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ARTICLE

Awareness of Health Hazards Associated with Consumption of Illicit Drugs Among Youths in Kano State, Nigeria

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Abstract

Global health agencies have emphasized that illicit drug use among youths constitutes a major public health and socio-economic challenges, with Nigeria recording prevalence rates above international averages. Kano State has emerged as a critical focus, where substances such as tramadol, codeine, cannabis, methamphetamine, and synthetic opioids are increasingly consumed despite government interventions and awareness campaigns. This study investigates the level of awareness of health hazards associated with illicit drug use among youths aged 15–35 in Kano State. Grounded in the Health Belief Model, the research evaluates perceptions of short- and long-term physiological and social consequences, identifies sources of information, and examines attitudes toward drug consumption and the effectiveness of existing awareness campaigns. A quantitative survey design was employed, utilizing a multistage sampling technique to select 400 respondents from the 500 targeted population across metropolitan and semi-urban areas. Almost 80 percent of the distributed questionnaires were successfully retrieved, and these recovered responses were considered valid, forming a reliable dataset essential for meaningful analysis and strengthening the credibility of the study. Data were collected through structured questionnaires, pre-tested for reliability and translated into Hausa Language for cultural relevance. Descriptive statistics were used to summarize awareness levels, while inferential analyses, including chi-square tests, explored associations between demographic variables and awareness outcomes. The findings aim to provide empirical evidence to guide data-driven, culturally and linguistically appropriate health communication strategies and public policies, thereby contributing to the mitigation of drug-related harms among youths.

Keywords: Illicit Drug Consumption, Health hazards, Public health, Drug abuse prevention, Substance abuse

1. INTRODUCTION

The rise in the consumption of illicit drugs among youths have evolved into a critical public health, security, and socio-economic crisis globally, with Nigeria representing a major focal point [1]. Recent United Nations Office on Drugs and Crime (UNODC) assessments indicate that nearly 275 million people aged 15 to 64 consume illicit substances annually, with a sharp increase in opioid use among adolescents and young adults [2]. Nigeria, as Africa's most populous country, accounts for a disproportionate share of this global burden. An estimated 14.4% of the population about 14.3 million individuals used psychoactive substances in the past year, more than double the global average [3]. Within this landscape, the Northern region, particularly Kano State, has emerged as a major hotspot where young people turn to drugs as a coping mechanism for persistent socio-economic hardship, educational stagnation, and political instability. Kano State, recognized as one of the most populous and culturally significant states in Northern Nigeria, is witnessing a severe surge in the consumption of illicit

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and controlled substances among youths [4]. This escalating crisis primarily impacts individuals within the active developmental age bracket of 15 to 35 years, posing a direct threat to the regional labor force and long-term development. Young people in both urban and semi-urban communities across the state are increasingly exposed to a wide array of dangerous substances. These include cannabis, crack cocaine, heroin, Rohypnol, and methamphetamine, alongside the normalized abuse of pharmaceutical opioids and over-the-counter preparations such as tramadol and codeine-containing cough syrups. Many of these substances are smuggled across borders or manufactured in illicit laboratories, creating a highly accessible local market in Kano's metropolitan and semi-urban hubs.

The health hazards associated with the chronic consumption of these illicit substances are extensive and frequently irreversible [5]. Prolonged use of opioids like tramadol and codeine leads to profound pathologies, including acute neurological impairment, cardiovascular diseases, liver and kidney damage, seizures, and premature death [6]. The psychological and cognitive toll of drug addiction manifests in chronic depression, severe anxiety, paranoia, cognitive decline, and drug-induced psychosis [7]. Beyond these direct medical complications, drug abuse among youths significantly heightens susceptibility to infectious diseases, such as HIV/AIDS, due to a marked increase in risky sexual behaviors and impaired judgment while under the influence [8]. From a social standpoint, substance abuse is directly correlated with declining educational standards, rising academic failure, examination malpractice, and an escalation in violent crimes, including theft, armed robbery, and physical assault. Despite the gravity of these physiological and social consequences, a critical knowledge gap exists regarding the actual awareness of these health hazards among the youth population in Kano State. While many young people may be superficially exposed to anti-drug messaging through social media or general hearsay, they frequently lack a comprehensive, evidence-based understanding of the long-term biological and social implications of their habits. Misconceptions and peer-driven myths are highly prevalent, with many youths erroneously believing that substances like tramadol or cough syrups enhance academic performance or physical strength without causing lasting physical harm. This gap between superficial exposure and deep cognitive awareness highlights a systemic failure in existing health communication strategies, which often fail to resonate with the linguistic, cultural, and religious realities of the target demographic.

The persistence and escalation of the drug crisis in Kano State are intricately tied to a complex matrix of socio-economic and cultural predisposing factors. High levels of youth unemployment, poverty, family dysfunction, low levels of formal Western education, and inadequate parental supervision create an environment where young people are highly vulnerable to drug experimentation. In many Northern Nigerian communities, conservative social norms discourage open, transparent conversations about drug abuse, effectively driving the problem underground and fostering an atmosphere of ignorance, stigma, and misinformation [9]. Families and local institutions are often ill-equipped to recognize the early warning signs of addiction or to offer productive interventions. Additionally, the state suffers from a severe deficit of youth-focused health education programs and professional rehabilitation facilities that are culturally acceptable and linguistically tailored to the local Hausa-speaking population. Public health campaigns and regulatory interventions executed by government agencies have historically achieved limited success in Kano State. While bodies such as the National Drug Law Enforcement Agency (NDLEA) and National Agency for Food and Drug Administration and Control (NAFDAC) have made substantial efforts to enforce drug laws and ban the open sale of controlled medicines, their preventive outreach remains constrained [10]. Most anti-drug campaigns are urban-centered, neglecting the semi-urban and rural areas where drug abuse is rising rapidly. Many of these public health messages are disseminated in English, thereby excluding out-of-school and less-educated youths who represent some of the most vulnerable segments of the population. Existing initiatives are also poorly coordinated, suffer from inconsistent messaging, and fail to actively engage key grassroots stakeholders, such as traditional rulers, religious leaders, educational institutions, and local youth organizations, who command significant respect and cultural authority.

