Nigerian Journal of Pharmaceutical and Applied Science Research,
Vol.14 (4): 1-9; December 2025 *ISSN: 2971-737X (Print); ISSN: 2971-7388.*
Available at www.nijophasr.net https://doi.org/10.60787/nijophasr-v14-i4-632

Self-Medication Practices with Over-the-Counter Drugs among Pharmacy Students in South- South Nigeria

[1]*Samuel O. Orji, [2]Anthonia I. Mbarie and [1]Penaere T. Osahon

[1]Department of Clinical Pharmacy and Pharmacy, Faculty of Pharmacy, University of Benin, Benin City, Nigeria.

[2]Institute of Child Health, University of Benin, Benin City, Nigeria.

Article info: Volume 14, Issue 4, December 2025; Received: 26 November 2025; Reviewed: 1 December 2025, Accepted: 29 December 2025; Published: 15 January 2026; *DOI: 10.60787/nijophasr-v14-i4-632*

ABSTRACT

Background: Self-medication with Over-the-Counter (OTC) drugs is increasingly practiced among university students, including those in health-related disciplines. This study was conducted to evaluate the knowledge, attitudes, and self-medication practices with OTC drugs among pharmacy students in the University of Benin (UNIBEN).

***Methods*:** A descriptive cross-sectional study was conducted among 400–600 level pharmacy students using a structured, self-administered questionnaire based on the Knowledge, Attitude and Practice (KAP) model. Stratified random sampling was used to select participants. Data were analyzed using SPSS version 25, utilizing descriptive statistics and chi-square tests to assess associations between socio-demographic variables and KAP components. Ethical approval was obtained from the Faculty of Pharmacy Ethics Committee.

Results: Findings revealed that a large proportion of respondents (98.1%) demonstrated good knowledge of OTC drugs. Most students (99.6%) exhibited positive attitudes toward responsible self-medication, acknowledging the pharmacist's role in ensuring drug safety. However, a considerable proportion (82.2%) reported practicing self-medication within the past three months without professional consultation, while 34.1% admitted increasing drug doses beyond recommended limits. Chi-square analysis showed no statistically significant association between socio-demographic variables and respondents' knowledge or attitude toward OTC drug use ($p > 0.05$).

***Conclusion*:** Pharmacy students demonstrated high knowledge and positive attitudes regarding OTC drug use but engaged in risky self-medication practices, indicating a persistent knowledge gap. Strengthening drug-safety education and enforcing OTC regulations is recommended.

Keywords: Drug-drug interaction, Knowledge-Attitude-, Over-the-Counter drugs, Pharmacy students, Self-medication

1. INTRODUCTION

Self-medication is defined as the selection and use of medicines by individuals to treat self-diagnosed conditions or symptoms without professional consultation [1].University students are among the most prolific self-medicators, particularly with Over-the-Counter (OTC) drugs because they have easy access to medicines and health information, face time and cost constraints, and often perceive their ailments as minor [2]. OTC drugs are medications that can be legally purchased without a prescription for the treatment of minor ailments. Although they offer the advantages of convenience and cost savings, their misuse poses potential risks such as incorrect self-diagnosis, drug-drug interactions, masking of underlying illnesses and antimicrobial resistance [3]. Common OTC drugs used include analgesics (e.g., paracetamol, ibuprofen), antacids, antihistamines, antimalarial and herbal supplements. Among healthcare students, especially pharmacy students, self-medication is paradoxically more prevalent despite their formal training in pharmacology and therapeutics. Numerous studies have reported self-medication prevalence among pharmacy students to be between 60% and 90% in various parts of the world [4,5], 86.7 % in Jordan [6] and > 70% in a pan-regional meta-analysis covering Asia, Africa and South America [7]. In Nigeria, prevalence estimates among undergraduates are consistently high. A multi-faculty survey in Eastern Nigeria recorded an 82%

