

# Knowledge and attitude of self-medicating among foundation-year students at Saudi university: Cross-sectional study

Hayam Ali AlRasheed<sup>1\*</sup>, Khlood Mohammad Aldossary<sup>1</sup>

<sup>1</sup> Department of Pharmacy Practice, College of Pharmacy, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia.

**Correspondence:** Hayam Ali AlRasheed, Department of Pharmacy Practice, College of Pharmacy, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia. haalrasheed@pnu.edu.sa

## ABSTRACT

Self-medication is a global public health problem, particularly among University students at the beginning of their careers. This study aims to determine awareness and attitude toward self-medication practices among Foundation Year - Health Science Students at PNU in Riyadh, Saudi Arabia. We conducted a cross-sectional survey using convenient sampling techniques to identify study participants. After obtaining written consent, we emailed them an online questionnaire that included information on sociodemographics, knowledge, students' awareness of self-medication, and reasons for self-medication. We computed means and standard deviations to report continuous variables, frequencies, and proportions to report categorical variables, which were analyzed by Excel software. The mean age and body mass index were  $19.17 \pm 2.23$  and  $22.91 \pm 4.25$ , respectively. About 75% of the students mentioned they had used self-medication in the past. One-third of respondents mentioned that self-medication can cause harm, and 58.8% mentioned that self-medication can cause harm sometimes. The most common resource for self-medication was pharmacy stores, followed by families and friends. The most common reasons to self-medicate were multiple, including economical, saving time, convenience, quick relief of the symptoms, no availability of a medical service, and minor illness. The reasons reported by students were multiple, including common cold, headache, fever, and dysmenorrhea, followed by insomnia. The burden of self-medication is alarming among university students, with about three-fourths of them reporting using drugs to self-medicate. These findings can help policymakers and university administrators raise awareness among students about the negative impact of medications on their lives.

**Keywords:** Self-medication, Knowledge, Practice, University students, Saudi Arabia, Survey

## Introduction

Self-medication, using medication without any medical knowledge and consultation, is becoming very common [1]. Inappropriate use of medications without consulting healthcare professionals is a huge problem globally [2]. In resource-poor settings, primarily young people treat their illnesses by self-medication, which brings Public and Professional concern about irrational choice and use of self-medication [3, 4]. According to

the World Health Organization, adequate use of self-medication can benefit the individual's health and be considered a part of one's health care [5]. Although self-medication is considered an essential tool for managing minor ailments, inadequate and excessive self-medication can cause adverse reactions in the body [6, 7].

Moreover, self-medication can become a problem if an individual makes an irrational choice of medications [6]. For example, self-medication can cause drug interactions and increase the risk of adverse reactions. Additionally, there is a possibility of drug abuse due to inappropriate use of drugs that should not be used without consultations and adequate knowledge [6, 8, 9]. Drug-related issues, because of self-medication, are becoming a global problem and can become a pandemic if no action is taken through interventions that can prevent self-medication [4, 10].

Unfortunately, there is easy access to drugs and life-saving medications in many countries because pharmacy stores sell these drugs without even asking for prescriptions [11, 12].

### Access this article online

Website: [www.japer.in](http://www.japer.in)

E-ISSN: 2249-3379

**How to cite this article:** AlRasheed HA, Aldossary KhM. Knowledge and attitude of self-medicating among foundation-year students at Saudi university: Cross-sectional study. *J Adv Pharm Educ Res.* 2024;14(3):36-42. <https://doi.org/10.51847/1uHbXpQBJ>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

People typically self-medicate to save time and money, seek quick relief from symptoms, treat minor illnesses independently without consultations, or they may not have access to medical services [13-15]. Besides, people may think that symptoms such as headache, fever, and cough can be treated easily without seeking medical consultation [16, 17]. Studies have been conducted in various countries about knowledge and self-medication practices among college students [16, 17].

These studies concluded a high prevalence among this population. However, we do not have enough evidence about the usage of self-medication among foundation-year students studying at the Universities of Saudi Arabia.

We assumed that Foundation-year health sciences students may lack knowledge regarding self-medication practices and their risks. Hence, we undertook this study to determine the awareness and attitude of self-medication practices among Foundation Year – Health Science Students at Princess Nourah University in Riyadh, Saudi Arabia. In addition to assessing the knowledge and awareness of self-medication practices among the foundation year students, we also determined the possible causes that lead the foundation year students to self-medicate, and we aimed to identify the most common drugs for which self-medication is done. Exploring self-medication among university students is crucial because university life is the time when students can be taught about the harmful effects of irrational use of medications, and policies can be made to intervene in University students to avoid using unnecessary medication without adequate knowledge, medical consultation, and proper recommendations.