To address this critical communication and knowledge gap, this study is grounded in the Health Belief Model (HBM), enabling systematic analysis of susceptibility, severity, benefits, barriers, self-efficacy, and cues. The HBM evaluates whether an individual believes they are vulnerable to a disease (perceived susceptibility), understands that the condition has serious consequences (perceived severity), recognizes that taking action will reduce susceptibility (perceived benefits), and believes that the benefits of taking action outweigh the associated costs (perceived barriers). Grounding this research in the HBM

allows for a systematic exploration of whether youths in Kano State perceive themselves to be at risk of severe organ damage, mental illness, or social ruin due to drug use, and whether their self-efficacy and exposure to cues to action are sufficient to motivate preventive behavioral change. The primary objective of this study is to comprehensively evaluate the level of awareness of health hazards associated with illicit drug consumption among youths in Kano State. Specifically, the study aims to identify commonly abused substances and explore strategies to curb their local availability; examine the communication channels through which youths receive drug-related information and propose modern, technology-driven dissemination methods; assess youth perceptions regarding the health consequences of abuse; and proffer actionable solutions to enhance compliance. The findings will supply policy makers, public health practitioners, and nongovernmental organizations (NGOs) with data-driven, culturally appropriate evidence to design linguistically appropriate health education curricula, community outreach programs, and media campaigns tailored to Northern Nigerian audiences. The paper is structured thematically into: Introduction, Study Contribution, Research Questions, Theoretical Framework, Literature Review, Hypothesis of the Study, Research Design and Methodology, Data Analysis, Result and Data Interpretation, Analysis and Hypothesis Testing, Discussion of Research Findings, Limitations of the Study, Policy Recommendations, and Conclusion.

2. STUDY CONTRIBUTION

(i) Contextualized theoretical framework by adapting the HBM to systematically measure how perceived susceptibility, severity, and barriers shape youth drug-avoidance behaviors in Northern Nigeria.

(ii) To empirically focus on risk versus behavior in addressing the critical literature gap by shifting focus from general prevalence rates to analyzing why high cognitive hazard awareness fails to prevent substance misuse.

(iii) To demographically target identification by utilizing inferential statistical modeling to identify mature youths aged 25–35 as the primary vulnerable demographic requiring intervention.

(iv) To practically communication roadmap by demonstrating the necessity of transitioning from English-centric campaigns to Hausa-tailored multimedia outreach, direct hotlines, and grassroots information channels.

(v) Evidence-based policy strategy that provides localized data guiding policymakers, health agencies, and community leaders to integrate structured drug education, socio-economic support, and decentralized rehabilitation infrastructure.

3. RESEARCH QUESTIONS

To guide the study, the following five academically rigorous research questions have been constructed based on the study's specific objectives.

(i) Illicit drug prevalence: What are the commonly abused illicit drugs among youths in Kano State, and what measures can be implemented to curb their availability?

(ii) Communication channels: What are the major sources through which youths currently receive information on drug hazards, and how can modern, technology-driven dissemination methods optimize outreach?

(iii) Awareness and perception: What is the current level of awareness regarding short- and long-term health consequences of illicit drug use?

(iv) Health Belief Model constructs: How do perceived susceptibility, severity, benefits, barriers, self-efficacy, and cues to action influence youth drug-use behaviors?

(v) Culturally appropriate solutions: What actionable, culturally and linguistically appropriate strategies can enhance youth adherence to health warnings and prevention measures?

4. THEORETICAL FRAMEWORK

The consumption of illicit drugs among youths in Kano State, Nigeria, has emerged as a critical public health and socio-economic challenge, with empirical studies and government reports highlighting both the scale of the problem and the gaps in awareness of associated health hazards. Studies consistently shows that psychoactive substance use is widespread among young people, with prevalence rates ranging from 60% to nearly 80% depending on the locality and demographic surveyed [11]. The most commonly abused substances include cannabis, tramadol, codeine-based syrups, and tobacco, all of which carry significant risks of addiction, neurological impairment, and long-term health complications. Despite these dangers, awareness of the health hazards remains limited, as many youths perceive drug use as a coping mechanism for unemployment, poverty, and social stressors. Evidences from the NDLEA underscore the severity of the issue, revealing alarming drug seizure statistics, escalating youth arrests, and persistent trafficking networks that highlight widespread consumption and inadequate awareness campaigns [12]. NDLEA reports indicate that Kano State is one of the hotspots for illicit drug trafficking and consumption in Northern Nigeria, with seizures of tramadol and cannabis increasing annually [13]. The agency has emphasized that youths constitute the majority of those arrested for drug-related offenses, suggesting both high levels of consumption and vulnerability to criminalization. However, NDLEA's awareness campaigns have struggled to achieve deep behavioral change, as structural drivers such as unemployment and peer influence continue to undermine their effectiveness. This reflects a broader challenge in Nigeria, where punitive approaches often overshadow preventive education and rehabilitation.

Health hazards associated with illicit drug use are multifaceted, encompassing physiological damage, psychological disorders, social instability, and economic consequences, collectively undermining individual wellbeing, community safety, and national public health systems [14]. Physiologically, substances like tramadol can lead to cardiovascular complications, seizures, and liver damage, while cannabis use is linked to respiratory problems and impaired cognitive function [15]. Psychologically, drug abuse contributes to depression, anxiety, psychosis, and violent behavior, which in turn perpetuate cycles of social instability. Socially, drug abuse destabilizes educational attainment, employability, and community cohesion [16]. Health content analysis in media-based public health communication highlights how structured messaging can drive social change by reshaping perceptions and behaviors linked to societal abuse and drug addiction through sustainable behavioral interventions [17]. Despite these risks, studies in Kano reveal that many youths underestimate or dismiss the severity of health consequences, often due to misinformation or cultural normalization of certain substances [18]. This gap in awareness is particularly concerning given the long-term burden of drug-related health conditions on Nigeria's already strained healthcare system. Cross-referencing global perspectives, the UNODC has highlighted that youth drug abuse in sub-Saharan Africa is increasingly tied to urbanization, poverty, and governance deficits [19]. Nigeria exemplifies this trend, with Kano State serving as a microcosm of the broader national crisis. Awareness of health hazards is often overshadowed by immediate socio-economic pressures, leading youths to prioritize short-term relief over long-term health outcomes. This reflects a gap between knowledge dissemination and behavioral adoption, where awareness campaigns fail to resonate due to structural inequalities and lack of youth-centered interventions. The World Health Organization has further emphasized that effective awareness must be coupled with accessible healthcare services and community-based rehabilitation programs [20].

