

Knowledge, attitude, and practice of phase-II medical students towards antibiotic self-medication in a tertiary care medical college, North India

¹Dr. Nikhil Menia, Department of Pharmacology, Government Medical College, Jammu, J&K, India.

²Dr. Seema Gupta, Department of Pharmacology Government Medical College, Jammu, J&K, India.

³Dr. Rajesh Kumar, Department of Pharmacology Government Medical College, Jammu, J&K, India.

Corresponding Author: Dr. Nikhil Menia, Department of Pharmacology, Government Medical College, Jammu, J&K, India.

Citation this Article: Dr. Nikhil Menia, Dr. Seema Gupta, Dr. Rajesh Kumar, “Knowledge, attitude, and practice of phase-II medical students towards antibiotic self-medication in a tertiary care medical college, North India”, IJMSIR- May - 2022, Vol – 7, Issue - 3, P. No. 43 – 49.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Introduction: Self-medication with antibiotics is quite significant amongst medical students as they know various diseases and also have significant information about drugs. The purpose of this study was to assess second-year medical students' knowledge, attitude, and practice of antibiotic self-medication.

Aim and Objective: To assess phase-II medical students' knowledge, attitudes, and practices regarding the use of antibiotics for self-medication in a tertiary care medical college, north India.

Materials and Methods: After taking approval from the institutional ethics committee, this study was conducted in GMC Jammu on a total of 133 phase II medical students. Informed written consent was taken from students and they were explained the aims and objectives of the study and were also informed beforehand that their information will remain confidential. It was a prospective, cross-sectional, questionnaire-based study. A questionnaire was given to the medical students about antibiotic self-medication who were included in the study. Data were analyzed using MS Excel software and

it is demonstrated as graphs and tables using numbers and percentages.

Results: Among a total of 133 MBBS students, females were 74 (56%) and males were 59 (44%). The average age was 20.66 ± 1.01 years and the male to female ratio is 1:1.25. Antibiotic self-medication was used by the majority of pupils (83.46%). The most prevalent ailment treated with self-medication with antibiotics was sore throat (23%), followed by fever (20%), and cough (18%). Azithromycin (34%) was the most common antibiotic used followed by amoxicillin, cefixime, and erythromycin. The most common negative aspect of antibiotic self-medication was believed to be adverse drug reactions. Analysis of the source of information revealed that old prescriptions (38%), the internet (21%), and their own experiences (21%) were the main sources of information. Minor illness (50%) and convenience (29%) were the most common reasons for students self-medicating with antibiotics.

Conclusion: The use of antibiotics for self-medication is very common among students. Self-medication with

antibiotics can lead to antibiotic resistance, which is a major concern around the world. Therefore, the medical students who are our future prescribers need to be educated about the judicious use of antibiotics.

Keywords: Attitude, Knowledge, Practice, Medical students, Antibiotic, self-medication.

Introduction

The practice of self-medication is a potential contributor to the emergence of drug resistance. This practice should be curbed, as irrational use of antibiotics without medical guidance leads to mixed diagnosis, delayed appropriate treatment, and pathogen resistance. Antibiotic self-medication is very common, especially in developing countries, and self-medication is used to treat the majority of illnesses (1).

Purchasing drugs for self-medication does not require a valid prescription. Moreover, old prescriptions can be used again and again to purchase the medicines (2). Sharing of medicines between friends or family can cause havoc when a person without proper knowledge of drugs starts taking medicines on their own and forgets that all drugs are toxic and have to be used judiciously in varying doses and combinations based on a calculable risk. (3). The prevalent use of antibiotic self-medication is because of the easy availability of these drugs in the market, poor health care infrastructure, due to sympathy towards sick family members, financial constraints, lack of knowledge, and due to various advertisements about drugs on TV, the internet, etc.

The easy availability of drugs in markets other than pharmacies results in a higher proportion of antibiotics being used as self-medication (4). Inappropriate self-medication can lead to delay in health-care seeking, drug dependence, prolonged suffering, increased morbidity due to adverse events, and danger to life. Self-medication

with medications like antibiotics is a major contributor to the establishment of drug resistance (5).

WHO underscores the importance of self-medication, provided medicines used are of proven efficacy, quality, and safety, and indicated in conditions that are self-recognizable (6). Wide variation in the prevalence of self-medication has been reported in various developing countries like Kuwait (92%), Pakistan (76%), Nepal (59%), and India (52%). In European countries, a prevalence of 68% has been found (7). Self-medication is quite widespread among health professional students, with rates ranging from 57.7% to 76.9% as they get familiar with many diseases and their treatment during the training period (8). The study conducted at AIIMS, New Delhi has observed a considerably high (92% male and 88% female) percentage of self-medication among undergraduate medical and paramedical students in India (9).