## Materials and Methods

We conducted this descriptive cross-sectional study on the Foundation-Year Health Science Students at Princess Nourah University in Riyadh, Saudi Arabia. To be eligible to participate, students had to be foundation-year health science students at Princess Nourah University. We used convenience sampling techniques to enroll students in the study.

### Data collection

We sent an online questionnaire to the University students via Google Drive. The questionnaire included questions on the demographics of the study participants, such as age, weight, height, marital status, and history of any chronic disease. We also incorporated a section on self-medication that included students' knowledge and practices regarding self-medication, reasons for self-medication, types of drugs used for self-medication, symptoms of self-medication, and opinions of students about negative impacts of self-medication, if any.

### Statistical analysis

We coded and entered the participants' responses into Excel software. We generated frequencies and proportions to describe the characteristics of the University students enrolled in the

study. For categorical variables, we generated frequencies and proportions to describe the characteristics, and we computed means and standard deviations (SDs) for continuous variables such as age and body mass index (BMI). We also converted the continuous variables into meaningful categories of age. We used the cut-off of the World Health Organization to categorize BMI into underweight ( $<18.5\text{kg/m}^2$ ), normal/healthy weight ( $18.5\text{-}24.9\text{kg/m}^2$ ), overweight ( $25\text{-}30\text{ kg/m}^2$ ), and obese ( $>30\text{ kg/m}^2$ ). We also generated proportions and frequencies of the questions about self-medication and presented the results in tables and graphs. Excel software was used to analyze the data.

## Results and Discussion

### Characteristics of study participants

**Table 1** depicts the characteristics of study participants. The study participants' mean age and BMI were  $19.17 \pm 2.23$  and  $22.91 \pm 4.25$ , respectively. Almost all the study participants (93.8%) were very young with age  $< 20$  years, and the majority of them (69.1%) had a health BMI of  $18.5\text{-}24.9\text{kg/m}^2$ . Almost all the study participants were single (95.9%), and 3.1% were married. About 50% of the participants mentioned that their family members work in the health sector, and 83.5% of them mentioned having chronic disease.

**Table 1. Characteristics of the university students who participated in the study.**

Characteristics	N=97	%
Age (Years), Mean $\pm$ SD	19.17	2.23
Age categories (Years)		
<20	91	93.8
20-30	5	5.2
>30	1	1
BMI, Mean $\pm$ SD	22.91	4.25
BMI categories ( $\text{kg/m}^2$ )		
<18.5	8	8.2
18.5-24.9	57	69.1
25-29.9	16	16.5
>30	6	6.2
Marital status		
Single	93	95.9
Married	3	3.1
Widow	1	1
Family members in the health sector		
No	49	50.5
Yes	48	49.5

N= Number of Students; SD = Standard Deviation

### Knowledge and practices about self-medication

**Table 2** illustrates the practices of self-medication among university students and their opinions about how self-medication

can cause harm to the body. About three-fourths of university students mentioned they had used self-medication in the past at least once, 45.4%

mentioned yes, and 28.9% mentioned they had self-medicated sometimes. About one-third (32%) of the respondents mentioned that they had done self-medication once or twice in the past. Only 6.2% of respondents stated that self-medication can cause no harm, one-third of respondents (35.1%) mentioned that self-medication can cause harm, and 58.8% mentioned that self-medication can cause harm sometimes. About 60.8% of the students mentioned that they had faced adverse effects from self-medication. Different symptoms were reported by students that can be experienced post-self-medication. The most common symptoms were cough and abdominal pain alone (11%); however, 58.8% reported not experiencing any symptoms following self-medication. The most common resource to self-medicate was pharmacy stores (50.5%), followed by families and friends (31%). About half of the students (48.3%) thought self-medication can lead to drug interactions, side effects, symptoms return, and poor treatment outcomes.

**Table 2. Knowledge and practices about self-medication among university students.**

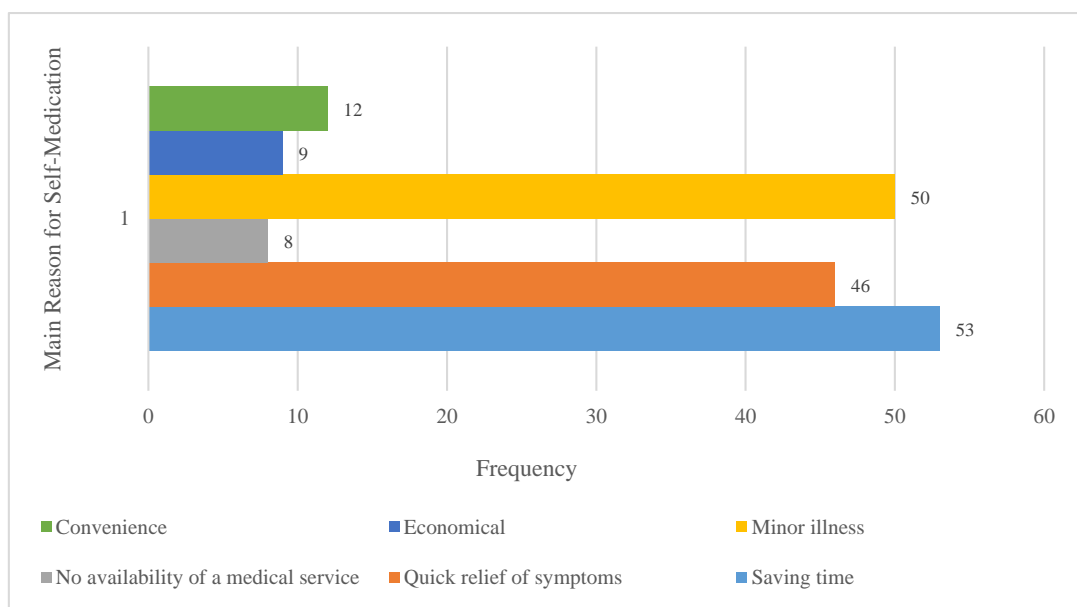
Self-medication practices and knowledge	N=97	%
Self-medication		
No	25	25.8
Sometimes	28	28.9
Yes	44	45.4

Self-medication can cause harm (Opinion)		
No	6	6.2
Sometimes	57	58.8
Yes	34	35.1
Self-medication in the last 6 months		
More than 10 times	13	13.4
More than 5 times	40	41.2
Never	13	13.4
Once or twice	31	32.0
Ever faced adverse effects from self-medication.		
Always	2	2.1
Never	59	60.8
Rarely	18	18.6
Sometimes	10	10.3
Usually	8	8.2

N= Number of Students

### Main reasons and symptoms for self-medication

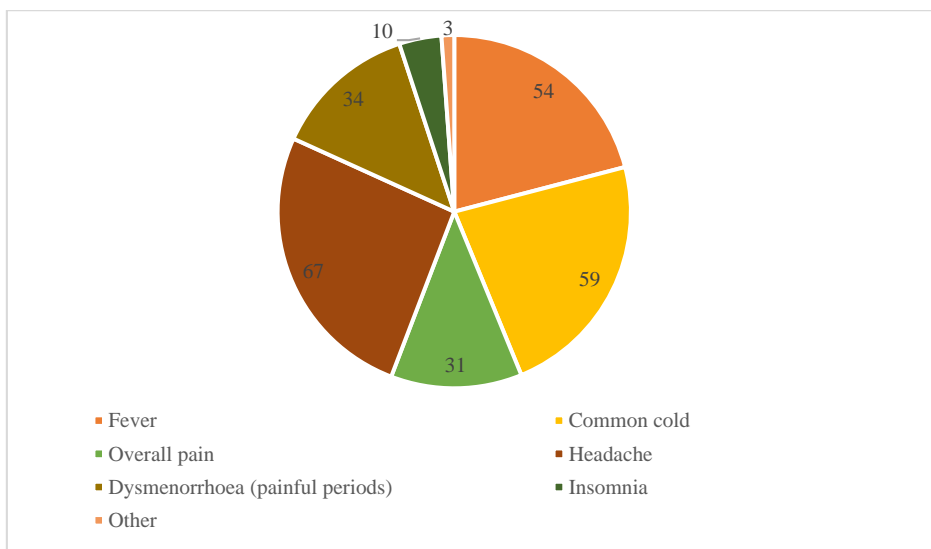
Figure 1 below illustrates the students' Main reasons for self-medicating. The most common reasons were multiple (42%), including economical, convenience, no availability of medical service, and quick relief of symptoms. Saving time (30%) was the most common reason, followed by minor illness (28%).



