ASIAN JOURNAL OF PHARMACEUTICAL AND CLINICAL RESEARCH

INNOVARE ACADEMIC SCIENCES
Knowledge to Innovation

Vol 16, Issue 4, 2023

Online - 2455-3891
Print - 0974-2441

Research Article

SELF-MEDICATION PRACTICES AMONG 1st- AND 2nd-YEAR MEDICAL UNDERGRADUATES

SONISH S PRABHAKARAN[1], SNEHA PRABHA MP[2]*, ASHA S[3], DHANYA SASIDHARAN PALAPPALLIL[4]

[1]Department of Pharmacology, Government Medical College, Kollam, Kerala, India. [2]Department of Pharmacology, Government Medical College, Thiruvananthapuram, Kerala, India. [3]Department of Pharmacology, Azeezia Medical College, Kollam, Kerala, India. [4]Department of Pharmacology, Government Medical College, Kottayam, Kerala, India. Email: snehaprabha264@gmail.com

Received: 02 January 2023, Revised and Accepted: 25 February 2023

ABSTRACT

Objective: The objectives of our study were to estimate the prevalence of self-medication, to assess the knowledge, attitude, and practice of self-medication, and to compare the risk factors of self-medication practices among 1st-and 2nd-year medical undergraduates, of a Government Medical College in Kerala, India.

Methods: A questionnaire-based cross-sectional study was conducted among medical students after obtaining Institutional Ethics Committee approval and informed consent. A pre-validated questionnaire was used to collect data. Descriptive and analytical statistics were performed and variables associated with self-medication were entered into a multivariate logistic regression model to compute adjusted odds ratio (OR) and 95% confidence intervals (95% CI).

Results: The response rate was 59.47% (233/375). More than three-quarters of the participants responded correctly to the query on definition of over-the counter drug. As compared to 46.8% of 1st years, 67.6% of 2nd years had practiced self-medication in the past 6 months. The most common medical condition/symptom for consuming self-medication was for managing the common cold and paracetamol was the most common medication. The risk of developing adverse drug reactions was considered a serious threat after self-medication by around three-quarters of the participants. There was a significant association of self-medication practice among the 2nd years as compared to the 1st years (p=0.009, OR-1.64 (95% CI 1.16–2.31).

Conclusion: The prevalence of self-medication was high among medical students and there was a greater risk of self-medication among the 2nd years (1.64 times) as compared to the 1st-year students. The study revealed that the students exhibited inadequate knowledge regarding appropriate self-medication. Although they had a positive attitude toward self-medication they commonly engaged in inadequate self-medication practices. Knowledge of medicines obtained for similar previous illnesses and the feeling that there is no need to consult a doctor for minor ailments that were the main reasons for self-medication.

Keywords: Self-medication, Over the counter drugs, Perceptions, Self-care.

 DOI: http://dx.doi.org/10.22159/ajpcr.2023v16i4.47475. Journal homepage: https://innovareacademics.in/journals/index.php/ajpcr

INTRODUCTION

Self-medication is the selection and use of medication to treat self-recognized symptoms or diseases by individuals [1]. The responsible self-medication is the use of approved and available medicines with proven safety and efficacy for self-recognizable or chronic conditions after initial medical diagnosis [2,3]. Factors influencing the frequency of self-medication in the previous studies are age, educational level, professional status, family attitudes, advertising or drug manufacturers, availability of healthcare and health professionals, the regulation of drug dispensing and sales through legislation, as well as prior experiences with symptoms or diseases, significance attributed to the disease, home-kept prescription drugs, economic situation of the patient, depression, and anxiety [4,5]. Montgomery *et al*., in a meta-analysis, state that the prevalence of self-medication could range between 12 and 99% among medical students and health-care professionals. Compared to the general public, many factors like easy access to information from various sources to self-diagnose and self-medicate influence the practice of self-medication among medical students [6]. As they are future doctors and health prescribers of the community, it is important to know their knowledge level regarding different aspects of self-medication. This study was done to estimate the prevalence of self-medication, to describe the perceptions of participants on self-medication, and to determine the association of gender and year of study with self-medication practices among the first- and 2nd -year medical undergraduates.

