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PERCEIVED ASSOCIATED FACTORS WITH MEDICATION USE BY UNDERGRADUATE STUDENTS DURING EXAMINATION PERIODS: A QUALITATIVE STUDY

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ABSTRACT

The prevalence of self-medication among undergraduate students is a significant public health concern. The achievement of high academic performance by university students, who are largely adolescents and young adults underscores the importance of studying for long hours during examination periods. Adolescents, inclined towards risk-taking and experimentation of new behaviours due to adolescence often resort to self-medication, as part of a coping mechanism to deal with academic pressures; to prolong study hours during examination periods. This practice could increase health risks, reduce treatment efficacy, and increase the likelihood of adverse drug reactions. Using an adaptation of the precede-proceed model, we identified predisposing, reinforcing, and enabling factors influencing students' medication use during examinations. Through this qualitative and descriptive study at the University of Lagos with face-to-face in-depth interviews, involving 17 participants drawn from the student population on campus, parents and guardians resident on campus, we found age, gender, a weak regulatory framework, peer and family influence, beliefs, marketing, and role models to be contributing factors associated with the self-medication by students during examination periods. This underscores the need for context-specific guidelines to address these factors in the research setting.

Keywords: medications, self-medication, examination period, students, university

INTRODUCTION

The non-medical use of medication by university students is a significant public health concern (Mannasaheb et al 2021; Ogbodu et al., 2023). Additionally, evidence abounds of the significant rise in the inappropriate and irrational use of medications and self-medication, particularly among adolescents and young adults globally (Benotsch et al. 2014; Al-Qahtani et al. 2022). University undergraduates are largely adolescents, and young adults between ages 16 - 25. The adolescent stage remains a critical phase whereby there is the transition from childhood to adulthood and is characterized by a high propensity to

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take risks and experiments, such as the use of medications without a formal prescription by a medical practitioner otherwise referred to as self-medication. Academic success and the need to study for longer hours without distraction, amongst others, are required by students; hence, they resort to self-medication during examination periods (Okafor 2020; Almalak et al. 2014).

Rational use of medications plays a vital role in avoiding preventable adverse drug effects, maximizing therapeutic outcomes by promoting patient adherence, and minimizing the cost of drug therapy. It ensures effective disease management, patient safety, and avoids preventable adverse drug effects as it plays a crucial role in providing good health care services overall (Mekonnen, Ayalew, & Tegegn, 2022). According to these authors, the irrational use of medications is often observed in countries with weak healthcare systems Adigwe and Alfa (2014) stated also that the irrational use of medicine can lead to the waste of resources by patients, the community, and the country; with an increase in health hazards; treatment failure; and a lack of patient satisfaction.

Globally, self-medication (SM) is one of the major reasons for the irrational use of medicines among humans including adolescents, and self-medication practices are more frequently observed with OTC medication (Almalak et al. 2014; Albatti et al. 2016). Self-medication has been described as motivated by a perceived medical need and the use of medication in a manner inconsistent with the instructions for medical use, use of medication without prescription which can lead to medical consequences that might include dependence on such medications amongst other health concerns (Al-Ghamdi et al., 2020; Benotsch et al., 2014). Furthermore, SM is practiced every day as a part of self-care (Kayalvizhi & Senapathi, 2010). However, iimproper SM may result in various health issues, including reduced drug effectiveness, allergic reactions, interactions with other medications, overdose on food supplements, dependence, drug resistance, withdrawal symptoms, and numerous other health problems (WHO, 2012). Although over-the-counter (OTC) medications are designed for self-medication and have been shown to be effective and safe, serious medication responses and even deadly outcomes could result from this using them due to incorrect self-diagnosis, severe adverse reactions, improper administration, and dependence (Yismaw et al., 2023).

Most undergraduate students in Nigerian universities are usually within the transitory adolescent age range of 16–25 years (Oliha 2014; Akanbi et al. 2015; Adeyemo et al. 2016). The. Studies show that the high propensity to take risks among adolescents and young adults as undergraduates makes them prone to trying new behaviours and lifestyle patterns (Reid et al 2015; Muchena & Makotamo 2017). All of the developmental changes that adolescents experience prepare them for adulthood, and they very often experiment with new and usual behaviours. Students have

different motives for medication use during examination periods, including “to concentrate better while studying," “to improve study skills," and “to stay awake to study longer” (Ogbodu et al., 2023; Bennett & Holloway 2017; Peterkin, et al., 2011). These motives are influenced by individual and environmental factors. Hence, the need to identify, describe, and address the factors for improved pharmacovigilance of these medications to maximize the benefits of their usage with minimal risk.