**Figure 1.** Students' Main reasons for self-medicating.

Figure 2 illustrates the common symptoms that encouraged students to self-medicate. The reasons reported by students were multiple, including the common cold, overall pain,

dysmenorrhea, and others (49%), followed by headache, fever (47%), and insomnia (4%).

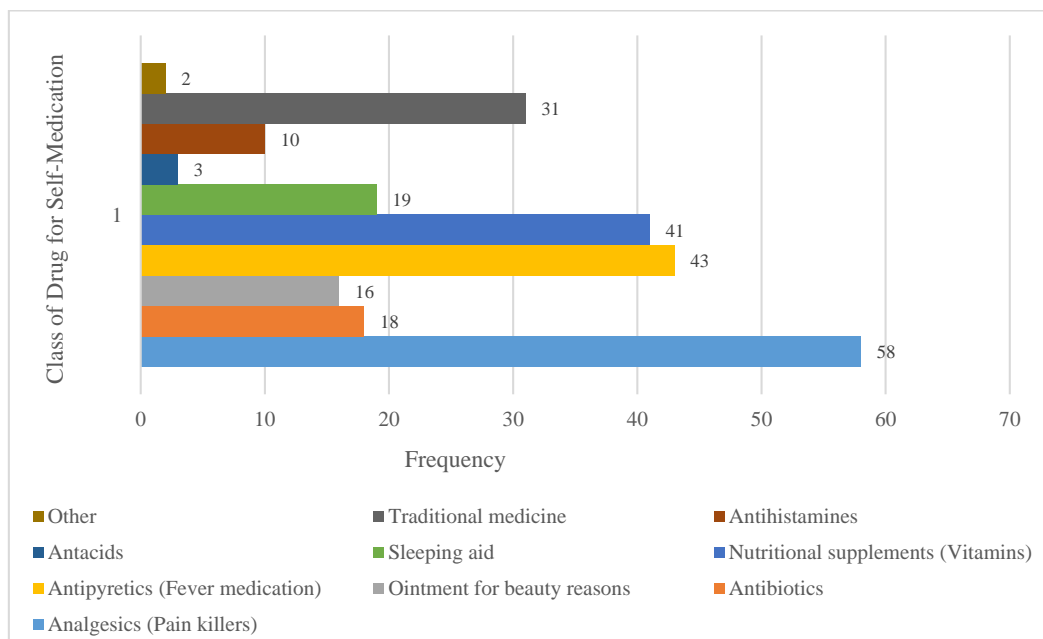


**Figure 2.** Common symptoms encouraged students to self-medicate.

*Classes of drugs for self-medication and primary sources of information*

**Figure 3** shows the students reported most common classes of drugs for self-medicate. Medications such as antipyretics,

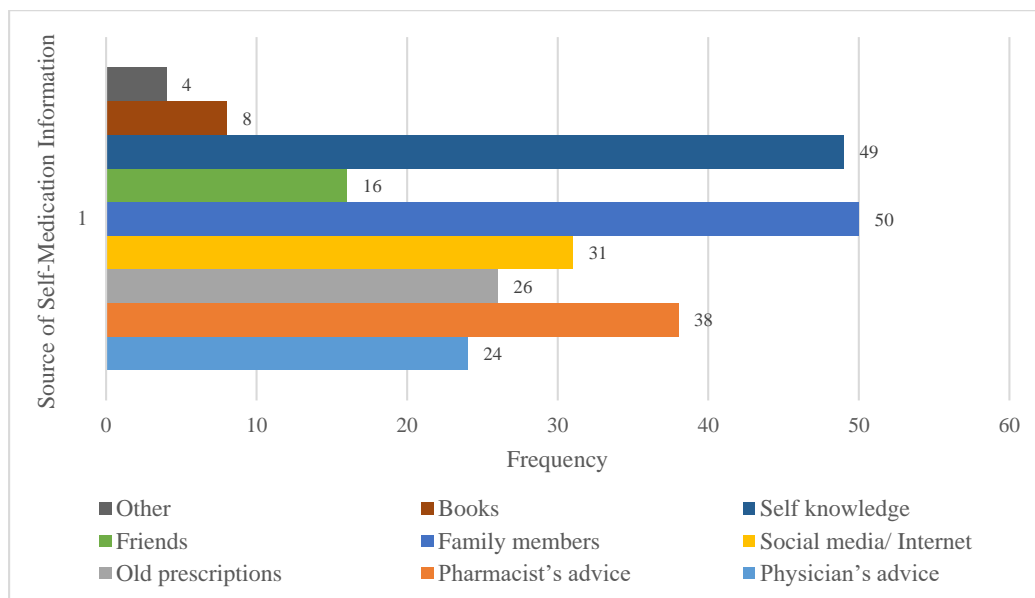
nutritional supplements, traditional medications, and sleeping aids were commonly reported (55.6%) by the University students, followed by analgesics (24%) and antibiotics alone (7.4%).