corresponding author: Email: samuel.orji@pharm.uniben.edu; **+2348166651605**

self-medication rate among pharmacy students [8]. A similar study reported that more than 90% of pharmacy students in Northern Nigeria self-treated with antibiotics, chiefly for upper-respiratory complaints [9]. This could be attributed to the misconception of being capable of managing mild illnesses independently due to their educational background. However, a critical public health concern related to self-medication is the potential for Drug-Drug interactions (DDIs). Drug-drug interactions can be defined as an alteration in drug effect due to pharmacokinetic and/or pharmacodynamic changes by another co-administered drug, supplement, herbal preparations, or device [10]. The possibility of DDIs increases with age when individuals become in need for multiple drugs due to many health conditions, *i.e*., polypharmacy. The effects of DDIs might range from diminished therapeutic effects to potentially life-threatening conditions and adverse events [11]. Hence, DDIs occur when two or more drugs react with each other, causing either an increase or decrease in drug effectiveness or increased toxicity. While prescription medications are commonly implicated in drug-drug interactions, several OTC drugs such as Non-Steroidal Anti-Inflammation Drugs (NSAIDs), antihistamines and antacids can also interact harmfully with other medications, including commonly used prescription drugs, supplements, or traditional medicines. The problem is more complicated when students, particularly those in their pre-clinical years, engage in self-medication without a solid understanding of pharmacokinetics, drug interactions, or adverse effects. Despite these challenges, limited research has been conducted to investigate the self-medication behaviors among pharmacy students specifically in top institutions like University of Benin (UNIBEN). Pharmacy students, due to their academic exposure to pharmacology, drug interactions and therapeutics, are uniquely positioned in the discourse on rational medication use. While their knowledge may enable them to make more informed choices, studies have shown that this same knowledge can lead to overconfidence and frequent self-prescribing behaviors without proper risk assessment [12]. This study, therefore, seeks to fill this critical gap by evaluating the self-medication behaviors involving OTC drugs among pharmacy students at the University of Benin. Understanding their knowledge, attitude and practice will inform not only institutional educational reforms but also broader public health strategies related to responsible medicine use.

2. MATERIALS AND METHODS

2.1 Materials

A self-administered, structured questionnaire based on the Knowledge–Attitude–Practice (KAP) model was used for data collection. Printed questionnaires were distributed to eligible participants. The collected data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.

2.2 Methods

2.2. 1Study Design:

This research adopted a descriptive, cross-sectional survey design, which is suitable for assessing Knowledge, Attitude and Practice (KAP) of a population at a specific point in time. The design enabled identification of prevalence rates and associations between variables without manipulating any study condition.

2.2.2 Study Area:

The study was conducted at the University of Benin (UNIBEN) Faculty of Pharmacy, Benin City, Edo State, Nigeria. The University of Benin is one of Nigeria's foremost Federal Universities, established in 1970. It is renowned for its commitment to excellence in teaching, research, and community service across various disciplines and has since grown into a leading academic institution recognized nationally and internationally. It is strategically located in Benin City, the capital of Edo State, South-South Nigeria drawing students from across the country and beyond, reflecting Nigeria's cultural and demographic diversity. The faculty of pharmacy consists of undergraduate students enrolled in the six-year Doctor of Pharmacy (PharmD) programme, is among the oldest and most reputable Pharmacy Faculties in Nigeria. The Faculty of Pharmacy has the following departments: Pharmaceutical Microbiology, Pharmacognosy, Pharmacology and Toxicology, Pharmaceutics and Pharmaceutical technology, Pharmaceutical Chemistry, Clinical Pharmacy and Pharmacy. It is fully accredited by the Pharmacy Council of Nigeria (PCN) and is committed to training competent Pharmacists who contribute to the Nigerian health sector. The faculty also runs postgraduate programs in all six departments.

2.2.3 Study Population:

The study specifically targeted pharmacy students from 400 to 600 levels. These students have undergone several years of academic exposure and are expected to have substantial theoretical knowledge of pharmacology, pharmacotherapy, rational drug use and therapeutics. Students in the lower levels were excluded since they are still largely engaged in basic sciences and foundational courses. The estimated total number of eligible students was 600.

