Original Article

Prevalence of Self-Medication Among Medical Students at Science and Technology University, Sana'a Yemen 2024: A Cross-Sectional Study

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Abstract

Background: Self-medication is a common practice in developing countries especially among medical students, due to easy access to medications.

Aim: To determine the prevalence of self-medication among medical students and identify the types of medications used, reasons for self-medication, and sources of information.

Method: A cross-sectional study was conducted from February 1 to February 15, 2024, involving 319 medical students. A structured questionnaire was distributed, to determine the frequency of self-medication, types of medications used, reasons for self-medication, and sources of information. Data were analyzed using IBM SPSS Statistics Version 20, with descriptive statistics and chi-square tests.

Results: About 98% of student responded to the questionnaire ,and 80% of students reported self-medication. The prevalence increased with advancing years of study. The most common reasons for self-medication were easy availability of medications (38%) and quick relief (30%). The primary medications used included analgesics (61%) and antibiotics (47%), with headaches (66%) and flu symptoms (50%) being the most reported indications.

Conclusion: Self-medication is prevalent among medical students, particularly in advanced years, raising concerns about the potential misuse of medications.

Key words: Abuse, Health, students, use, prevalence, Drug

Introduction

Self-medication, as defined by the World Health Organization (WHO), is the use of drugs without a doctor's prescription. The consumer identifies the symptoms and uses a drug that was either prescribed previously to him or to another family member.(1) In

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addition, self-medication may involve the usage of non-prescribed substances, through the consumption of food, caffeine, or alcohol.

Self-medication aims to treat minor illnesses before seeking professional assistance.[2] Self-medication is time-saving, easy, and helpful in urgency when a doctor is not available.[3] Nevertheless, self-medication can result in complications, such as the inappropriate use of antibiotics.[4]

In most developing countries including Yemen, many drugs are obtained over the counter (OTC). Self-medication is high among the young population, particularly among students.

Medical students have good information about diseases and their treatment, which increases the prevalence of self-medication among them.[5] On the other hand, medical students often have a better understanding of pharmacology and health-related issues, which might influence their decisions regarding self medication.

The practice of self-medication among doctors develops during their training period.[6] The medical staff must seek proper medical assistance when they have health issues, yet physicians themselves do not do it. Self-medication among physicians may lead to improper self-treatment.[7]

As far as our current understanding, no investigation has been done to study the prevalence of medical students' self-medication in Yemen.

According to previous studies, the prevalence of self-medicationamong medical students is 70% on average, but it varies from 30-95% depending on the country.[8]

Factors that increase the risk of self midication in medical students include the following, possession of home-pharmacy, female gender, older age, lower father's education, high alcohol intake, depression, and low physical activity.[9] Other risk factors include marital status and available health insurance.[10]

This study aims to determine the prevalence of self-medication among medical students at Science and Technology University, Sana'a Yemen 2024.

Material and method

An institutional-based cross-sectional study was conducted on medical students of Science and Technology University, Sana'a Yemen from February 01 to February 15, 2024. Sample size was calculated using open-info program to be 266. To avoid drop-outs, 20% of the estimation sample was added, producing the final sample size of 319.[11]

A questionnaire was distributed randomly to students from all study levels according to the percentage of students in each level. Ethical approval was obtained from the institution's ethical committee. Each participant signed a written consent.

The questionnaire was prepared from previous studies. The main variables included were the study year, frequency of self-medication during the last year, reasons for self-medication, types of medications used, and primary information source. The questionnaire was amultiple-choice question.

Data were analyzed by IBM SPSS Statistics Version 20 for analysis. Chi-square was used and the confidant interval was 95%.

Results were described using percentage, mean, and standard deviation (SD). Frequency Tables and graphs were used to summarize the findings.

