



Physical health Effects of Substance Abuse among secondary school students in Kokona local government area, Nasarawa state, Nigeria

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Abstract

Substance abuse among adolescents has become a significant public health concern worldwide, particularly among secondary school students who are at a critical developmental stage. This study investigated the physical health effects of substance abuse among secondary school students in Kokona Local Government Area of Nasarawa State, Nigeria. The study adopted a descriptive survey research design. The target population consisted of secondary school students in Kokona LGA. A sample of 400 students was selected using stratified random sampling techniques. Data were collected using a structured questionnaire titled Physical Health Effects of Substance Abuse Questionnaire (PHESAQ). The instrument was validated by experts in health, education and educational psychology. Reliability was determined using Cronbach's Alpha, yielding a coefficient of 0.82. Data collected were analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation. The findings revealed that commonly abused substances among students include alcohol, cigarettes, cannabis, and tramadol. The study further revealed that substance abuse contributes to several physical health problems among students such as respiratory complications, fatigue, weakened immune system, loss of appetite, headaches, and cardiovascular complications. The study concluded that substance abuse has significant negative effects on the physical health of secondary school students in Kokona LGA. It was recommended that health education programs, parental monitoring, and government policies should be strengthened to reduce substance abuse among adolescents.

Keywords: Substance abuse, Physical health effects, Secondary school students, Adolescents, Nasarawa State.

Introduction

Substance abuse among adolescents has become a major public health concern worldwide, particularly in developing countries such as Nigeria. Adolescence is a critical stage of human development characterized by curiosity, experimentation, and increased susceptibility to risky behaviours, including the use of psychoactive substances. Substance abuse refers to the harmful or hazardous use of psychoactive substances such as alcohol, tobacco, cannabis, and prescription drugs (World Health Organization, 2018) [23]. During this period, many adolescents are influenced by peer pressure, curiosity, emotional stress, and environmental factors, which may lead them to experiment with drugs and other substances.

In Nigeria, the prevalence of substance abuse among secondary school students has been increasing in recent years. Studies have shown that alcohol, tobacco, cannabis, and prescription drugs such as tramadol are among the most commonly abused substances among adolescents (Oshodi, Aina, & Onajole, 2010) [17]. Similarly, Adeyemo, Ohaeri, and Ohaeri (2016) [2] reported that a significant number of Nigerian secondary school students engage in substance use as a result of peer influence, family environment, and easy accessibility of drugs.

Recent research conducted in Nasarawa State, Nigeria further confirms the growing concern of substance abuse among adolescents. In a study on the pattern of substance use among secondary school students in Nasarawa state,

Nigeria, Alaku and Nwaru (2024) [4] found that a considerable number of students reported using substances such as alcohol, tobacco, and other psychoactive drugs. Their study emphasized that early exposure to these substances could lead to serious health and social consequences among adolescents.

Substance abuse among adolescents has been associated with numerous negative health outcomes. According to the United Nations Office on Drugs and Crime (UNODC, 2022) [21], drug abuse can negatively affect the physical, psychological, and social well-being of individuals. In terms of physical health, substance abuse can cause respiratory problems, cardiovascular complications, fatigue, weakened immune system, loss of appetite, and impaired physical development. Adolescents who abuse substances may also experience frequent headaches, sleep disorders, and reduced physical fitness.

Furthermore, several factors have been identified as contributors to substance abuse among adolescents. These include peer pressure, family background, poor parental supervision, curiosity, and the desire to cope with stress (Adelekan, Ndom, & Makanjuola, 2015) [1]. These factors make secondary school students particularly vulnerable to substance abuse and its associated health consequences.

