

Promoting Sustainable Behavioral Change in the Non-Medical Use of Medications among University Students: Integrating the Persuasive Communication Model and Herbal-Based Alternatives

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ABSTRACT

Background

University students practice self-medication as a coping mechanism to combat academic stress, which rises to significantly high proportions during tests and examination periods. Self medication describes the self-administration of medication for the treatment of minor ailments or self-recognised symptoms, as a form of self-care while medication misuse on the otherhand, refers to the use of medication in a manner inconsistent with medical guidelines or prescription; including but not limited to incorrect doses or for recreational uses associated rather than therapeutic reasons. Medication misuse and abuse continue to constitute a public health concern globally. Responsible self-medication is a global practice that involves the use of medications to alleviate the symptoms of minor ailments. Despite the merits of convenience, such as shorter wait times to get medical attention or prescriptions and cost savings, it poses health risks such as misdiagnosis, incorrect dosages, adverse drug interactions, drug-food interactions, and antimicrobial resistance. This study assessed the situation of medication misuse amongst university undergraduates in Nigeria. Medication misuse is influenced by different factors and is found in association with vices and risky sexual behaviours, particularly in adolescents and young adults. The persuasive communication model has found relevance in behavioral health changes and is proposed by this study to build sustainable, positive change in attitudes towards medication misuse in institutions of higher learning. The University of Lagos, located in Southwestern Nigeria, served as the study setting.

Methods

A descriptive research design, employing one-on-one in-depth interviews, was used to collect data from 20 respondents. Data saturation was reached at the 13th participant. Data was analysed using thematic analysis.

Results:

The study revealed the factors associated with medication misuse on the university campus: age, family income, socioeconomic status, gender, peer influence, and ease of access to medications. Based on findings, the use of a persuasive communication model is recommended as a theoretical approach over the Yale Attitude Change Model and Theory of Planned Behaviour, to mitigate medication misuse among university students is discussed. The use of Chamomile tea, a herbal tea, which has been investigated for its potential anxiolytic effects is perceived to be a better alternative rather than medication misuse. A focus on increased sensitization by university management to the dangers of medication misuse and corresponding responsible action by students is recommended. This study contributes to the call for targeted interventions on university campuses aimed at discouraging medication misuse among university students as well as sustaining the positive impact on students' health and lifestyle.

Key-words: Medication misuse, Self-medication, adolescents, young adults, university students, persuasive communication model

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INTRODUCTION

Medication misuse among adolescents and young adults (AYA), including a rising use of alcohol, has become a growing public health concern worldwide, with a rising prevalence of mental illnesses with significant consequences for physical health, academic performance, and long-term well-being (Parizad et al., 2025). According to Ma & Zhang (2025), self-medication refers to individuals using over the counter (OTC) medications to manage self-diagnosed health issues or symptoms without professional medical guidance. This suggests that although OTC medications are generally considered safe and effective, significant knowledge gaps and safety risks persist among AYA when using these drugs. This calls for the need to address the knowledge gaps and safety risks associated with self-medication. Within institutions of higher learning, students, are increasingly exposed to environments that encourage experimentation, self-medication, and peer-influenced behaviours. Medication and substance use commonly occur in adolescents and young adults, as alluded to by Danpanichkul et al. (2025). Medication misuse patterns pose significant risks, including overdose, dependency, mental health complications, and negative social consequences. Different factors have contributed to and implicated in the rise in medication misuse by students these include academic pressure and desire for cognitive enhancement, ease of access to prescription and over-the-counter medications, positive attitude toward self-care, , misconceptions about the safety of self-medication and socioeconomic status. (Ma& Zhang, 2025; Tushar & Kersbergen, 2024).

Many prevention efforts have had a limited impact on raising awareness of the dangers of medication misuse due to gaps in effective communication strategies, including a lack of innovative community-based initiatives that leverage multi-sectoral collaboration (Ogbodu, 2024; Maha et al., 2024). Effective prevention efforts in Africa are often rooted in cultural practices, peer education programs, and community structures, as evidenced by research showing that these strategies not only reduce substance use but also foster resilience and promote healthy lifestyle choices among AYA (Maha

et al., 2024).

Different authors have described that peer education programs as effective in addressing medication and substance use in AYA because they are trained to educate their peers about the risks of substance use and ways to avoid it. This approach is effective as an agent of change because adolescents are more likely to listen to and trust their peers, as positive peer influence is a critical factor in considering effective intervention efforts (Deep et al., 2024; Demirezen et al., 2019). The use of culturally relevant messages and relatable experiences to convey the adverse effects of medication misuse by peer educators makes prevention efforts more impactful, with the added advantage of empowering young people by giving them a sense of responsibility and leadership in their communities, encouraging them to take responsibility for their health and lifestyle choices.