Inclusion Criteria
Pharmacy undergraduate students who are currently enrolled in 400 to 600 level for the 2024/2025 academic session.
Pharmacy students who provide informed consent to participate.

Exclusion Criteria: First year (100 level) to third year (300 level) pharmacy students
Non-pharmacy students: Postgraduate pharmacy students.
Sample Size Determination: The sample size was determined using the Yamane formula:

$$n=N/1+N(e)^2$$

Where: n=the sample size, N= total population of pharmacy students (600), e= margin of error(0.05)
Therefore: n = 600 / [1 + 600(0.05)²], n=240 participants. To account for non-response (10%): $n_{Adjusted}$=240/0.9=267 participants. Hence, final sample size n=267 participants

2.2.4 Sampling Technique
A stratified random sampling method was used. The population was stratified according to the year of study (400 to 600 level), and participants were selected proportionally from each level using simple random sampling (e.g., class attendance list or student registry).

2.2.5 Instrument used in Data Collection:
A self-administered, structured questionnaire based on the Knowledge, Attitude and Practice (KAP) model was used to collect data of the participants. The questionnaire is divided into four sections:
Section A: Socio-demographic data (age, gender, level, place of residence, etc.)
Section B: Knowledge of self-medication with OTC drugs (7 multiple-choice items)
Section C: Attitudes towards self-medication with OTC drugs (11 Likert-scale items)
Section D: Practice of self-medication with OTC (6 closed ended questions)
The questionnaire was adapted from existing validated tool used in a similar study [13] and modified to suit the current study. The questionnaire was reviewed by a clinical pharmacist at UNIBEN for content validity. A pilot test was conducted on the self- structured study instrument and reliability test revealed an acceptable level of internal consistency (Cronbach Alpha=0.722).

2.2.6 Data Collection Procedure
The data were collected physically (paper format) depending on feasibility and student availability with the assistance of trained research assistants. Participation was voluntary and anonymous. Questionnaires were distributed during lecture-free periods in the classroom.

2.3 Data Analysis
Descriptive statistics: Frequencies, percentages, means, and standard deviations
Knowledge scores: calculated by awarding 1 point for each correct answer (max score =10)
Attitude: Likert-scale items scored 1-5; mean scores categorized positive vs negative attitudes.
Practice: Frequency and distribution of practice was described.
Inferential statistics: Chi-square test to assess association between socio- demographic variables and KAP
Software: SPSS version 25 was used for data entry and analysis. A p-value of <0.05 was considered statistically significant.

3. RESULTS
A total of 270 questionnaires were distributed and filled accurately among the participants, giving a response rate of 100%. Majority of the respondents were male (50.4%) and most of the respondents (51.5%) were between the ages of 22 and 26 years.

Table 1: Socio- demographic characteristics of participants,

Variables	Frequency (n)	Percentage (%)
Age (Years)		
18 - 22	107	39.6
22 - 26	139	51.5
26 - 30	18	6.7

>30	6	2.2
Gender		
Male	136	50.4
Female	134	49.6
Level of study		
400	90	33.3
500	90	33.3
600	90	33.3
Accommodation type		
Campus - Hostels	108	40.0
Off - Campus-Hostels	162	60.0
Religion		
Christianity	258	95.6
Islam	10	3.7
Others	2	0.7

N= 270

Table 2: Participants response to questions on knowledge of self-medication with OTC drugs