Despite the efforts of government agencies, schools, and parents to control substance abuse among adolescents, the problem continues to persist in many Nigerian communities. In Kokona Local Government Area, a semi-Urban and rural

settlement of Nasarawa State, there are growing concerns regarding the involvement of secondary school students in substance abuse. Couple with its proximity to Abuja, the Federal capital territory of Nigeria exposes the local government to influx of individuals and community members who daily experiment and recruit vulnerable youths into accessing drugs and substances. However, empirical studies examining the physical health effects of substance abuse among students in this area remain limited. Therefore, this study aims to investigate the physical health effects of substance abuse among secondary school students in Kokona Local Government Area of Nasarawa State, Nigeria to fill in gaps occasioned by the scourge of substance abuse.

Statement of the Problem

Substance abuse among adolescents has continued to increase in Nigerian secondary schools, posing serious threats to the health and well-being of students. Many students engage in the use of alcohol, cigarettes, cannabis, and other drugs without fully understanding the harmful physical consequences associated with these substances.

The physical health implications of substance abuse among adolescents include respiratory diseases, liver damage, cardiovascular problems, fatigue, poor physical development, and increased susceptibility to infections. These health complications may negatively affect students' growth, academic performance, and overall quality of life.

Despite efforts by government agencies, schools, and parents to reduce drug abuse among students, the problem still persists. In Kokona Local Government Area of Nasarawa State, anecdotal reports indicate increasing involvement of secondary school students in substance abuse. However, empirical data on the physical health effects of substance abuse among these students remains limited. This gap necessitates the present study.

Objectives of the Study

The main objective of this study is to investigate the physical health effects of substance abuse among secondary school students in Kokona Local Government Area of Nasarawa State.

The specific objectives are to:

1. Identify the commonly abused substances among secondary school students in Kokona LGA.
2. Determine the physical health effects associated with substance abuse among students.
3. Examine the extent to which substance abuse affects the physical well-being of secondary school students.
4. Suggest possible strategies for reducing substance abuse among students.

Research Questions

The study was guided by the following research questions:

1. What substances are commonly abused by secondary school students in Kokona LGA?
2. What are the physical health effects of substance abuse among secondary school students?
3. To what extent does substance abuse affect the physical health of students?

Literature Review

1. Concept of Substance Abuse among Adolescents

Substance abuse refers to the harmful or excessive use of psychoactive substances such as alcohol, tobacco, cannabis,

and prescription drugs that can negatively affect an individual's health and social functioning. Adolescents are particularly vulnerable to substance abuse because they are in a transitional stage of development characterized by experimentation and peer influence. Research indicates that secondary school students are among the most vulnerable groups to substance abuse due to curiosity, peer pressure, and the desire for social acceptance (Kolawole, Ogunyemi, & Lucas, 2025) ^[11].

Substance abuse among adolescents has become a growing concern in Nigeria and many parts of the world. According to Onigbogi, Ojo, and Babalola (2023), substance abuse among in-school youth has increased significantly in recent years, with serious consequences for their physical and psychological well-being.

Adolescents who engage in substance abuse often do so without adequate knowledge of the health consequences associated with drug use. Studies have shown that alcohol remains the most commonly abused substance among secondary school students, followed by cigarettes and cannabis (ChrisMed Journal of Health and Research, 2022).

Prevalence of Substance Abuse among Secondary School Students

Several studies have examined the prevalence of substance abuse among secondary school students in Nigeria. Oshodi, Aina, and Onajole (2010) ^[17] found that a considerable number of secondary school students had experimented with substances such as alcohol, cigarettes, and marijuana. Their study further revealed that peer influence and curiosity were major factors contributing to substance use among adolescents.

Similarly, Kolawole, Ogunyemi, and Lucas (2025) ^[11] conducted a study among secondary school students in Lagos State and reported a growing prevalence of substance use among adolescents, emphasizing that early exposure to drugs increases the risk of addiction and other health complications.

Another study by Obadeji *et al.* (2020) ^[13] investigated the pattern of substance use among high school students in Nigeria and found that a significant proportion of students had used one or more psychoactive substances during their school years. The study also highlighted the influence of psychosocial factors such as peer pressure, family background, and social environment on substance use among adolescents.