Results

A total of 314 students responded (98%) to the questionnaire. Three questionnaires were canceled due to incomplete data. About 52% were females and 48% were males

Self-medication is reported in 80% of medical students of Science and Technology Universityat all levels. (Fig 1)

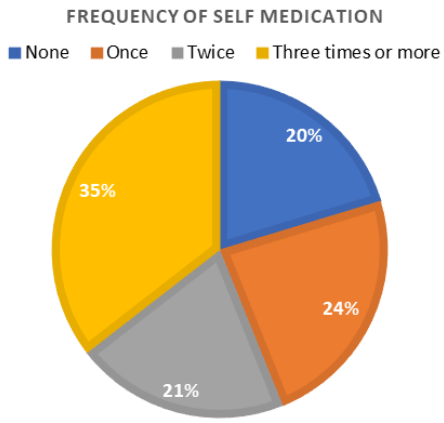

Figure 1: Frequency of self-medication among medical students of Science and Technology University

A number of students participated and categorized according to the year of study and the frequency of self-medication during the last year is shown in Table 1, Figure 2. The frequency of self-medication increases in students in the advanced year of studying ($p < 0.0001$). Students of the first three years reported significantly less frequency of self-medication compared to students in the fourth, fifth, sixth year, and internship students($p < 0.0001$).

Table 1: Number of students in each year of study and the frequency of self-medication during the last year

Year of Study			Self-medication during the last year							
Year of the study	Number of students	%	None	%	Once	%	Twice	%	Three times or more	%
First	33	11	13	37	6	17	4	11	10	29
Second	41	13	12	29	8	20	12	29	9	22
Third	94	32	22	22	30	31	17	17	25	25
Fourth	32	10	2	6	10	31	8	25	12	38
Fifth	42	14	3	7	8	19	13	31	18	43
Sixth	43	14	2	5	10	22	8	18	23	51
Internship	18	6	2	11	1	6	2	11	13	72
Total	311	100	56		73		64		110	

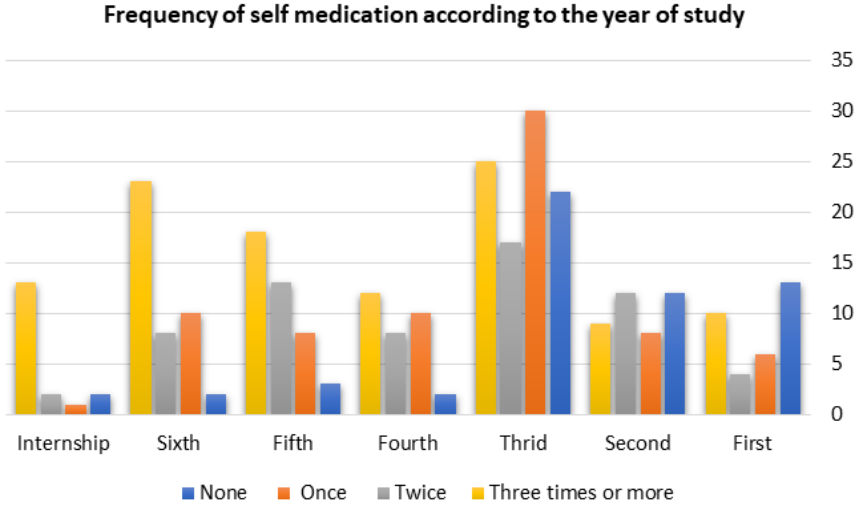

Figure 2: Frequency of self-medication in each year of study

The indications of self-medication are shown in Table 2, Figure 3. According to the answers of the in the questionnaire, headache was the most common indication of self-medication 78%, followed by flu and common cold symptoms 58%, then cough, stomach pain, and fever 35%, 36%, and 44%, respectively. About 13 -20 % of self-medication was due to diarrhea, constipation, toothache, menstrual symptoms, allergy, or vomiting. A less common cause of self-medication was to treat anxiety, insomnia, eye infection, ear infection, skin infection, colic, and muscle spasm, about 1-9%.

Table 2: Indications, types, Reasons, and sources of information for self-medication among medical students of Science and Technology University

Indication for self-medication	No.	(Frequency /255)
Headache	198	78
Cough	90	35
Flu\ common cold	148	58
Fever	113	44
Stomach pain	92	36

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Diarrhea	59	23
Anxiety	24	9
Insomnia	11	4
Toothache	34	13
Menstrual symptoms	51	20
Ear infection	12	5
Eye infection	12	5
Skin infection	18	7
Allergy	35	14
Vomiting	40	16
Colic	25	10
Constipation	43	17
Muscle \ joint pain	2	1
Type of drugs	**No.**	
Sedative	56	22
Antacids	70	27
Antibiotics	140	55
Antiemetics	25	10
Antidiarrheal	47	18
Antipyretics	71	28
Analgesics	183	72
Vitamins and minerals	126	49
Cosmetic creams	29	11
Herbs	18	7

Antihistamine	4	2
Laxatives	1	0.4
Antitussive	2	0.8
Muscle relaxant	1	0.4
Reason for self-medication	**No.**	
Emergency use	72	28
Easily available medicine	109	43
Lack of time to consult the doctor	73	29
Quick relief	85	33
Sufficient pharmacological knowledge	75	29
Minor illness	102	40
Source of information	**No.**	
Family members and relatives	82	32
Pharmacist	116	45
seniors \ classmates	42	16
Reading materials	103	40
Previous prescription	87	34
Media	32	13

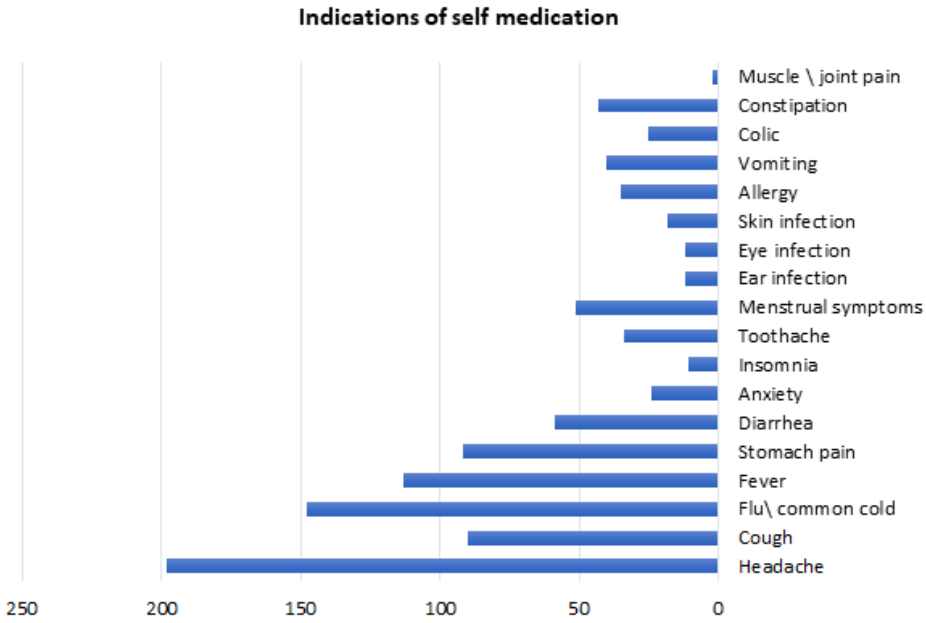

Figure 3: Indications of self-medicationamong medical studentsas reported from the questionnaire of Science and Technology University

The types of drugs used in self medication are shown in Table 2 and Figure4. The most common drugs used are analgesics followed by vitamins and antibiotics, which are 72, 49 and 55% respectively.

While the used of antipyretics, antidiarrheal, antacid, sedatives and cosmetic creams varies between 11-28%. Less than 10% of students used antiemetics, herbs, antihistamines, laxatives, anti-tussive and muscle relaxant as self medication drugs.