Traditional health education campaigns often rely on one-way dissemination of information, failing to address the psychological, social, and environmental factors that shape young people's attitudes. The AYA, during this period, have a strong inclination toward experimentation, curiosity, susceptibility to peer pressure, rebellion against authority, and poor self-worth and perceived invincibility, which makes such individuals vulnerable to medication misuse (Degenhardt et al., 2016). This suggests that effective interventions must go beyond information provision to engage the audience in ways that resonate with their values, motivations, and lived experiences, which validates the use of communication models that explore and incorporate lived experiences to achieve and sustain health behaviour change in AYA.

Communication plays a pivotal role in promoting sustainable behaviour change across various domains, including environmental conservation, public health, and social justice initiatives. This is because effective communication strategies can inform, educate, and inspire individuals and communities to adopt behaviours that are conducive to long-term sustainability (Udoudom et al., 2023).

Persuasive communication is a solution proposed to promote positive health behaviour and different persuasive communication models that serve as guiding theoretical frameworks, grounded in theories such as the Elaboration Likelihood Model, Yale Attitude Change Model, Social Cognitive Theory, and Theory of Planned Behaviour, which offer a promising approach to influencing health behaviour change (Upreti & Sharma, 2022), will be

briefly described. The theories proposed by these scholars describe the use of persuasive communication models as a strategy for promoting positive health behaviour change among the target audience should be made available to health educators and professionals. This study will be applying an existing persuasive communication as a proposed solution and a conceptual framework will be presented.

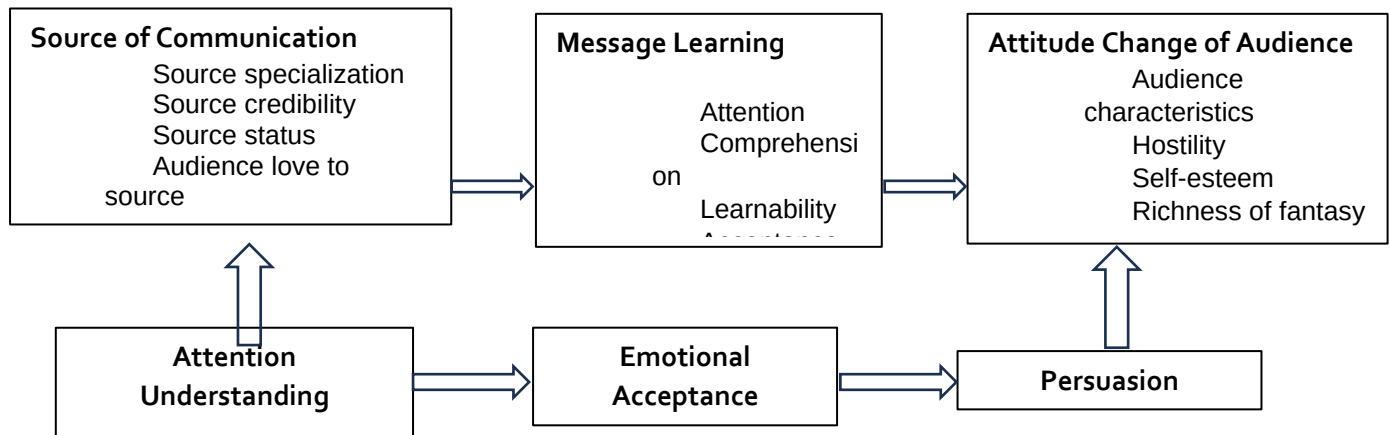


Fig 1. Yale Persuasive Communication Model (adapted from (Upreti & Sharma, 2022; Perloff, 2003; Corcoran, 2007)

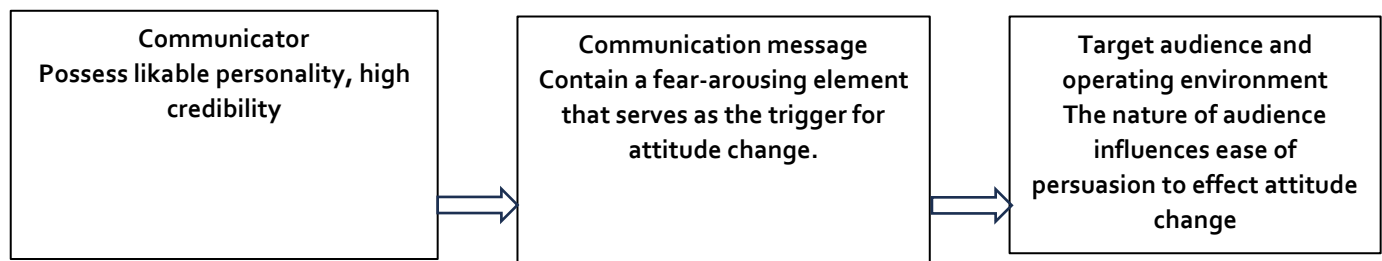


Fig 2. Concept of Persuasive Communication (adapted from Akinsola, 2002).