METHODS

This was an online questionnaire-based study conducted by the Department of Pharmacology, Government Medical College, Thiruvananthapuram from June to November 2020 after getting IRC clearance (A2/SBMR/158/2020/MCT dated March 17, 2020) and IEC clearance (HEC 03/38/2020 dated May 12, 2020). First- and 2nd-year medical undergraduates studying in the institution during the year 2020 formed the study population. A Google Fill out Form link was used to invite all 1st- and 2nd-year medical undergraduates to participate in the study. The participants who denied consent were automatically eliminated from the study by directing them to click the submit button. The identity of participants willing to provide informed consent was kept anonymous and all obtained data were kept confidential. A structured and validated questionnaire prepared based on the previous studies was used to collect information regarding age, gender, awareness of self-medication practice, type of drugs self-medicated, and source of information for self-medication [5,7,8,9]. Self-medication in this study was defined as the use of medicine for self-treatment without consulting a health-care professional within the past 6 months.

Statistical analysis

The data were analyzed using SPSS software version 16 (SPSS for Windows. The quantitative data were expressed using descriptive statistics of frequencies and percentages. Chi-square was done to determine the association of gender and year of study with self-medication practices.

RESULTS

Three hundred and seventy-five 1st- and 2nd-year students were invited to participate in the study of which 223 responded and the response rate was 59.47%. The mean age was 20.77±1.63 years. There were 124 (55.6%) females and 99 (44.4%) males. Forty-seven (21.1%) 1st-years and 176 (78.9%) 2nd-years participated in the study. One 1st-year student with intervertebral disk prolapsed (1) and 9 2nd years with allergic rhinitis (1), asthma (2), depression (1), human papillomavirus infection (1), migraine (1) and polycystic ovarian syndrome (2) were suffering from long-term illnesses.

Thirty-four (72.3%) 1st years and 134 (76.1%) 2nd years responded correctly to the query on what an over-the-counter drug is and marked the statement that they are "drugs procured by the patient for himself without prescription." The remaining participants thought that they were dispensed by the pharmacist on physician orders or drugs always dispensed by the pharmacist or drugs procured from relatives and friends. Out of the participants, 44 1st-year students (93.6%) and 171 2nd-year students (97.2%) correctly identified self-medication as the selection and use of medication by individuals to treat self-recognized symptoms or illness. The remaining participants either provided incorrect responses or indicated that they did not know the answer. However, only 21.3% of 1st years and 50 (28.4%) of 2nd years knew that self-medication is an element of self-care and is entirely safe. Nine (19.1%) 1st years and 45 (25.6%) 2nd years thought that AYUSH medicines were over-the-counter drugs. Even though only 2 1st years and 19 2nd years preferred self-medication and all 1st years and 99.4% 2nd years thought that self-medication can be harmful if taken without proper knowledge of drugs, 22 (46.8%) 1st years and 119 (67.6%) 2nd years had practiced self-medication in the past 6 months and some (3 1st years and 28 2nd years) even recommended it for non-medical people and some (7 1st years and 26 2nd years) thought that self-medication is acceptable for medical students. Fifteen (31.9%) 1st years and 34 (19.3%) 2nd years thought that medical students can treat their symptoms and 14 (29.8%) 1st years and 47 (26.7%) thought that medical students bother their doctors with minor problems. Twenty-eight (59.6%) 1st-years and 85 (48.3%) 2nd-years opined that pharmacists can help in treating minor clinical problems.

The majority (29.8% 1st years and 50% 2nd years) preferred allopathy medicines for self-medication as compared to other AYUSH medications, as shown in Fig. 1. As depicted in Fig. 2, "knowledge of medicines through previous experience of symptoms' 85(71.4%) in 2nd years and 14 (63.6%) in 1st years, and the thought that "there is no need to consult for minor ailments" (82 [68.9%] in 2nd years and 13 [59.1%] in 1st years) were the main reasons for self-medication among both first- and 2nd-year medical undergraduates.