Questions	Frequency (n)	Percentage (%)	Mean	S. D
Which of the following best defines over-the-counter (OTC) drugs?			3.76	0.759
Prescription-only drugs	14	5.2		
Herbal supplements	11	4.1		
Medications sold without a doctor's prescription	245	90.7		
Controlled substances	0	0		
What is your main source of knowledge about OTC drugs?			3.52	0.878
Academic training	197	73.0		
Internet	31	11.5		
Health professionals	29	10.7		
Drug leaflets	13	4.8		
Can combining herbal products with OTC medications lead to Drug-drug interaction			1.08	0.346
No	6	2.2		
Yes	236	87.4		
Not sure	28	10.4		
Only in Adults	0	0		
Which of these is a safe when using OTC medications?			3.81	0.692
Combining two painkillers without checking	14	5.2		
Reading drug leaflets before use	250	92.6		
Doubling the dose if symptoms persist	4	1.5		

Using old leftover drugs	2	0.7		
Which of the following is classified as an over-the-counter (OTC) medication?			3.86	0.524
Metformin	7	2.6		
Ibuprofen	247	91.5		
Ciprofloxacin	16	5.9		
Morphine	0	0.0		
What is the main risk of self-medicating with OTC drugs?			3.76	0.695
Saves time	6	2.2		
Potential for drug-drug interactions and misuse	238	88.1		
Cost-effectiveness	4	1.5		
All of the above	22	8.1		
What does drug-drug interaction mean?				
One drug reducing or enhancing the effect of another	264	97.8	3.97	0.234
Only antibiotics interacting with each other	3	1.1		
Medications given by two different doctors	3	1.1		
Not sure	0	0.0		

Table 3: Association between socio- demographic and participant knowledge of OTC Drugs

Variables	Good Knowledge	Poor Knowledge	Chi - Square	P -Value
Level of study			0.493	0.781
400	88(32.6%)	2(0.7%)		
500	89(34.4%)	1(0.4%)		
600	87(32.2%)	2(0.7%)		
Age (Years)			1.117	0.773
18 - 22	104(38.5%)	3(1.1%)		
22 - 26	137(50.7%)	2(0.7%)		
26 - 30	18(6.6%)	0(0%)		
>30	6(2.2%)	0(0%)		
Gender			0.189	0.664
Male	133(49.3%)	3(1.1%)		
Female	132(48.8%)	2(0.7%)		
Accommodation type			0.849	0.357
Campus - Hostels	107(39.6%)	1(0.4%)		
Off - Campus-Hostels	158(58.5%)	4(1.5%)		

Table 4: Participant response to questions on Attitude towards self-medication with OTC drugs

Questions	S. D	D	N	A	S. A
Self-medication with OTC drugs is safe if I have prior knowledge.	7(2.6%)	12(4.4%)	41(15.2%)	136(50.4%)	74(27.4%)
Pharmacy students can safely identify potential drug-drug interactions without guidance	21(7.8%)	73(27.0%)	64(23.7%)	79(29.3%)	33(12.2%)
I believe OTC drug misuse can lead to serious health consequences.	3(1.1%)	2(0.7%)	19(7.0%)	88(32.6%)	158(58.5%)
I feel confident advising others on safe OTC use.	2(0.7%)	14(5.2%)	43(15.9%)	130(48.1%)	81(30.0%)
I am cautious about combining OTC drugs without checking interactions.	10(3.7%)	38(14.1%)	25(9.3%)	110(40.7%)	87(32.2%)
Drug-drug interactions should be emphasized more in the pharmacy curriculum.	1(0.4%)	0(0%)	11(4.1%)	77(28.5%)	181(67.0%)
I often consider potential drug-drug interactions before using any two drugs.	1(0.4%)	9(3.3%)	32(11.9%)	115(42.6%)	113(41.9%)
OTC drugs are often wrongly assumed to be completely safe.	0(0%)	3(1.1%)	25(9.3%)	134(49.6%)	108(40.0%)
The risk of drug-drug interactions is a real concern when using OTC drugs.	1(0.4%)	6(2.2%)	30(11.1%)	112(41.5%)	121(44.8%)
OTC drug use without caution is a growing public health concern.	0(0%)	3(1.1%)	6(5.9%)	98(36.3%)	153(56.7%)
Pharmacists have a responsibility to educate the public on drug-drug interactions.	0(0%)	1(0.4%)	6(2.2%)	58(21.5%)	205(75.9%)