Grass root education reforms will advance human capital development by upskilling and reskilling the citizens, fostering inclusive innovation and social resilience towards economic stability [21]. Empowered educators promote sustainable learning that mitigates societal abuse and drug addiction through equitable education, mentorship, and transformative community engagement for next-generation higher education [22]. Effective communication, as classified in evolving global practices, will fosters social change and behavioral transformation by shaping collective awareness and resilience [23]. When strategically applied, it empowers communities to challenge harmful norms, reduce vulnerabilities, and stop drug addiction through inclusive dialogue, evidence-based messaging, and culturally sensitive engagement that strengthens human capital for sustainable development. Governmental responses have been critiqued for their inadequacy, as policies often emphasize punitive enforcement over preventive education, neglecting socio-economic drivers, resulting in limited awareness, weak institutional coordination, and persistently high youth drug abuse prevalence [24]. While Nigeria has national drug control policies, their implementation in Kano State is inconsistent, marked by fragmented enforcement,

inadequate coordination, limited resources, and uneven community engagement, undermining sustained awareness and effective youth-focused interventions [25]. Governance responses often focus on punitive measures rather than preventive education, which limits the effectiveness of awareness campaigns. Scholars argue that a more holistic approach is needed, one that integrates employment opportunities, vocational training, and community-based awareness programs [26]. Such interventions would not only raise awareness of health hazards but also address the socio-economic conditions that drive drug abuse. The Federal Ministry of Health has acknowledged the need for multi-sectoral collaboration, emphasizing that awareness campaigns must be integrated with healthcare delivery, education, and law enforcement for a comprehensive solution [27]. Empirical studies also highlight the role of peer influence and cultural factors in shaping awareness. Differential association theory suggests that individuals adopt behaviors prevalent within their social networks, and in Kano, peer groups often normalize drug use as a symbol of resilience or masculinity [18].

This cultural framing undermines awareness of health hazards, as youths perceive drug use not as a health risk but as a social necessity. Addressing this requires culturally sensitive awareness campaigns that challenge harmful norms while promoting healthier alternatives. Community leaders, religious institutions, and youth organizations have been identified as critical stakeholders in reshaping narratives around drug use. The literature also emphasizes the importance of empirical validation in assessing awareness levels, requiring rigorous surveys, statistical analyses, and evidence-based evaluations to accurately measure youths' knowledge, perceptions, and behavioral responses toward illicit drug hazards. Surveys conducted among secondary school students in Kano revealed that while 65% of respondents were aware that drug use could lead to addiction, only 40% recognized its link to long-term health complications such as liver disease or mental illness [25]. This partial awareness suggests that campaigns have succeeded in highlighting addiction but failed to convey the broader spectrum of health hazards. Moreover, awareness does not necessarily translate into behavioral change, as many youths continue to consume drugs despite acknowledging their risks. This highlights the need for interventions that go beyond information dissemination to address structural and psychological drivers of drug abuse. This literature emphasizes that while awareness of health hazards associated with illicit drug consumption among youths in Kano State exists to some extent, it is insufficient to curb the rising prevalence of abuse. Structural drivers such as unemployment, peer influence, and weak governance dilute the impact of awareness campaigns. Effective interventions must therefore combine health education with socio-economic empowerment, institutional coordination, and culturally sensitive approaches. Without such comprehensive strategies, awareness alone will remain inadequate in addressing the health hazards of illicit drug use among Kano youths.

5. LITERATURE REVIEW

The concepts of substance, substance abuse, and drug addiction are often employed interchangeably [28], yet they lack a universally standardized definition. Scholars emphasize that these terms are context-dependent, shaped by cultural, medical, and legal perspectives, which complicates efforts to establish a singular meaning. Consequently, their usage reflects diverse interpretations across disciplines, highlighting the need for precise operational definitions when conducting empirical research or designing interventions aimed at addressing the multifaceted challenges of drug use and its social consequences. Kumar et al. described a substance as any chemical agent that, once ingested, alters one or more bodily functions [29]. In line with this, alcohol, heroin, and caffeine are considered substances because they influence behavior by affecting the coordination of the central nervous system. The WHO defines drugs as substances that, when introduced into the body, alter its normal functions, particularly affecting the central nervous system and potentially creating dependence [30]. This definition highlights the physiological and psychological impact of drugs, distinguishing them from food or water, and accentuates their role in both therapeutic and harmful contexts. It underlines the role of drugs not merely as substances but as instruments designed to modify biological processes, thereby enhancing health, stability, or overall well-being in diverse contexts.

Fawa conceptualized a drug as any substance employed in the treatment or prevention of disease in humans and animals [31]. This definition highlights the therapeutic and prophylactic role of drugs, emphasizing their dual capacity to cure existing ailments and forestall potential ones. It also situates

drugs within a biomedical framework, stressing their chemical nature and interaction with biological systems. Importantly, the definition applies broadly to both human and veterinary medicine, reflecting the universality of pharmacological interventions. Thus, Fawa's perspective provides a foundational understanding of drugs as agents of health restoration and disease prevention. In contrast, [32] broadened the concept, categorizing drugs into stimulants, narcotics, hallucinogens, sedatives, tranquilizers, and solvents, while also highlighting social motivations such as peer influence, curiosity, and cultism. This shift reflects an evolution from a purely clinical lens to a socio-cultural perspective. These definitions illustrate how drugs can be both therapeutic agents and substances of abuse, shaping health and social realities in different contexts of drug use. Such substances have the capacity to alter bodily functions, producing either beneficial or adverse effects depending on the user's physiological composition, the specific type of drug, the dosage administered, and whether taken individually or in combination with other agents. In a similar vein, [33] defined drugs as substances used for therapeutic or preventive purposes, emphasizing their potential to modify body functions positively or negatively under varying conditions.

Drug and substance abuse represents one of the most pressing challenges confronting modern societies, with consequences that extend from the collective to the individual and ultimately to the economy [34]. At the societal level, abuse destabilizes communities, fostering crime, cultism, and violence, while eroding cultural values and weakening social cohesion. Families often bear the brunt, experiencing broken relationships, neglect, and emotional trauma. For individuals, the misuse of substances leads to physical dependence, deteriorating health, and psychological disorders such as depression and anxiety. According to Boretti [35], academic performance and workplace productivity decline, leaving many unable to fulfill personal or professional responsibilities. Economically, Ayyandurai [36] noted that nations suffer significant losses through reduced workforce efficiency, escalating healthcare expenditures, and the diversion of resources to law enforcement and rehabilitation programs. The ripple effect is profound: one person's abuse can trigger a chain reaction of social and financial instability. Addressing this issue requires comprehensive intervention strategies, preventive education, and strong policy frameworks that balance treatment with enforcement, ensuring healthier individuals and more resilient societies.

6. HYPOTHESIS OF THE STUDY

To guide this study, the following five sets of research hypotheses have been intellectually developed, showing high academic rigor and alignment with quantitative survey designs, each hypothesis is presented in both Null (H0) and Alternative (H1) forms, statistically structured to be tested using the study's proposed sample of 400 respondents via chi-square $\chi 2$ tests and regression analyses.

H1: There is a statistically significant association between respondents' formal educational attainment and their awareness of the adverse health and social consequences associated with illicit drug and substance use.

H2: There is a statistically significant association between respondents' primary sources of drug-related information and their accuracy in perceiving the health risks associated with illicit drug and substance use.

H3: Perceived susceptibility to adverse health consequences and perceived severity of drug-related health and social consequences significantly predict respondents' drug-avoidance attitudes and protective behavioral intentions, consistent with the constructs of the Health Belief Model.

H4: There is a statistically significant difference in exposure to preventive drug-awareness campaigns and awareness of drug-related health consequences between youths residing in metropolitan and semi-urban/rural areas of Kano State.

H5: There is a statistically significant difference in respondents' perceived severity of the long-term health risks associated with prescription opioid misuse and cannabis use.

6.1. Research Design Methodology

This study adopted a quantitative survey research methodology to systematically assess the level of awareness of health hazards associated with illicit drug consumption among youths in Kano State,

Nigeria. The survey design is considered appropriate because it facilitates the collection of standardized data from a large population, enabling the researcher to generate measurable, generalizable insights into awareness, perceptions, and behavioral patterns. The target population comprises youths aged 15 to 35 years residing in Kano State. This age group was selected because it represents the demographic most vulnerable to drug experimentation and abuse, as consistently reported by the NDLEA and the UNODC. Both in school and out of school youths from urban and rural communities were included to ensure diversity and representativeness. A multistage sampling technique were employed. In the first stage, five Local Government Areas (LGAs), Kano Municipal, Fagge, Ungogo, Gwale, and Dala, were purposively selected based on documented high youth populations and prevalence of drug abuse. Two wards were subsequently selected from each LGA, after which respondents were approached through households and selected youth/community gathering locations, including youth centres, parks, and football fields. These locations provided access to both in-school and out-of-school youths; however, venue-based recruitment may have resulted in differential accessibility to particular demographic groups.

The survey supporting this study was executed in the early 1st quarter of 2026, ensuring that the dataset reflects contemporary realities and behavioral trends. The methodological rigor was upheld through structured questionnaires, validated instruments, and systematic sampling procedures, thereby guaranteeing reliability, reproducibility, and academic integrity. This reliable framing situates the findings within a modern socio-economic and cultural context, enhancing the relevance of the analysis. By employing a structured questionnaire divided into demographic, awareness, information sources, and attitudes, the study embodies the belief that social problems can be systematically measured and addressed. Aligning items with the Health Belief Model demonstrates confidence in theory-driven approaches to behavioral change, while pre-testing and translation into Hausa highlight cultural sensitivity and equity in knowledge production. The emphasis on validity and reliability reflects a commitment to scientific rigor, while informed consent and confidentiality affirm dignity of human person. The reliance on SPSS data analysis, chi-square tests, and regression embodies a positivist ideology that objective, quantifiable truths can guide social reform. Collectively, the design illustrates a worldview where methodological inquiry, inclusivity, and ethics converge to confront societal abuse and drug addiction through evidence-based transformation.

7. DATA ANALYSIS

In this study, a robust quantitative analytical framework was adopted, integrating descriptive, regression, and inferential statistics to ensure methodological rigor. Data were processed using SPSS and Microsoft Excel, which facilitated the computation of frequencies, percentages, and measures of variability. Inferential procedures included Pearson's chi-square tests to examine categorical associations and regression modelling to evaluate predictive relationships between demographic variables and drug-related awareness or behavioural outcomes. This comprehensive approach provided both breadth and depth in interpretation, enabling the validation of hypotheses, identification of significant predictors, and generation of empirical evidence. The methodology strengthened the study's capacity to inform culturally sensitive and policy-relevant interventions addressing youth substance abuse in Kano State.

Figure 1 presents the age distribution of respondents. The analysis reveals that the majority of respondents fall within the older age categories. Respondents aged 30-35 years constituted the largest proportion of the study sample (44.6%), while those aged 25-29 years accounted for 38.3%. Together, these two age groups represented over four-fifths of the total sample population. In contrast, younger respondents aged 15-19 years (5.3%) and 20-24 years (11.8%) constituted a comparatively smaller proportion of the sample, indicating limited representation of younger participants. This demographic pattern suggests that drug and substance abuse may be increasingly prevalent among mature individuals who experience greater academic, social, and economic pressures. Consequently, targeted intervention strategies should focus primarily on older populations while maintaining preventive educational programmes for younger entrants. This age distribution is particularly relevant for understanding perceptions of the complex health, psychological, social, and behavioural risks associated with drug and substance abuse.

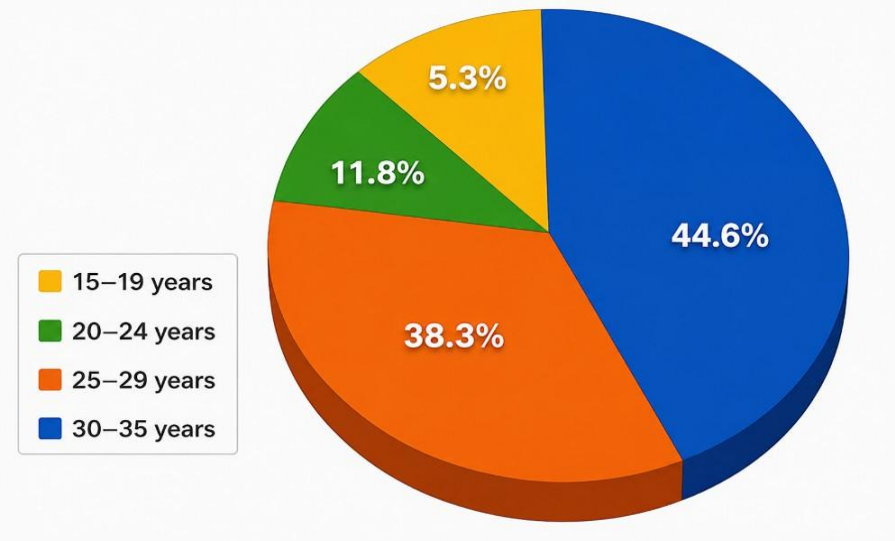

Figure 1. Demographic information representing Age Distribution

8. RESULT AND DATA INTERPRETATION

This section opens by presenting the demographic distribution of respondents, highlighting variations across age categories and their proportional representation. This provides a clear foundation for interpreting subsequent findings on drug use patterns, ensuring that statistical analysis is contextualized within the sample's structure and allowing meaningful connections between age, behavior, and societal impact.