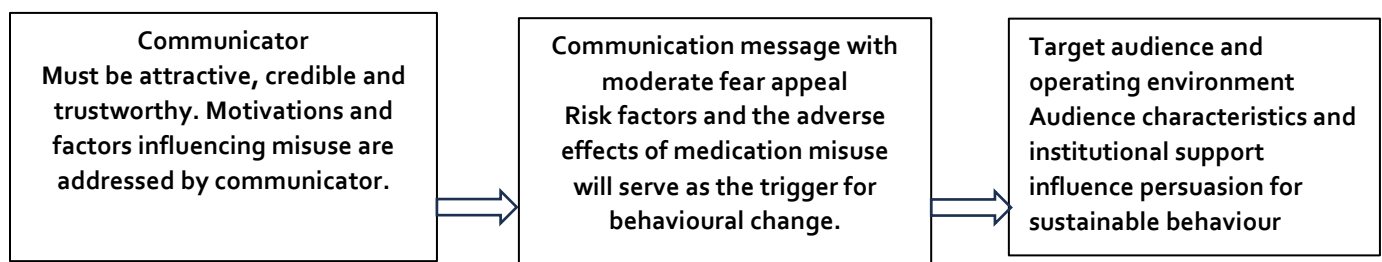


Fig 3. Persuasive Communication Conceptual framework for current study

Persuasive communication models emphasize message tailoring, the credibility of the communicator, and the emotional and cognitive engagement of the audience, as well as strategic

framing to influence attitudes and behaviours of the audience (Koch, 2024; Zimba, 2022). When carefully designed, persuasive messages can challenge misconceptions and guide young individuals toward



healthier choices. According to Zimba (2022), most public education interventions tend to overlook the significance of audience characteristics in defining an awareness campaign, suggesting that public health education can have a more effective impact when informed by well-tested and established principles of behavioural sciences. Cassell et al. (2010) advocated for the design and evaluation of Internet-based interventions aimed at promoting health behaviour change, alluding to the theoretical rationale for utilizing the Internet to conduct persuasive public health interventions for maximum and sustainable impact. This suggests that the persuasive qualities of interpersonal communication make it a prime candidate for applying key behavioural science theories and principles to promote healthier behaviours among target populations for which interventions are designed.

A recent scoping review supports the assertion that a healthy lifestyle persuasive design model, which utilises persuasive messages, is necessary for achieving enduring behaviour change towards healthier lifestyles (Kang et al., 2024). Correspondingly, different authors have described the use of persuasive design principles to encourage users to adopt and maintain healthy eating habits by providing feedback and rewards, highlighting how the use of appropriate persuasive messages can guide people to develop and maintain a healthy lifestyle (Aldenaini et al., 2020, Asbjørnsen et al. (2020) and Salim et al (2017). The behaviours of students is rooted in different factors which includes psychological factors that are many intervention efforts do not take cognisance of. Existing studies in medication misuse prevention often neglect the factors, including psychological factors, that underpin students' attitudes and behaviours (Nawi et al., 2021; Trucco, 2020).

In the context of medication misuse, persuasive communication offers a means of developing targeted interventions that effectively convey risks while empowering students to make informed decisions (Ogbodu, 2024). Institutions of higher learning, as structured environments with unique cultural and social dynamics, are ideal settings for implementing such targeted communication

strategies. By leveraging peer networks, digital platforms, and interactive educational programs, persuasive communication can promote sustainable, positive shifts in attitudes.

Motivations for Medication Misuse by Adolescents and Young Adults (AYA) on university campuses: Medications frequently misused by university students include over the counter and prescription medications, as well as energy drinks. Different factors, ranging from academic pressure, male gender, socioeconomic status, to ease of access to prescription and over-the-counter medications, a positive attitude toward self-care, misconceptions about the safety of self-medication, and the desire for cognitive enhancement, increased the risk of medication misuse among AYA (Ma & Zhang, 2025; Tushar & Kersbergen, 2024).

Persuasive Communication Model – the use of persuasive communication to effectively communicate and affect health behaviour change among a population has been described by different authors. A comprehensive persuasive communication model may provide a structured framework for generating meaningful change, ensuring that interventions are not only impactful in the short term but also sustainable over time. This study describes the motivations underpinning medication misuse by AYA and suggests the use of a persuasive communication model as a vehicle for fostering sustainable positive change in attitudes toward medication misuse among AYA in institutions of higher learning. This research aims to provide valuable insights into developing more effective and targeted behavioural health interventions on university campuses.

Research questions

1. What are the motivations for medication misuse by adolescents and young adults on the university campus?
2. Can a persuasive communication model as a health behaviour model be developed and utilized to build sustainable positive change in attitudes toward medication misuse among adolescents and young adults in institutions of higher learning?



2.0 Methodology

For this study, a descriptive research design was used. Semi-structured interviews were conducted to collect data from participants and audio-recorded with permission from the participants. Data was analysed using thematic analysis.