Previous studies in Nigeria have investigated the effects of drug abuse on the academic performance of undergraduate students, the prevalence of self-medication practice among university undergraduates, and the evaluation of antibiotic self-medication among university undergraduates in Nigeria. (Akanbi, et al., 2015; Osemene & Lamikanra 2013; Olayemi et al. 2009) and the medications of interest ranged from antibiotics, antimalarials, pain killers to substances of abuse such as heroin, alcohol, and marijuana. Minimal studies exist on the use of medications by university students during examination periods in an institution of higher learning in Nigeria and the factors associated with such self-medication. The prevalence of self-medication among students in this university is 68% (Ogbodu et al 2023). The drugs used – analgesics, caffeine-containing painkillers, codeine-containing cough syrups, bromazepam, antibiotics, and antimalarials.

The major sources of stressors for students on this campus are the same as found in other universities – academic activities including lecture attendance, library visits, and long wait times at the university clinic when students fall ill. During examination periods, there is a higher academic pressure, to complete and submit assignments and the need to study for longer hours, and this results in an increase in self-medication practices by students. However, this current study sought to explore and describe the perceived factors associated with the use of medication by undergraduate students during examination periods at the University of Lagos. During examination periods, there is increased stress and pressure on the students for good academic performance. Therefore, this study suggested guidelines regulatory agencies, policymakers, university management, drug manufacturers, and relevant stakeholders to address the access and rational use of medications by university students.

Theoretical Framework

This research was guided by an adaptation of the principle of the precede-proceed model; (PPM), a widely used and comprehensive approach to promoting health. The model has served as a conceptual framework in health education intervention plans that aim at diagnosing community health problems, understanding the factors that influence behavior, and developing interventions to promote healthy behaviour (Porter, 2016). This model takes cognizance of the active participation of its intended audience, as study participants in defining their own problems, and developing their solutions. It provides a substantial basis for public health

practice as it identifies that the complexity of a behavioural change process is influenced by certain important predisposing, enabling and reinforcing factors that affect health intervention planning. (Saulle et al. 2020; Porter 2016; Akinsola 2006). These authors posit that the precede-proceed model framework could aid a researcher in understanding what factors may affect behaviours which leads to or prevents a health problem and why those behaviors do or do not occur. Health behaviour is thus regarded as being influenced by both individual and environmental factors, culminating in two distinct parts of the framework: precede and proceed components Furthermore, they alluded that the PPM is a multidimensional model that takes into account considers multiple factors that "shape health status and help the planner arrive at a highly focused subset of those factors as targets for intervention.

PRECEDE, an acronym for Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation is based on the premise that, just as medical diagnosis precedes a treatment plan, so should the diagnosis of a problem precede an intervention plan while **PROCEED**, stands for Policy, Regulatory, and Organizational Constructs that guides Educational and Environmental Development (Porter 2016; Saulle et al. 2020; Blalock et al 2008). Furthermore, they alluded that the PPM is a multidimensional model that takes into account and considers multiple factors that "shape health status and help the planner arrive at a highly focused subset of those factors as targets for intervention.

This framework provided a premise for understanding the factors that influence self-medication by university students and aided in the development of a set of guidelines to promote a healthy and rational use of medications in institutions of higher learning. An adaptation of the PPM framework was used in the development of the research questions and interview guide, as well as in reporting the findings of this study.

METHOD

Design

The study used an exploratory design with qualitative methods of data collection and analysis. In-depth interviews were conducted to seek better understanding of the phenomenon under investigation in line with the postulation that in-depth interviews are used to understand the context in which people live and experience the phenomenon under investigation (De Vos, Strydom, Fouché & Delport 2011:110).. This exploratory research design is flexible, and open-ended, and explores research issues that have not been previously studied in depth (George, 2023). Furthermore, Saeed, Ullah, and Ahmad (2020) explain that this design provides a robust approach to understanding a complex phenomenon, such as factors influencing self-medication.

Setting

This study was conducted at the University of Lagos, referred to as Unilag which is located in the Akoka axis of the

city, Lagos. It is a federal government research university with 14 academic units and 12 faculties covering the sciences, humanities, and arts disciplines (Modebelu & Adeniyi 2020; Lawson et al 2016) with a population of about 6,000 students residing in the 15 halls of residence located on the university campus. The students come from the 36 states of the country as well as international students. Lagos State is described as a mega city in the nation of Nigeria and the University of Lagos is a first-generation university of repute in the country with very high scores for admitting new students. Lagos State is one of the largest cities in Nigeria and most densely populated state in the country. It is described as a mega city and a major commercial hub in Nigeria. The state is home to the oldest and busiest international airport and seaport in the nation. It is situated in the southwestern part of Nigeria. The state has a growing population of more than 22 million on a total land area of 3,577 sq. km and has its residents come from all the other 35 states in the country including the Federal Capital Territory in Abuja. (Oreagba, Ogunleye & Olayemi 2011).

Sampling

Guided by Brink, Van Der Walt, and Van Rensburg (2017), purposive sampling was used to select the study participants who were available on campus at the time of data collection based on the researchers' pre-determined criteria. The study population was all registered undergraduate students aged between 18 and 23 years old, their parents and guardians resident within the university staff quarters, practicing pharmacists from retail pharmacies located within 10km radial distance around the university, and university administration staff. The inclusion of registered undergraduate students as study participants is in tandem with the specification stipulated by the Precede-Proceed Framework which was adapted for this study. This enables the students to be a part of identifying a problem, what factors are associated with it, and defining the solutions to achieve an effective public health intervention The inclusion criteria are 4 listed below:

Registered male and female students on campus aged 18-23 years with at least a representation from each level of study.

Parents and or guardians of registered students at the University of Lagos Akoka campus resident within the university staff quarters; including teaching or non-teaching staff at the University of Lagos.

University administration staff

Practising community pharmacists operating retail pharmacies within 10km radius of the University of Lagos campus.

In total, 5 parents, 3 guardians who were residents in the university staff quarters, 3 pharmacists working in retail pharmacies on the university campus, and 6 students who were residents in the campus hostels were interviewed.

Data Collection

The data collection process took place on

campus, and each interview conducted in English Language lasted for 35 – 45 minutes. The researcher explained the study purpose and sought and obtained participants' consent through consent forms before the study commenced. Prior to the commencement of the study, the researcher obtained an approval from the office of the Dean of Student Affairs to conduct the study following the Ethics approval from Research Ethics Committee in the Department of Health Studies, University of South Africa.

Purposive sampling was used to recruit the participants. For each of the category of participants, informed consent was obtained from all the participants, including the students before the interview was conducted.

The purpose and process of the study were explained to the participants, including the potential benefits and risks associated with participation in the study. They were informed of their right to withdraw from the study should they feel uncomfortable during the data collection process, and the participants were given an extended opportunity to ask questions before the data collection commenced. Anonymity was promoted by using pseudonyms to label reported information from the participants, and permission to record the interview proceedings was obtained in writing from the participants. The researcher approached the students in the lecture halls after the day's lecture and sought their consent. Thereafter, the researcher visited the administration building during official working hours and met with staff members in the Counselling unit to explain the study purpose and sought their consent for participation in the study and the last category of participants which were parents and guardians of registered students resident in the university staff quarters were recruited during office hours too. The researcher explained the study purpose and sought and obtained participants' consent in writing before the study commenced. The interview focused on the student's life experiences with self-medication during examination periods. The interview guide designed by the researchers in line with the specific objectives of the study was used to direct questions during the interviews. Participants were engaged in a face-to-face interview using a semi-structured interview guide with the aim of uncovering their everyday experience with students regarding the use of medication during examination periods.

The interview guide was refined by pre-testing it at another tertiary institution named the Yaba College of Technology, Yaba located in Lagos State close to the University of Lagos. The participants were asked a central question in all the interviews: “Could you share your experiences about the factors associated with the use of medications by undergraduate students during examination periods?” The interviewer further added a qualifier to the question, based on the profile of the participants by asking “Could you share your experience as a parent or guardian, a pharmacist or a student as it applies correctly to each participant? The participants were allowed to express themselves while the

researcher used probing and prompting questions to dig deep for more information. The researcher is a pharmacist with over two decades of experience with great people skills. The researcher was not known to any of the respondents before the study so there was no bias before the study The researcher's identity had no influence on the research because necessary approvals and consents were obtained before the commencement of the study. The data collection process continued until data saturation was reached after the 17th participant. According to Adekola (2023), "data saturation" is a stage in data collection where newly obtained data from participants is a repetition of information previously obtained from earlier interviews with other participants. For this study, the information provided by the study participants after the 17th participant was a repetition of what had been said by previous participants.