The most common medical condition/symptom for which both the 2nd-year (109, 91.6%) and 1st-year students (14, 63.6%) had taken self-medication was for managing the common cold. However, as shown in Table 1 and Fig. 3, in the 2nd year 96, 80.7% had used it for fever; 91, 76.5% had used it for cough; and 79, 66.4% for headache in the 1st year 11.50% had used it for the same. While none had taken self-medication for lack of sleep that three (2.5%) had taken self-medication for combating stress in 2nd years which was 2 (9.1%) and 1 (4.5%) among 1st years.

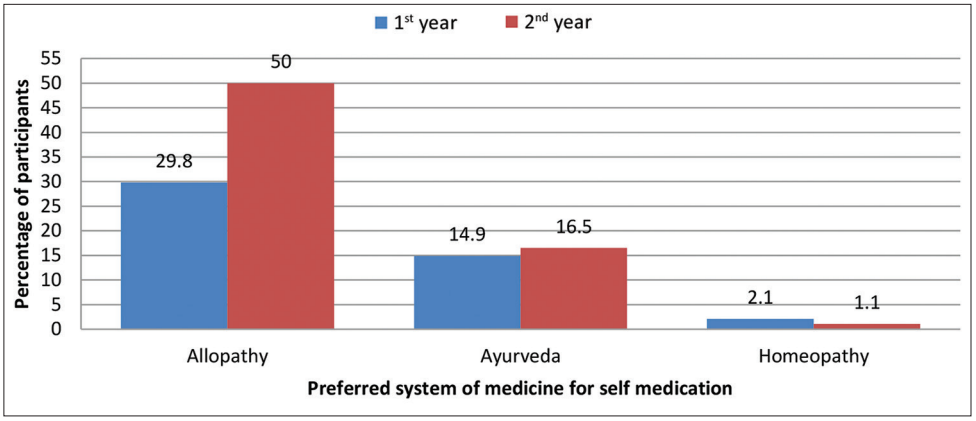

Fig. 1: Preferences of participants in choosing a system of medicine for self-medication (1st years-n=22, 2nd years n=119)

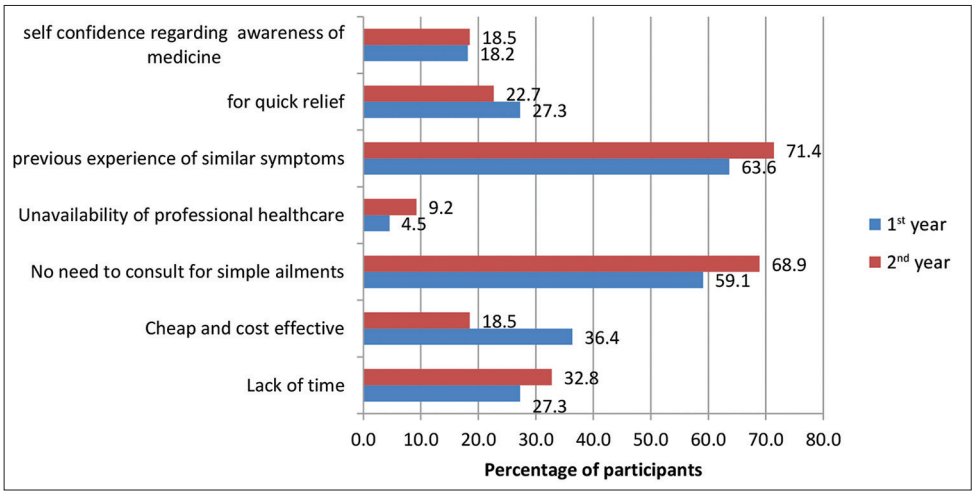

Fig. 2: Reason for self-medication (multiple options chosen; 1st years-n=22, 2nd years n=119)

Paracetamol was the most common medication used in the 1st years (21, 95.5%) and 2nd years (119,100%). As shown in Fig. 4, the other medications that were used for self-care were cough syrup (1st year–17,77.3%, 2nd year–72, 60.5%), cetirizine (1st year–13, 59.1%, 2nd year–82, 68.9%), vitamin supplements (1st year–8, 36.4% and 2nd year–49, 41.2%), and iron tablets (1st year–12, 54.5%, 2nd year–26, 21.8%). Among the antibiotics the commonly used were amoxicillin (1st year–7, 31.8%, 2nd year–34, 28.6%) and azithromycin (2nd years–23, 19.3%).