2.1 Study setting

This study was conducted at the University of Lagos, one of Nigeria first generation universities situated in Nigeria's urban centre, located in Akoka, Lagos State. The institution of Lagos (Unilag) is a research institution funded by the federal government. The university offers courses in key faculties, including Arts, Education, Law, Management Sciences, and Sciences. Undergraduate students enrolled at the University of Lagos are housed in 13 on-site campuses, with six designated for male undergraduate students and seven for female undergraduate students (Aluko, 2011).

2.2 Study population and sampling

The study population consisted of all undergraduate students aged between 18 and 23 years old who were registered for the 2017/2018 academic year. The sample consists of undergraduate students who were purposively selected for the qualitative study, utilizing the inclusion and exclusion criteria outlined below. For this study, a sample size of 20 participants was envisaged, and data saturation was reached after the 13th participant.

2.3 Inclusion criteria

The following were taken into consideration during sampling:

- Participant must be a registered male or female undergraduate student living on the on-site campus aged 18-23.
- Each participant must belong to at least one of the disciplines: the humanities, sciences, and arts.

2.4 Exclusion criteria

- Students unregistered at the University of Lagos for the 2017/2018 academic year were excluded from the study.

2.5 Data collection instrument

A pre-tested, semi-structured interview guide,

which was used to gather data, served as a guide to help participants stay focused on the study's objectives.

2.6 Pre-test of data collection instrument

The interview guide was pre-tested at the Federal College of Education, Akoka, another institution of higher learning located in the same local government area as the University of Lagos. The pre-test of the interview guide improved the responses obtained using the data collection instrument.

2.7 Data collection

Data collection was completed in six weeks. Each interview lasted no longer than forty minutes and was held at the residence hostels on the University of Lagos campus. The interviews were audio-recorded. Participants' informed consent to participate in the study was obtained in writing after the researcher provided the study objectives.

2.8 Data analysis

The data were analyzed using thematic content analysis involving a six-step process:

1. Familiarization: Read through the data to become deeply familiar with its content.
2. Generating codes: Systematically go through the data and identify interesting features or patterns by assigning labels or "codes".
3. Generating themes: Collate and group the codes to look for overarching patterns and broader themes.
4. Reviewing themes: Review the potential themes to ensure they are coherent, distinct, and accurately reflect the data.
5. Defining and naming themes: Clearly define what each theme is about and give it a concise name.
6. Writing the report: Write a detailed report of the analysis, including the themes and the evidence from the data that supports them.

2.9 Ethical Approval

Approval for this study was granted by the UNISA College of Human Sciences Ethics Committee (approval number: REC-012714039). The Dean of the Student Affairs Division at the University of Lagos

granted access to the campus residence halls. Pseudonyms were used to identify participant responses, promoting anonymity. The participants gave their written consent for the interview to be recorded by the researcher.

3.0 RESULTS

The demographic profile of the 13 participants is

shown in Table 1. Female participants comprised 53% of the population (n=7); a third of the participants were first-year students, while 30% were final-year students, and the majority identified as Christian. Four major themes emerged from the interviews, along with their corresponding sub-themes and verbatim quotes shown in Table 2.

Table 1: Demographic profile of study participants (n=13)

Variable	Descriptor	Frequency	Percentage
Gender	Female	07	53%
	Male	06	47%
Ethnic group	Yoruba	07	54%
	Igbo/Delta (South-South)	03	23%
	Hausa	03	23%
Religion	Christianity	08	62%
	Islam	05	38%
Level of Study	First year	05	38%
	Second year	02	15%
	Third year	02	15%
	Fourth year	04	30%

Table 2: Themes and Sub-themes

S/N	Themes	Sub-themes
1	Motivations for medication misuse by adolescents and young adults on university campuses.	Self-care: To manage minor ailments, physical pain, relieve anxiety/stress, or improve sleep. Recreational use: To get high, experience a thrill, or for experimentation. Performance enhancement: To improve academic or athletic performance. Social reasons: To fit in with peers or as part of a social activity.
2	Factors influencing medication misuse	Parents' income, gender, shorter wait times at the school health centre, poor attitude and support from lecturers, ease of access to medications, and lack of medication misuse risk awareness, poor quality and inadequate housing for student hostel accommodation,
3	Risks associated with medication misuse by adolescents and young adults	Overdose and dependency Health and social consequences – mental health



- | | | |
|---|--|--|
| 4 | Suggestions on the mitigation measures for medication misuse by adolescents and young adults | Digital media platforms, use of role models and peer network, Emotional and psychological support from family and lecturer-student relations, enhancing awareness about the risks associated with medication misuse, perceived use of traditional methods of stress alleviation, such as herbal teas such as Chamomile tea as coping strategies. |
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Theme 1 - Motivations for medication misuse by adolescents and young adults on university campuses.