Furthermore, Adewuyi *et al.* (2025) examined factors influencing substance abuse among adolescents in Ibadan and found that peer influence, parenting style, and school environment significantly contributed to drug abuse among secondary school students.

3. Physical Health Effects of Substance Abuse among Adolescents

Substance abuse has been associated with numerous physical health problems among adolescents. Continuous use of drugs such as alcohol, tobacco, and cannabis can lead to damage to vital organs such as the lungs, liver, and heart. According to the United Nations Office on Drugs and Crime (UNODC, 2022) ^[21], substance abuse can lead to several health complications including respiratory problems, cardiovascular diseases, weakened immune system, fatigue, and poor physical development.

Research conducted by Sule, Garba, and Aidan (2025) ^[18] revealed that drug and substance abuse among secondary

school students negatively affects their health and development, exposing them to both short-term and long-term health complications.

Similarly, Obi *et al.* (2024)^[14] reported that substance abuse among Nigerian youth contributes to various health risks including physical weakness, poor nutrition, and increased susceptibility to illnesses. Their study emphasized that adolescents who abuse drugs are more likely to develop health complications that may persist into adulthood.

Furthermore, research by Chikaji, Ibrahim, and Umar (2026)^[8] found that substance abuse among secondary school students is associated with several negative outcomes including poor health conditions, reduced physical stamina, and increased risk of chronic diseases.

4. Factors Contributing to Substance Abuse among Secondary School Students

Several factors have been identified as contributors to substance abuse among adolescents. Peer pressure has been widely recognized as one of the most significant factors influencing substance use among students. Adolescents often engage in substance abuse in order to gain acceptance from their peers.

Family environment also plays a crucial role in determining whether adolescents engage in substance abuse. Studies have shown that poor parental supervision, broken homes, and family conflict may increase the likelihood of substance use among adolescents (Obadeji *et al.*, 2020)^[13].

In addition, curiosity and exposure to media have been identified as factors that encourage experimentation with drugs among adolescents. Adolescents who lack proper guidance and health education are more likely to engage in substance abuse. Furthermore

5. Theoretical and Conceptual Perspectives

This study is guided by the Social Learning Theory developed by Bandura (1977)^[6], which explains that individuals acquire Behaviours through observation and interaction with others in their social environment. According to the theory, adolescents may learn substance use Behaviours by observing peers, family members, or influential figures who engage in such practices. When these Behaviours are reinforced through social acceptance or peer approval, students may continue engaging in substance abuse.

Several studies have applied Social Learning Theory to explain substance abuse among adolescents. For example, Adelekan, Ndom, and Makanjuola (2015)^[1] reported that peer influence plays a significant role in adolescents' involvement in drug use. Similarly, Alaku and Nwaru (2024)^[4] found that exposure to substance use among peers increases the likelihood that secondary school students will engage in substance abuse.

Within the context of this study, substance abuse among secondary school students is viewed as a Behaviour influenced by environmental and social factors such as peer pressure, family background, and school environment. These Behaviours may lead to various physical health consequences, including respiratory problems, fatigue, weakened immune system, and other health complications (United Nations Office on Drugs and Crime [UNODC], 2022)^[21].

Therefore, the conceptual assumption of this study is that substance abuse (independent variable) influences the

physical health status of secondary school students (dependent variable), while factors such as parental supervision, peer influence, and school environment may either increase or reduce students' involvement in substance abuse.

Methodology and Materials for the study

1. Research Design

The study adopted a descriptive survey research design to investigate the physical health effects of substance abuse among secondary school students.

2. Area of the Study

The study was conducted specifically in Kokona Local Government Area of Nasarawa State, in North Central Nigeria. The area has several thirty two public and private secondary schools with a student population of 8200 from diverse socio-economic backgrounds.

3. Population of the Study

The population of the study consisted of all secondary school students (Public and Private) in Kokona LGA of Nasarawa State.