**Figure 3.** Most common drug classes for self-medicate.

However, 8% of the students self-medicated with a combination of analgesics, antibiotics, and nutritional supplements. **Figure 4** shows the students' primary sources of information for self-medication. More than two-thirds of the students mentioned

physician's advice, pharmacist's advice, old prescriptions, family members, and self-knowledge as the primary sources of information. About 11.4% mentioned friends, books, and others as sources of information (**Figure 4**).



**Figure 4.** Main source of information students used for self-medication.

We conducted this study to determine how Foundation Year Health Science Students at Princess Nourah University in Riyadh, Saudi Arabia, felt about self-medication behaviors. We sought to identify the most popular medications for self-medication and assess the foundation-year students' knowledge and awareness of self-medication practices. We also identified potential causes that may motivate foundation-year students to self-medicate. We found a higher burden of self-medication among University students in Saudi Arabia. About three-fourths of the students were found to self-medicate in the survey.

Our findings are consistent with prior studies, mainly conducted in developing countries.

For example, a study from Bangladesh reported that 88% of the students practice self-medication [18]. Similarly, 87% of the University students in Jordan reported practicing self-medication [19], and 52% of the students were found to self-medicate in Egypt [20]. Likewise, a study undertaken among university students in Indonesia and China found that self-medication was practiced by about 50% and 48% of the students, respectively [21, 22]. The rate of self-medication is not very low in Ethiopia, where several studies have been conducted in the past. These studies report the self-medication to be between 33-71% [23, 24].

Second, we found that the most common reasons for self-medication include economical, saving time, convenience, quick relief of the symptoms, no availability of medical service, and minor illness, followed by temporary relief of symptoms. These findings are analogous to the previous studies conducted worldwide [23, 25, 26]. For example, prior studies report saving time, treating minor illnesses, personal convenience, and easy access to drug acquisition as the most common reasons for self-medication [23, 25, 26]. However, prior studies have reported impolite behavior of healthcare practitioners and satisfaction with the service's additional reasons for self-medication, which we did not find in the current study [23, 25, 26]. Likewise, we found that cough, cold, fever, headache, and dysmenorrhea were

common medical conditions reported by about 70% of the students [27, 28]. These findings are consistent with other worldwide studies that reported colds, cough, fever, headache, skin problems, diarrhea, running nose and sore throat, and dysmenorrhea as common medical ailments [27, 28].

We found that the most commonly used drugs to self-medicate included analgesics, antipyretics, nutritional supplements, and traditional medications. Besides, antibiotics were also used by students as self-medication drugs. Like our study, other studies reported that antibiotics, antacids, nutrition supplements, and traditional medications relieve cough [20, 29, 30]. These consistent findings for the common reasons, commonality in drugs being used for self-medication and common medical ailments to use self-medication indicate that self-medication is a global problem that not only affects university students but also similarly affects them.

### *Strengths and limitations*

This study was the first to explore awareness and attitude toward self-medication practices among Foundation Year - Health Science Students at Princess Nourah University in Riyadh, Saudi Arabia. These findings provide insights into the burden of self-medication among university students who are just beginning their careers. These findings can provide a framework for policymakers and management of the University to take appropriate actions and interventions to increase knowledge among the University students about the harmful effects of self-medication on health. However, our study findings should be interpreted in the light of some limitations. Though our response rate was reasonable, our sample size was small, and we used a convenient sampling technique rather than a random sampling technique to enroll the participants. Therefore, the findings may not be generalized to countries similar to Saudi Arabia. Second, this was a cross-sectional survey; thus, we could not assess the temporal relationship between factors associated with knowledge, and due to limited data on sociodemographic

characteristics, we could not explore the individual, household, community, or healthsystem-related factors that may influence the self-medication among the university students. Besides, the students self-rated the responses using the self-administered online questionnaire. Hence, the likelihood of wish bias or self-reporting bias cannot be avoided. Because of study pressure, the students may not have responded to the questions adequately.