This study found different motivations for medication misuse by AYAs as described by the participants, ranging from self-care, improved academic performance, and social reasons.

Self-care

Participants reported that students indulge in self-medication as a self-care measure to manage physical pain, relieve anxiety, stress, or improve sleep during examination periods and academic sessions."

Recreational use and social reasons

"Living on campus, students are influenced by their peers to experiment with non-prescribed medications to get high, fit in, or have a sense of belonging or experience a thrill."

Academic performance enhancement

".....actually, as students, it seems a good idea to use medication to stay awake for longer hours to study so that you can improve your academic performance, so students resort to it to stay awake and keep their energy levels up."

"The heavy consumption of energy drinks by students should be discouraged, their health is adversely affected, the adverts compel drinking but are silent on the side effects".

Theme 2 - Factors influencing medication misuse by adolescents and young adults on university campus
Factors such as parents' income, shorter wait times to get medical attention or prescriptions, gender, ease of access to both OTC and prescription medication, and poor awareness of medication misuse risk were revealed by this study.

Parents' income

"Honestly, students from rich homes engage more in medication misuse; they have the money to spend".

Poor awareness of medication misuse risk

"On this campus, students use medications

indiscriminately without a formal prescription. It seems like students are ignorant of the risks associated with medication misuse and self-medication"...

Gender

This study revealed that males engage more in medication misuse for academic performance improvement and for social reasons of experimentation and fitting in.

"The boys want to be seen as big boys on campus, want acceptance by peers, so they use medications that they obtain from their colleagues and peers".

"In the boys' hostels, many boys use medications that make them stay awake for longer hours to study, but the girls, on the other hand, use painkillers as a self-care measure.

Ease of access to over-the-counter and prescription medications

The ease of access to both prescription and over-the-counter medications by students due to a poor regulatory framework in the country was corroborated by responses such as:

"Medications are often available as leftovers in medicine cabinets in homes, so new, formal prescriptions are not always obtained to access them".

Shorter wait times to get access to health services

Participants stated that the long wait times at the university health centre discourage them from using the health centre, so self-medication is a faster option.

"With a heavy academic workload in school, there is no time to be in a long queue at the Health Centre to complain about minor ailments, I will rather go to a pharmacy or a patent medicine store where I get almost immediate attention and service".

Poor attitude and support from lecturers

The attitude of some lecturers encourages absenteeism by students, which was described as a predisposing factor, leading students to resort to missing lectures and medication misuse to relieve anxiety and sleep disorders from long study hours and academic workload.



"Some lecturers make remarks and derogatory comments that make students skip classes. Statements such as, grade A in this course belongs to God no matter the efforts you put in, other grades from B are for students due to your absenteeism".

Poor quality and inadequate housing for student hostel accommodation

According to the participants, poor and inadequate housing facilities contributed to stress and anxiety in addition to academic workload.

"It is hectic sharing the hostel with squatters due to admitted students exceeding available accommodation facilities. There is hardly a quiet time in the room to rest properly without disturbance".

Theme 3 - Risks associated with medication misuse by adolescents and young adults on university campus

Overdose and dependency

The misuse of medications such as cough syrups, benzodiazepines, or stimulants can lead to a fatal overdose, and this is particularly dangerous when combined with alcohol or other substances. Furthermore, several participants perceived that university students face a wider range of dangers from energy drinks due to caffeine dependence.

"Students misuse and abuse Lexotan and Valium frequently to manage anxiety and stress associated with academic stress".

"On campus, regular medication misuse with cough syrups containing codeine has led to physical or psychological dependence and long-term struggles with addiction".

Health and social complications

Medication misuse can trigger or exacerbate underlying mental health conditions like anxiety and depression or may contribute to severe psychological distress and self-harm risk."

Theme 4 - Suggestions on the mitigation measures for medication misuse by adolescents and young adults

This theme focuses on the suggestions from participants on medication misuse mitigation strategies following their responses to the factors influencing medication misuse. The following suggestions were proposed: effective use of digital media platforms, role models and peer networks, providing emotional and psychological support from

family and lecturers, and enhancing awareness and sensitization among university management.

Digital media platforms

The participants recommended the use of digital media platforms. The participants shared their opinions on the impact of digital media on AYAs.

"Social media influences the youth of nowadays to a great extent and can be used as an important avenue to correct vices and other negative behaviours such as medication misuse".

Role models and peer networks

Role models such as mentors and celebrities can influence and sustain positive behaviours in AYAs, particularly positive peer influence

".....celebrities on social media are role models to many students and can influence positive behaviours".

Emotional and psychological support from family and lecturer-student relations

"Emotional stability, derived largely from family and loved ones, supports a student who is failing in school to reduce anxiety and academic stress".

"A supportive lecturer aids class attendance by students and promotes healthy reading habits with positive remarks and sharing life experiences during lectures".

Enhancing awareness about the risks associated with medication misuse

Intentional sensitization and campaign efforts by the university management to discourage medication misuse, influence, and sustain positive behavioural change in AYAs were emphasized by the participants.

"Actually, the management is providing counseling and even rehabilitating students involved in medication misuse and substance abuse. But I think that they can still adopt more strategies to reduce misuse and abuse more on the university campus".

"Virtual routine sensitization about medication misuse risks can be embraced in addition to orientation programs at the beginning of academic semesters. This will increase information dissemination and might improve student participation".

Good use of traditional methods of stress alleviation as coping strategies

Participants described the use of herbal teas as a perceived alternative coping strategy rather than medication misuse with anxiolytics.

"My own experience was that I stopped using sleeping



tablets for anxiety when I discovered Chamomile tea, the tea relaxes me, and I sleep well after stressful hours of studying”.

“I used to have trouble falling asleep, often caused by tension, overwork, and mental strain, especially at night, until my doctor recommended taking herbal teas”.

4.0 Discussion of Findings

For context, the emergent themes from this study will be discussed in the light of the major elements of the Persuasive communication model: Communicator, Message and Audience (operating environment). Themes 1, 2 and 4; motivations and factors influencing medication misuse and suggestions of the use of celebrities and alternative coping strategies align with the Communicator element of the model. A communicator with an attractive and likeable personality that is trustworthy is able to influence behaviour change in AYAs. This reinforces the power of media, social media and traditional advertising messages and platforms. Theme 3; risks and side effects associated with medication misuse aligns and informs the second model element of the communication Message which must contain a moderate fear component that pulls the audience's attention and persuades/influences behaviour change. Themes 2 and 4 align with the Audience and Operating environment elements of the persuasive communication model. Theme 2 describes the factors that influence medication misuse by students, the target audience. An understanding of the personality and environmental factors that influence undesirable medication misuse behaviour will aid in the design of effective and compelling communication messages that will appeal and persuade behaviour change that can be sustained with reinforcing messages. Theme 4, suggestions on mitigation measures aligns with the model element of Operating environment. The operating environment involves largely the role of government in regulating the ease of access to medications and university management in providing information, education and communication materials to support alternative coping strategies.

Theme 1 - Motivations for medication misuse by adolescents and young adults on university campuses.

In the current study, the identified motivations were self-care, recreational use, and academic performance enhancement. These findings agree with similar studies where managing minor ailments, relieving physical pain, and improving sleep quality and recreational use have also been described as motivators for the non-medical use of medications by university students (Monnet et al., 2022; Bennett & Holloway, 2017). The use of recreational drugs as cognitive enhancers is documented by these studies. Adetayo et al. (2023) noted that peer pressure, coupled with the desire to achieve academic success, can lead students to experiment with and, in some cases, develop dependencies on various substances. The use of prescription and over-the-counter medications, as well as energy drinks, to stay alert, reduce fatigue and improve academic performance was described. Energy drinks, beverages containing caffeine as the main ingredient, are marketed to quickly increase alertness and performance in consumers. The key drivers for these patterns in university students are a combination of high-pressure academic workload, easy access to medications and a desire for immediate, convenient solutions to health issues as a form of self-care or self-help. The primary motivation for university undergraduates to consume energy drinks is to increase energy and enhance academic performance, with little or no regard for the consequent side effects, as adverse effects did not deter continued use among the students (Almalak et al., 2013). The connection between self-medication, medication misuse among university students and persuasive communication theory is rooted in the way students are influenced by external messages; commercial, digital and social. University students experience high academic pressure that creates a desire high-performance and time-saving solutions with online advertising and information from online sources as powerful persuasive tools, highlighting source credibility and media influence. Persuasive communication theory in the context of factors such as peer influence, social media and traditional media have an influence on how medication misuse is perceived as a normal, desirable behaviour by students.

The perception of such use as a desirable behaviour



resulting from persuasion from colleagues and advertisement have been described by studies from African countries. In Uganda and Nigeria, the perception of convenience and time-efficiency, peer influence and easy access to medications were adduced as factors responsible for the positive perception (Ikwara et al., 2024; Bello 2021). The need for an improved regulation of the sale of medications, both OTC and prescription, will curtail medication misuse through restricted access. Furthermore, the use of social media for health-related information has been described to significantly affect self-medication practice and knowledge of medicine risks on university campuses in Nigeria, alluding to the important role of persuasion in the design of campaign communication messages to reinforce positive behaviour and incorporating student engagement for effectiveness. Substantial evidence from research exists suggesting that the marketing strategies by manufacturers of energy drinks utilise emotional appeals and digital advertising that associate the drinks with increased mental and physical performance. However, the risks that energy drinks pose to health are incredibly hazardous, including poor sleep quality in AYAs and are rarely mentioned in the advertisements (Riera-Sampol et al., 2022).