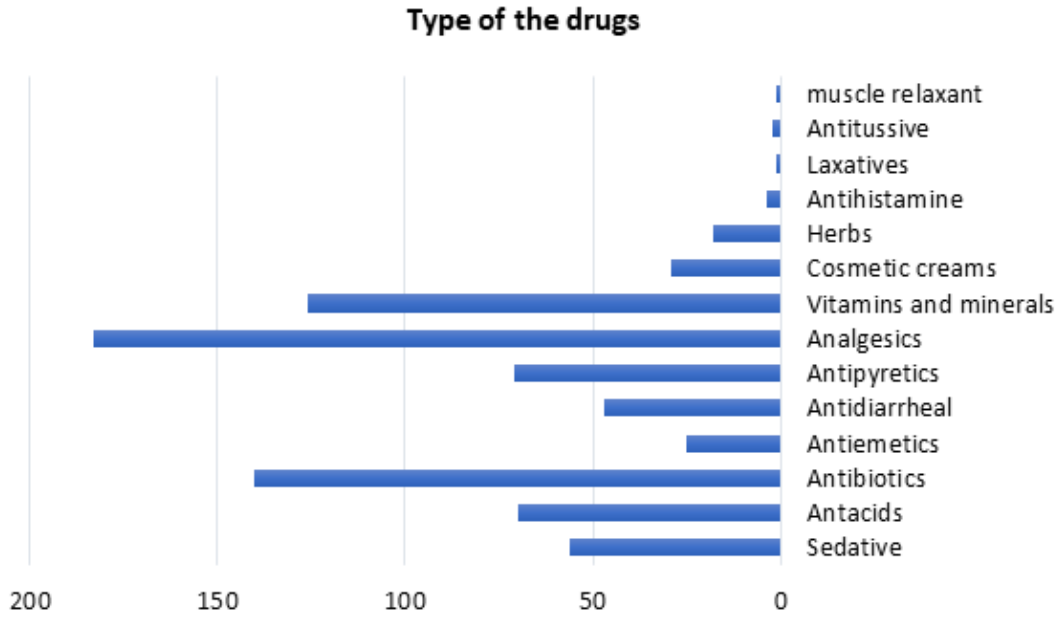

Figure 4: drugs used in self-medication among medical students of Science and Technology University

The reasons for self-medication are shown in Table 2 and Figure 5. The main reason for self-medication was theeasyavailability ofmedicine, followed by minor illness and quick relief 43-40-33% respectively). Less common reasons of self medication are lack of time to consult the doctor, sufficient pharmacological knowledge and emergency use about 28-29%.

Most students reported that the main sources of information are the pharmacist (45%), followed by reading materials (40%). Family/relative members (32%) and Previous prescription (34%) are also a source of information, while media (13%) and seniors/classmates (16%) are the least sources of information. (Table 2, Figure 6)

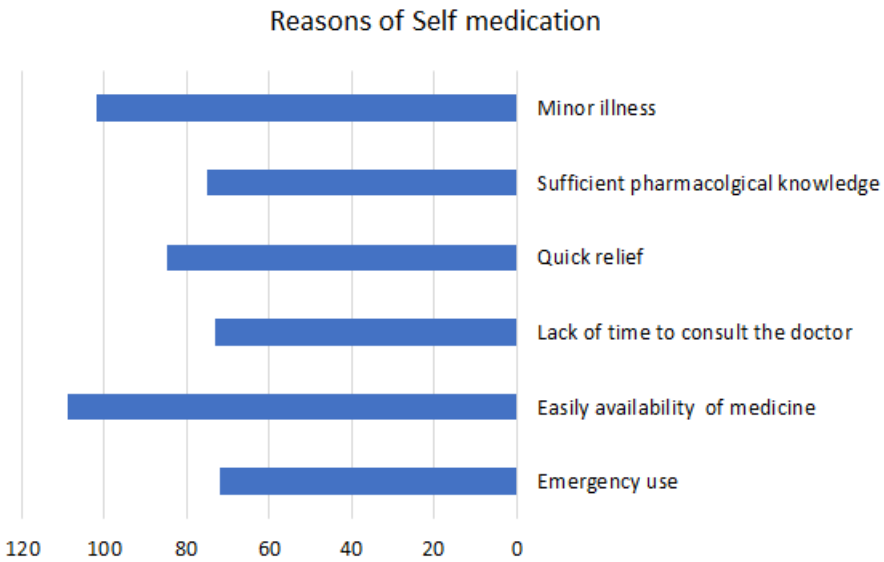

Figure 5: Reasons for self-medicationamong medical students of Science and Technology University

