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Use of Social Media Campaigns against Substance Abuse among Chemistry Undergraduate Students of the University of Lagos

Atinuke Olubukade Akintayo[1], Mobolaji Grace Akintaro[2], Sunday Ogbonna[3], Isiotan Oluwaseun Fadilat[4]
[1,2,3,4] *Department of Mass Communication, Caleb University, Imota, Lagos State, Nigeria*

Abstract

This study examines the effectiveness of social media campaigns against substance abuse among Chemistry undergraduate students at the University of Lagos (UNILAG). Substance abuse remains a significant threat to the academic performance, mental health, and long-term social outcomes of Nigerian undergraduates, and social media has emerged simultaneously as a risk chasnnel and a prevention tool. Guided by four objectives, the study adopted a descriptive survey design with a quantitative approach. The population comprised undergraduate students of the Department of Chemistry, UNILAG (2024/2025 session, estimated at 600 students). The Taro Yamane (1967) formula was used to determine a sample size of 240, and a stratified proportionate random sampling technique was applied across the four academic levels. A structured questionnaire measuring exposure, awareness, attitudes, perceived campaign effectiveness, and limiting factors was administered; 200 of 242 distributed copies were retrieved and analysed (response rate = 82.6%) using SPSS descriptive statistics. The theoretical framework integrated the Health Belief Model (HBM), Social Learning Theory (SLT), and the Uses and Gratifications Theory (UGT). Findings revealed high exposure to anti-drug campaigns ($\bar{x}$ = 3.74) and strong awareness of substance abuse risks ($\bar{x}$ = 3.96) among respondents. Campaign exposure positively shaped attitudes toward drug-free living ($\bar{x}$ = 3.83) and was perceived as generally effective ($\bar{x}$ = 3.77), yet active engagement with campaign content remained comparatively lower than passive exposure. Peer influence, exposure to pro-drug content, and insufficiently engaging campaign formats emerged as the leading barriers to effectiveness. The study concludes that social media is a high-visibility, high-awareness channel for anti-drug communication among science undergraduates, but translating exposure into sustained behavioural change requires more interactive, peer-led, and platform-optimised strategies. Recommendations include integrating digital literacy into curricula, empowering peer leaders, and deploying targeted, gender-responsive content on Instagram, TikTok, and WhatsApp, alongside longitudinal and experimental research to evaluate long-term impact.

Keywords
Substance abuse; exposure; social media campaign; health communication; anti-drug campaign; UNILAG

I. Introduction

Substance abuse is one of the foremost global health challenges confronting young people, driven by social pressures, curiosity, and untreated mental health difficulties, and it contributes significantly to premature death and disability among youth (Chen et al., 2025). In Nigeria, cannabis remains the most abused substance, with prevalence highest among the 25–39 age bracket, while opioids such as codeine-based syrups and tramadol,

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methamphetamine, and alcohol are also widely misused (Agency, 2022). The United Nations Office on Drugs and Crime classifies West Africa, and Nigeria in particular, as both a transit point and a consumption hub for illicit drugs (Crime, 2020). Within Nigerian university environments, peer influence, socio-economic pressure, and limited awareness of drug effects combine with academic and social stress to elevate students' vulnerability, with consequences ranging from addiction and declining academic performance to criminal involvement and dismissal (Johnson et al., 2017).

Social media occupies a paradoxical position in this landscape. On one hand, algorithm-driven platforms can expose vulnerable students to drug-glorifying content; on the other, government agencies such as the National Drug Law Enforcement Agency (NDLEA), civil society organisations, university health units, and student advocacy groups increasingly use the same platforms to disseminate prevention messages (Agberotimi & Olumuji, 2025; Bello & Areola, 2024; Akintayo & Aondover, 2025). With Nigerian undergraduates reporting several hours of daily social media use (Omokhabi et al., 2025; Success et al., 2026), a critical question arises as to whether these competing forces of exposure and prevention actually reach students, and whether the anti-drug messages that do reach them are perceived as credible and effective.

Existing research on this question has largely examined the general undergraduate population, leaving a gap with respect to Chemistry students, whose scientific training in pharmacology and chemical compounds may shape how they process drug-related health messaging in distinct ways. This study addresses that gap by examining, among Chemistry undergraduates at UNILAG: (i) how frequently they are exposed to anti-drug campaigns on social media; (ii) the extent to which social media is used to build awareness of substance abuse; (iii) their perceptions of campaign effectiveness in discouraging drug use; and (iv) the factors that limit campaign effectiveness within this cohort. The findings are intended to guide UNILAG management, the NDLEA, the Federal Ministry of Health, the National Universities Commission (NUC), and communication practitioners in designing more evidence-based, targeted anti-drug campaigns, while also contributing to the broader national discourse on digital health communication in Nigeria (Oji & Erubami, 2020).