Though there are several studies exploring self-medication among the general population, there is a paucity of data on antibiotic self-medication among medical students, especially in our region. Self-medication for antibiotics is becoming increasingly popular among medical students, owing to their knowledge of illnesses and medications, as well as the fact that, as future prescribers, they must understand the rational use of medication, as well as the rapid emergence of antimicrobial resistance to various antibiotics. Therefore, we planned this study among second professional medical students to evaluate the extent of antibiotic self-medication.

Aim and objective

To assess phase-II medical students' knowledge, attitudes, and practices regarding the use of antibiotics for self-medication in a tertiary care medical college, north India.

Materials and methods

A prospective, cross-sectional, questionnaire-based study was conducted in GMC Jammu after taking approval from the institutional ethics committee on a total of 133 phase II medical students. Written informed consent was taken from students and the study's goals and objectives were explained to them. It was made clear to them ahead of time that their information would be kept private.

Inclusion criteria

The phase II undergraduate medical students of either gender, who took self-medication with antibiotics during the last six months were included and informed consent was taken from them.

Exclusion criteria

Students who refused to give their consent were not allowed to participate in the study.

Students were given a self-developed questionnaire of 25 questions that contained a demographic profile and had both open-ended and close-ended questions based on attitude, knowledge, and the use of antibiotic self-medication (2). The students were instructed to record their responses without consulting fellow students or resources like books etc. Antibiotic self-medication was defined as the use of routinely available antibiotics without a prescription.

Statistical analysis

For data analysis, we used Microsoft Excel, and the results were expressed as counts and percentages.

Results

Among a total of 133 phase II medical students, females were 74 (56%) and males were 59 (44%). The average age was 20.66 ± 1.01 years and the male to female ratio is 1:1.25. Antibiotic self-medication was used by the majority of pupils (83.46%). Sore throat (23%) was the most common ailment treated with antibiotic self-

medication which was followed by fever (20%) and cough (18%) (Figure 1). The most commonly used antibiotic was Azithromycin (34%) followed by Amoxicillin (18%), Cefixime (9%), and Amoxy-clavulanate (9%) (Figure 2).

Old prescriptions (38%) and the internet were found to be the most common sources of knowledge on antibiotic self-medication (21%) (Figure 3). Minor illness (50%) followed by convenience (29%) was reported as the major factor for self-medication (Figure 4). More than one-third 41% of students regularly checked the information before taking antibiotics whereas 46% checked it occasionally and 13% never checked it (figure 5). Nearly half of the students (51%) never switched over antibiotics, (41%) did it occasionally, and very few (7%) frequently switched antibiotics during self-medication (Figure 6). Symptomatic relief (30%) followed by recovery from illness and completion of the course (26% each) were observed as the common causes of stopping the antibiotics (Figure 7). Regarding the practice of antibiotic self-medication, the majority of students (46%) were of the opinion that it's not an acceptable practice, whereas 39% rated it acceptable. Self-medication was regarded as a bad habit by only 15% of pupils. (Figure 8). Majority of the students (77%) considered independent management of minor illnesses at home as the most common advantage of antibiotic self-medication (Table 1). Students viewed adverse drug reactions as the biggest disadvantage (Table 2)

Discussion

Antibiotic self-medication is worldwide and can be beneficial or even detrimental to health. It provides prompt treatment, saves money and time, and allows health professionals to devote more attention to serious ailments. WHO has also highlighted the importance of

antibiotic self-medication which assumes importance in countries with a scarcity of health resources. Antibiotic self-medication is prevalent in self-diagnosed common ailments or in chronic and recurrent disorders which were initially diagnosed by doctors and require prolonged treatment as it saves patients from long queues in the hospitals. But at the same time, inappropriate therapy can result in economic loss, adverse reactions, treatment failure, and drug resistance. So, it is difficult to provide a simple answer whether it should be promoted or not.

The present study was conducted among phase II medical students as they are future doctors and they acquire the majority of knowledge about prescribing medicines during this time only. Among the population, self-medication is highly prevalent in 83.46% of medical students when acquiring knowledge for prescribing medicines for various ailments, particularly during their second professional course as seen in our study. A similar trend was reported by Saharan in Mumbai with a prevalence of 85% (11). In the past also a high prevalence of antibiotic self-medication among medical undergraduates has been documented (8,10). Limaye et al. (14) In a study conducted in Maharashtra, found a prevalence incidence of 51.5%. The difference could be explained by different recall periods used in the study, urban and rural populations, and the education status of the study population.