As shown in Fig. 5, the risk of developing adverse drug reactions was considered a serious threat after self-medication by both 1st years (34.72.3%) and 2nd years (133, 75.6%). The risk of a wrong diagnosis, the risk of missing the actual diagnosis, and the risk of drug dependence were the other identified problems after self-medication.

We could not find any association between the use of self-medication with male or female gender (p=0.66, Odds ratio (OR)-0.88 (95% Confidence Interval [CI] 0.51–1.52); however, there was a significant association of self-medication practice among the 2nd years as compared to 1st years (p=0.009, OR-1.64 (95% CI 1.16–2.31). Table 2 summarizes the practice of the participants with regards to self-medication.

DISCUSSION

Self-medication and irrational use of drugs are major causes of concern worldwide, causing serious global implications. Restrictions in access to health care, ease of availability of over the counter (OTC) drugs, and pitfalls in regulatory practices have contributed to the increasing self-medication practices [10]. Self-medication is an important health issue, especially in developing countries. A study published by Indian

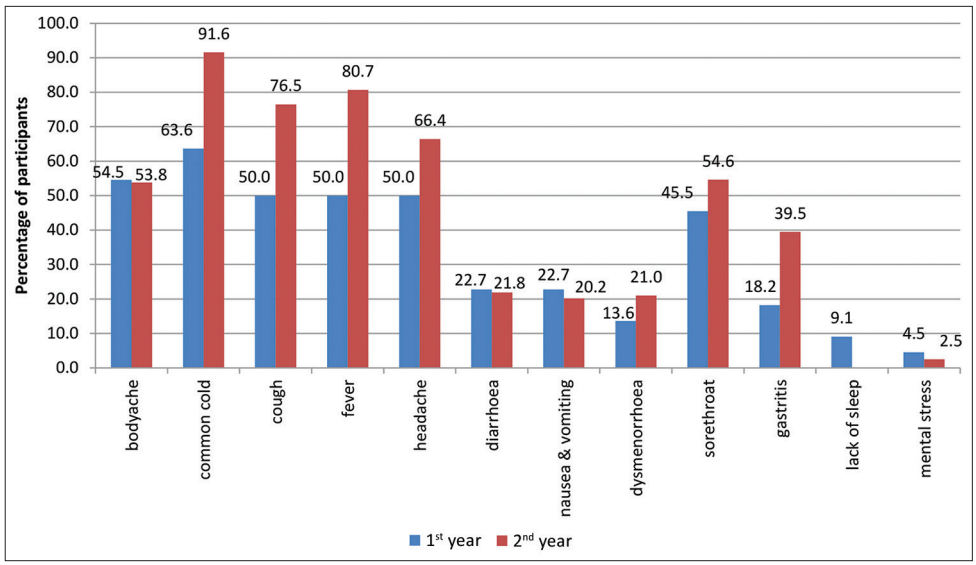

Fig. 3: Symptoms for which self-medication was used (multiple options chosen; 1st years-n=22, 2nd years n=119)

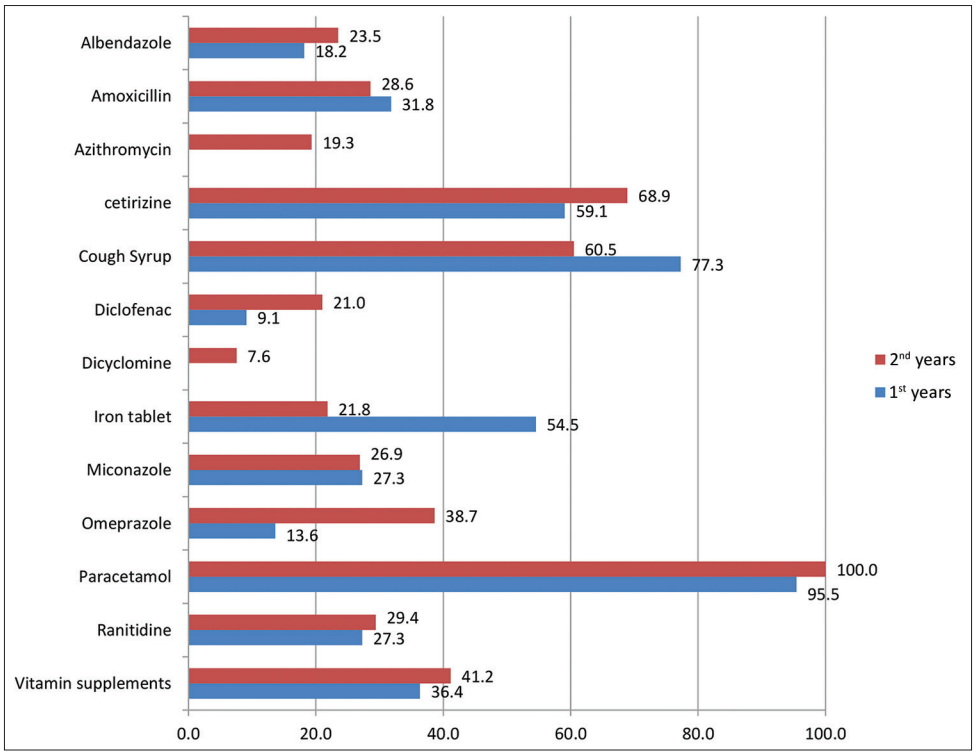

Fig. 4: Commonly used drugs for self-medication (multiple options chosen; 1st years-n=22, 2nd years n=119)

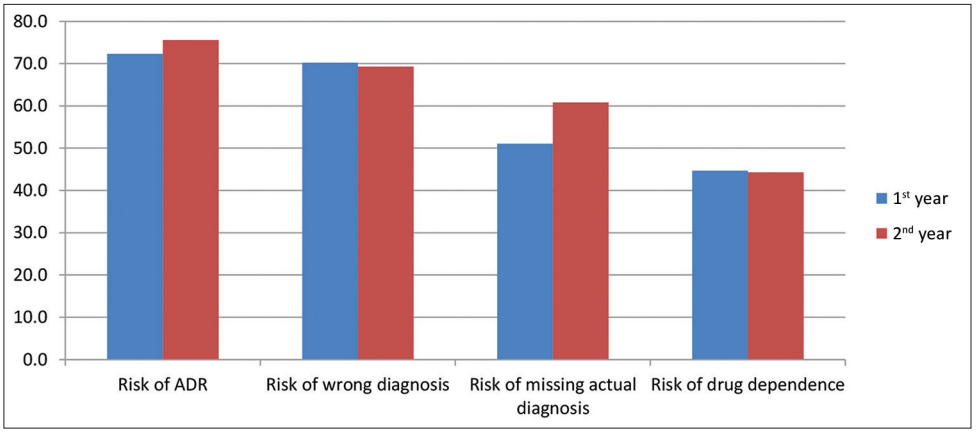

Fig. 5: Why self-medication should be avoided

Table 1: Response to the questionnaire

Statements	1st year (n=47), n (%)		2nd year (n=176), n (%)	
	Yes	No/don't know	Yes	No/don't know
Self-medication is one of the elements of self-care	10 (21.3)	37 (78.7)	50 (28.4)	12 6(71.6)
Self-medication is entirely safe	10 (21.3)	37 (78.7)	57 (32.4)	119 (67.6)
AYUSH medicines are considered OTC drugs	9 (19.1)	38 (80.9)	45 (25.6)	131 (74.4)
Do you prefer self-medication	2 (4.3)	45 (95.7)	19 (10.8)	157 (89.2)
Self-medication is acceptable for medical students	7 (14.2)	40 (85.1)	26 (14.8)	150 (85.2)
Medical students have a good ability to treat their symptoms	15 (31.9)	32 (68.1)	34 (19.3)	142 (80.7)
Self-medication is harmful without proper knowledge of drugs	47 (100)	0	175 (99.4)	1 (0.6)
The pharmacist can help in treating minor clinical problems	28 (59.6)	19 (40.4)	85 (48.3)	91 (51.7)
Medical students bother their doctors with minor problems always	14 (29.8)	33 (70.2)	47 (26.7)	129 (73.3)
I have practiced self-medication	22 (46.8)	25 (53.2)	119 (67.6)	57 (32.4)
I suggest self-medication for nonmedical people	3 (6.4)	44 (93.6)	28 (15.7)	148 (84.1)

OTC: Over counter

researchers shows that the process of self-medication evolves with their knowledge [11]. This is consistent with our study which showed that there was a greater risk of self-medication in the 2nd years (1.64 times) as compared to the 1st years.

