

Self-medication among future medicine dispensers: implications for rational drug use and health service delivery in Nigeria

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Abstract

Background

Self-medication, defined as the use of medicines without prior medical consultation regarding indication, dosage, or duration of treatment, is a common practice worldwide and is recognized by the World Health Organization as part of self-care. While appropriate self-medication may help in the management of minor illnesses, inappropriate use can result in adverse drug reactions, incorrect drug selection, drug interactions, antimicrobial resistance, and increased risk of dependence. The prevalence of self-medication among university students has been reported to be high in many countries, particularly in developing regions where access to medicines without prescription is common. Despite the public health implications, there is limited data on self-medication practices among pharmacy technician students in Nigeria. This study aimed to determine the prevalence of self-medication and assess factors associated with the practice among pharmacy technician students.

Methods

A descriptive cross-sectional study was conducted among pharmacy technician students at Kwara State College of Health Technology, Offa, Nigeria. A structured self-administered questionnaire was used to collect data on demographic characteristics, prevalence of self-medication, types of drugs used, reasons for self-medication, and sources of information. The sample size was determined using Slovin's formula, and simple random sampling was applied. Data were analyzed using descriptive statistics and presented as frequencies and percentages.

Results

A high proportion of respondents reported practicing self-medication. The most commonly used medications were analgesics, antacids, and antibiotics. The main reasons for self-medication included previous experience with similar illness, convenience, perceived minor nature of illness, cost saving, and time constraints. Sources of information included previous prescriptions, personal knowledge, advice from friends, and internet sources. Although most respondents were aware of the risks associated with self-medication, this awareness did not significantly reduce the practice.

Conclusion

Self-medication is highly prevalent among pharmacy technician students. Despite adequate knowledge about medicines, students frequently self-medicate due to convenience, accessibility, and perceived minor illness. Educational interventions, stricter regulation of drug sales, and improved access to healthcare services are necessary to reduce irrational self-medication practices.

Trial registration

This study was not a clinical trial therefore, Clinical trial registration was not applicable as well as Clinical trial number is not applicable.

Background

Self-medication is defined as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms without prior consultation with a qualified health professional. The practice has been recognized by the World Health Organization as an important component of self-care when carried out responsibly, particularly for the management of minor ailments [1]. Appropriate self-medication may reduce the burden on healthcare systems, lower treatment costs, and improve access to treatment for common conditions. However, inappropriate self-medication can result in adverse drug reactions, incorrect diagnosis, drug interactions, antimicrobial resistance, and drug dependence, thereby posing a significant public health concern [4, 16].

Self-medication is widely practiced across both developed and developing countries, although the prevalence tends to be higher in low- and middle-income countries where access to healthcare services may be limited and medicines are often available without prescription [6]. In many developing countries, antibiotics and other prescription-only medicines can easily be obtained from pharmacies without proper medical supervision, increasing the risk of irrational drug use and antimicrobial resistance [22]. The global rise in antimicrobial resistance has been strongly associated with the misuse and overuse of antibiotics, particularly through self-medication practices [2, 3].

Studies conducted among university students have consistently reported high rates of self-medication. Prevalence rates exceeding 80% have been reported in several countries, while studies in African countries have also shown high but variable prevalence [7]. University students are particularly prone to self-medication due to their level of education, easy access to drug information, prior experience with medications, and busy academic schedules that may discourage them from seeking professional care [12, 13].

Previous research has shown that commonly used drugs in self-medication include analgesics, antipyretics, antibiotics, antacids, antihistamines, vitamins, and cough preparations. Minor ailments such as headache, fever, cough, cold, gastrointestinal disorders, and menstrual pain are frequently treated without medical consultation [14]. Although many individuals are aware of the risks associated with self-medication, this awareness does not always translate into safer practices [15].