Table 1. Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	272	68
Female	128	32
Total	**400**	**100**

Source: Field Survey, 2026

The information presented in Table 1 shows that out of 400 respondents, 128 (32%) were female and 272 (68%) were male, indicating a clear male majority. This imbalance suggests that male respondents were more represented in the study sample, which may influence the interpretation of prevalence rates of drug abuse. The higher proportion of men provides stronger insights into male perspectives and experiences; however, it also highlights the need for balanced sampling to ensure gender-inclusive conclusions in substance abuse research.

The analysis presented in Table 2 reveals that stress (61.8%) and peer pressure (59.5%) are the most influential factors driving drug use among respondents, followed closely by anxiety relief (57.5%). Moderate influences include experimental curiosity (53.2%) and self-esteem boosting (51.0%). Conversely, drug availability (38.3%) and genetic disposition (45.7%) show

Table 2. Factors Influencing Drug Use and Substance Abuse

S/N	Variable	Yes (%)	No (%)	Not Sure (%)	Total (%)
1	Family issues	187 (46.8)	183 (45.7)	30 (7.5)	400 (100)
2	Anxiety/pressure relieving	230 (57.5)	153 (38.3)	17 (4.2)	400 (100)
3	Self-esteem boosting	204 (51.0)	166 (41.5)	30 (7.5)	400 (100)
4	Drug readily available	153 (38.3)	213 (53.2)	34 (8.5)	400 (100)

5	Experimental curiosity	213 (53.2)	166 (41.5)	21 (5.3)	400 (100)
6	Genetic disposition	183 (45.7)	192 (48.0)	25 (6.3)	400 (100)
7	Stress (Tiredness)	247 (61.8)	140 (35.0)	13 (3.2)	400 (100)
8	Sleep deprivation need	183 (45.8)	158 (39.5)	59 (14.7)	400 (100)
9	Peer pressure	238 (59.5)	136 (34.0)	26 (6.5)	400 (100)

Source: Field Survey, 2026

weaker associations. Notably, sleep deprivation recorded the highest level of uncertainty, with 14.7% of respondents indicating they were not sure, suggesting mixed perceptions regarding its role in substance abuse. Taken as a whole, psychosocial pressures outweigh structural or biological factors, highlighting the practical importance of addressing emotional resilience, peer influence, and stress management in efforts to combat drug abuse.

Table 3. General Recognition of Adverse Effects of Drug and Substance Abuse

S/N	Variable	Yes (%)	No (%)	Not Sure (%)	Total (%)
1	Addiction	315 (78.7)	60 (15.0)	25 (6.3)	400 (100)
2	Loss of self-control	328 (82.0)	47 (11.8)	25 (6.2)	400 (100)
3	Poor performance	320 (80.0)	51 (12.8)	29 (7.2)	400 (100)
4	Mental imbalance	328 (82.0)	47 (11.8)	25 (6.2)	400 (100)
5	Health risks	324 (81.0)	55 (13.8)	21 (5.2)	400 (100)
6	Behavioural change	324 (81.0)	64 (16.0)	12 (3.0)	400 (100)
7	Financial hardship	330 (82.5)	50 (12.5)	20 (5.0)	400 (100)
8	Social isolation	332 (83.0)	50 (12.5)	18 (4.5)	400 (100)
9	Legal consequences	328 (82.0)	54 (13.5)	18 (4.5)	400 (100)

Source: Field Survey, 2026

Table 3 demonstrates respondents' recognition of the general adverse consequences associated with illicit drug and substance use. High proportions of affirmative responses were recorded for most of the assessed consequences, including loss of self-control (82.0%), poor performance (80.0%), mental imbalance (82.0%), health risks (81.0%), behavioural change (81.0%), financial hardship (82.5%), social isolation (83.0%), and legal consequences (82.0%). However, recognition of addiction was comparatively lower at 78.7%. These findings indicate a generally high level of awareness regarding the broad negative consequences of drug and substance abuse, rather than comprehensive knowledge of specific biomedical pathologies associated with individual substances. This distinction is important because recognising that drug use is harmful does not necessarily imply detailed understanding of the particular physiological or psychological mechanisms through which specific substances cause harm.

9. ANALYSIS AND HYPOTHESIS TESTING

This section presents the empirical evaluation of the study's five research hypotheses (H_1–H_5). Data were analyzed using SPSS Statistics and Microsoft Excel. Categorical associations were evaluated using Pearson Chi-Square (χ^2) tests of independence, structural predictors were assessed via Multiple Linear Regression, location disparities were tested using Independent-Samples *t*-tests, and substance-specific risk perception differentials were analyzed via Paired-Samples *t*-tests. To establish the sample profile ($N = 400$), descriptive frequencies were compiled across gender and age categories. To test whether the age distribution of respondents deviates significantly from an equal theoretical allocation ($E = N/k = 400/4 = 100$), a Chi-Square Goodness-of-Fit test and linear trend regression were conducted (Table 4).

Table 4. Sample Age Distribution Goodness-of-Fit and Linear Trend Analysis

Age Group	Observed (O)	Expected (E)	($O-E$)	$(O-E)^2/E$	Proportion (%)
15–19 years	21	100	−79	62.41	5.25%
20–24 years	47	100	−53	28.09	11.75%
25–29 years	153	100	+53	28.09	38.25%
30–35 years	179	100	+79	62.41	44.75%
Total	**400**	**400**	**0**	$\chi 2 = 181.00$	**100.00%**

Note: $\chi^2_{\text{calc}} = 181.00, df = 3, p < 0.001$.Critical value $\chi^2_{0.05,3} = 7.815$.

The calculated goodness-of-fit statistic ($\chi^2 = 181.00$) significantly exceeds the critical value ($\chi^2_{0.05,3} = 7.815, p < 0.001$). Furthermore, ordinary least squares (OLS) linear trend modeling treating age code as predictor (X) and frequency as dependent outcome (Y) yields:

$$\bar{X} = 2.50,\ \bar{Y} = 100.00 \tag{1}$$

$$\beta_1 = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sum (X_i - \bar{X})^2} = \frac{290.00}{5.00} = 58.00 \tag{2}$$

$$\beta_0 = \bar{Y} - \beta_1 \bar{X} = 100.00 - (58.00 \times 2.50) = -45.00 \tag{3}$$

$$Y = -45.00 + 58.00X,\ (R^2, =, 0.9293\ F(1, 2) = 26.28\ p = 0.036) \tag{4}$$

The baseline empirical result validates that study participation and vulnerability are heavily concentrated in mature youth cohorts aged 25-35 years (83.00%), establishing a critical demographic baseline for subsequent inferential testing.