Several studies have suggested that self-medication could lead to delayed medical care seeking, ultimately resulting in economic loss. In addition, improper self-medication with antibiotics can contribute to the development of antimicrobial resistance [12]. According to a survey carried out among 1st-year medical students on self-medication at the Arabian Gulf University in Bahrain, the results indicated that these students had insufficient knowledge and frequent but inadequate practice, despite having a positive attitude [8]. In this study, both 1st-years and 2nd-years practiced self-medication and had comparable knowledge about the elements of self-care.

The previous research showed that even though good health is required for proper commitment and work, medical students, and health-care professionals face difficulties in seeking health care for themselves [13,14]. In this study, some participants thought that self-medication is good so that they do not bother doctors with their minor ailments which could be treated by themselves based on their previous experience.

Donkor *et al*. found that the main condition treated with self-medication by the respondents were cold, cough, fever, and abdominal pains [15]. Jagadeesh *et al*. found that fever, cough, and cold were the most common conditions for which self-medication was practiced [2]. In the present study, the main conditions for which self-medication was adopted were cold followed by fever which is consistent with findings of similar studies. In line with Jagadeesh *et al*., paracetamol was the most common drug used for self-medication in this study [2]. Dutta and Hazarika reported analgesics followed by antipyretics as the most frequently self-medicated drugs [16]. While expenses related to the hospital especially if the stay is a long, trivial illness, and desire for quick relief from symptoms were cited as reasons for self-medication in some studies, others cited lack of access to healthcare, availability of OTCs, and inadequate regulatory practices [15,16]. In this study, knowledge of medicines through similar previous illnesses and the feeling that there is no need to consult for minor ailments were the main reasons for self-medication among both first and 2nd-year medical undergraduates. This is in line with Suthar *et al*., in which the participants who were university students stated that there is "no need to visit the doctor for minor illness" [17].

Jagadeesh *et al*. stated that self-medication creates awareness among individuals toward maintaining their health and hence need to be promoted amongst medical students [2]. However, risk of ADR, wrong diagnosis, missing an actual diagnosis, and drug dependence can occur after self-medication as pointed out by participants in this study, and hence, a healthy attitude of self-care can be acquired by in-depth knowledge. In contrast to Jagadeesh *et al*., Lukovic *et al*. state that self-medication among future health-care professionals can represent a serious threat to professionalism and put the trust of the public at risk [5]. According to Mehta and Sharma, there are numerous risks associated with self-medication, including but not limited to developing a habit, experiencing allergic reactions, under-dosing, over-dosing, and temporarily masking symptoms which may lead to a delay in proper diagnosis [11]. Mythri suggest that it is important to use caution when taking any medication because each drug has its own set of advantages and disadvantages that are specifically linked to it [18]. Chouhan and Prasad stated that the use of medication without consulting a registered medical practitioner, and unawareness about the safe and rational use of medicine may lead to serious consequences especially