4. Sample Size Determination

The sample size for this research was 400 and was calculated using the Yamane (1967) formula for finite populations, set at a 95% confidence level and a 5% margin of error. The equation is represented as:

Where:

$$n = \frac{N}{1 + (e)^2}$$

- n - sample size
- N - population size
- e - margin of error

For this study, the estimated student population in Kokona Local Government Area is 8,200 (N - 8,200), with a margin of error of 5% (e - 0.05). Substituting these values into the formula gives:

$$n = \frac{8200}{1 + 8200(0.05)^2}$$

$$n = \frac{8200}{1 + 8200(0.0025)}$$

$$n = \frac{8200}{1} + 20.5$$

$$n = \frac{8200}{21.5} = 381.4$$

Thus, the minimum required sample size is approximately 381 students. However, to strengthen representativeness and account for possible non-responses, the sample size will be increased to 400 students. A multistage sampling technique will be employed to achieve proportional representation. At the first stage, schools will be stratified into public and private categories. At the second stage, a random selection of schools will be made from each stratum. The third stage involve proportionate sampling of students from both junior and senior classes in the selected schools. Finally, in the fourth stage, simple random sampling will be used to select individual participants. This procedure ensures a fair and

balanced representation across school types and class levels, thereby enhancing the validity, reliability, and generalizability of the study's findings.

Data Collection Procedure

1. The data collection for this research is as follows:

Step 1: Institutional Approval

Approval for this research was obtained from both Nasarawa state Health Research Ethic Committee and approval from the management of each of the 9 selected secondary schools in Kokona LGA of Nasarawa state, Nigeria

List of Schools, Population and number of Respondents

S/no	School	Population	Respondents
1	GGSS Garaku	435	
2	GSS Angwan Jarmai	125	
3	GSS Amba	122	
4	GJSS Sabon Gida	205	
5	GJSS Agwada	55	
6	Citadel Comprehensive Secondary School Garaku	389	
7	St Rose of Lima College Angwan Jarmai	186	
8	Makoyaddah International Academy Sabon Gida	73	
9	St peters college Garaku	105	

Note: n=400

Step 2: Participant Selection

A multi-stage sampling technique (Stratified, Proportionate and random sampling) was used by the researcher to select participants from each of the selected secondary school in Kokona LGA, Nasarawa state.

Step 3: Administration of Questionnaire

The researchers administered a structured questionnaire to the selected from each of the school. The structured questionnaire was designed into: Section A: Socio-demographic traits (age, gender, academic grade, family environment). Section B: Trends in drug consumption (types of substances, frequency, duration, and accessibility). Section C: Effects on physical health (tiredness, stunted growth, sleep quality, long-term illnesses) and Section D: Outcomes in education and behaviour (academic achievement, attendance issues, skipping school, disciplinary problems). The tool includes standardized assessments like the Patient Health Questionnaire-9 (PHQ-9) for depression and the Generalized Anxiety Disorder Scale (GAD-7), in addition to items created by researchers specifically for the local setting.

Step 4: Data Collection

The researcher provided clarification and guidance to participants as needed before administering the questionnaire to the participants to complete, and the researcher ensured that all questions were answered accurately and completely. The instrument used for data collection was a structured questionnaire titled Physical Health Effects of Substance Abuse Questionnaire (PHESAQ).

Step 5: Data Quality Control

The researcher completed questionnaires were checked for accuracy, completeness, and consistency to ensure that high quality data is obtained.

Data Collection Timeline

The data collection process was done within 3 months in the year 2025, depending on the availability of participants so as not to disrupt their academic schedule.

Inclusion and Exclusion Criteria

Inclusion criteria included students who were enrolled in secondary schools from Junior Secondary School 1-3 and Senior Secondary School 1-3 in Kokona LGA Nasarawa State, Nigeria, While Exclusion criteria included students who were not willing to participate or who did not complete the questionnaire appropriately and children who are not students.

