University including types of stimulants used, frequency of use, and modes of administration.
3. To identify the motivational factors associated stimulant use among medical students in the University

Methodology:

This was a community-based descriptive cross-sectional study. The study was carried out at the University of Ilorin and Kwara State University, Ilorin, Kwara State, Nigeria. University of Ilorin is a Federal University located in Ilorin, Kwara state. It has a college of Health Sciences which includes the Faculty of Clinical Sciences, Faculty of Basic Medical Sciences and other departments like Nursing and Allied Health Sciences. Kwara State University is a public university owned by the Kwara State Government in Ilorin. It also has a college of Health Sciences with a Faculty of Medicine. This study focused specifically on medical students enrolled in the MBBS program.

Population:

Students from the 100 level to 600 level class studying Medicine and Surgery at the University of Ilorin and Kwara State University were the target population for this study.

The required sample size of 330 was determined using the Fischers formula for cross sectional studies keeping confidence level at 95%, margin of error at 5% and prevalence of 50% taking account of a limited population of 1400 students and also correcting for non-response.

$$n = (Z^2 \times p \times (1 - p)) / d^2$$

To assess prevalence, pattern, and motivational factors associated with stimulant usage among medical students in University of Ilorin, Kwara State, the subjects were enrolled using a non probability convenience sampling technique. This allowed us to reach a large number of students quickly and efficiently. Participation was voluntary and students who

were available and willing to respond during the data collection period were included in the study.

Questionnaire (Instrument and Method)

A cross-sectional, self-administered, semi-structured questionnaire which was adapted from previously validated studies on stimulant usage among students was used as a research tool. The questionnaire comprised of four sections: (i) demographic Information; (ii) prevalence of stimulant use, (iii) attitude towards stimulant use, (iv) factors associated with stimulant usage. For each question the respondents selected the best response.

Data Analysis

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as mean, frequencies and percentages were used to summarise demographic and response data. Motivational factors were assessed using chi square test to find the relationship between stimulant usage and independent variables (age, sex, education, etc.). Before conducting inferential statistics, the data was checked for normality, missing values, and outliers. Missing data was handled through listwise deletion where necessary. Results were presented using tables, charts, and graphs for clarity. A statistical significance level of $p < 0.005$ was set for all statistical test.

Results:

A total of 251 students participated, predominantly aged 21–25 years (70.1%), followed by 16–20 years (19.1%) and 26–30 years (10.0%). Females constituted 53.8% of respondents. All attendees were from the University of Ilorin (100%), with most enrolled in Medicine and Surgery (93.2%). The highest representation was from 400 level (41.4%) and 600 level (34.3%). Most respondents were single (98.0%), and slightly more lived off-campus (53.4%).

Overall, 59.4% had ever used stimulants, while current use was 8.4%. Most current users consumed stimulants occasionally (32.7%) or only during examinations (19.1%), with daily use reported by 2.0%. Caffeine (29.5%) and energy drinks (13.9%) were the most used stimulants, while amphetamines (0.4%), kolanut (0.8%), and nicotine (2.0%) were less common. First exposure typically occurred between 16–20 years (29.5%), and the main access point was market stores (51.8%).

Non-prescription use was reported by 51.8% of respondents. Most disagreed that stimulants improve academic performance (49.0% strongly disagree/disagree), and 68.5% considered stimulant use during examinations unacceptable. Although 84.4% believed stimulants could lead to addiction, 92.0% were concerned about side effects and 82.9% were willing to stop if healthier alternatives existed. A majority (94.4%) supported university-level awareness programs.

Table 1: Demographic Information of Respondents.

Variables	Options	Frequency	Percentage
Age	16-20 years	48	19.1%
	21-25 years	176	70.1%
	26-30 years	25	10.0%
	31 years and above	2	0.8%
Gender	Male	116	46.2%
	Female	135	53.8%
University	University of Ilorin	251	100%
Department	Medicine and Surgery	234	93.2%
	Medical Laboratory Science	16	6.4%
	Physiology	1	0.4%
Level of Study	100 Level	3	1.2%
	200 Level	15	6.0%
	300 Level	23	9.2%
	400 Level	104	41.4%
	500 Level	20	8.0%
	600 Level	86	34.3%
Marital Status	Single	246	98.0%
	Married	5	2.0%
Do you currently live	On-Campus	117	46.6%
	Off-Campus	134	53.4%

At what age did you first start using stimulants?

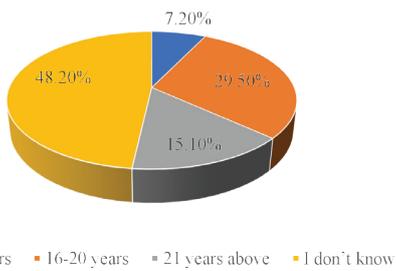


Figure 1: Responses on what age youth start using stimulants.

Table 2: Patterns of stimulant usage, including the types of stimulants consumed, frequency, and modes of use.

Variables	Options	Frequency	Percentage
Have you ever used stimulants without a medical prescription?	Yes	130	51.8%
	No	55	21.9%
	Not Sure	66	26.3%
Do you believe stimulant use helps to improve academic performance?	Strongly disagree	49	19.5%
	Disagree	74	29.5%
	Agree	34	13.5%
	Strongly Agree	8	3.2%
	Neutral	86	34.3%
Do you think using stimulants during exams is acceptable?	Yes	79	31.5%
	No	172	68.5%
Would you recommend stimulant use to a friend for studying?	Yes	33	13.1%
	No	218	86.9%
Do you think stimulant use can lead to addiction?	Strongly disagree	0	0%
	Disagree	10	4.0%
	Agree	107	42.6%
	Strongly Agree	105	41.8%
	Neutral	29	11.6%
Are you concerned about the side effects of stimulants?	Yes	231	92.0%
	No	20	8.0%
Would you stop using stimulants if provided with healthier alternatives (e.g., better sleep, time management)?	Yes	208	82.9%
	No	43	17.1%
Do you think the university should offer awareness programs about stimulant use?	Yes	237	94.4%
	No	14	5.6%

Do you believe stimulant use helps to improve academic performance?

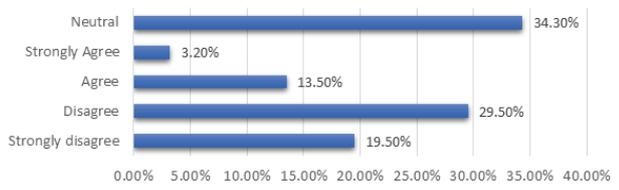


Figure 2: Responses on whether stimulants use improve academic performance.

Table 3: The motivational factors influencing stimulant use among young adults in the community.

Variables	Options	Frequency	Percentage
What is your main reason for using stimulants? (Tick all that applies)	As beverage		
	For Pleasure and recreation	1	0.4%
	For rehydration	23	9.2%
	To gain energy	1	0.4%
	Cravings	1	0.4%
	Low blood sugar	1	0.4%
	Stress coping	13	5.2%
	Improve mood	1	0.4%
	To stay awake	108	43.0%
	To study for long hours	78	31.0%
	Peer pressure	4	1.6%
Have academic pressure or deadlines influenced your stimulant use?	No reason	94	37.5%
	Yes	104	41.4%
Do your friends or roommates use stimulants?	No	147	58.6%
	Yes	95	37.8%
Do you feel that stimulant use is more common among students in health sciences?	I don't know	89	35.5%
	Yes	67	26.7%
	No	22	8.8%
Do you think stimulant use is more prevalent during examination periods?	I don't know	169	67.3%
	Yes	22	8.8%
	No	60	23.9%
Does your academic workload affect your decision to use stimulants?	Yes	244	97.2%
	No	7	2.8%
Does your academic workload affect your decision to use stimulants?	Yes	112	44.6%
	No	139	55.4%

Table 4: Regression Analysis to determine significant association between socio-demographic characteristics and stimulant usage among among medical students in the University (N = 251).

Model	Unstandardized Coefficients		p-value	ANOVA value	Adjusted R-Square Value	Remarks
	B	Std. Error				
(Constant)	0.279	0.613	0.649	0.023	0.037	NS
Age	0.008	0.017	0.622			NS
Gender	0.206	0.067	0.002			S
University	0.727	0.488	0.138			NS
Department	-0.035	0.042	0.402			NS
Level of Study	-0.001	0.034	0.977			NS
Marital Status	0.075	0.224	0.739			NS
Do you currently live	-0.089	0.070	0.205			NS

NS- Not Significant; S- Significant

Key motivations included staying awake (43.0%), studying for long hours (31.0%), and recreation (9.2%). Academic pressure influenced 41.4% of users, while 37.8% reported peer influence. Almost all respondents agreed stimulant use increased during examinations (97.2%).

Regression analysis showed significant associations between stimulant use and gender (p < 0.001). No significant associations were found with age, university, department, level of study, or marital status (p > 0.05).

Discussion

This study found that 149 (59.4%) of medical students in University of Ilorin has used stimulants, while 102 (40.6%) had never; current users were relatively few at 21 (8.4%). These rates indicate a high lifetime exposure but low current use. Comparable recent studies in Nigeria show

mixed prevalence depending on substance type and population. For example, a cross-sectional survey of energy drink consumption among undergraduates in Rivers State reported high lifetime exposure of energy drinks, with substantial health implications [9]. Also, in "Assessment of use of psychoactive and other non-prescription drugs among students of selected tertiary institutions in Ekiti State," moderate to high usage of psychoactive substances (including stimulants) was reported though usage levels varied by institution type [10].