Table 2: Self-medication practices among students

Practice related questions	1st year (n=22), n (%)	2nd year (n=119), n (%)
Read leaflets available with self-medication		
Yes	10 (45.5)	34 (28.6)
No	12 (54.5)	85 (71.4)
Route of administration used for self-medication*		
Oral	20 (90.9)	117 (98.3)
Inhalational	4 (18.2)	19 (6)
Topical	6 (27.3)	58 (48.7)
Completed the full course of self-medication		
Yes	10 (45.5)	65 (54.6)
No	12 (54.5)	54 (45.4)
Reused previous prescription for self-medication		
Yes	10 (45.5)	56 (47.1)
No	12 (54.5)	63 (52.9)
Discontinued medication for the relief of symptoms		
Yes	16 (72.7)	84 (70.6)
No	6 (27.3)	35 (29.4)
Discontinued self-medication when symptoms are not relieved		
Yes	7 (31.8)	51 (42.9)
No	15 (68.2)	68 (57.1)
Used leftover medications from previous prescriptions		
Yes	9 (40.9)	51 (42.9)
No	13 (59.1)	68 (57.1)
Used leftover antibiotics from previous prescriptions		
Yes	5 (22.7)	21 (17.6)
No	17 (77.3)	98 (82.4)
Came to know about the drug of self-medication from		
Friends/relatives	5 (22.7)	21 (17.6)
Previous consultation	14 (63.6)	81 (68.1)
Pharmacists	1 (4.5)	5 (4.2)
Internet	2 (9.1)	5 (4.2)
Books	0	7 (5.9)
Symptoms got relieved by self-medication		
Yes	9 (40.9)	69 (58)
Sometimes	13 (59.1)	50 (42)
Experienced adverse reactions to self-medication		
No	22 (100)	116 (97.5)
Yes	0	3 (2.5)
Source of medicine for self-medication		
Community pharmacies	14 (63.6)	22 (18.5)
Friends	2 (9.1)	18 (15.1)
Relatives	6 (27.3)	21(17.6)
Leftover drugs	12 (54.5)	23 (19.3)
Institutional pharmacy	5 (22.7)	52 (43.7)

*Multiple responses by the same participant

antimicrobial resistance and increased morbidity [19]. In this study, the most commonly used antibiotic was amoxicillin followed by azithromycin. The majority of participants had also used albendazole for deworming. Sharma *et al.* pointed out that self-reported practices among students regarding antibiotics were found to be satisfactory although not completely convincing [20]. During the COVID-19 wave, there was an increase in the self-medication practices in all the sectors among the public as well which was influenced by fear of getting COVID from health care facilities, ease of access to drugs, and internet with growth in information and communication [21].

Limitations of this study are that a self-reported questionnaire has been used which can cause recall bias. The response rate was 59.47%. This study was done in a single institution and was restricted to the first and 2nd years. Studies in multiple institutions with all phases of students and more response rates could give a better perspective on self-medication practices.

CONCLUSION

Two hundred and twenty-three students participated in this study and the response rate was 59.47%. The prevalence of self-medication practice was 46.8% in the 1st years and 53.2% in the 2nd years. The majority of the participants preferred allopathic medication, used oral medications, completed the full course of medicines, reused prescriptions, and came to know about self-medication through previous consultations. There was a statistically significantly higher risk of self-medication in the 2nd years' students as compared to the 1st year.

ACKNOWLEDGMENT

We thank all the students who participated in this study.

AUTHOR CONTRIBUTIONS

Sonish S Prabhakaran-Project Idea, Protocol preparation, Preparation of Google Fill out Form, Literature Review, Data collection, Data Analysis, Manuscript Preparation, and Review

Sneha Prabha MP- Project Idea, Protocol preparation, Preparation of Google Fill out Form, Literature Review, Data Collection, Data Analysis, Manuscript Preparation and Review, Corresponding author

Asha S- Project Idea, Protocol Review, Data Collection, Manuscript Review

Dhanya Sasidharan Palappallil-Project Idea, Statistical analysis, Manuscript preparation

CONFLICTS OF INTEREST

No conflicts of interest to disclose.

AUTHORS FUNDING

Nil.