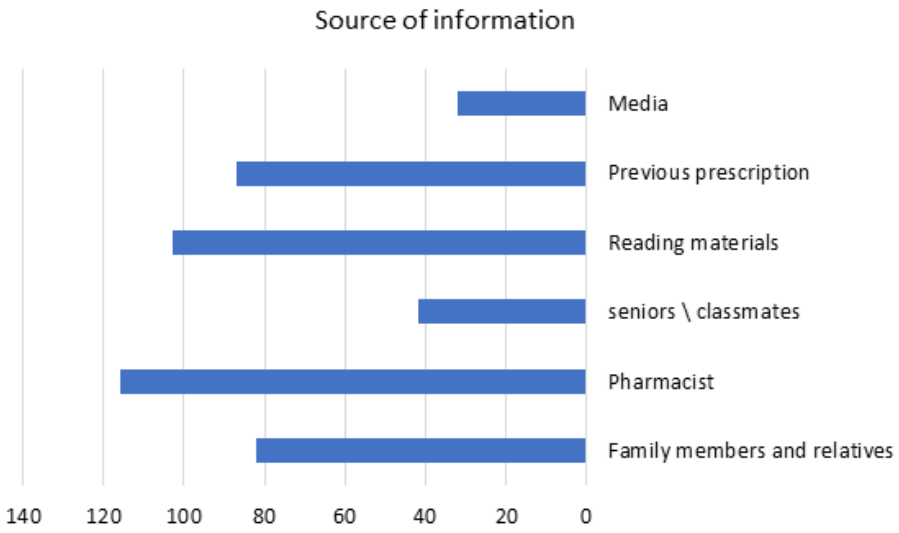

Figure 6: source of information for self-medicationamong medical students of Science and Technology University

Discussion

The prevalence of self medication among medical studentsin science and technology university is similar to the prevelance of self medication in other coutries such as india, iran, Jordanand Seberia.[6, 9, 12]. However some studies indiacted that the rate of self medication higher than 90%.[13]

The prevlance of self medication increases with advance study levels students, these result is also shown in other studies.[6, 14]. This may be due to the increasing knowledge and self-confidence among students in higher levels of education.[15]

The main indictions of self mediction was headche , common cold/ flu and fever. These results were similar to those found in a previous study. [14B, 16]. This may be because these symptoms are treated with over-the-couter drugs and the students have easy acsses to the drugs. Others symptoms includes allergy, skin infection, vomiting, eye and ear symptoms, menstrual syndrome and others minor problems, are also repoted to be an indication of self medication in meidcal students.[12A, 14B, 14C] Only one student indicated unusualindicatorssuch as muscle spasms.

The drugs most commonly used by students in our study were analgesics followed by vitamins and minerals then antibiotics. Other studies reported that analgesics were the most common drugs.[16C, 17] Antibioticuse in our study was higher than in many studies.[12A, 16C, 17B] However, our result was similar to other studies in India and Jordan.[3, 13A, 18] In addition, studies have a higher prevalenceofantibioticuse.[19]

This could be due to the lack of local regluations for antibiotics prescriptions, which may result in, misusing of antibiotics.

The main reasons for self-medicationwereeasily availability of medicine,followed by minor illness and quick relief, these results in parallel to other studies. [20]

The pharmacist was the main source of information in our study and other studies.[12C, 17B, 18, 21]. Other studies stated that the main three sources of information are the pharmacist, reading materials and previouse prescribtion similar to our's.[6, 22] The reason for this is the easy availability of the drug procured from the pharmacy, and the accessibility present between the students and the pharmacist. Also the faimilirty of the students with the precscibtion forms, drugs and their doses, medical conditions and their management. This make buying drugs from local pharmacies more easy.