Limitation of the study

1. The design of the study limits causal assertions regarding temporality such as whether substance use leads to depression or if depressed adolescents are more prone to substance use. Long-term studies are required to determine causation.
2. Data rely on self-administered questionnaires; social desirability bias or recall inaccuracies may lead to under- or overestimation of use. Though anonymity and validated scales help reduce this issue, biochemical validation (like urine tests) was not possible.
3. While the sample aimed to represent Kokona secondary schools, results might not be applicable to out-of-school adolescents or to other LGAs with varying socio-economic characteristics.
4. Composite scales (the physical health composite) displayed marginal internal consistency in preliminary reliability assessments; subsequent instruments would gain from larger and validated item sets.

Table of Socio-Demographic characteristic Distribution

Variable	Category	Frequency (f)	Percentage (%)
Age	12–14 years	98	25.5
	15–17 years	202	52.6
	18–19 years	84	21.9
Sex	Male	206	53.6
	Female	178	46.4
Class Level	Junior (JSS)	145	37.8
	Senior (SSS)	239	62.2
Family Background	Intact/Two-parent	250	65.1
	Single-parent	93	24.2
	Polygamous	41	10.7

Note: n=400

Table above table shows the respondents' socio-demographic information which encompasses age, gender, academic level, and family history. Frequencies and percentages were utilized to summarize the data through descriptive statistics.

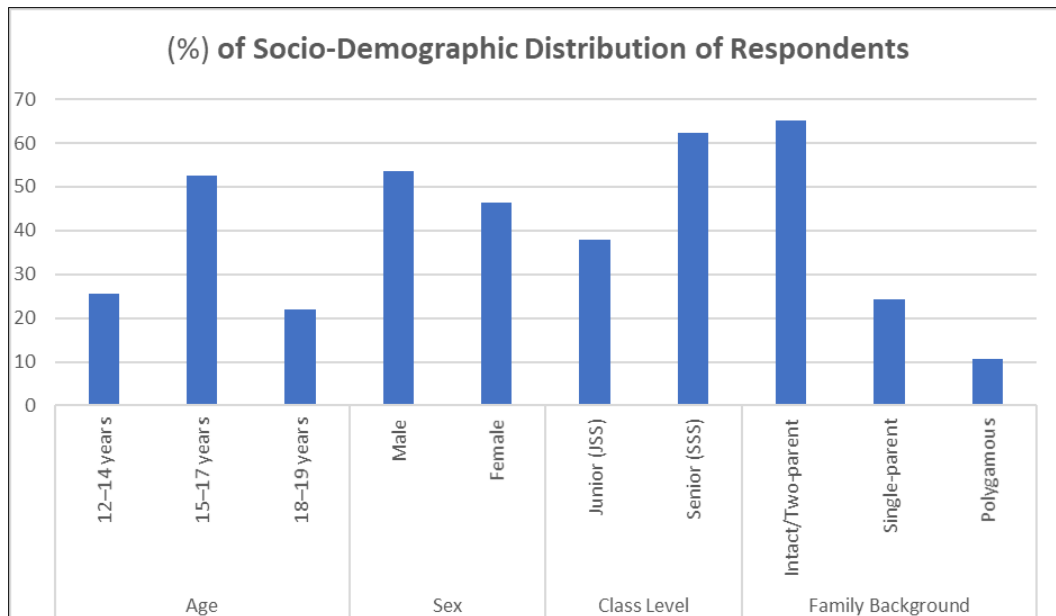


Fig 6

Validity and Reliability of Instrument

The instrument was validated by experts in Health Education and Educational Research. Reliability was determined using Cronbach's Alpha, yielding a reliability coefficient of 0.82, indicating that the instrument was reliable.

Method of Data Analysis

Data collected were analyzed using descriptive statistics such as frequency, percentages, mean, and standard deviation.