## Conclusion

The burden of self-medication was higher among University students, with about three-fourths of the students reporting using drugs to self-medicate. The most common reasons reported by the students were quick relief, saving time, saving money, and limited access to medical services. Students tend to use analgesics, antibiotics, and nutrient supplements as commonly used medications. These findings can help policymakers and the university administration raise awareness among University students about the negative impact of medications on the lives of students who are just beginning their careers. We need more studies in the future to explore the individual, household, community, or health system-related factors that may influence self-medication among university students.

**Acknowledgments:** The authors would like to acknowledge all students in the foundation year at Princess Nourah bint Abdulrahman University who participated in this study for their kind support.

**Conflict of interest:** None

**Financial support:** None

**Ethics statement:** The Institutional Review Board of Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia, approved and exempted this study (Ref. No. 23-0472). We obtained informed consent from the university students who agreed to participate in the online survey, as participation was voluntary, and no identifiable information was obtained.

## References

1. Baracaldo-Santamaría D, Trujillo-Moreno MJ, Pérez-Acosta AM, Feliciano-Alfonso JE, Calderon-Ospina CA, Soler F. Definition of self-medication: A scoping review. *Ther Adv Drug Saf.* 2022;13:20420986221127501. doi:10.1177/20420986221127501
2. Al-Worafi YM. Self-medication. Drug safety in developing countries. Elsevier; 2020.
3. Kaur N, Bisht B, Kaur M. Self-medication practices among youngsters: A global health concern. *Medico-Legal Update.* 2021;21(1):658-63.
4. Rehman M, Ahmed S, Ahmed U, Tamanna K, Sabir MS, Niaz Z. An overview of self-medication: A major cause of antibiotic resistance and a threat to global public health. *J Pak Med Assoc.* 2021;71(3):943-9. doi:10.47391/JPMA.1331
5. World Health Organization. The Role of the pharmacist in self-care and self-medication: report of the 4th WHO Consultative Group on the Role of the Pharmacist, The Hague, The Netherlands, 26-28 August 1998. World Health Organization; 1998.
6. Sunny TP, Jacob R, Krishnakumar K, Varghese S. Self-medication: Is a serious challenge to control antibiotic resistance? *Natl J Physiol Pharm Pharmacol.* 2019;9(9):821-7. doi:10.5455/njppp.2019.9.0620508062019
7. Behzadifar M, Behzadifar M, Aryankhesal A, Ravaghi H, Baradaran HR, Sajadi HS, et al. Prevalence of self-medication in university students: Systematic review and meta-analysis. *East Mediterr Health J.* 2020;26(7):846-57.
8. Zeb S, Mushtaq M, Ahmad M, Saleem W, Rabaan AA, Naqvi BSZ, et al. Self-medication as an important risk factor for antibiotic resistance: A multi-institutional survey among students. *Antibiotics (Basel).* 2022;11(7):842. doi:10.3390/antibiotics11070842
9. Sachdev C, Anjankar A, Agrawal J. Self-medication with antibiotics: An element increasing resistance. *Cureus.* 2022;14(10):e30844.
10. Owusu-Ofori AK, Darko E, Danquah CA, Agyarko-Poku T, Buabeng KO. Self-medication and antimicrobial resistance: A survey of students studying healthcare programs at a tertiary institution in Ghana. *Front Public Health.* 2021;9:706290. doi:10.3389/fpubh.2021.706290
11. Auta A, Hadi MA, Oga E, Adewuyi EO, Abdu-Aguye SN, Adelaye D, et al. Global access to antibiotics without prescription in community pharmacies: A systematic review and meta-analysis. *J Infect.* 2019;78(1):8-18. doi:10.1016/j.jinf.2018.07.001
12. Shafiei M, Dorri Z, Batista AD, A Rodrigues D, Figueiras A, Zapata-Cachafeiro M, Roque F, Herdeiro MT. Antibiotic dispensation without a prescription worldwide: A systematic review. *Antibiotics (Basel).* 2020;9(11):786. doi:10.3390/antibiotics9110786
13. Aslam A, Gajdács M, Zin CS, Ab Rahman NS, Ahmed SI, Zafar MZ, et al. Evidence of the practice of self-medication with antibiotics among the lay public in low- and middle-income countries: A scoping review. *Antibiotics (Basel).* 2020;9(9):597. doi:10.3390/antibiotics9090597
14. Karimy M, Rezaee-Momtaz M, Tavousi M, Montazeri A, Araban M. Risk factors associated with self-medication among women in Iran. *BMC Public Health.* 2019;19(1):1033. doi:10.1186/s12889-019-7302-3
15. Madadzadeh F, Ranjbar M, Heidary B, Ameri H. Self-medication and its relevant factors in students of Yazd medical sciences. *Q J Manag Strateg Health Syst.* 2023;8(2):176-87. doi:10.18502/mshsj.v8i2.13655
16. Akande-Sholabi W, Ajamu AT, Adisa R. Prevalence, knowledge and perception of self-medication practice