Data Analysis

We followed Tesch`s Open Coding framework as described by Creswell (2014) to analyze the collected data. The recorded audiotapes of the interviews were transcribed verbatim within 48 hours after each interview. Thereafter, each interview transcript was analyzed by the researcher, which led to the clustering of similar ideas and topics into themes.

The eight steps of Tesch's Open coding method as outlined below was followed:

(1) We made a sense of the whole. by reading all the transcripts carefully and writing down ideas that come to mind.

(2) We picked one document (transcripts of an interview) – the most interesting one, then one on top of the pile.

(3) We read through several participants' data and do the same as in step 2. Thereafter, we made a list of all the topics which come to mind and arrange the topics into columns (for example major topics, unique topics, and leftovers).

(4) We took the list of topics and referred to the data. We abbreviated the topics as codes and wrote codes next to the appropriate segments of the text to see if new categories and codes emerge.

(5) We found the most descriptive wording for the respective topics and turn them into categories. We then looked for ways of reducing the list of categories by grouping categories that relate to each other. We drew lines between categories to show interrelationships.

(6) We made a final decision on the abbreviation for each category in one place and perform a preliminary analysis.

(7) We assembled the data belonging to each category in one place and perform a preliminary analysis.

(8) We checked it was necessary to recode the existing data.

Furthermore, a researcher experienced in adolescent research who served as an independent coder analyzed the data independently and came up with a table of themes and categories. Discussions were held by the researcher and the independent coder, and the tables of themes and sub-

themes were mutually agreed.

Ethical Considerations

Ethical clearance for this study was sought and obtained from the University of South Africa's Ethics Committee in the Department of Health Studies, University of South Africa with project number REC-012714-039 (NHERC). In addition, permission was obtained from the University of Lagos to conduct the study on its premises.

Trustworthiness

To ensure trustworthiness, the principles of trustworthiness, which are credibility, dependability, confirmability, authenticity, and transferability outlined by (Lincoln & Guba (1985) and Brink, Van der Walt & Van Rensburg (2012) were followed. To enhance the credibility of this study, only participants who met the sampling requirements were interviewed in a secure and comfortable place on the university campus. Furthermore, the participants were engaged for a prolonged time, which allowed the researcher to observe the participants, capture non-verbal cues, and ensure that their views and experiences were accurately captured by asking clarifying questions. In the same vein, the researcher used a quality voice recorder and field notes for the data collection. A peer examination involving an external coder who transcribed and analyzed the collected data independently was also carried out. Cross-checking of codes by colleagues who were not part of the study to review the entire process that was applied during the study and matching these processes with the findings or outcomes was done to ensure dependability. To adhere to the confirmability principle, an independent coder was engaged, proper documentation of the procedures for checking and rechecking the collected data was done, the results were attested by colleagues who were not part of the study, and the results were also compared with the findings of other authors. Transferability was ensured by fully describing the context in which the study was conducted. A qualitative research approach to data collection is described as one of the most reliable research methods in studying health service and its delivery because it has a distinctive feature of exploration, which is necessary in providing an in-depth understanding of people's perceptions, behaviour and experience (Hennick, Hutter, and Bailey (2011). The research design, data collection, and analysis procedures were clearly and completely described and are presented in detail for anyone interested in conducting a similar study to understand how the study was executed.

RESULTS

The analysis revealed three predominant factors associated with self- medication by university students during examination periods. They are predisposing, enabling, and reinforcing factors just as suggested by the Precede-Proceed Model Porter 2016; Green & Kreuter 2005). According to the authors, these are the factors that nurture and promote the existence or otherwise of a diagnosed health challenge. The authors

described the 3 factors as follows:
Predisposing factors, which include individual knowledge, beliefs and attitudes, values, socioeconomic including perception related to individual motivation. Enabling factors are the resources and skills required to make desired behavioral and environmental changes to occur such as cost, income, time and skills such as mass and social media. Concepts such as social capital, community capacity and collective efficacy, and community organizing and social action strategies are recommended to identify problems, set goals and achieve structural change. Reinforcing factors are those that follow a behaviour that 'determines whether the actor receives positive (or negative) feedback and is supported socially afterward. These factors strengthen the occurrence of actions (may involve community leaders and families).
In addition, the study suggested interventional measures to address self-medication among university students.

Demographic Profiles of the Participants

A total of 17 participants with 59% female participation (n=10) of which 36% of the participants were students in the age range 16 - 25 years. The total respondents were six students with (equal distribution between males and females), five parents, three guardians including a certified student guidance counselor, and three pharmacists who participated in the in-depth interviews.

Predisposing factors

The results indicate that peer influence, poor parenting and high family income predispose students to self-medication with prescription and OTC drugs, particularly during examination periods. These are factors centred around individual knowledge and beliefs about self-medication and influence from friends, and attitudes fostered by poor parenting.

Peer influence

The findings revealed that peer influence predisposed some students to indulge in self-medication following poor preparation for examinations during the academic semester and session. Students who are largely absent at lectures and do not participate in academic activities during the school calendar tend to experience fear and tension during the examination periods thus the consideration for the use of medications to assist them with longer hours of study, and better focus when studying. As young adults, the influence of peers on decision-making is high.
The participant quotes include:

> "We have had instances where studious students start to skip classes and miss deadlines for the submission of assignments due to the influence of bad company. This makes them anxious soon as examinations start to approach and they look for drugs which can assist them to remain calm and study for longer hours to achieve

academic success." (P8, Administrator).

Another participant stated thus:

"These children! Once they are on campus, especially new students, the freedom away from parental monitoring makes them vulnerable to the influence of friends who invite them to attend parties and clubs which might leave them little time to attend lectures and study. Of course, when exams are approaching or in progress, they resort to self-medication to stay awake to study and cover lost grounds." (P11, Parent).

Poor self-esteem

The participants attributed self-medication by some students to a product of poor upbringing and poor parenting in a dysfunctional family Poor parenting was described as having great implications for low self-esteem in students. Raising young adults in abusive homes may result in dysfunctional adults with low self-esteem. Some students struggle with challenges such as peer acceptance sometimes predicated on little or poor parenting Students with low self-esteem find comfort in using medications that give them euphoria as a means of gaining confidence and improving focus during study hours, which they believe makes their interaction with their peers better during class discussions and makes them study for longer hours.

A participant said:

"I actually struggled with self-esteem for a long time because growing up with my mother, a single parent who worked several hours to keep the family. She was hardly at home to provide supportive supervision as we grew. As a result, I kept company with children in similar situations in the neighbourhood who introduced me to using drugs without a prescription. Now as a student in this school, I still self-medicate when I am anxious and have to prepare for exams" (P2, Student)

Family income

Some participants described family income as a determinant of students' indulgence in vices on the university campus. Students from affluent homes are likely to indulge in various vices, such as class absenteeism, and self-medicate amongst others because they have the financial means to buy the medications as needed even without a proper prescription.

The following quotes were shared by the participants about family income as a predisposing factor influencing SM among students:

"You see these children from rich homes use

> medications indiscriminately here ooo." I think that they indulge in such misuse because they have the finances to do so and probably have busy parents who have little or no time to supervise their children or wards in their care (P7, Guardian).

> "Majority of delinquent students are from affluent homes because we observe that the indigent, orphans, visually impaired and students living with one form of disability, or another do not indulge in self-medication or drug misuse." (P9, Administrator)

Enabling factors

The data analysis revealed that poor regulatory framework and ease of access are enablers of self-medication by students in the research setting.

Poor regulatory framework and the ease of access

An enabling factor that emerged from data analysis is the poor regulatory framework with attendant weak enforcement of regulatory laws that make it very easy for anyone to sell or purchase prescription and OTC medications in the country without a physician's prescription. With the weak regulations on the distribution and sale of drugs in the country, there is an attendant consequence of ease of access to drugs by the public.