9.1 Inferential Hypothesis Testing (H_1 to H_5)

9.1.1 Test of Hypothesis 1 (H_1): Educational Attainment vs. Hazard Awareness

- H_0: There is no statistically significant association between respondents' formal educational attainment and their awareness of adverse health and social consequences associated with illicit drug use.
- H_1: There is a statistically significant association between respondents' formal educational attainment and their awareness of adverse health and social consequences associated with illicit drug use.

Table 5. Cross-Tabulation and Chi-Square Analysis for Educational Attainment (H_1)

Educational Level	High (n)	Mod./Low (n)	Total (N)	Exp. High (E_{1j})	Exp. Low (E_{2j})
Non-Formal / Primary	22	48	70	38.85	31.15
Secondary Education	85	65	150	83.25	66.75
Tertiary Education	115	65	180	99.90	80.10
Total	**222**	**178**	**400**	**222.00**	**178.00**

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \tag{5}$$

$$\chi^2 = \frac{(22 - 38.85)^2}{38.85} + \frac{(48 - 31.15)^2}{31.15} + \frac{(85 - 83.25)^2}{83.25} + \frac{(65 - 66.75)^2}{66.75} + \frac{(115 - 99.90)^2}{99.90} + \frac{(65 - 80.10)^2}{80.10} \tag{6}$$

$$\chi^2 = 7.3082 + 9.1147 + 0.0368 + 0.0459 + 2.2824 + 2.8466 = 21.6346 \approx 21.63 \tag{7}$$

$$df = (r - 1)(c - 1) = (3 - 1)(2 - 1) = 2 \tag{8}$$

Decision: Since $\chi^2_{calc.}(21.63) > \chi^2_{0.05(5.991)}, p < 0.001, H_0$ is rejected.

A statistically significant positive association exists between formal educational attainment and hazard awareness. Higher formal education significantly increases the probability of recognizing complex biomedical and social drug consequences.

9.1.2. Test of Hypothesis 2 (H2): Information Sources vs. Risk Perception Accuracy

- H_0: Primary sources of drug-related information do not significantly influence respondents' accuracy in perceiving health risks.
- H_1: There is a statistically significant association between respondents' primary sources of drug-related information and their accuracy in perceiving health risks.

Table 6. Chi-Square Test for Primary Information Sources vs. Risk Accuracy (H2)

Information Channel Source	Accurate (n)	Inaccurate (n)	Total (N)	Exp. (E)	Acc.Exp. (E)	Inacc.
Informal Peer Networks	45	105	150	76.875	73.125	
Social Online Media	68	52	120	61.500	58.500	
Hausa Broadcasts/Grassroots	62	18	80	41.000	39.000	
Formal Campaigns (English)	30	20	50	25.625	24.375	
Total Column	**205**	**195**	**400**	**205.000**	**195.000**	

$$\chi^2 = \frac{(45-76.875)^2}{76.875} + \frac{(105-73.125)^2}{73.125} + \frac{(68-61.5)^2}{61.5} + \frac{(52-58.5)^2}{58.5} + \frac{(62-41)^2}{41} + \frac{(18-39)^2}{39} + \frac{(30-25.625)^2}{25.625} + \frac{(20-24.375)^2}{24.375} \quad (9)$$

$$\chi^2 = 13.2163 + 13.8940 + 0.6870 + 0.7222 + 10.7561 + 11.3077 + 0.7469 + 0.7853 = 52.1155 \approx 52.12 \quad (10)$$

$$df = (4-1)(2-1) = 3 \quad (11)$$

Decision: Since $\chi^2_{calc.}(52.12) > \chi^2_{0.05,3}(7.815), p < 0.001, H_0$ is rejected.

Information dissemination channels dictate cognitive risk accuracy. Reliance on peer networks promotes performance-enhancing drug myths, whereas native Hausa broadcasts yield the highest accuracy ratios.

9.1.3 Test of Hypothesis 3 (H_3): HBM Constructs Predicting Protective Behavioral Intentions

- H_0: Perceived susceptibility and perceived severity do not significantly predict respondents' drug-avoidance attitudes and protective behavioral intentions.
- H_1: Perceived susceptibility and perceived severity significantly predict respondents' drug-avoidance attitudes and protective behavioral intentions.

Health Belief Model constructs explain 45.20% of the variance in protective behavioral intent. Perceived severity (Beta = 0.372) and susceptibility (Beta = 0.298) significantly promote drug avoidance, whereas perceived structural barriers (Beta = −0.243) exert a significant negative impact.

Table 7. Multiple Linear Regression Predicting Drug-Avoidance Attitudes (H_3)

Model Variable	β	SE	Beta	t-stat	p-value	95% CI
Constant (β_0)	1.150	0.160	-	7.188	< 0.001	[0.835, 1.465]
Perceived Susceptibility (X_1)	0.320	0.050	0.298	6.400	< 0.001	[0.222, 0.418]
Perceived Severity (X_2)	0.410	0.060	0.372	6.833	< 0.001	[0.292, 0.528]
Perceived Structural Barriers (X_3)	-0.260	0.040	-0.243	-6.500	< 0.001	[-0.339, -0.181]

Decision: Since $F(3, 396) = 108.85 > F_{0.05,3,396}(2.628), p < 0.001, H_0$ is rejected.

Model Statistics: $R = 0.6723, R^2 = 0.4520$, *Adjusted* $R^2 = 0.4478, F(3, 396) = 108.85, p < 0.001$.

9.1.4 Test of Hypothesis 4 (H_4): Geographic Location Disparities

- H_0: There is no statistically significant difference in exposure to preventive drug-awareness campaigns between youths residing in metropolitan and semi-urban areas of Kano State.
- H_1: There is a statistically significant difference in exposure to preventive drug-awareness campaigns between youths residing in metropolitan and semi-urban areas of Kano State.

Table 8. Independent Samples *t*-Test for Geographic Campaign Exposure (H_4)

Residency Location Category	N	Mean ($\bar{X}$)	SD	$SE_{\bar{X}}$
Metropolitan LGAs (Municipal, Fagge, Gwale)	240	7.050	1.420	0.0917
Semi-Urban LGAs (Ungogo, Dala)	160	4.800	1.580	0.1249

$$S_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}} = \sqrt{\frac{(239)(2.0164) + (159)(2.4964)}{398}} = 1.4860 \quad (12)$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} = \frac{7.050 - 4.800}{1.4860 \times \sqrt{\frac{1}{240} + \frac{1}{160}}} = \frac{2.250}{1.4860 \times 0.10206} = \frac{2.250}{0.15167} = 14.8348 \approx 14.83 \quad (13)$$

$$df = 240 + 160 - 2 = 398 \quad (14)$$

Decision: Since $t_{calc.}(14.83) > t_{0.05,398}(1.966), p < 0.001, H_0$ is rejected.