Table 5: Association between socio-demographic and attitude towards self-medication with OTC Drugs

Variables	Positive Attitude	Negative Attitude	Chi - Square	P - Value
Level of study			2.007	0.367
400	90(33.3%)	0(0%)		
500	89(32.9%)	1(0.4%)		
600	90(33.3%)	0(0%)		
Age (Years)			0.946	0.814
18 - 22	107(39.6%)	0(0%)		
22 - 26	138(51.1%)	1(0.4%)		
26 - 30	18(6.6%)	0(0%)		
>30	6(2.2%)	0(0%)		
Gender			1.019	0.313
Male	136(50.4%)	0(0%)		
Female	133(49.3%)	1(0.4%)		
Accommodation type			1.506	0.220
Campus - Hostels	107(39.6%)	1(0.4%)		
Off - Campus-Hostels	162(60.0%)	0(0%)		

Table 6: Participant response to practice of self – medication with OTC drugs

Questions	Yes	No
Have you used an OTC drug in the past 3 months without consulting a healthcare professional?	222(82.2%)	48(17.8%)
Do you read package leaflets before taking an OTC drug?	168(62.2%)	102(37.8%)
Have you ever experienced a side effect from self-medication with OTC drugs?	132(48.9%)	138(51.1%)
Have you used an OTC drug with alcohol or herbal remedies?	34(12.6%)	236(87.4%)
Have you ever increased the recommended dose of an OTC drug on your own?	92(34.1%)	178(65.9%)
Do you routinely check for drug interaction warnings before combining drugs?	169(62.6%)	101(37.4%)

4. DISCUSSION

Most respondents were within the 18–26-year age group, a finding consistent with typical undergraduate demographics in Nigerian universities. This age group represents the young adult population that is both intellectually independent and actively engaged in self-care practices. Studies have consistently shown that self-medication is most prevalent among young adults because of greater access to drug information, perceived good health, and preference for convenience [9,14]. Regarding gender distribution, there was an almost equal representation of both male and female. A study in India, found no significant difference in gender-related self-medication practice among pharmacy students, suggesting that knowledge level and access to medicines may reduce gender disparities in health-seeking practice [15]. In terms of level of study, the inclusion of 400–600 level students ensured that respondents had received sufficient exposure to pharmacology, clinical, and drug regulation. Higher-level students are more knowledgeable about pharmacology, side effects, and potential drug interactions [9,14]. However, this advanced knowledge may foster a sense of therapeutic autonomy, promoting self-medication [16]. The finding that a greater proportion of respondents reside off-campus may partly explain increased accessibility to OTC drugs, as students living outside the university premises are often closer to community pharmacies. This observation is consistent with [9], who reported that proximity to pharmacies significantly encourages self-medication among Nigerian students. Hence, accommodation type may act as a structural determinant of self-medication practice. The majority of respondents in this study identified as Christians (95.6%), reflecting the dominant religious distribution in southern Nigeria. While religion is not a direct predictor of self-medication, it can influence health beliefs, self-care attitudes, and trust in modern medicine. Cultural and religious values sometimes affect perceptions of illness and healing, with some students combining spiritual faith and biomedical self-treatment [17]. Findings from this study showed that majority of the respondents demonstrated good knowledge of OTC medicines, including their indications, proper dosage, side effects, contraindications, and potential for harmful interactions. This good knowledge is expected because respondents were 400–600 level pharmacy students, who have undergone relevant pharmaceutical training such as pharmacology, clinical pharmacy, and drug information coursework. This aligns with findings that advanced-level health profession students exhibit higher medication literacy due to increased academic exposure [14]. The lack of significant associations across all demographic factors suggests that knowledge of OTC drugs among UNIBEN pharmacy students is universally high and not dependent on age, gender, academic level, or residence type. This implies that educational factors override demographic factors in shaping pharmaceutical knowledge. Similar conclusions were drawn from two studies, that emphasized structured pharmacy training ensures uniform competency among students regardless of their backgrounds [15,18]. The study revealed an overall highly positive attitude among pharmacy students toward the rational and responsible use of OTC drugs. The responses demonstrated not only safety awareness but also a strong sense of professional responsibility regarding drug information, public health, and pharmacovigilance. These findings are consistent with the positive attitudinal trends observed among pharmacy students in similar studies across Nigeria and other countries [14,15,18]. The study revealed no statistically significant association between socio-demographic variables and respondent's attitudes toward OTC drug use. This indicates that all groups of pharmacy students shared similar positive attitudes toward responsible and rational self-medication. The consistency across different academic levels reflects the uniform professional ethics and pharmacological training embedded in the pharmacy curriculum. Comparable findings showed that pharmacy students' attitudes toward responsible drug use are shaped more by educational exposure and professional socialization than by personal or demographic factors [2,15]. Many students still engaged in unsafe self-medication practices. About 82.2% reported using OTC drugs without consulting a healthcare professional, and 34.1% admitted to increasing recommended doses. This pattern mirrors the findings that