The study is delimited to blended-learning undergraduates (100–400 level) in the Department of Chemistry, Faculty of Science, UNILAG, and examines exposure to anti-drug content across Instagram, X (formerly Twitter), Facebook, YouTube, and WhatsApp within the twelve months preceding data collection (Success & Maiwada, 2026). It measures self-reported awareness, attitudes, perceptions, and behavioural intentions rather than observed behavioural change, which would require a longitudinal design beyond the present scope.

II. Review of Literature

2.1 Substance Abuse Among Nigerian Undergraduates

Substance abuse, or substance use disorder, is clinically defined as the harmful or hazardous pattern of psychoactive substance use (Crime, 2016), diagnosed dimensionally in the DSM-5 based on criteria such as craving, loss of control, social impairment, and risk (American Psychiatric Association, 2013; Msughter & Iman, 2020). Substances abused by Nigerian undergraduates fall into three broad categories: alcohol and cannabis, which are normalised, low-cost, and widely available (Azeke & Azeke, 2026); pharmaceutical opioids such as codeine-based cough syrups and tramadol (Okuchemiya & Majority, 2025) and more potent illegal drugs such as methamphetamine, cocaine, and heroin, which are less common but carry the most severe health consequences (Akintayo & Ajayi, 2024).

Urban Nigerian university environments, including UNILAG's surrounding high-density neighbourhoods of Yaba, Surulere, and Mushin, have become hubs for drug distribution networks, complicating prevention efforts (Toyosi, 2020). Risk is multi-determined: individual factors such as sensation-seeking and poor emotional regulation (Okafor & Nwachukwu, 2020), peer influence — shown to increase the odds of substance use sixfold among students with substance-using friends (Chukwuemeka & Nwosu, 2024) — and structural factors such as poverty and inadequate mental health support (Okafor & Nwachukwu, 2020) all combine to elevate risk. The consequences span academic decline, absenteeism, and dropout (Adekeye et al., 2018), as well as neurological, cardiovascular, and social harms.

2.2 Social Media and Anti-Drug Campaigns

Nigeria leads Africa in absolute internet and social media users, with undergraduates reporting five to seven daily hours of use, and Instagram, TikTok, and WhatsApp as the most-used platforms (Adeyemi & Olawale, 2023; Owens-Ibie & Aondover, 2024). For UNILAG students, social media functions as the primary channel for information, cultural expression, and social interaction (Adesanya & Oluwole, 2024), creating a structurally embedded opportunity for health communication (Airaoje et al., 2025).

A social media campaign is a deliberately planned and executed set of communication activities across platforms, distinguished from incidental posting by its intentional targeting, defined timeframe, and measurable objectives. Anti-drug campaigns typically pursue awareness, attitudinal, or behavioural goals (Wakefield et al., 2010), and their effectiveness has been linked to message framing, visual and video-based storytelling, influencer partnerships, hashtag activism, audience segmentation, and interactive formats such as polls and challenges (Okonkwo & Eze, 2023). Video-based content in particular drives significantly higher engagement than static or text-only posts on Nigerian platforms (Adesanya & Oluwole, 2024). Student influencers and campus figures are also found to be more trusted and memorable messengers than official institutional or government accounts (Aondover et al., 2025; Akintaro et al., 2026), while institutional campaigns from bodies such as the NDLEA tend to achieve wide compliance but sometimes lower resonance than citizen-led or hybrid campaigns (Kontinen & Ndidde, 2022).

2.3 Empirical Evidence on Campaign Outcomes

Empirical studies consistently associate social media use with increased drug-related awareness, with correlational evidence linking greater platform use to higher levels of drug awareness among university students, particularly through the use of visuals, videos, and interactive features that communicate prevention information effectively (AlKhudari et al., 2023; Airaoje et al., 2025). A systematic review of 93 health communication campaigns found that most set awareness or individual behaviour-change objectives, primarily via

Facebook, X, Instagram, and YouTube, with effectiveness varying by platform, message design, and audience characteristics (Success et al., 2026). Gender also moderates outcomes: platforms differ in gender composition and amplification patterns (Akintayo et al., 2026), and Nigerian male students are more likely than females to drink in response to financial, interpersonal, and emotional stressors (Eze et al., 2020; Hile et al., 2022).