Theme 2 – Factors influencing medication misuse: Risk and promotive factors

Parents' income, gender, shorter wait times at the school health centre, support from lecturers, ease of access to medications, and lack of medication misuse risk awareness, poor quality, and inadequate housing for student hostel accommodation.

Parents' income: self-medication and non-medical use of medications were reported to be more common among students from high-income households (Maili et al., 2023), as found in the current study.

Male gender, as found in this study for heavy users of stimulants and cough syrups, with female students consuming more painkillers, and availability, including quality of accommodation, are stated as determinants of non-medical use of medications by university students (Al Husaini & Shukor, 2022).

Long wait times at the school health centre have

been described by studies globally as a contributor to the non-medical use of medications as a self-care strategy. Independent studies conducted in Egypt and Canada have revealed lengthy wait times, contributing to poor uptake of health services among university students who perceive their health needs as unmet and experience psychological distress (El-Khawaga et al., 2025; Landry et al., 2023).

Support from parents and lecturers

Parents play a critical role in shaping the lives of their children and wards, both psychologically and emotionally. This highlights the significant role of supportive parental behaviors and family interventions in shaping adolescent development and coping with life experiences, such as academic failure (Demirci, 2024). Parents play a crucial role in modeling good character in their adolescent children. Ogbodu, Adekola, Thupayagale-Tsweneagae, and Onisuru (2023) and Al Husaini & Shukor (2022) emphasized the importance of family support, noting that parents remain a formidable force in their children's lives and serve as good role models, representing a significant factor in the lives of adolescents. Odutayo et al. (2024) assert that establishing trusting and supportive relationships with their students fosters open communication and a sense of trust, which in turn increases student engagement and motivation. This is why lecturers should prioritise developing these relationships. Correspondingly, the need for targeted interventions through social support and lecturer-student interaction is essential for improving students' academic outcomes (Olayiwola-Adedola et al., 2025).

Ease of access to medications and a lack of awareness about the risks of medication misuse

Different scholars have identified determinants and predisposing factors that contribute to the non-medical use of medications by university students, often having limited knowledge of associated risks and a lack of awareness (Kawuma et al., 2023; Orayj et al., 2021). Targeted interventions and measures are essential to improve the awareness of the risks associated with non-medical use of medications to discourage students from continuing to misuse them.

Theme 3 - Risks associated with the misuse of



medication by AYAs

Overdose and dependency – the dangers associated with cough and cold medications containing codeine include overdose, addiction amongst adolescents, and fatal respiratory depression have been reported (Abdulraheem, 2021; Chua & Conti, 2021).

Health and social consequences - Physical, psychological, social, and financial harms associated with indiscriminate use of OTC medicines, including hospitalisation and death, have been reported (Algarni et al., 2021).

Theme 4 - Suggestions on the mitigation measures for medication misuse by adolescents and young adults. The communication of risks associated with non-medical use of medications through persuasive communication messages can be embraced to influence attitude change and sustain the change. Cassell et al. (2010) advocated for the design and evaluation of Internet-based interventions aimed at promoting health behaviour change, alluding to the theoretical rationale for utilizing the Internet to conduct persuasive public health interventions for maximum and sustainable impact.

Even though social media is being used to normalise substance use (Adindu et al., 2024). Nonetheless, social media platforms may find some relevance in discouraging some social vices such as smoking, drinking alcohol, and medication misuse. These platforms can be used to positively influence students and emphasize the importance of developing good study habits and life skills training, rather than resorting to medication to improve concentration and alertness (Ogbodu et al., 2023).

Use of role models and celebrities as ambassadors for positive attitude modeling, sustained change, and peer networks.

The study participants opined that mentors, role models, and celebrities could serve as ambassadors and change agents for modeling positive attitudes

and promoting sustained change in AYAs. Upreti & Sharma (2022) and Akinsola (2002) align with the postulation that persuasive communication models are viable strategies for health behavior change, with an emphasis on a high degree of attitude change if the communicator of the message possesses personal attributes admired by AYAs. Alluding to the significance of peer networks, Baroni et al. (2023) posit that a positive relationship with peers and oneself is associated with decreased medication misuse and that risky behaviors such as substance abuse and alcohol intake are linked to medication misuse. The use of persuasive communication frameworks to explore how human health behaviours are intended to change and be sustained has been described by different authors (Upreti & Sharma, 2022; Corcoran, 2007; Perloff, 2003; Akinsola, 2002). Richard Perloff systematically explores the impact of persuasive communications on attitude change in health. These authors describe the various elements of persuasive communication models relevant to influencing and sustaining positive attitudinal change regarding medication misuse among AYAs. Upreti and Sharma (2022) and Perloff (2003) described the Yale Attitude Change Model of Persuasive Learning as a theory-driven approach, which asserts that attitude change occurs gradually, unfolding in a series of steps. This model includes three sets of factors: the source of communication, message learning, and attitude change of the audience, which enables reaching the target audience to effect an intended attitude. Correspondingly, Akinsola (2002) posits that there are three components of persuasive communication useful as a vehicle for attitude change, namely Communicator, Communication message, Target audience, and the operating environment (See Table 3 below).