Students in health-related training institutions, including pharmacy technician students, represent a unique population with increased exposure to drug knowledge and easier access to medicines. This exposure may increase confidence in self-diagnosis and self-treatment, but it may also increase the risk of irrational drug use [11]. Since these students are future healthcare providers who will be involved in drug dispensing and patient counseling, their knowledge, attitudes, and practices regarding self-

medication may influence their future professional behavior and the safety of the communities they will serve.

Despite the potential risks associated with self-medication, there is limited published data on the prevalence and pattern of self-medication among pharmacy technician students in Nigeria, particularly in colleges of health technology. Understanding the extent of self-medication and the factors influencing this practice is essential for developing educational interventions and policies aimed at promoting safe and rational use of medicines [12].

Therefore, this study aimed to determine the prevalence of self-medication practice among pharmacy technician students at Kwara State College of Health Technology, Offa, Nigeria, and to assess the types of medications used, reasons for self-medication, sources of information, and awareness of the potential risks associated with the practice.

Materials and Methods

Study Design

This study employed a **descriptive cross-sectional research design** to assess the prevalence of self-medication practices among pharmacy technician students. The descriptive design was considered appropriate because it allows the researcher to systematically describe characteristics, behaviors, and patterns related to self-medication based on data collected from the study population at a specific point in time.

Study Area and Population

The study was conducted among pharmacy technician students of **Kwara State College of Health Technology, Offa, Nigeria**. The study population consisted of students from **Year I to Year III**, with an estimated total population of approximately **800 students** enrolled in the programme at the time of the study.

Although the total student population was approximately 800, only 500 students constituted the accessible population during the study period and were therefore used for sample size determination.

Sample Size Determination

The sample size was calculated using **Slovin's formula** for sample size determination:

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

Where:

S = sample size

N = total population

e = margin of error (0.05)

Using a population of 500 (accessible population), the calculated sample size was **267**.

However, due to non-response and unwillingness of some students to participate, **150 questionnaires were distributed**, out of which **140 were correctly completed and considered valid** for analysis.

Sampling Technique

A **simple random sampling technique** was used to select participants from the study population. This method ensured that every student had an equal chance of being selected, thereby minimizing selection bias.

Eligibility Criteria

Students were included in the study if they:

1. Were registered pharmacy technician students (Year I–III),
2. Were present during data collection,
3. Gave informed consent to participate.

Students who declined participation or submitted incomplete questionnaires were excluded from the study.

Questionnaire development

The questionnaire used for this study was specifically designed for this research work and was pre-tested in NNCHS Offa Sickbay before being administered at the study area to the study population, this questionnaire has never been published elsewhere.

Instrument for Data Collection

Data were collected using a **self-structured questionnaire** developed in line with the objectives of the study.

The questionnaire was written in English language and designed to ensure clarity, brevity, and relevance.

The questionnaire consisted of two sections:

1. **Section A:** Socio-demographic characteristics
2. (age, gender, religion, marital status, ethnicity, year of study)
3. **Section B:** Self-medication practice

1. Prevalence of self-medication
2. Types of drugs used
3. Reasons for self-medication
4. Sources of information
5. Awareness of risks
6. Experience of adverse effects

Data Collection Procedure

The questionnaire was administered in person to the selected students.

The instrument consisted mainly of **closed-ended questions**, and respondents were asked to select the most appropriate options.

Brief explanations were provided when necessary to avoid misunderstanding.

Completed questionnaires were collected immediately after completion.

Method of Data Analysis

Data obtained were analysed using **descriptive statistics**, including frequencies and percentages.

Percentage was calculated using:

$$\text{Percentage} = \frac{\text{Frequency}}{\text{Total}} \times 100$$

Results were presented in tables and interpreted accordingly.

Results

Response Rate

A total of **150 questionnaires** were distributed, and **140 were returned and valid**, giving a response rate of **93%**.

Category	Frequency	Percentage
Questionnaires distributed	150	100
Questionnaires returned	140	93
Valid questionnaires	140	93
Not returned	10	7

Socio-Demographic Characteristics

Most respondents were aged **18–30 years (70%)**, with females slightly higher (55%) than males (45%).