Despite awareness gains, translating exposure into behaviour change remains difficult. Barriers identified in the literature include algorithmic amplification of pro-drug content alongside prevention messaging (Olubiyi, 2022; Aribamikan, 2022), persistent peer influence and the normalisation of drug use in social settings, and campaign formats that fail to engage students accustomed to entertainment-oriented content (Kostygina et al., 2020). These findings collectively suggest that campaign reach is rarely the constraint; the harder challenge lies in converting passive exposure into sustained attitudinal and behavioural change (Maiwada et al., 2026).

2.4 Theoretical Framework

This study is anchored on three complementary theories. The Health Belief Model (HBM), developed by Hochbaum, Rosenstock, and Kegels and later expanded to include self-efficacy and cues to action, explains health behaviour through perceived susceptibility, perceived severity, perceived barriers, perceived benefits, self-efficacy, and cues to action. In this study, HBM frames how campaign messages about the academic, health, and social costs of substance abuse shape students' perceived susceptibility and severity, while messages about the benefits of a drug-free lifestyle serve as cues to preventive action (Maradun & Aondover, 2025).

Social Learning Theory (SLT), propounded by Bandura (1977), holds that behaviour is shaped through observation, modelling, and reciprocal interaction between the person, environment, and behaviour itself. Within this study, SLT explains how students who observe peers, influencers, and online role models publicly rejecting or endorsing substance use come to internalise corresponding attitudes through vicarious reinforcement (Awofadeju & Akintayo, 2023).

The Uses and Gratifications Theory (UGT), originating with Katz, Blumler, and Gurevitch (1974), holds that audiences actively select media to satisfy specific informational, social, or entertainment needs. UGT is used here to explain why passive exposure to anti-drug content does not automatically translate into active engagement: students who use social media primarily for entertainment or peer communication may scroll past health content that does not immediately gratify those needs, implying that effective campaigns must be designed around the gratifications students already seek from their preferred platforms (Akintayo et al., 2026).

III. Research Methods

The study adopted a descriptive survey research design with a quantitative, cross-sectional approach, appropriate for describing existing conditions, attitudes, and behaviours regarding campaign exposure and effectiveness at a single point in time (Bryman, 2016; Babbie, 2020).

The population comprised all undergraduate students (100–400 level) in the Department of Chemistry, UNILAG, during the 2024/2025 session, estimated at 600 students. Chemistry undergraduates were purposively selected because their scientific training in pharmacology and chemical compounds offers a distinct lens through which they may process drug-related health messaging, and because the 18–25 age cohort represents the peak epidemiological risk window for substance-use initiation (Jatau et al., 2021).

Sample size was determined using the Taro Yamane (1967) formula, $n = N / [1 + N(e^2)]$, where $N = 600$ and $e = 0.05$, yielding $n = 600 / (1 + 600(0.0025)) = 600 / 2.5 = 240$. A stratified proportionate random sampling technique was used, dividing the population into four strata by academic level and selecting respondents from each stratum by simple random balloting, thereby ensuring representation across all levels (Creswell, 2018).

Data were collected using a structured, self-administered questionnaire, the "Effectiveness of Social Media Campaigns against Substance Abuse among Chemistry Undergraduate Students of the University of Lagos Questionnaire" (ESMCSACUS), developed from relevant theoretical and empirical literature. The instrument comprised six sections: (A) demographic information; (B) exposure to social media anti-drug campaigns; (C) awareness of substance abuse risks; (D) attitudes toward substance abuse; (E) perceived effectiveness of social media campaigns; and (F) factors limiting campaign effectiveness. Sections B–F used a four-point Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1); the omission of a neutral midpoint was deliberate, to reduce central tendency bias and compel directional responses (Kusmaryono et al., 2022).

Content and face validity were established through expert review by the project supervisor and Mass Communication research specialists. A pilot test among 20 students outside the sample assessed internal consistency via Cronbach's Alpha, with a coefficient of 0.70 or above considered acceptable (Cruchinho et al., 2024; Akintaro et al., 2026). Data were coded and analysed in SPSS using frequency counts, percentages, means, and standard deviations, with a criterion mean of 2.50 used to determine agreement or disagreement with each statement.