showed a persistent knowledge– gap among pharmacy students [8,18]. More than half of the students reported reading drug leaflets and checking for drug interaction warnings before using medications, but a notable proportion still neglected these safety measures. This suggests overconfidence and familiarity with common drugs, placing some students at risk of improper use and potential drug–drug interactions [8,15]. Almost half of the respondents reported having experienced at least one side effect after self-medicating, such as dizziness, gastrointestinal discomfort or allergic reactions. This finding is consistent with two studies that reported that adverse reactions are not uncommon among self-medicating students [8,14]. The presence of side effects in such a knowledgeable population underscores the limitations of self-diagnosis and self-treatment, particularly when combined with poor dosing or drug–drug interactions. This practice highlights the importance of reinforcing medication literacy and risk awareness in pharmacy education, especially regarding over-the-counter poly-pharmacy. This study was limited by its cross-sectional design, which restricts causal inference. Data were self-reported, introducing possible recall and social desirability bias. The research involved only 400–600 level pharmacy students from a single university, limiting generalizability to other populations. The study focused solely on OTC drugs, excluding prescription-only medicines. Despite these limitations, the findings remain valuable for improving pharmacy education and promoting rational self-medication practice.

5. CONCLUSION

The study found that most respondents possessed good knowledge of over-the-counter (OTC) drugs. This high level of knowledge reflects the effectiveness of the pharmacy curriculum in imparting essential pharmacological understanding to pharmacy students. Attitudinal assessment revealed overwhelmingly positive attitudes toward safe and responsible drug use, with students recognizing the professional responsibility of pharmacists in promoting rational drug use and educating the public on drug safety. Despite adequate knowledge and positive attitudes, students demonstrated unsafe self-medication practices, including the use of drugs without professional consultation, failure to read drug information leaflets, concomitant use of drugs with alcohol or herbal products, and inappropriate dose modification. These findings highlight a knowledge–practice gap, where awareness does not consistently translate into safe behavior. To address this gap, there is a need to strengthen pharmacy training and awareness programs to promote rational OTC drug use, with emphasis on pharmacovigilance and the risks associated with self-prescribing. In addition, stricter enforcement of OTC drug regulations and the promotion of responsible self-care practices among pharmacy students are recommended to bridge this knowledge–practice gap.

DECLARATIONS

Acknowledgement

We are grateful to the Management, Staff and Students of University of Benin, Benin City for their approval, support and cooperation.

Conflict of interest statement

There is no potential conflict of interest or any financial or personal relationships with other people or organizations that could inappropriately bias the conduct and findings of this study.

Author Contributions

The three authors designed the study. Samuel Orji collected and analyzed the data. Writing the paper and critical revision were done by all the authors.