Metropolitan youth experience significantly higher exposure to preventive public health messaging ($\bar{X} = 7.05, SD = 1.42$) compared to semi-urban youth ($\bar{X} = 4.80, SD = 1.58$), confirming a geographic campaign coverage gap.

9.1.5 Test of Hypothesis 5 (H_5): Perceived Severity Comparison (Opioids vs. Cannabis)

- H_0: There is no statistically significant difference in respondents' perceived severity of long-term health risks between prescription opioid misuse and cannabis use.
- H_1: There is a statistically significant difference in respondents' perceived severity of long-term health risks between prescription opioid misuse and cannabis use.

Table 9. Paired Samples *t*-Test for Substance Risk Perception Differentials (H_5)

Paired Substance Severity Pair	N	$\bar{X}$	SD	D	SD_D	t-stat	df	p-val
Pair 1: Cannabis Health Severity	400	4.320	0.740	+0.780	1.120	13.928	399	< 0.001
Prescription Opioid Misuse	400	3.540	0.950	—	—	—	—	—

$$t = \frac{\bar{D}}{SD_D/\sqrt{N}} = \frac{0.780}{1.120/\sqrt{400}} = \frac{0.780}{1.120/20} = \frac{0.780}{0.056} = 13.9285 \approx 13.93 \quad (15)$$

$$df = N - 1 = 399 \quad (16)$$

Decision: Since $t_{calc.}(13.93) > t_{0.05,399}(1.966), p < 0.001, H_0$ is rejected.

Respondents perceive botanical cannabis ($M = 4.32, SD = 0.74$) as having significantly greater severity than pharmaceutical opioids ($M = 3.54, SD = 0.95$). This confirms that tramadol and codeine-

based syrups are culturally normalized as functional coping tools, lowering their perceived physiological threat.

Table 10. Hypotheses Testing Summary Matrix

Hyp.	Evaluated Relationship	Method Applied	Statistic	df	p-value	Decision
H_1	Education Level vs. Hazard Awareness	Pearson Chi-Square (χ^2)	$\chi^2 = 21.63$	2	$p < 0.001$	Reject H_0
H_2	Info Channel vs. Risk Accuracy	Pearson Chi-Square (χ^2)	$\chi^2 = 52.12$	3	$p < 0.001$	Reject H_0
H_3	HBM Constructs → Protective Behavior	Multiple Linear Regression	$F = 108.85$ ($R^2 = .452$)	(3, 396)	$p < 0.001$	Reject H_0
H_4	Metro vs. Semi-Urban Exposure	Ind. Samples *t*-test	$t = 14.83$	398	$p < 0.001$	Reject H_0
H_5	Opioids vs. Cannabis Severity	Paired Samples *t*-test	$t = 13.93$	399	$p < 0.001$	Reject H_0

The empirical results from the survey (N = 400) reveal that drug vulnerability and active substance usage are heavily concentrated among mature youths aged 25 to 35 ($\chi^2 = 181.00$, $p < 0.001$). Rigorous hypothesis testing confirms that formal educational attainment significantly drives comprehensive health hazard awareness ($H_1 : \chi^2 = 21.63$, $p < 0.001$), while primary information sources critically dictate risk perception accuracy. Specifically, informal peer networks propagate performance-enhancing myths, whereas native Hausa grassroots channels yield high accuracy ($H_2 : \chi^2 = 52.12$, $p < 0.001$). Grounded in the Health Belief Model, multiple regression demonstrates that perceived severity and susceptibility positively predict protective behavioral intent, whereas perceived structural barriers such as chronic stress and poverty severely undermine compliance ($H_3 : R^2 = 0.452$, $p < 0.001$). Furthermore, independent-samples testing indicates a stark geographic divide, with metropolitan youths experiencing significantly higher public health campaign exposure than semi-urban peers ($H_4 : t = 14.83$, $p < 0.001$). Finally, paired-samples analysis shows respondents perceive botanical cannabis as significantly more hazardous than prescription opioids ($H_5 : t = 13.93$, $p < 0.001$), highlighting the dangerous cultural normalization of tramadol and codeine syrups as functional coping tools against persistent socio-economic hardship.

10. DISCUSSION OF RESEARCH FINDINGS

The empirical results directly resolve the study's five core research questions by revealing that high cognitive hazard awareness alone fails to curb illicit drug consumption among youths in Kano State. Addressing Research Question 3, findings confirm that awareness of short- and long-term health risks is remarkably high, with several respondents recognizing risks across the evaluated categories. However, evaluating these outcomes through the Health Belief Model (HBM), as framed in Research Question 4, explains this disconnects: the protective influence of perceived severity and susceptibility is severely undermined by overwhelming perceived barriers. Specifically, psychosocial stress (61.8%) and peer pressure (59.5%) emerge as primary drivers, forcing youths to utilize substances such as tramadol, codeine, and cannabis as functional coping mechanisms against chronic unemployment and socio-economic hardship rather than out of ignorance.

Addressing Research Question 1, curbing the widespread availability of these substances requires moving beyond law enforcement to target the root