Majority were **Christians (65%)**, followed by Muslims (30%).

Most respondents were **single (55%)**, and the dominant ethnic groups were **Yoruba (40%) and Hausa (40%)**.

Prevalence of Self-Medication

A high proportion of respondents (**90%**) **reported practicing self-medication**, while only 10% reported not practicing it.

Response	Frequency	Percent
Yes	126	90
No	14	10

Commonly used drugs included:

1. Pain relievers / antacids – 60%
2. Antibiotics – 30%
3. Cold and flu drugs – 5%
4. Others – 5%

Main factors influencing self-medication:

1. Convenience – 25%
2. Cost saving – 25%
3. Lack of time – 20%
4. Previous experience – 15%
5. Belief illness is minor – 15%

Drugs Used for Specific Conditions

For digestive problems:

1. Antacids – 80%
2. Proton pump inhibitors – 15%
3. Others – 5%

Reasons for Self-Medication

1. Difficulty accessing healthcare – 50%
2. Confidence in self-treatment – 45%
3. Awareness of risks – 75%
4. Experienced side effects – 30%
5. Seek professional advice always – 20%
6. Sometimes – 70%
7. Rarely – 10%

Discussion

This study demonstrated a very high prevalence (90%) of self-medication among pharmacy technician students, which is consistent with findings from previous studies conducted among university and health science students in low- and middle-income countries [7, 12, 13]. The observed prevalence is slightly higher than values reported in some Nigerian and African studies, suggesting that students with formal exposure to drug-related knowledge may be more inclined toward self-medication practices.

The high prevalence of self-medication in this study may be attributed to several interrelated factors, including easy access to medicines, prior knowledge of drugs, and perceived ability to self-diagnose and manage minor illnesses. In many LMICs, including Nigeria, weak enforcement of prescription regulations allows antibiotics and other prescription-only medicines to be obtained without medical consultation [6, 22]. This situation contributes significantly to irrational drug use and increases the risk of antimicrobial resistance, which remains a major global public health threat [2, 3].

The types of drugs commonly used in this study—analgesics, antacids, and antibiotics—are consistent with findings from earlier studies among student populations [14, 15]. While the use of analgesics and antacids for minor ailments may be considered relatively safe when used appropriately, the use of antibiotics without prescription is particularly concerning. Antibiotic misuse has been widely identified as a key driver of antimicrobial resistance, especially in settings where regulatory systems are weak and access to healthcare services is limited [22, 24].

The major reasons for self-medication identified in this study—convenience, cost saving, lack of time, and previous experience—are in line with existing literature [20, 21]. These factors reflect broader health system challenges, including limited accessibility, affordability, and efficiency of healthcare services. In such contexts, individuals often resort to self-care practices as a coping mechanism to avoid the financial and time costs associated with formal healthcare utilization.

Despite a high level of awareness of the risks associated with self-medication among respondents, the practice remained widespread. This finding supports previous studies suggesting that knowledge alone is insufficient to change health behaviour [5, 18]. Behavioural factors such as perceived competence, past experiences, and social influences may play a more significant role in shaping self-medication practices than knowledge alone.

The finding that approximately one-third of respondents experienced adverse effects highlights the potential dangers of unsupervised medication use. Similar studies have reported that self-medication can result in adverse drug reactions, drug interactions, and delayed diagnosis of underlying conditions [16, 17]. This underscores the need for targeted interventions aimed at promoting rational drug use, even among individuals with some level of medical training.

From a policy perspective, the findings of this study have important implications for health systems in Nigeria and other LMICs. Strengthening regulatory frameworks governing the sale of prescription-only medicines, particularly antibiotics, is essential. In addition, integrating rational drug use education into the curriculum of pharmacy technician training programmes may help to improve future professional practices. There is also a need to promote pharmacist-led counselling and antimicrobial stewardship initiatives within community pharmacies to reduce inappropriate self-medication practices [25, 26].