In our study females (56%) outnumbered males (44%). This was also seen in a study which was conducted in Puducherry (15). However, some trials conducted in India, have recorded male preponderances in self-medication (9,16,17). In the current study, the reasons for females outnumbering males could be justified by the enrolment of more females in the study as compared to males.

The most prevalent ailment treated with self-medication with antibiotics was sore throat (23%), followed by fever (20%), and cough (18%). Various additional investigations have come up with similar results. (2,18,19). Azithromycin (34%) was the major antibiotic used followed by Amoxicillin (18%). Azithromycin being longer acting and once a day dose could be the reason behind the first-choice antibiotic. In a Nigerian study penicillin group (especially ampicillin/cloxacillin and amoxicillin) was observed as the first-choice antibiotic by the majority of respondents (5). The choice of the antibiotics from the penicillin group could be due to their low cost, easy accessibility, good safety profile, and a somehow broad spectrum of antimicrobial activity. The results of the current study revealed that previous Doctor's prescriptions (38%), the internet (21%), and their own previous experiences (21%) led to antibiotic self-medication in these second professional students. Similar results have been reported in Indian studies from urban and rural Mumbai, urban Nagpur, and rural Tamil Nadu (2,14,20). It was observed that pharmacists gave medicines to consumers based on their requests, symptoms, and the availability of medicines (21).

Cost-effectiveness, convenience, lack of time, and minor illness were the main reasons for antibiotic self-medication among participants similar to other studies (2,16). In the current study, it is seen that most of the students considered minor illness (50%) followed by convenience (29%) as the common reasons for antibiotic self-medication. Approximately half of the students (51%) never changed antibiotics during treatment and only seven percent (7%) of participants switched over to other antibiotics during self-medication.

The results of this study indicated that (30%) of participants had stopped taking antibiotics after the

disappearance of symptoms and (26%) after completion of the course. 46% of participants think that antibiotic self-medication is not an acceptable practice while 39% are in its favor.

The limitations of this study are that the data for the past year was collected and recall bias may have been present. Our findings are based on the evaluation of second professional medical students from a single center which remains another limitation and further trials need to be conducted among other professional medical students to have a better understanding of the practice of antibiotic self-medication.

Conclusion

Antibiotic self-medication was shown to be common among the majority of the students who took part in the study. Antibiotic self-medication nowadays is considered a responsible component of one's care. Since drug resistance is emerging as a major concern worldwide, medical students who are our future prescribers need to be educated about the rational and judicious use of antibiotics. Furthermore, multicentric trials need to be conducted among other professional medical students for a better understanding of antibiotic self-medication.

References

1. Gupta S, Khajuria K, Bhat NK, Khajuria V, Mehra A. Assessment of the knowledge, attitude, and practice of self-medication among second-year undergraduate medical students in a tertiary care teaching hospital. *Int J Basic Clin Pharmacol* 2019; 8:1090-1095.
2. Rajendran A, Kulirankal KG, Rakesh PS, George S. Prevalence and pattern of antibiotic self-medication practice in an urban population of Kerala, India: A cross-sectional study. *Indian journal of community medicine*: 2019;44(5):42-45.

3. Phalke VD, Phalke DB, Durga wale PM. Self-medication practices in rural Maharashtra. *Indian J Community Med.* 2006;31:34–5.
4. World Health Organization. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. World Health Organization; 2000. [Last accessed on 2017 Nov 23]. Available from: <http://apps.who.int/medicine/docs/pdf/s2218e/s2218e.pdf>.
5. Fadare JO, Tamuno I. Antibiotic self-medication among university medical undergraduates in Northern Nigeria. *Journal of public health and Epidemiology.* 2011 ;3(5):217-20.
6. WHO Resource. The role of the pharmacist in self-care and self-medication. Responsible self-medication, 1998. Available at: <http://www.apps.who.int/medicine/docs/en/d/Jwhozip32e/3.3.html>. Accessed 15 October 2014
7. Patel P, Prajapati A, Ganguly B, Gajjar B. Study on impact of pharmacology teaching on knowledge, attitude and practice on self-medication among medical students. *Int J Med Sci Public Health.* 2013;2(2):181-6.
8. 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.
9. Self-medication popular among medical students: AIIMS study. Available at: <http://www.Live mint. Com /Politics /XcN44 QD5 g8aW4dwltcUdtI/Self-medication popular-among-medical-students-AIIMS-study.html>. Accessed 2013 Feb 27. 30
10. 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(2):561-4.