This study showed that among current users, most use stimulants occasionally 82 (32.7%), or only during exams 48 (19.1%), with daily users being very few 5 (2.0%). Most commonly used types were caffeine 113 (29.5%) and energy drinks 77 (13.9%), with minimal use of stronger stimulants like amphetamines 1 (0.4%) etc. Age of initiation tended to cluster around 16-20 years for many (74; 29.5%) though a substantial portion 121 (48.2%) did not know when they began. These patterns align with findings from other recent studies. For instance, in the study from Rivers State, consumption of energy drinks was quite prevalent among undergraduates, often connected to situational factors (exams, staying awake) rather than continuous use [9]. The "Original: Patterns of Energy Drink Consumption and Perceived Benefits Among Medical Students in a Tertiary Institution in South-Eastern Nigeria" (2024) showed 81.5% had ever consumed energy drinks, with initiation mainly between ages 10-20, and usage largely tied to stimulation, peer influence, stress relief, etc [11].

In this study, motivations for stimulant use included staying awake 108 (43.0%), studying for long hours 78 (31.0%), pleasure/recreation 23 (9.2%), stress coping, peer pressure, mood and other minor reasons; many would stop if healthier alternatives were available. Also, many believed stimulant usage is more common during examination periods.

These motivations resonate with those reported in recent work. In the South-Eastern Nigeria medical students' study, the primary motivations cited were alertness, improved concentration, stress relief, stimulation etc [11]. Similarly, in "Energy drink consumption and evaluation of related adverse effects among young people in Nigeria" (2024), adverse effects indeed were rising, but the drivers included perceived performance benefits, energy, alertness, etc [12]. Also studies outside Nigeria show "being awake," "exam periods," "concentration," "energy levels" and peer influence are common motivations among youth and adolescents. For example, among pupils in Mahikeng, South Africa, "being awake" (43.1%), concentration (20.3%), exams (13.8%) were among the major reasons for energy drink use [13].

This study found significant associations of stimulant use with gender, but no significant association with age, department, marital status, academic level, or university and residential status. In recent studies, gender differences often emerge, though results vary. For example, in many energy drink studies, male participants often report higher consumption or risk of adverse outcomes, or different patterns of usage. In "Digital Marketing and Consumption of Energy Drinks in South West Nigeria" (2025), demographic variables like gender and socio-economic background were examined, showing differential exposure and consumption; though the study did not isolate stimulant misuse beyond energy drinks [14]. The Ekiti State study also found that substance use varied by university type and academic level, though that was over multiple substances, not stimulants alone [10]. Residential status (on/off campus or living arrangements) is less frequently reported, but living away from family or campus supervision tends to increase risk behaviours in many studies.

Summary of the Findings:

The study investigated stimulant use among 251 medical students, examining prevalence, patterns, motivations, and socio-demographic associations. The respondents were mostly aged 21-25 years (70.1%), predominantly female (53.8%), single (98.0%), and mainly students of the University of Ilorin (99.6%), with the majority in 400 level (41.4%).

Findings revealed that stimulant use was relatively common, as 59.4% had ever used stimulants such as caffeine, energy drinks, kolanut, or nicotine, while 40.6% had never used any. However, only 8.4% were current users, indicating that most use was intermittent or situational. Among current users, 32.7% used stimulants occasionally, 19.1% used them only during examinations, and just 2.0% reported daily use. Caffeine (29.5%) and energy drinks (13.9%) were the most commonly consumed stimulants, while amphetamines and nicotine use were minimal. Most users began consumption between ages 16 and 20 years (29.5%), often gaining access through market stores (51.8%) or friends (5.2%).

Patterns of use showed that 51.8% had used stimulants without medical prescription, and many perceived stimulants uses as helpful for

academic performance. Nonetheless, 92.0% expressed concern about side effects, and 82.9% stated they would stop if healthier alternatives were provided. Motivation for use centered on staying awake (43.0%), studying for long hours (31.0%), and coping with stress (5.2%), particularly during examinations (97.2%).

Regression analysis showed significant associations between stimulant use and gender ($p < 0.002$), while age, academic level, marital status, residential status and university type were not significantly related. Overall, the findings highlight that stimulant use among medical students in University of Ilorin is largely driven by academic pressure and performance demands rather than dependency or recreation, emphasizing the need for awareness and healthy coping strategies.

Conclusion

This study concludes that stimulant use among medical students in University of Ilorin is a prevalent but largely situational behaviour driven by academic and psychosocial factors rather than addiction. Most respondents reported occasional use of mild stimulants such as caffeine and energy drinks, primarily to stay awake, study for extended hours, or cope with academic stress, especially during examinations. While lifetime use was relatively high, current and daily use were low, suggesting intermittent consumption rather than habitual dependence. Gender significantly influenced stimulant use, indicating that social environment and accessibility play important roles. The widespread awareness of possible side effects and willingness to quit if healthier alternatives exist demonstrate an opportunity for targeted interventions. Educational programs emphasizing effective time management, sleep hygiene, and stress coping strategies are essential to reduce reliance on stimulants and promote healthier academic performance behaviours among young adults.

Suggestions for Further Studies: Future studies should explore psychological and socio-economic factors influencing stimulant use across different Nigerian communities to inform broader interventions.

Ethical Considerations:

This research was approved by the Ministry of Health Ethical Review Committee.

Conflicts of Interest: None

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