This is illustrated by the following participant's quotes:

> "The community pharmacies and chemists have a role to play in the ease of access to these medicines. It is not proper to have anyone handle or sell medications to the public let alone adolescents and young adults! It is not acceptable" (P13, Parent)

Another quote to buttress weak regulations in the country:

> "Yes! The government should try to enforce regulations that medications should not be dispensed without a valid prescription. Honestly, if people adhere to 'no sale of medications without a prescription,' we will have fewer problems with medication misuse." (P10, Counselor)

Another participant, a student had this to say:

> "For me during exam periods, I usually use anti-anxiety medications like Lexotan to calm tension and I buy it at my request without any prescription from the

community Pharmacy" (P15, Student)

Reinforcing factors

. Reinforcing factors are those that follow a behaviour that 'determines whether the actor receives positive (or negative) feedback and is supported socially afterward. These factors strengthen the occurrence of actions (may involve community leaders, and families). The study findings revealed that advertisement and social support from family and significant persons in the life of the students are factors that strengthen and discourage the practice of self-medication.

Advertisement by pharmaceutical manufacturing companies

Advertisement of medications by pharmaceutical companies, on multiple platforms is a major reinforcing factor driving the surge in self-medication among students. Participants felt that the advertisement of medications in electronic media, including television, social media, and the Internet, could make students think that the use of such advertised medications is acceptable without a prescription.

> "Advertising by pharmaceutical companies is not helping matters at all. Because the see the adverts on the television and they feel they do not need any more education to use them." (P1, Student)

> "For me, I have become aware of some drugs through adverts on billboards and TV and radio. These adverts sometimes influence you to try out the advertised products" (P8, Administrator)

Social support from significant others

The absence of social support in terms of love and supervision by significant individuals such as parents and siblings in the life of an individual was identified to have a great influence on the habits of students. Parents and siblings are a significant part of every adolescent's life and constitute their social support system. The influence of parents, siblings, society role models, community leaders, and celebrities are in no small measure, great contributors to modelling and reinforcing good behaviour and attitudes in adolescents as students.

A participant was quoted below:

> "I must tell you that my relationship with my parents and older siblings has helped me tremendously in dealing with my roommates and other students on campus because I have learned how to make good decisions about issues that students struggle with. Also, whenever I am leaving home for school, my

parents tell me to always remember the "child" of who I am, so I must focus on my studies and dare not indulge in vices on campus" (Student)

DISCUSSION

The study identified and described the factors associated with self-medication with prescription and OTC drugs by university students during examination periods in the research setting. These are **predisposing factors**, which are antecedents to self-medication behavior and provide the motivation for such behavior; **enabling factors**, which are resources and skills that influence the self-medication; and **reinforcing factors**, which provide an enduring incentive or reward for the non-repetition or persistence of the self-medication behavior. The key findings of this study aligned with the Precede-Proceed Model (Porter, 2016), which advocates that planners of health interventions should identify the precursors of exhibited self-medication behaviors and describe the factors that should be in place to initiate and sustain positive behavioral change.

This study revealed that students were influenced by their friends and peers in decision-making (peer influence), students who suffer from poor self-esteem and as victims of poor parenting were timid and had attitude challenges which made them more vulnerable to self-medication to mask anxiety and tension during examination periods. Predisposing factors – peer influence, family income and poor self-esteem arising from poor parenting were found in this study to be associated with the attitudes of the students and also linked to their socioeconomic realities. In line with the findings of this study, Mudau et al. (2019) in a South African study revealed that socioeconomic factors such as peer pressure, poverty and low family income, and dysfunctional family harm student behaviour resulting in different coping mechanisms such as self-medication. Self-medication by students has been premised on peer pressure and recommendations by friends to try out new medications (Teter, Boyd, Wilens, & Schepsis 2018; Attah et al. (2016). The current study, therefore, corroborates findings from previous research on educational experience and medication use among young people.

The participants in this study opined that students from affluent homes have higher disposable income and thus are likely to afford and self-medication instead of visiting the university clinic where drugs are provided free or at subsidized rates. This finding is corroborated by a similar study amongst university undergraduates in Ethiopia (Yismaw, 2023), where students with low monthly income were associated with fewer self-medication practices because they could not afford to buy the medications from pharmacies and went to the student clinic on campus which gives free service to students.