Overall, this study highlights the complex interplay between knowledge, accessibility, and health system factors in shaping self-medication behaviour. Addressing this issue requires a multifaceted approach involving education, regulation, and improved access to affordable and quality healthcare services.

Conclusion

This study assessed the prevalence and pattern of self-medication among pharmacy technician students at Kwara State College of Health Technology, Offa, Nigeria. The findings revealed that self-medication is highly prevalent among the students, with the majority of respondents reporting that they had used medicines without prior consultation with a qualified healthcare professional. The most commonly used drugs were analgesics, antacids, and antibiotics, and the main reasons for self-medication included convenience, cost saving, lack of time, previous experience with similar illness, and the perception that the illness was minor.

Although a large proportion of respondents were aware of the potential risks associated with self-medication, this awareness did not significantly reduce the practice. A considerable number of students reported experiencing adverse effects following self-medication, indicating that unsupervised use of medicines may pose health risks even among individuals with some level of medical knowledge.

The high prevalence of self-medication observed in this study may be related to the medical background of the respondents, easy access to medicines, and limited use of healthcare services for minor illnesses. Since pharmacy technician students are future healthcare providers who will be involved in drug

dispensing and patient counselling, their attitudes and practices regarding self-medication may influence their professional behaviour and the quality of care they provide in the future.

Therefore, there is a need for improved education on rational drug use among pharmacy technician students, stricter enforcement of regulations on the sale of prescription-only medicines, and increased awareness of the dangers associated with inappropriate self-medication. Promoting responsible self-care practices and encouraging students to seek professional medical advice when necessary, will help reduce the risks associated with irrational drug use.

Overall, the findings of this study highlight the importance of strengthening public health interventions, educational programmes, and drug control policies to ensure the safe and rational use of medicines among students in health-related training institutions.

Abbreviations

ADR	Adverse Drug Reaction
AMR	Antimicrobial Resistance
OTC	Over-the-Counter
WHO	World Health Organization
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviation
KWSCHT	Kwara State College of Health Technology
NAFDAC	National Agency for Food and Drug Administration and Control
MOH	Ministry of Health
HIV	Human Immunodeficiency Virus
BMI	Body Mass Index
UTI	Urinary Tract Infection
GI	Gastrointestinal
CI	Confidence Interval

ND	National Diploma
HND	Higher National Diploma
PHC	Primary Health Care
SOP	Standard Operating Procedure
POM	Prescription Only Medicine

Declarations

Human Ethics and Consent to Participate declaration

Ethical approval for the study was obtained from the Research Ethics Review Board (RERB) of the Nigerian Navy College of Health Sciences, Offa, Kwara State, Nigeria (NNCHS/Offa/2025/016). All procedures involving human participants were performed in accordance with the ethical standards of the institutional research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Written informed consent was obtained from all participants prior to data collection.

Clinical Trial Statement

Trial registration: This study was not a clinical trial; therefore, Clinical trial registration was not applicable as well as Clinical trial number is not applicable.

Ethics approval and consent to participate

Permission to conduct the study was obtained from the management of Kwara State College of Health Technology, Offa, Nigeria. Participation was voluntary, and written informed consent was obtained from all respondents prior to participation. Confidentiality and anonymity were maintained throughout the study, and the study procedures were conducted in accordance with the principles of the Declaration of Helsinki.

The study did not involve clinical intervention or collection of biological samples.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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No external funding was received for this study.

Authors' contributions

I.G.E. conceived and designed the study, coordinated data collection, performed data analysis, and drafted the initial manuscript. U.B.M. contributed to study design, supervised the research process, and critically revised the manuscript for important intellectual content and therefore served as corresponding author.

P.T.T. and Y.W. participated in data collection, data entry, and preliminary analysis. H.A.A. and U.M. contributed to data interpretation and assisted in manuscript drafting.

O.B.O. and O.R.O. provided methodological guidance, contributed to data interpretation contributed to critical revision of the manuscript and final manuscript review. M.J.S. and E.A.Z. contributed to study supervision and review of the manuscript for policy and clinical relevance. All authors read and approved the final manuscript.

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References

1. World Health Organization. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva: WHO; 2000.
2. World Health Organization. Antimicrobial resistance: global report on surveillance 2023. Geneva: WHO; 2023.
3. World Health Organization. WHO global action plan on antimicrobial resistance. Geneva: WHO; 2015.
4. Bennadi D. Self-medication: a current challenge. J Basic Clin Pharm. 2014;5(1):19–23.
5. Ocan M, Obuku EA, Bwanga F, et al. Household antimicrobial self-medication: a systematic review and meta-analysis. BMC Public Health. 2015;15:742.
6. Auta A, Hadi MA, Oga E, et al. Global access to antibiotics without prescription in community pharmacies: a systematic review and meta-analysis. J Infect. 2019;78(1):8–18.
7. Tesfamariam S, Anand IS, Kaleab G, et al. Self-medication with over-the-counter drugs among university students: a systematic review. J Pharm Policy Pract. 2019;12:1–15.

8. Osemene KP, Lamikanra A. A study of the prevalence of self-medication practice among university students in Southwestern Nigeria. *Trop J Pharm Res.* 2012;11(4):683–9.
9. Fadare JO, Tamuno I. Antibiotic self-medication among university medical undergraduates in Northern Nigeria. *J Public Health Afr.* 2011;2(1):e6.
10. Afolabi AO. Factors influencing the pattern of self-medication in an adult Nigerian population. *Ann Afr Med.* 2008;7(3):120–7.
11. Olayemi SO, Akinyede AA, Oreagba IA. Self-medication practices among students in Nigeria: a cross-sectional study. *J Pharm Policy Pract.* 2021;14:1–10.
12. James H, Handu SS, Al Khaja KA, et al. Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Ann Pharmacother.* 2006;40(4):789–94.
13. Abay SM, Amelo W. Assessment of self-medication practices among medical, pharmacy, and health science students in Ethiopia. *J Young Pharm.* 2010;2(3):306–10.
14. Lukovic JA, Miletic V, Pekmezovic T, et al. Self-medication practices among medical students. *PLoS ONE.* 2014;9(12):e114644.
15. Kumar N, Kanchan T, Unnikrishnan B, et al. Perceptions and practices of self-medication among medical students. *PLoS ONE.* 2013;8(8):e72247.
16. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self-medication. *J Clin Pharm Ther.* 2001;26(6):401–7.
17. Ventola CL. The antibiotic resistance crisis: causes and threats. *Pharm Ther.* 2015;40(4):277–83.
18. Rather IA, Kim BC, Bajpai VK, Park YH. Self-medication and antibiotic resistance: crisis, current challenges, and prevention. *Saudi J Biol Sci.* 2017;24(4):808–12.
19. Shankar PR, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Nepal. *BMC Fam Pract.* 2002;3:17.
20. Carrasco-Garrido P, Jiménez-García R, Barrera VH, et al. Predictive factors of self-medicated drug use. *Pharmacoepidemiol Drug Saf.* 2008;17(2):193–9.
21. Loyola Filho AI, Lima-Costa MF, Uchôa E. A qualitative approach to self-medication. *Cad Saude Publica.* 2004;20(6):1661–9.
22. Okeke IN, Laxminarayan R, Bhutta ZA, et al. Antimicrobial resistance in developing countries. *Lancet Infect Dis.* 2005;5(8):481–93.
23. O'Neill J. Tackling drug-resistant infections globally: final report and recommendations. London: Review on Antimicrobial Resistance; 2016.
24. Auta A, Banwat SB, David S, et al. Antibiotic use in low- and middle-income countries: a systematic review. *J Glob Antimicrob Resist.* 2019;17:102–11.
25. Holloway KA, van Dijk L. The World Medicines Situation 2011: rational use of medicines. Geneva: WHO; 2011.
26. Bigdeli M, Peters DH, Wagner AK. Medicines in health systems: advancing access, affordability and appropriate use. Geneva: WHO; 2014.

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