Table 3: Components of Persuasive Communication Models recommended in this study	
Yale Attitude Change Model by Upreti & Sharma (2022)	Concept of Persuasive Communication by Akinsola (2002)
Source of communication; fundamental traits: authority, credibility, and social attractiveness.	Communicator - with a likable personality, high credibility, and influence, who meets his audience at their level of reasoning



Message learning – the message must pull the audience’s attention and must be comprehensive and learnable	Communication message - what should be said, how it should be said, and relevance to a target audience. It should contain a fear-arousing element that serves as the trigger for attitude change.
Attitude change of the audience - Personal traits of the audience play a significant role in influencing their readiness to be persuaded.	Target audience and operating environment - the nature of the audience also plays a role in how easily the target audience is persuaded to effect attitude change.

Increased awareness and sensitization by university management

An educational intervention aimed at improving knowledge, awareness, attitudes, and practices regarding the rational use of medications among university students is documented (Al Kubaisi, 2020). A need for deliberate, intentional, and transformational changes and shifts from long-held practices of medication misuse and abuse is established by this study and requires measures to be undertaken by university management and liaison with the Ministry of Education. Furthermore, improving the awareness of medication abuse and misuse has been described as an antidote to medication misuse and abuse (Al-Worafi, 2020), with institutional measures impacting academic success through the creation of awareness of the dangers of self-medication, medication misuse, and the effect on the health, society, and nation at large. Good use of traditional methods of stress alleviation as coping strategies

Embracing a good use of identified traditional stress alleviation methods to cope with academic stress, such as the intake of calming tea rather than medication misuse with anxiolytics. Naeem et al. (2023) assert that chamomile and lavender are now being used because of their sedative properties, for their action on the nervous system, and to help with insomnia. Correspondingly, chamomile has been clinically proven to have significant anxiolytic activity, decrease stress, and has been proven to help people sleep better (Kazemi et al., 2024). Participants suggested the use of herbal teas as an alternative coping strategy to managing academic and mental stress. Participants suggested the use of herbal teas as alternative coping strategies Young adults and adolescents ought to be encouraged to take natural herbal teas to relieve insomnia and

combat anxiety, instead of engaging in non-medical use of medication to deal with sleep disorders and anxiety challenges as a result of academic workload.

5.0 Conclusions and Recommendations

This study describes the motivation for the non-medical use of medications by AYAs, factors associated with such use, and risks associated with such use, including medication misuse among university students. The development of concise, persuasive communication messages that convey the negative health and social effects of misuse and abuse, and the frequent dissemination of these messages through AYA platforms, print and online media, and university campus campaigns, is advocated as a means to sustain attitude change. Study findings will expand knowledge and strengthen the capacity of policymakers and relevant stakeholders to design effective communication messages and programs that are sustainable, improving the health of AYAs at institutions of higher learning. Specific and targeted health policies regulating the advertisement of energy drinks, or, better yet, a review of the benefits and associated health risks, are warranted. Additionally, regulatory review may be warranted to protect the health of AYAs. Regulatory review may be warranted to protect the health of AYAs.

Recommendations

This study recommends the use of digital platforms and targeted persuasive communication messages to discourage medication misuse among AYAs and sustain positive behaviour change towards responsible medication use on university campuses. An enabling environment, fostered by executive management on university campuses, will support and sustain the positive impact of routine sensitization and awareness campaigns. The study further advocates for a multi-stakeholder



collaboration among the Ministries of Health, Education, and Finance to develop and implement appropriate policies that will result in a positive shift in medication misuse among AYAs on university campuses. It is a collective call to action for all stakeholders in the respective ministries and executive management of universities to embrace the use of persuasive communication model to discourage the non-medical use of medications by students whilst building a sustainable positive behavioural change. This study proposes the use of persuasive communication model to promote and sustain positive behaviour by students, instead of merely promoting "rational use of medication," this model shifts the focus to "responsible stewardship" of safe, rational use of medications by the students. The use of clear, messages with moderate fear, communicating the risks associated with medication misuse must be embraced in the design of persuasive communication messages for effective and sustained behaviour change.

Limitations

The study was conducted at a Federal university located in Lagos, the southwestern part of Nigeria. Nonetheless, a dense description of the study setting and methodology was provided, supporting

transferability of the study findings and reproducibility.

Suggestions for Future Research

Further studies could compare public and private institutions of higher learning, as well as institutions across different geographical or socio-cultural contexts, to identify contextual factors that influence non-medical medication use and the effectiveness of preventive strategies. Furthermore, given the increasing reliance on social media among adolescents and young adults, future studies should investigate how digital platforms, influencers, and online communities contribute to either the promotion or prevention of non-medical use of medication.

6. Declarations

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