IV. Result and Discussion

4.1 Response Rate and Demographic Profile

Of 242 questionnaires distributed, 200 were retrieved and found valid for analysis, a response rate of 82.6% — well above common social-science benchmarks (Cummings et al., 2020). Female students constituted the majority of respondents (118, 59.0%) against 82 males (41.0%), reflecting UNILAG Chemistry's enrolment pattern. Most respondents (48.0%) were aged 20–24 years, consistent with the typical Nigerian undergraduate age range and the peak developmental window for substance-use experimentation (Arnett, 2000). Respondents were reasonably distributed across academic levels (100 level = 21.0%, 200 level = 29.0%, 300 level = 23.5%, 400 level = 26.5%). WhatsApp (37.0%), Instagram (26.0%), and TikTok (17.0%) were the most frequently used platforms.

4.2 Exposure to Anti-Drug Campaigns

Table 1 summarises responses on exposure to anti-drug campaigns (Section B). All items exceeded the criterion mean of 2.50, with an overall mean of 3.74 (SD = 0.91), confirming that Chemistry undergraduates are highly exposed to anti-drug campaign content, most visibly from the NDLEA ($\bar{x}$ = 3.94). Active engagement with campaign content recorded the lowest mean in this section ($\bar{x}$ = 3.55), indicating that passive exposure outpaces deliberate interaction.

Exposure Item	Mean	SD
I have seen NDLEA anti-drug campaigns on social media	3.94	0.84
I frequently encounter anti-drug campaigns on social media	3.82	0.91
Anti-drug messages regularly appear on my social media feeds	3.76	0.87
I often watch or read content related to substance abuse prevention online	3.71	0.92
Anti-drug campaigns are visible on the platforms I use most	3.68	0.95
I actively engage with anti-drug campaign content online	3.55	0.98
Overall Mean	3.74	0.91

4.3 Awareness of Substance Abuse Risks

Table 2 presents responses on social media's role in building awareness (Section C). All items exceeded the criterion mean, with an overall mean of 3.96 (SD = 0.85). "Social media has increased my awareness of substance abuse issues" recorded the highest mean (4.12, SD = 0.76), confirming social media's substantial role as an accessible source of health information for this cohort.

Awareness Item	Mean	SD
Social media has increased my awareness of substance abuse issues	4.12	0.76
Social media campaigns help me understand the dangers of drug abuse	4.08	0.82
I have learned about health consequences of drug abuse through social media	3.97	0.89
Social media provides useful information about substance abuse prevention	3.91	0.84
Anti-drug campaigns have improved my knowledge of drug-related risks	3.88	0.86
Social media campaigns help students recognize harmful substances	3.79	0.91
Overall Mean	3.96	0.85

4.4 Attitudes and Perceived Campaign Effectiveness

Attitudinal items (Section D) yielded an overall mean of 3.83 (SD = 0.87); exposure to anti-drug campaigns was most strongly associated with viewing substance abuse negatively ($\bar{x}$ = 3.94), while campaign messages' motivational effect on healthier choices scored lowest ($\bar{x}$ = 3.71). Perceived effectiveness items (Section E) yielded an overall mean of 3.77 (SD = 0.92); campaigns' wide reach was rated highest ($\bar{x}$ = 3.92), while the comparative superiority of social media over traditional awareness methods scored lowest and showed the widest variation in opinion ($\bar{x}$ = 3.58, SD = 1.02).

4.5 Factors Limiting Campaign Effectiveness

Table 3 ranks the eight barriers assessed (Section F), all of which exceeded the criterion mean, yielding an overall mean of 3.82 (SD = 0.87).

Limiting Factor	Mean	SD	Rank
Peer influence reduces campaign effectiveness	4.12	0.74	1st
Too much pro-drug content exists on social media	4.05	0.78	2nd
Anti-drug campaign messages are not engaging enough	3.94	0.82	3rd
Social media distractions reduce attention to messages	3.88	0.85	4th
Students do not trust some campaign sources	3.72	0.91	5th
Anti-drug campaigns are not frequent enough	3.68	0.93	6th
Lack of personal relevance causes students to ignore messages	3.61	0.96	7th
Many students ignore anti-drug campaigns on social media	3.54	0.99	8th

4.6 Discussion

The high exposure recorded in this study ($\bar{x}$ = 3.74) aligns with the structural embeddedness of social media in Nigerian undergraduates' daily routines and the dominance of WhatsApp as a peer-to-peer information channel (CLN, 2023). However, the gap between exposure and active engagement ($\bar{x}$ = 3.55) is best explained through the Uses and Gratifications Theory: students who log on primarily for entertainment or socialising may scroll past prevention content that does not satisfy those immediate needs, so campaigns must be redesigned around interactive challenges, polls, and entertainment-education formats to convert exposure into engagement (Kasirye, 2022).