Our study was based on a questionnaire that measures the prevalence and reasons forself-medication. Further studies must be done to assess the knowledge, attitude, and practice of self-mediation in medical students.

Conclusion

Self medication is a common practice among medical students in sceince and technology university, specially in advanced years of the studies. Headache common cold and fever are main indications of self medication among, so the are using analgesics and antibiotics extensivliy. The student background made it easy for them to get acess of the drugs from pharmacies.

Limitations of the study

The limitation of this study includes self-reporting bias, as participants may have underreported or overreported their self-medication. Additionally, the cross-sectional design limits the ability to establish causal relationships, and the focus on a single university may not adequately represent the broader population of medical students in Yemen.

Future research should consider qualitative methods such as interviews or focus groups to gain deeper insights into students' motivations and attitudes. Comparative studies across different universities and demographic groups would further enrich the understanding of self-medication trends.

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Conflicts of interest disclosed : The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical board approval : 1445/008/REC/UST / Science and technology university ethical committee board 14 -Feb -2024.

References

1. WHO. Guidelines for the regulatory assessment of medicinal products for use in self-medication. WHO; 2000.
2. Baracaldo-Santamaria D, Trujillo-Moreno MJ, Perez-Acosta AM, Feliciano-Alfonso JE, Calderon-Ospina CA, Soler F. Definition of self-medication: a scoping review. Ther Adv Drug Saf. 2022;13:20420986221127501.
3. Abbas A, Ahmed FR, Yousuf R, Khan N, Nisa Z, Ali SI, et al. Prevalence of self-medication of psychoactive stimulants and antidepressants among undergraduate pharmacy students in twelve Pakistani cities. Tropical Journal of Pharmaceutical Research. 2015;14(3):527-32.
4. Bennadi D. Self-medication: A current challenge. J Basic Clin Pharm. 2013;5(1):19-23.
5. Alduraibi RK, Altowayan WM. A cross-sectional survey: knowledge, attitudes, and practices of self-medication in medical and pharmacy students. BMC Health Services Research. 2022;22(1):352.
6. Pandya RN, Jhaveri KS, Vyas FI, Patel VJ. Prevalence, pattern and perceptions of self-medication in medical students. Int J Basic Clin Pharmacol. 2013;2(3):275-80.
7. Montgomery A, Bradley C, Rochfort A, Panagopoulou E. A review of self-medication in physicians and medical students. Occupational medicine. 2011;61(7):490-7.
8. 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.
9. Lukovic JA, Miletic V, Pekmezovic T, Trajkovic G, Ratkovic N, Aleksic D, et al. Self-medication practicesand risk factors for self-medication among medical students in Belgrade, Serbia. PLoS One. 2014;9(12):e114644.
10. Kokabisaghi F, Emadi MSM, Tajik A, Sharifi F, Houshmand E, Varmaghani M. The prevalence and causes of self-medication among medical university students in Iran during COVID-19 outbreak and its implications for public health and health systems: A cross-sectional study. Health science reports. 2024;7(3):e1983.
11. Kholmatova K, Gorbatova M, Kharkova O, Grjibovski A. Cross-sectional studies: planning, sample size, data analysis. Ekologiya cheloveka (Human Ecology). 2016;23(2):49-56.
12. AKumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, et al. Perceptions and practices of self-medication among medical students in coastal SouthIndia. Plos One. 2013;8(8):e72247; BKasulkar AA, Gupta M. Self medication practices among medical students of a private institute. Indian journal of pharmaceutical sciences. 2015;77(2):178; CAbdi A, Faraji A, Dehghan F, Khatony A. Prevalence of self-medication practice among health sciences students in Kermanshah, Iran. BMC pharmacology and Toxicology. 2018;19:1-7.
13. ABadiger S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakolkaran N, et al. Self-medication patterns among medical students in South India. Australas Med J. 2012;5(4):217; BAl Ameri RJ, Abdal Badri HJ, Lafta RK. Prevalence of self-medication among university students in Baghdad: a cross-sectional study from

Iraq. EMHJ-Eastern Mediterranean Health Journal. 2017;23(2):87-93.