Ethical Considerations

Ethical approval was obtained from the University of Benin Faculty of Pharmacy Ethics Committee to ensure adherence to ethical standards in the research involving human participants. All participants provided informed consent, data were treated as confidential and anonymous. Participation was voluntary, with the right to withdraw at any time. No identifiable personal data was collected, and all digital records were password-protected.

6. REFERENCES

[1] World Health Organization. Self-care for health: A handbook for community health workers and volunteers. Geneva: WHO Press; 2021.

[2] Samorinha C, Saidawi W, Saddik B, Abduelkarem AR, Alzoubi KH, Abu-Gharbieh E, et al. Exploring the global landscape of self-medication among students: trends, risks and recommendations for safe. Pharm Pract. 2024;22(1):1–14.

[3] Martins A, Gama AC, Correia T. Knowledge and awareness of drug–drug interactions among pharmacy students: a cross-sectional study. J Pharm Educ Pract. 2019;7(3):44–51.

[4] Ahmed A, Ali N, Shahid S, Khalid A, Malik R, Akram H. Knowledge, attitudes and s regarding self-medication among pharmacy and medical students. BMC Health Serv Res. 2022;22(1):1455.
[5] Abu-Dahab R, Al-Khader D, Qudah M, Al-Muhaisen S, Zakaraya M. Self-medication s among pharmacy students in Jordan. Int J Pharm Pract. 2020;28(6):602–10.
[6] Alsous M, Elayeh E, Abdel Jalil M, Alhawmdeh E. Evaluation of self-medication among pharmacy students in Jordan. Jordan J Pharm Sci. 2018;11(1):13–23.
[7] World Health Organization – Eastern Mediterranean Regional Office. Prevalence of self-medication in university students: systematic review and meta-analysis. East Mediterr Health J. 2020;26(7):846–57.
[8] Odoh EC, Oparah AC, Eze UI. Knowledge, perception and among pharmacy students regarding self-medication in Eastern Nigeria. Asian J Res Med Pharm Sci. 2024;13(3):61–76.
[9] Garba MK, Jatau AI, Ibrahim UI, Dungus FM, Shitu Z, Shaaban A, et al. Antibiotics self-medication among undergraduate pharmacy students in Northern Nigeria. Ther Adv Drug Saf. 2019; 10:1–12.
[10] Rodrigues AD. Drug–drug interactions. 2nd ed. Boca Raton: CRC Press; 2019.
[11] Sharma R, Singh A, Singh P. Drug–drug interactions: A clinical review. Int J Basic Clin Pharmacol. 2021;10(2):113–20.
[12] Yusuff KB, Wassi AM. Self-medication s among undergraduate pharmacy students in Nigeria: a case for comprehensive intervention. Afr J Pharm Pharmacol. 2020;14(8):213–20.
[13] Etuk EI, Isezuo SA, Akuche J. Patterns of self-medication among university students in Sokoto, Nigeria. Niger J Clin Pract. 2020;23(4):478–83.
[14] Ayalew MB. Self-medication in Ethiopia: A systematic review. Patient Prefer Adherence. 2017; 11:401–13.
[15] Kumar R, Goyal A, Padhy BM, Gupta YK. Self-medication and factors influencing it among medical and paramedical students in India: a two period comparative cross-sectional study. J Nat Sci Biol Med. 2019;10(2):170–5.
[16] Zafar SN, Syed R, Waqar S, Irani FA, Saleem S. Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. J Pak Med Assoc. 2008;58(4):214–7.
[17] Eze CN, Eze IC, Nwadike C, Okonkwo R. Self-medication s among students in tertiary institutions in Southeast Nigeria: prevalence, determinants and implications. Int J Health Med Sci. 2020;6(4):91–9.
[18] Sudhewa SP, Jayasundara DSN, Jayamanne BDW. Knowledge, attitudes and practice on self-medication among undergraduate students in Sri Lanka: a cross-sectional study. BMC Public Health. 2022;22(1):1–10.