Furthermore, the study revealed that the low and otherwise poor self-esteem displayed by some students predisposed them to self-medication as

the students are easily lured to try out medications without a formal prescription. These children grow up timid and fall short in important decision-making when away from home or parental influence. In addition, findings reveal that parenting behaviours are a significant influence on children's readiness for independence and character exhibited in adulthood (Sunarty and Dirawan (2015). Many parents have ignored their role as parents and guardians or delegated such roles to others to stand in the gap because many of them do not have time to monitor the children or the friends they keep due to the increased urbanization of lifestyles. With an increased number of females becoming career women, a huge gap in child monitoring and supervision has ensued. According to Fapohunda (1982), there is a parenting gap created by mothers who go to work to be able to contribute to their families' incomes. This gap could serve as bait for negative peer influence for self-medication when parents particularly the mother is absent. According to Fareo 2013; Zhang et al 2021, parents' ought to give their children information and education about the use of medication without a formal prescription and its attendant negative consequences. In her opinion, awareness of the dangers of self-medication and the ills of its dependence including the effect on their health, society, and the nation at large may serve as deterrents to such use when the students are on campus. Parental monitoring and supervision have a great influence on the habits of children.

In addition to poor self-esteem, examination tension could make students misuse various types of medication as a coping mechanism which may erupt from peer influence. Ogbodu et al. (2023) noted that students misuse analgesics, cough syrups, antimalarials, and caffeine and caffeine-containing products to increase their waking and study hours during examination periods.

The enabling factors revealed in this study were ease of access to medications and poor regulatory framework. These associated factors promoted self-medication by students during examination periods. The continued presence of highly unregulated open drug markets across major cities in Nigeria has aided the ease of access to medications for prescription and over-the-counter medications.

These findings concur with those of Ress et al. (2016), who pointed out that a major contributing factor to the use of medications without a formal prescription is the ease of access to medications. This was corroborated by Orayi 2022; Nargiso et al. 2015) who maintain that the ease of access contributes to the self-medication.

The existence of a poor regulatory framework that aids the distribution of medications illegally without consequences for offenders was described by the participants as an enabling factor. This finding underscores why the government needs to do more to sanitize the process of sale and distribution of both prescription and OTC medications in the country. There is a

need to ensure that only qualified and legally appropriate custodians of medications who are pharmacists have the sole responsibility of handling the sale of medications to the appropriate end-users following the right diagnosis by a qualified medical practitioner. Okafor (2020) and Chokshi et al., (2019) alluded to the need for government to have effective regulations and distribution practices in-country to safeguard the health of the people.

Advertisements were described as a reinforcing factor associated with self-medication in this study because participants described the power of media in influencing buying decisions. Advertisements of OTC medications by pharmaceutical manufacturing companies are no exception (Alarsali & Aghaei 2022). Different forms of media from print to electronic have an impact on the purchase decisions of consumers and the trial of products by the consumer (Helmi et al., 2022; Swati 2013). Thus, it can be inferred that advertising reinforces trial and continued use of medications among students. Once there is a pleasant trial encounter and exposure to continuous sales promotion, a high likelihood of repeated purchase decisions emerges because the consumption patterns of people are influenced by the advertisements that such individuals have been exposed to (Helmi et al 2022).

The study participants stated that the Internet hosts a tremendous amount and variety of health-related information that can be accessed at convenience, anonymity, and relatively low cost. They also shared experiences and opinions on the huge impact that the internet revolution has on the behaviors and attitudes of adolescents and young adults because information including sales promotion of medications and the use of medications are readily available and accessible on the internet. Corroboratively, Zhang et al. 2021 noted that university students rely heavily on online health information-seeking to manage their own health without sufficient knowledge/skills to identify misinformation and disinformation.

The participants suggested the use of social media platforms as an advocacy tool by the university management to discourage self-medication among university students. Social media platforms such as WhatsApp, Instagram, and Facebook were mentioned by the study participants as suggestions of platforms that may be used to influence adolescents and young adults to model healthy and rational use of medications. They may be harnessed for social good; because they are powerful advocacy channels that may be deployed to achieve positive behavioral change in youths and adolescents lending credence to the positive use of media and celebrities such as music stars, actors, and actresses to influence positive behavioral change in the students. This way, the celebrities could serve as ambassadors to model positive influence for other students to desist from self- medications and the use of hard drugs. In the same vein, Taiwo (2022) and Akinsola (2002) argue that there is a likelihood of attitude changes among students if the celebrity who

advocates for the positive change in behavior is greatly liked and possesses influence. The authors alluded further that celebrities influence the behavior and attitudes of their followers. The same platforms may be used to positively influence students to imbibe good study habits and life skills training rather than resort to the use of medications to improve concentration and alertness during examination periods.