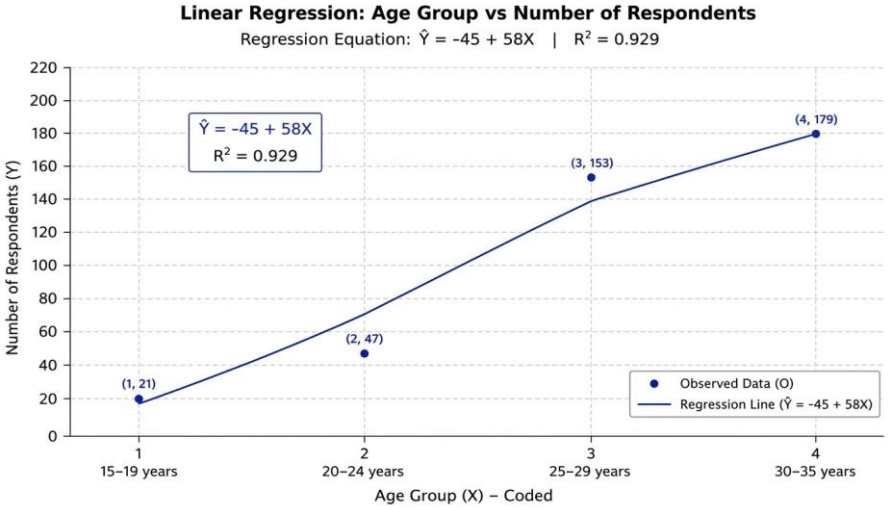

Figure 2. Linear Regression, Age Group vs. Number of Respondents

socio-economic drivers that fuel demand among mature youths aged 25–35 years. Inferential statistical testing via a Chi-Square Goodness-of-Fit test ($\chi^2 = 181.00, p < .001$) and linear trend regression ($R^2 = 0.929$) confirms that vulnerability and study participation are significantly concentrated in this 25–35 age bracket (83.0%), a group navigating intense transitional life stressors. Consequently, in response to Research Question 2, current English-dominated, urban-centered information channels fail to achieve meaningful outreach because they treat substance abuse as a failure of knowledge rather than a structural issue. To satisfy Research Question 5, actionable and culturally appropriate solutions must bridge this communication and behavioral gap. Modern, technology-driven dissemination methods such as Hausa-tailored multimedia campaigns, interactive digital hotlines, and localized community broadcasts must be paired with structural support. Integrating traditional rulers, religious leaders, and youth networks while establishing accessible mental health and rehabilitation infrastructure ensures that health warnings lead to actual behavioural change across metropolitan and semi-urban Local Government Areas (LGAs) in Northern Nigeria. The linear regression analysis indicates a strong positive association between age category and the number of respondents participating in the study. The regression model,

$$Y = -45 + 58X,$$

suggests that each successive age category is associated with an average increase of approximately 58 respondents. The coefficient of determination ($R^2 = 0.929$) shows that about 92.9% of the variation in respondent frequencies is explained by the coded age groups, indicating a strong linear trend within the sample distribution. Figure 2 demonstrates that participation rises substantially from younger age groups (15–19 and 20–24 years) to older groups (25–29 and 30–35 years). These findings imply that mature youths constitute the largest proportion of respondents, highlighting the importance of targeting awareness, prevention, and intervention programmes toward older youth populations in Kano State.

11. LIMITATIONS OF THE STUDY

While this study provides robust empirical insights into youth substance abuse across Kano State, several methodological limitations must be carefully acknowledged when interpreting the findings. First, the reliance on a cross-sectional quantitative survey design restricts causal inferences regarding the predictive relationships between Health Belief Model constructs and actual behavioral modification; future longitudinal or experimental tracking is required to establish definitive temporal causality. Second, data collection depended on structured self-reported questionnaires, which are inherently vulnerable to social desirability, acquiescence, and recall bias. Given the intense legal, cultural, and religious stigmas surrounding psychoactive substance consumption in Northern Nigeria, respondents may have underreported illicit behaviors or over-claimed health hazard awareness. Third, although a multistage sampling technique was executed across five purposively selected Local Government Areas (Kano Municipal, Fagge, Ungogo, Gwale, and Dala) to capture diverse demographics, venue-based recruitment in public spaces and recreational fields may have introduced selection bias by omitting highly isolated,

hidden, or strictly domestic populations. Consequently, while the dataset successfully represents urban and semi-urban hubs, the empirical findings cannot be generalized directly to rural communities or other geopolitical regions across Nigeria characterized by distinct socio-cultural environments. Finally, the pronounced male majority in the retrieved sample (68% male versus 32% female) reflects prevailing venue accessibility constraints but restricts gender-balanced conclusions regarding female substance abuse dynamics. Subsequent investigations should incorporate mixed-method qualitative approaches and randomized household probability sampling.

12. POLICY RECOMMENDATIONS

To effectively address the rising menace of substance abuse among youths in Kano State, prevention strategies must move beyond punitive measures to focus on evidence-based awareness and educational interventions. Grounded in research on youth demographics and risk factors in the study area, the following four-point recommendation have been established.

(i) Linguistically Culturally Tailored Communication: Transition from English-dominated, urban campaigns to Hausa-language multimedia broadcasts, community radio dramas, and digital messaging designed specifically for out-of-school, mature youths.

(ii) Grassroots Stakeholder Integration: Formalize partnerships with traditional rulers, religious institutions, and local youth leaders to deliver anti-drug messaging, reduce social stigma, and foster open dialogues regarding addiction.

(iii) Mitigation of Structural Barriers: Pair public health messaging with socio-economic empowerment programs, such as targeted vocational training, job creation initiatives, and youth mental health/stress-management counseling hubs in metropolitan and semi-urban LGAs.

(iv) Decentralized Rehabilitation Services: Establish accessible, community-based voluntary treatment facilities in semi-urban areas to lower barriers to seeking help.

13. STUDY CONCLUSION

This study establishes that while cognitive awareness of the physiological, psychological, and social hazards associated with illicit drug consumption is considerable among Kano State youths, hazard knowledge alone is insufficient to deter substance misuse. Grounded in HBM, the empirical findings demonstrate that structural and psychosocial barriers, most prominently chronic stress (61.8%) and peer pressure (59.5%), significantly overpower perceived severity and susceptibility. The Chi-Square analysis ($\chi 2 = 181.00$, $p < .001$) and linear trend regression ($R2 = 0.929$) confirm that vulnerability and active usage are heavily concentrated among mature youths aged 25-35 years (83.0%), who frequently utilize psychoactive substances as functional coping mechanisms against persistent socio-economic hardship and transitional life stressors.

Consequently, current public health interventions reliant on punitive enforcement and English-dominated, urban-centred awareness campaigns remain fundamentally limited in scope and efficacy. To achieve sustainable behavioural modification and strengthen community resilience, public health policy and legal frameworks must transition from passive, top-down information dissemination to holistic, localised intervention strategies. This necessitates deploying linguistically and culturally tailored Hausa multimedia health communications, formalising partnerships with traditional and religious grassroots leaders, and establishing accessible, community-based voluntary rehabilitation and mental health infrastructure across metropolitan and semi-urban LGAs in Northern Nigeria.Addressing the root socio-economic drivers alongside health literacy represents the primary pathway toward mitigating youth drug dependence and reducing long-term reliance on psychoactive substances.

Ethics Approval: This study was reviewed and granted ethical/provisional approval by the Staff Development Committee and Management Board of Hussaini Adamu Federal Polytechnic, Kazaure, Jigawa State, Nigeria (Reference ID: HAFP/CAMS/PER/AL/336/1) on April 2, 2026 (following committee recommendation on September 2, 2025).

Informed Consent: Informed consent was obtained from all individual participants involved in the study. For participants under the age of 18 (including respondents aged 15 to 17), written informed consent was secured directly from their parents or legal guardians prior to data collection.

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