14. ASontakkeS, Bajait C, Pimpalkhute S, Jaiswal K, Jaiswal S. Comparative study of evaluation of self-medication practices in first and third year medical students. Int J Biol Med Res. 2011;2(2):561-4; BGyawali S, Shankar PR, Poudel PP, Saha A. Knowledge, Attitude and Practice of Self-Medication Among Basic Science Undergraduate Medical Students in a Medical School in Western Nepal. Journal of clinical and diagnostic research: JCDR. 2015;9(12):17; CAl Shawi AF, Ali AF, Enad MM, Salih JA. Self-medication among medicalstudents in Anbar and Fallujah Universities–Iraq. Journal of the Faculty of Medicine Baghdad. 2018;60(3):156-9.
15. James H, Handu SS, Khaja KA, Sequeira RP. Influence of medical training on self-medication by students. Int J Clin Pharmacol Ther. 2008;46(1):23-9.
16. ABadiger S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakolkaran N, et al. Self-medication patterns among medical students in South India. Australas Med J. 2012;5(4):217-20; BJames H, Handu SS, Al Khaja KA, Otoom S, Sequeira RP. Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. Medical principles and practice. 2006;15(4):270-5; CZafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M, et al. Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. Journal of the Pakistan Medical Association. 2008;58(4):214; DBadiger S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakolkaran N, et al. Self-medication practice among undergraduate medical students in a tertiary care medical college, West Bengal. Journal of postgraduate medicine. 2012;58(2):127; EMumtaz Y, Jahangeer S, Mujtaba T, Zafar S, Adnan S. Self medication among university students of Karachi. Jlumhs. 2011;10(03):102-5.
17. AAlRaddadi KK, Barakeh RM, AlRefaie SM, AlYahya LS, Adosary MA, Alyahya KI. Determinants of Self-medication among Undergraduate Students at King Saud University: Knowledge, Attitude and Practice. Journal of Health Specialties¦ Volume. 2017;5(2); BAlbusalih FA, Naqvi AA, Ahmad R, Ahmad N. Prevalence of Self-Medication among Students of Pharmacy and Medicine Colleges of a Public Sector University in Dammam City, Saudi Arabia. Pharmacy. 2017;5(3):51.
18. Malak M, AbuKamel A. Self-medication Practices among University Studentsin Jordan. Malaysian Journal of Medicine & Health Sciences. 2019;15(2).
19. APatil SB, S HV, B VP, Santoshkumar J, Binjawadgi AS, Kanaki AR. Self-medication practice and perceptions among undergraduate medical students: a cross-sectional study. J Clin Diagn Res. 2014;8(12):Hc20-3; BZewdie S, Andargie A, Kassahun H. Self-medication practices among undergraduate University Students in Northeast Ethiopia. Risk management and healthcare policy. 2020:1375-81.
20. AYismaw MB, Feyisa K, Yehualaw A, Tafere C, Demsie DG, Bahiru B, et al. Assessment of Self-Medication Practice and Its Determinants Among Undergraduate Health Science Students of College of Medicine and Health Sciences, Bahir Dar University, North West Ethiopia: A Cross-Sectional Study. Adv Med Educ Pract. 2023;14:279-88; BUllah H, Khan SA, Ali S, Karim S, Baseer A, Chohan O, et al. Evaluation of self-medication amongst university students in Abbottabad, Pakistan; prevalence, attitude and causes. Acta Pol Pharm. 2013;70(5):919-22.
21. Almasdy D, Sharrif A. Self-Medication Practice with Nonprescription Medication among University Students: a review of the literature. Archives of Pharmacy Practice. 2011;2(3):95.
22. AKasulkar AA, Gupta M. Self Medication Practices among Medical Students of a Private Institute. Indian J Pharm Sci. 2015;77(2):178-82; BGyawali S, Shankar PR, Poudel PP, Saha A. Knowledge, attitude and practice of self-medication among basic science undergraduate medical students in a medical school in western Nepal. Journal of clinical anddiagnostic research: JCDR. 2015;9(12):FC17.