The strong awareness outcomes ($\bar{x}$ = 3.96) affirm social media's capacity to build the cognitive foundation for preventive health behaviour. Interpreted through the Health Belief Model, these gains represent successful cultivation of perceived susceptibility and severity — necessary, though not by themselves sufficient, preconditions for attitude and behaviour change. The positive attitudinal shift recorded ($\bar{x}$ = 3.83) is consistent with Social Learning Theory: when students observe peers or student influencers publicly rejecting substance use, they internalise these attitudes through vicarious reinforcement and observational learning, corroborating evidence that peer-modelled anti-drug content produces measurable attitudinal change (Evans et al., 2020).

Perceived effectiveness findings ($\bar{x}$ = 3.77) confirm confidence in social media's reach and utility, though the comparatively muted endorsement of its superiority over traditional methods ($\bar{x}$ = 3.58, the highest variance in the dataset) suggests students still value face-to-face counselling and institutional health services as complementary, not replaceable, components of prevention strategy.

Among the barriers, peer influence ranked first ($\bar{x}$ = 4.12), echoing evidence that UNILAG students with substance-using peer networks are six times more likely to use substances themselves (Chukwuemeka & Nwosu, 2024); when substance use becomes embedded in a peer group's identity and rituals, abstaining can be perceived as social exclusion, making campaign messages alone insufficient to overcome conformity pressure. The second-ranked barrier — pro-drug content on social media ($\bar{x}$ = 4.05) — confirms the dual-edged nature of these platforms (Olubiyi, 2022; Aribamikan, 2022): the same

algorithms that distribute prevention messages also amplify drug-glorifying content through influencer culture and viral trends, a structural challenge that organic content alone cannot resolve and that instead requires paid targeting, strategic influencer partnerships, and cross-platform coordination. The third-ranked barrier, insufficiently engaging content ($\bar{x}$ = 3.94), again reflects the selective, gratification-driven media consumption predicted by UGT.

V. Conclusion

Social media functions as a high-visibility channel for anti-drug campaigns among UNILAG Chemistry undergraduates, achieving high exposure and strong awareness of substance abuse risks, and cultivating moderately positive attitudes toward drug-free living. However, exposure alone does not constitute effectiveness: active engagement lags behind passive exposure, and campaign impact is constrained by a multi-layered set of social (peer influence), structural (algorithmic amplification of pro-drug content), and content-related (insufficient engagement value) barriers. Bridging the gap between awareness and sustained behavioural change requires campaigns that are more interactive, peer-anchored, and platform-optimised.

Based on these findings, the study recommends that: (1) higher institutions in Lagos integrate digital and social media literacy into their general studies curricula; (2) health agencies and universities disseminate targeted information on commonly abused substances and coping strategies; (3) guidance and counselling units be adequately staffed to conduct regular, gender-sensitive sensitisation and counselling; (4) the Federal and State Ministries of Education strengthen collaboration with the NDLEA on social-media anti-drug campaigns aimed at youth; (5) parents provide early and continuous education on the dangers of substance abuse; (6) peer leaders be equipped and empowered to deliver anti-drug messages, reframing drug use as inconsistent with positive peer norms; (7) universities create interactive learning environments (problem-based learning, mentoring, peer groups) that strengthen students' cognitive engagement; (8) students be trained in confident refusal skills to counteract peer pressure; (9) policymakers apply the Health Belief Model to identify gaps between released health messaging and public reception, in order to continuously refine campaign strategy; and (10) universities produce targeted, relatable content for the platforms students use most — Instagram, TikTok, and WhatsApp.

The study is limited by its cross-sectional design, which captures self-reported awareness, attitudes, and intentions rather than observed behaviour change, and by its focus on a single department, which may limit generalisability beyond Chemistry undergraduates. Future research should pursue longitudinal designs to track sustained impact over time, comparative multi-department or multi-institutional studies, content analyses of existing NDLEA and student-produced campaigns, experimental designs enabling stronger causal inference, qualitative studies capturing the mechanisms linking exposure to attitude change, and research examining how platform algorithms filter anti-drug content across user categories.

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