The study further showed that a lack of social support from significant individuals in the lives of students could lead students to indulge in self-medication for academic success due to the pressure for academic achievement. The participants who were students, stated that their older siblings exert 'great influence' on them in terms of character and reassurance love and support through life. Words of encouragement and receiving advice from individuals that we hold dear in life go a long way in boosting an individual's morale. Parents and siblings are a significant part of every adolescent's life and so constitute their social support system. In line with this finding, Gielsen et al (2008) described the influence of significant others as a reinforcing factor in the modelling of a positive behavioural change. Likewise, the Australian Government's Institute of Family Studies identifies and describes supervisory neglect as inadequate supervision that leads to potentially serious harm to the child because good character is modelled over time in adolescents (Scott et al., 2012). The use of positive statements by significant others such as siblings and parents and could bring out the best in students by motivating them to adopt healthy study plan to achieve academic success instead of resorting to self-medication, to enhance preparations to achieve good academic performance.

Recommendations

Based on the findings of this study, we recommend the following measures and guidelines to address the issue of self-medication in the research setting and similar settings We recommend creating awareness of the dangers of self-medications through orientation programs organised by the University management for students.,. The strengthening of existing regulatory organs of government such as (the National Agency for Food and Drugs Administration and Control (NAFDAC), Pharmacy Council of Nigeria (PCN and National Drug Law Enforcement Agency (NDLEA) in the nation by the government to carry out their duties according to their Establishment Act. This measure will promote the rational use of medication and reduce the ease of access to prescription and OTC medication which encourages self-medication among university students. Positive peer influence on campus will thus be encouraged when programs are targeted at adolescents and youths to reward positive behaviours and will ensure attitude change through vehicles of advocacy and health education.

Furthermore, the university management should advocate for an increase in the time spent together by adolescents and their families through

parent-targeted programs. This will strengthen family ties and improve parenting and mentoring skills which will translate into positive modelling behaviour. Additionally, the management should make concerted efforts to improve the self-efficacy and social competence of students. This may be done via life skills training and providing a caring environment for the students. The result of this step could be an improvement in an individual's experience of competence, self-regard, and relating to others reliably, all of which impact the individual's self-esteem.

The setting up and effective use of intelligence units on university campuses to monitor students' behaviour and the conduct oral or drug urine tests as deemed appropriate on erring students is recommended to serve as a deterrent and encourage correction. Useful information, such as effective study habits and invitations to participate in structured and organized activities should be encouraged. Platforms such as university radio programs and television slots may be utilized to disseminate health information to students. Routine public health campaigns on campus such as "No Substance/Drug Abuse Day" should be conducted throughout the semester, not just at the beginning of an academic semester or session to discourage self-medication. This would draw the attention of students consistently to the dangers of self-medication during examination periods and at other times during the academic session to discourage such use.

Limitations of the Study

The students' recall was not restricted to either the most recent or past examination periods; there might be recall bias in this study. The study used a purposive sampling technique which implies that students who were not included in the study might have different experiences and perspectives from those used in this study. This study aimed to identify the factors associated with self-medication by students during examination periods. This was the focus of the study rather than the dosage of the medications used by students or the duration for which the medications were used. The non-collection of the doses of the medications used is a limitation of this study. A detailed description of the study was provided, giving readers the option to decide on the generalizability of the study findings, it is noteworthy to state that the study was conducted at the University of Lagos, which is located in Nigeria's south-western zone. The conduct of a similar study in a different study setting another region of the country, or in another country may introduce new variables to the study.

Conclusion

The study findings established the factors associated with the use of prescription and OTC medication by students while preparing and during examination periods to increase mental alertness and focus better while studying and for longer hours. The participants in this exploratory study were

undergraduate students, parents, guardians, administrators, and University counsellor, thus providing rich narratives and experiences across different target audiences on the same phenomenon. The study further provided suggestions to address the factors associated with SM among undergraduate students in the study setting. We argue that if these suggestions are implemented by the relevant stakeholders, the issue of self-medication could be reduced, thus promoting the safety, health, and well-being of students.

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Declaration of interest statement
The authors have no competing interests.

Author Contributions
The first author conceptualized the study, conducted the interviews, and prepared the manuscript.
The second author reviewed the manuscript, the data analysis, and the interpretation of the data, and contributed to the preparation of the manuscript.
The third author supervised the project and conducted data analysis and interpretation of data.
The fourth author contributed to the preparation of the manuscript. All authors read and approved the final manuscript.

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