REFERENCES

1. Bashir MS, Bansod KA, Khade A, Konnoju M, Rani U, Vadala KV. Self-medication-a comparative study between 2nd and 3rd year medical students. Int J Basic Appl Med Sci 2013;3:1-7.
2. Jagadeesh K, Chidananda KN, Revankar SP, Prasad NS. Study on self-medication among second-year medical students. Int J Basic Clin Pharmacol 2015;4:164-7. doi: 10.5455/2319-2003.ijbcp20150235
3. World Health Organization. The Role of the Pharmacist in Self-care and Self-medication: Responsible Self-Medication. Geneva: World Health Organization; 1998. Available from: http://apps.who.int/medicinedocs/pdf/whozip32e/whozip32e.pdf [Last accessed on 2023 Jan 06].
4. Sontakke SD, Bajait CS, Pimpalkhute SA, Jaiswal KM, Jaiswal SR. Comparative study of evaluation of self-medication practices in first and third-year medical students. Int J Biol Med Res 2011;2:561-4.
5. Lukovic JA, Miletic V, Pekmezovic T, Trajkovic G, Ratkovic N, Aleksic D, *et al*. Self-medication practices and risk factors for self-medication among medical students in Belgrade, Serbia. PLoS One 2014;9:e114644. doi: 10.1371/journal.pone.0114644, PMID 25503967
6. Badiger 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;5:217-20. doi: 10.4066/AMJ.2012.1007, PMID 22848313
7. Montgomery AJ, Bradley C, Rochfort A, Panagopoulou E. A review of self-medication in physicians and medical students. Occup Med (Lond) 2011;61:490-97. doi: 10.1093/occmed/kqr098, PMID 21727179
8. James H, Handu SS, Al Khaja KA, Otoom SS, Sequeira RP. Evaluation

of the knowledge, attitude, and practice of self-medication among first-year medical students. Med Princ Pract 2006;15:270-5. doi: 10.1159/000092989, PMID 16763393

9. Pan H, Cui B, Zhang D, Farrar J, Law F, Ba-Thein W. Prior knowledge, older age, and higher allowance are risk factors for self-medication with antibiotics among university students in Southern China. PLoS One 2012;7:e41314. doi: 10.1371/journal.pone.0041314, PMID 22911779
10. Kumari R, Kumar D, Gupta BR. Study of knowledge and practices of self-medication among medical students at Jammu. J Med Sci 2012;15:141-4.
11. Mehta RK, Sharma S. Knowledge, attitude and practice of self-medication among medical students. IOSR J Nurs Health Sci 2015;4: 89-96.
12. Kalyan V, Padma T, Pratap K, Srinivas P, Sudhakar K, Sudhakar G. Evaluation of self-medication practices among undergraduate dental students of tertiary care teaching dental hospital in South India. J Educ Ethics Dent 2013;3:21-5. doi: 10.4103/0974-7761.126939
13. Brimstone R, Thistlethwaite JE, Quirk F. Behaviour of medical students in seeking mental and physical health care: Exploration and comparison with psychology students. Med Educ 2007;1:74-83.
14. Roberts LW, Warner TD, Lyketsos C, Frank E, Ganzini L, Carter D. Perceptions of academic vulnerability associated with personal illness: A study of 1,027 students at nine medical schools. Collaborative Research Group on Medical Student Health. Compr Psychiatry 2001;42:1-15. doi: 10.1053/comp.2001.19747, PMID 11154710
15. Donkor ES, Tetteh-Quarcoo PB, Nartey P, Agyeman IO. Self-medication practices with antibiotics among tertiary level students in Accra, Ghana: A cross-sectional study. Int J Environ Res Public Health 2012;9:3519-29. doi: 10.3390/ijerph9103519, PMID 23202760
16. Dutta S, Hazarika K. Pattern of self-medication and drug use behavior among medical undergraduate students of medical and nonmedical colleges in a city of North-East India-a comparative study. Asian J Pharm Clin Res 2016;9:259-62.
17. Suthar J, Shrina PP, Riddhi NS. Knowledge, attitude, and practices of self-medication among the students of private university. Asian J Pharm Clin Res 2020;13:104-7. doi: 10.22159/ajpcr.2020.v13i8.37989
18. Mythri H. Research on self-medication: A hype or a hope? A literature review. Asian J Pharm Clin Res 2016;9:28-31.
19. Chouhan K, Prasad SB. Self-medication and their consequences: A challenge to health professional. Asian J Pharm Clin Res 2016;9: 314-7.
20. Sharma S, Jayakumar D, Palappallil DS, Kesavan KP. Knowledge, attitude, and practices of antibiotic usage and resistance among the second-year MBBS Students. Int J Basic Clin Pharmacol 2016;5:899-903. doi: 10.18203/2319-2003.ijbcp20161542
21. Ahmad Mir S, Shakeel D, Qadri ZL. Self-medication practices during Covid-19 pandemic: A cross-sectional survey. Asian J Pharm Clin Res 2021;14:80-2. doi: 10.22159/ajpcr.2021.v14i10.42761