Health Indicator	Mean (\bar{x})	SD	Interpretation
Frequent fatigue	3.86	1.02	High
Poor sleep quality	3.74	0.93	High
Recurrent illness (cold, cough)	3.61	1.12	Moderate
Slow growth / weight loss	3.58	1.03	Moderate
Poor physical coordination	3.95	0.88	High

Note: n=400

The average scores and standard deviations for physical health indicators among participants indicate significant negative health effects linked to substance abuse among high school students in Kokona Local Government Area.

The greatest average score was noted for inadequate physical coordination ($\bar{x} = 3.95$, $SD = 0.88$), closely trailed by persistent fatigue ($\bar{x} = 3.86$, $SD = 1.02$) and unsatisfactory sleep quality ($\bar{x} = 3.74$, $SD = 0.93$). These high ratings suggest that drug use notably effects students' physical stability, alertness, and overall physiological functioning. These impairments may result from the sedative and depressant properties of substances such as alcohol, tramadol, and codeine, which disrupt the nervous system and muscle coordination.

Moderate mean scores were noted for recurring illness ($\bar{x} = 3.61$, $SD = 1.12$) and inadequate growth or weight loss ($\bar{x} = 3.58$, $SD = 1.03$), indicating that students who participate in substance use face weakened immune systems and adverse nutritional effects.

Table of Independent sample t-tests to compare average physical health scores between individuals who use drugs and those who do not.

Health Domain	Group	Mean (\bar{x})	SD	t	df	P-value	Decision
Physical Health	Users	3.97	0.84	6.142	382	< 0.001	Significant
	Non-users	3.28	0.76				

Note: n=400

The table above shows the outcomes of the independent samples t-test performed to investigate differences in physical health results between students who use drugs and those who abstain. The examination showed an average score of 3.97 ($SD = 0.84$) for drug users and 3.28 ($SD = 0.76$) for non-users, with a t-value of 6.142 at 382 degrees of freedom and a p-value < 0.001. Because the p-value is under the 0.05 significance level, the null hypothesis claiming that there is no notable difference in physical health between drug users and non-users is dismissed. This suggests that substance use greatly effects the physical well-being of high school students in the Kokona Local Government Area

Hypotheses

H₀₃: There are no notable differences in physical health results among various age groups and academic levels of students.

To examine this hypothesis, one-way Analysis of Variance (ANOVA) was conducted to compare average physical health scores across different age and class categories.

Results and Discussion

1. Commonly Abused Substances

The results indicated that the most commonly abused substances among students include:

- Alcohol
- Cigarettes
- Cannabis (marijuana)
- Tramadol and other prescription drugs

These findings agree with previous Nigerian studies which reported alcohol, tobacco, and marijuana as the most frequently abused substances among secondary school students.

Physical Health Effects of Substance Abuse

The study revealed several physical health problems experienced by students who engage in substance abuse, including:

- Frequent headaches
- Respiratory problems
- Fatigue and weakness
- Loss of appetite
- Poor physical growth
- Increased risk of infections
- Cardiovascular complication

Mean scores of the Respondents on the physical health effects of Substance Abuse

Substance abuse among adolescents can also weaken the immune system and increase vulnerability to diseases. These physical health consequences may negatively affect students' academic performance and daily activities.

Conclusion

The study examined the physical health effects of substance abuse among secondary school students in Kokona Local Government Area of Nasarawa State. The findings revealed that substance abuse is prevalent among students and has significant negative consequences on their physical health. The study established that substances such as alcohol, cigarettes, cannabis, and tramadol are commonly abused by students and contribute to various physical health problems. Therefore, urgent interventions are required to address substance abuse among secondary school students.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Health education programs should be strengthened in secondary schools to educate students on the dangers of substance abuse.
2. Parents should closely monitor the behaviour and activities of their children.
3. Government and non-governmental organizations should implement awareness campaigns on drug abuse.
4. Schools should organize counselling and rehabilitation programs for students involved in substance abuse.
5. Law enforcement agencies should regulate the sale of harmful substances to minors.

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