- among undergraduate healthcare students. *J Pharm Policy Pract.* 2021;14(1):49. doi:10.1186/s40545-021-00331-w
17. Ansari M, Alanazi A, Moin A. Consumers' awareness, attitude and associated factors towards self-medication in Hail, Saudi Arabia. *Plos One.* 2020;15(4):e0232322. doi:10.1371/journal.pone.0232322
  18. Seam MOR, Bhatta R, Saha BL, Das A, Hossain MM, Uddin SMN, et al. Assessing the perceptions and practice of self-medication among Bangladeshi undergraduate pharmacy students. *Pharmacy (Basel).* 2018;6(1):6. doi:10.3390/pharmacy6010006
  19. Alsous M, Elayeh E, Jalil MA, Alhawmdh E. Evaluation of self-medication practice among pharmacy students in Jordan. *Jordan J Pharm Sci.* 2018;11(1):15-24.
  20. Ramadan M, Eltaweel A, El Nakhil T, Hemeed H, Maraqa A, Abish D, et al. Self-medication among undergraduate medical students of alexandria faculty of medicine: Where do we stand? *Int J Med Stud.* 2018;6(2):52-5. doi:10.5195/ijms.2018.41
  21. Sandhu S, Suryani Y, Dwiprahasto I, Atthobari J. A survey of antibiotic self-medication and over-the-counter drug use among undergraduate medical students in Yogyakarta, Indonesia. *Southeast Asian J Trop Med Public Health.* 2017;48(6):1290-8.
  22. Zhu X, Pan H, Yang Z, Cui B, Zhang D, Ba-Thein W. Self-medication practices with antibiotics among Chinese university students. *Public Health.* 2016;130:78-83. doi:10.1016/j.puhe.2015.04.005
  23. Gelayee DA. Self-medication pattern among social science University students in Northwest Ethiopia. *J Pharm (Cairo).* 2017;2017:8680714. doi:10.1155/2017/8680714
  24. Bekele SA, Argaw MD, Yalew AW. Magnitude and factors associated with self-medication practices among university students: The case of Arsi University, College of Health Science, Asella, Ethiopia: Cross-sectional survey based study. *OALibJ.* 2016;3(6):1-5.
  25. Yosef T, Getachew D, Shifera N. Psychoactive substance use among undergraduate students of Mizan-Tepi University in Southwest Ethiopia. *Cogent Psychol.* 2023;10(1):2230021. doi:10.1080/23311908.2023.2230021
  26. Musa Y, Awosan K, Ibrahim M, Abdullahi Z, Jafaar MM, Peter G, et al. Knowledge and practice of self-medication among undergraduate students of Usmanu Danfodiyo University, Sokoto. *Ann Int Med Den Res.* 2016;2(1):83-8.
  27. Verma RK, Mohan L, Pandey M. Evaluation of self-medication among professional students in North India: Proper statutory drug control must be implemented. *Evaluation.* 2010;3(1):60-4.
  28. Emmanuel A, Daniel G, Achema G, Afoi B, Onyejekwe G, Gimba S. Self-medication Practice among undergraduate nursing students of University of Jos, Nigeria. *Nig J PharmSci.* 2011;10:22-6.
  29. Haghghi S, Ashrafzadeh H, Sayadi N. Self-medication and related factors among university students in Iran. *J Nurs Midwifery Sci.* 2016;3(2):47-51.
  30. Mosaddek ASM, Haque M, Islam Z, Sharmin ZR, Sharmin R, Rahman MF, et al. The practice of self-medication among students of a selected medical college in Dhaka City, Bangladesh. *Int Med J.* 2017;24(2):225-9.