11. Saharan V, Pandey M. A study of the prevalence of self-medication practice among people of Mumbai. *Int J Pharm Pharm Sci.* 2015;7(7):253-6.

12. Badigar S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakol Karan N, et al. Self-medication patterns among medical students in South India. *Australas Med J.* 2012;5(4):217-20.

13. Dilie A, Gualu T, Haile D, Zuleta FA. Knowledge, attitude, and practice of self-medication among health science students at Debre Markos University, Northwest Ethiopia. *J Public Health Epidemiol.* 2017;9(5):106-

14. Limaye D, Limaye V, Fortwengel G, Krause G. Self-medication practices in urban and rural areas of western India: a cross-sectional study. *Int J Community Med Public Health* 2018;5(7):2672-85.

15. Balamurugan E, Ganesh K. Prevalence and pattern of self-medication use in coastal regions of South India. *BJMP* 2011;4:a428.

16. Ahmed A, Patel I, Mohanta G, Bal Krishnan R. Evaluation of self-medication practices in a rural area of town Sahaswan at Northern India. *Ann Med Health Sci Res* 2014;4:S73-8.

17. Ahmed A, Parimala Krishnan S, Patel I, Kumar NV, Balakrishnan TR, Mohanta GP. Evaluation of self-medication antibiotic use pattern among patients attending community pharmacies in rural India, Uttar Pradesh. *J Pharm Res* 2012; 5:7658.

18. Banerjee I, Bhadury T. Self-medication practice among undergraduate medical students in a tertiary care medical college. *West Bengal J Postgrad Med.* 2012;58(2):127-31.

19. Kasulkar A, Gupta M. Self-medication practices among a private institute medical students. *Indian J Pharm Sci.* 2015;77:178-82.

20. Annadurai K, Selvasri S, Ramasamy J. Self-medication: Predictors and practices among the rural population of Nellikuppam Village, Kancheepuram District, Tamil Nadu. *JKIMSU.*2017;6(1):90-8.

21. Kotwani A, Wattal C, Joshi P, Holloway K. Irrational use of antibiotics and role of the pharmacist: insight from a qualitative study in New Delhi, India. *J Clin Pharm Ther.* 2012;37(3):308-12.

Legend Figures

Figure 1:

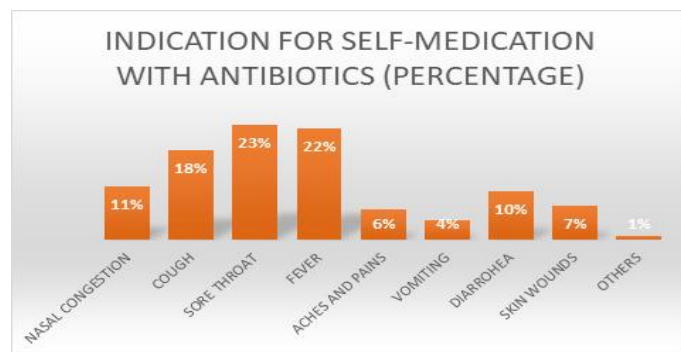


Figure 2:

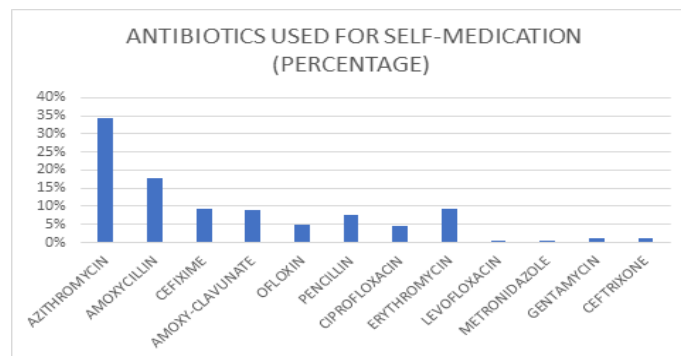


Figure 3:

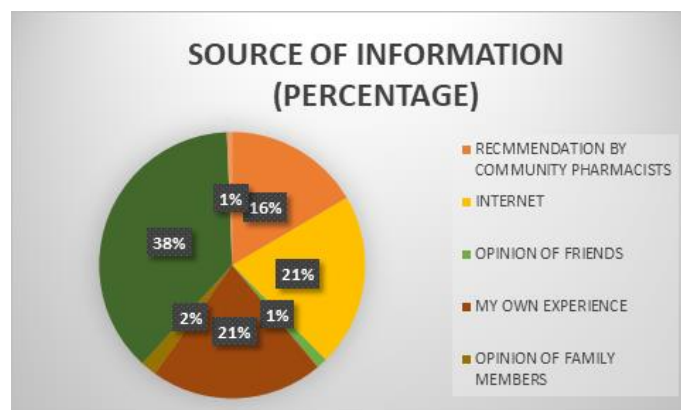


Figure 4:

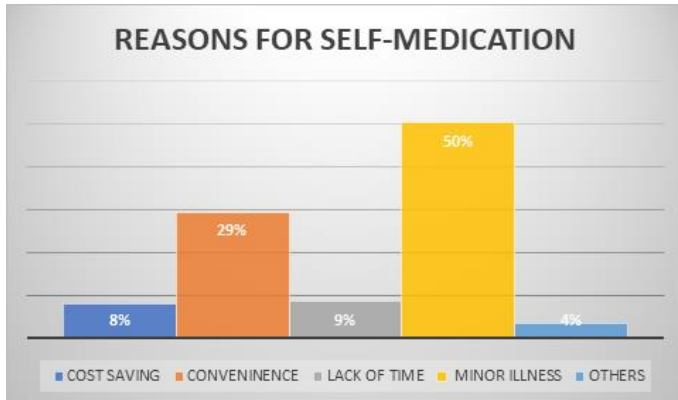


Figure 8:

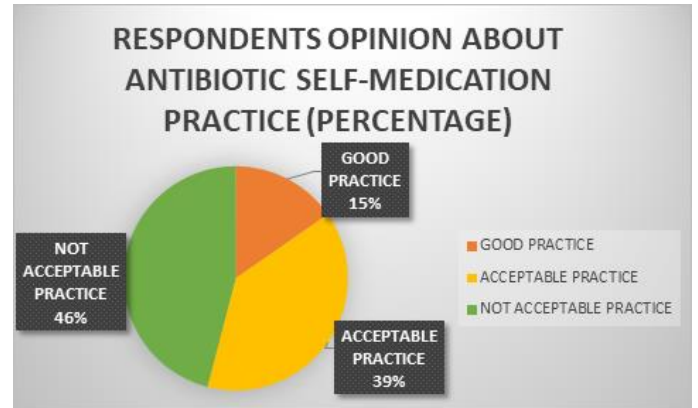


Figure 5:

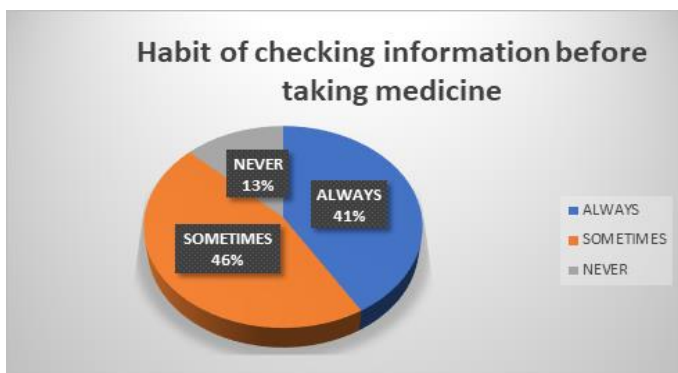


Table 1

Merits of self-medication	Column1	Column2
Merits	Number (n)	Percentage
Independent management of minor illness	117	77%
Reduced pressure on medical services	23	15%
Enables patient to control chronic conditions	7	5%
Benefits to pharmaceuticals companies	4	3%
Total Responses	151	

Figure 6:

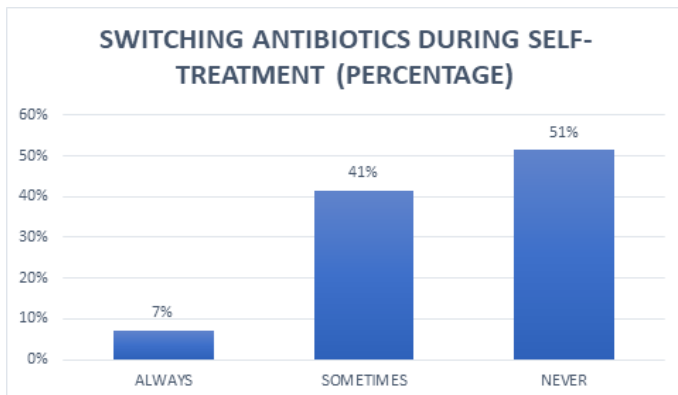


Table 2

Demerits of self-medication	Number (n)	Percentage
Risk of adverse drug reaction	95	43%
Risk of using wrong diagnosis	54	25%
Risk of missing actual diagnosis	42	19%
Risk of drug dependence	29	13%
Total Responses	220	

Figure 7:

