



A QUESTIONNAIRE-BASED STUDY ON SELF-MEDICATION AMONG 2nd YEAR MEDICAL STUDENTS AT A TEACHING HOSPITAL, JAIPUR

Dr. SLDV Ramana Murty Kadali *	Associate Professor, Department of Pharmacology, Jaipur National University Institute of Medical Sciences and Research Centre, Jaipur-302017. *Corresponding Author
Dr. Mukul Mathur	Professor, Department of Pharmacology, Jaipur National University Institute of Medical Sciences and Research Centre, Jaipur-302017.
Dr. Simhadri VSDNA Nagesh	Associate Professor, Department of Pharmacology, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly.
Dr. G. Chitti Babu	Assistant Professor, Department of Pharmacology, Jaipur National University Institute of Medical Sciences and Research Centre, Jaipur-302017.
Dr. Prerna Upadhyaya	Professor & HOD, Department of Pharmacology, Jaipur National University Institute of Medical Sciences and Research Centre, Jaipur-302017.

ABSTRACT **Background:** Self-medication is very common, and it is practiced worldwide. Medical students constitute a segment that is more knowledgeable about medicines by virtue of their curriculum but being students, those are unable to prescribe medicines. The study was designed to ascertain the behavior, knowledge, and perception of students on self-medication.

Methods: 255 students participated in the study. A questionnaire containing a set of 14 questions was designed, to determine the knowledge and perception of the students regarding self-medication. They were given 20 minutes to fill the questionnaire, and students were told not to mention their identity, i.e., their names or roll number on the questionnaire. Informed consent was obtained from each student.

Results: The present study reveals that 71% of the students practiced self-medication. 98.4% of students could expand the abbreviation of OTC, but only 79.1% are aware of the meaning of OTC. Drugs used for self-medication were 70.5% analgesics, 68.9% cough syrups, 62.2% antipyretics, 52% antacids, 39.4% multivitamins, 35% antiemetics, 27.6% lozenges, 17.3% antimicrobials, 15.4% decongestants and 9.1% antispasmodics.

Conclusions: Medical students who are the future doctors, and medical educators, can advocate, motivate, and impart useful knowledge to their patients and the general public for responsible self-medication. Furthermore, doctors should also be knowledgeable about the self-medication practice in the community so that they could enquire about the use of other medications by their patients prior to writing a prescription.

KEYWORDS : Self-medication, medical students, Over the counter, prescription, Questionnaire

INTRODUCTION-

Self-medication is defined as the use of medication by a patient on his own initiative or on the recommendation of a pharmacist or a layperson rather than consulting a medical practitioner.¹ Self-medication is very common, and it is being practiced worldwide.² The prevalence rates of self-medication are high, about 68% in European countries, 50% in the UK, 77% in the USA, 92% in Kuwait, 76% in Pakistan, and 59% in Nepal.^{3,4} In India, the prevalence of self-medication is 31% and 71% in studies conducted in Nagpur and Karnataka, respectively.⁵

Self-medication has both merits and demerits. Appropriate, self-medication relieves acute problems, economical, time-saving, and reduces the burden on the health care professional who can provide time for more severe ailments that require greater attention. Inappropriate self-medication can result in failure of therapy, adverse drug reactions, prolonged suffering, development of bacterial resistance in case of antimicrobial agents, drug dependence, unwanted drug interactions economic loss, wastage of resources, and may delay the correct diagnosis which may even endanger life.⁶ Several factors influencing the self-medication practice, which include socioeconomic factors, lifestyle, increased potential to manage certain illnesses through self-care, increasing the availability of medicines, and availability of healthcare professionals, not enough time for medical consultation, exposure to the advertisement, education, and professional status.^{7,8}

Unlike other aspects of self-care, self-medication involves the use of drugs, which have the potential to do good as well as cause harm. This is particularly relevant in countries where there is a lack of enforcement of regulations leading to the availability of prescription medicines over the counter. Students become more and more cautious in practicing self-medication, knowing that irrational and inappropriate usage of them might be more harmful than useful.¹

WHO gives importance to responsible self-medication, where individuals treat their minor ailments and conditions with medicines which are approved for use without a prescription and which are safe

and effective when administered as directed. Medical students occupy a unique position; they cannot yet legally prescribe medications, but as they progress through the course of study, they may acquire greater knowledge about medicines and be more knowledgeable regarding their rational use.⁹ Medical students in their first year may not differ much from the general population as far as the practice of self-medication is concerned. But second-year onwards, they may differ from the general population because they are exposed to knowledge about diseases and drugs.¹⁰ Since medical students are future physicians and health prescribers of the community, it is essential to know their knowledge level regarding different aspects of self-medication.

Studies on self-medication might provide useful insight on the reasons for which patients opt this practice and help the regulatory authorities to streamline the process of drug regulations, to update the list of essential medicines and safety issues of over-the-counter drugs.¹¹

MATERIALS AND METHODS:

This is a questionnaire-based study, and it was conducted after obtaining the approval from the Institution Ethics Committee of JNUIMSRC (JNUIMSRC/IEC/2019/56). A questionnaire containing a set of 14 questions were designed keeping in view the objectives of the study. Students were given 20 minutes to fill the questionnaire and were told not to reveal their identity, i.e., names or roll number on the questionnaire. Informed consent was taken from each participant. Before conducting the final study, the questionnaire was validated with a small number of students.

Inclusion And Exclusion Criteria:

2nd-year MBBS students of either sex pursuing studies in JNUIMSRC were included in the study. Who are not willing to participate were excluded from the study.

Statistical Analysis:

Data were analyzed by using Microsoft Excel and the results were expressed as counts and percentages. Some questions had multiple

options, hence the sum of the percentage was not always 100%.

RESULTS

The total number of second MBBS students are 300, out of that 255 participated in the study. Students were between the age group of 20.4 ± 1.2 years. The female participants were 64.7%, and male participants were 35.3% (Figure-1).

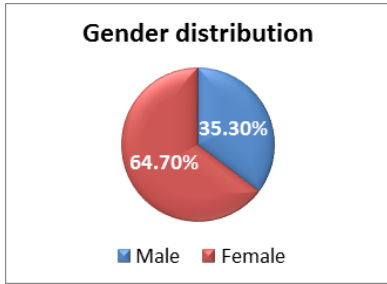


Figure-1: Distribution Of Students Based On Gender

98.4% of students could expand the abbreviation of OTC, but only 79.1% knew the meaning of the term OTC. In the present study, 71% of the students has practiced self-medication (Figure-2).

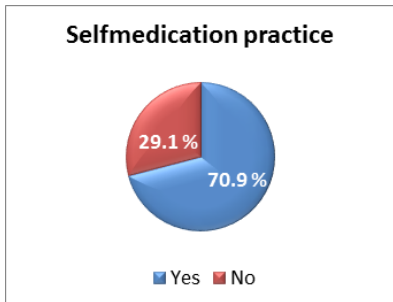


Figure-2: Distribution Of Students Based On Self-medication Practice

7.1% always, 28.3% rarely, 60.2% sometimes consult the medical practitioner for their minor ailments. 76% of students knew the dose and frequency of a drug that they have taken, and 24% did not know the dose and frequency of a drug that they have taken (Figure-3).

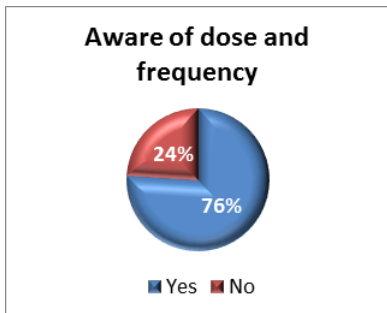


Figure-3: Students Awareness About Dose And Frequency Of Medicines(%)

71.7% knew the adverse effects of a drug that they have taken, and 28.3% did not know the adverse effects of a drug that they had taken(Figure-4).

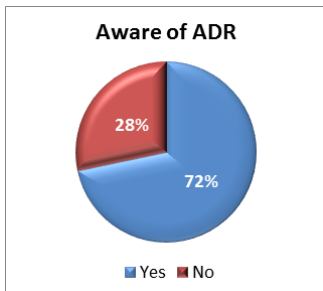


Figure-4: Students Awareness About ADR Of Medicines(%)

95.7% of the students check the expiry date of a drug, whereas 4.3% don't check the expiry date of a drug (Figure-5).

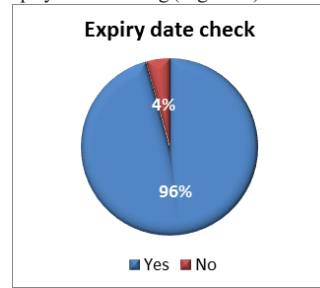


Figure-5: Students Distribution Based On An Expiry Date Check

Students opted if a full course of medication is not completed, the complications will be 61% recurrence of disease, 36.6% antibiotic resistance, 32.7% full response may not be obtained even after repeating the course, 24.8% aggravation of the disease, and 3% for other reasons. The reasons mentioned by the student for not taking the medication without prescription were 60% risk of adverse effects, 44% risk of using wrong drugs, 35% risk of misdiagnosing, 34.6% lack of knowledge about medicines, 32.3% risk of using drugs wrongly, 20.1% risk of drug dependence and 5.1% others(Figure-6).

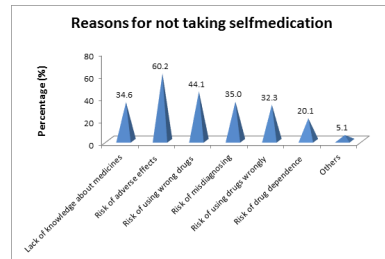


Figure-6: Reasons For Not Practicing Self-medication By The Students

53.5% textbook, 52.8% previous prescription, 30.3% classroom teaching, 22.8% advertisement, and 11% opted for other (internet) are the source of drug information for self-medication(Figure-7).

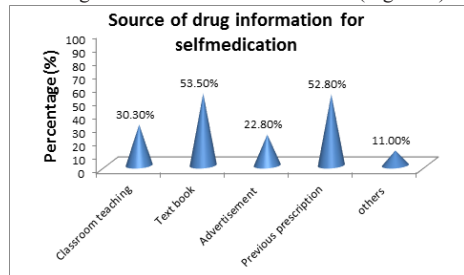


Figure-7: Source Of Drug Information For Self-medication

The purchasing/procurement of drugs for self-medication is 48.8% by generic name, 37.8% of students based on signs and symptoms, 37% by brand name, 24% based on old prescription, and 4.3% by other methods. The reasons for the favor of self-medication are 53.9% no need to visit the doctor for minor ailment, 46.1% time saving, 40.6% quick relief, 39% ease and convenience, 31.1% confidence on your knowledge about medicines, 16.9% economical, 15.7% learning opportunity, 14.2% crowd avoidance and 2.8% by other (Figure-8).

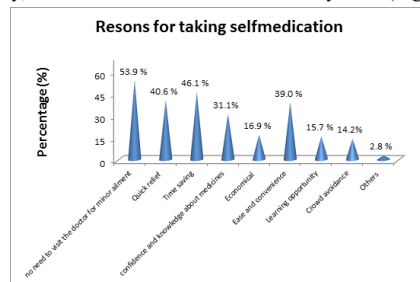


Figure-8: Various Reasons For Practicing Self-medication By The Students

The most common illnesses for which self-medication was done for 85.4 % headache, 69.3% cough, cold, sore throat, 68.5 % fever, 37.8% vomiting, 37% stomach ache, 34.6% diarrhea, 26.8% menstrual symptoms and 3.5% ocular symptoms(Figure-9).

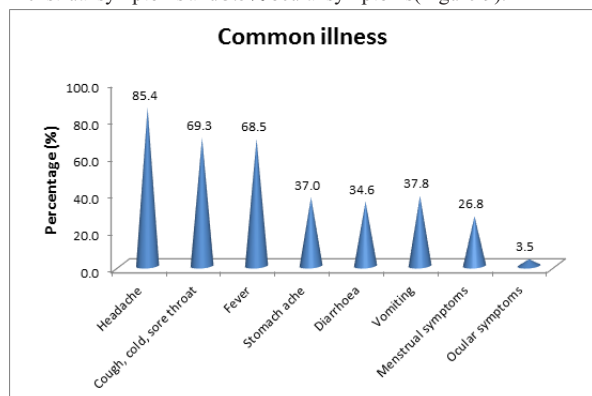


Figure –9: Common Illnesses For Which Self-medication Is Practiced

Drugs were used for self- medication are 70.5% analgesics, 68.9% cough syrups, 62.2% antipyretics, 52% antacids, 39.4% multivitamins, 35% antiemetics, 27.6% lozenges, 17.3% antimicrobials, 15.4% decongestants and 9.1% antispasmodics (Figure-10).

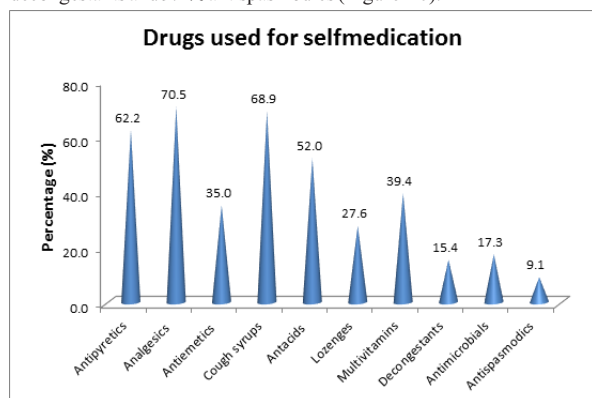


Figure –10: Most Commonly Used Drugs For Self-medication

DISCUSSION

98.4% of students can expand the abbreviation of OTC. This might be due to high knowledge among students about pharmacology. The prevalence of self-medication is 70.9% out of 34.3 % males and 36.6% females. Recently published studies shows that the way they self-medicate evolves along with the increase in their knowledge and easy access to drug information and familiarity with various kinds of drugs.^{12, 13,14,15}

This is correlated with the present study; almost 71% of the students practicing self-medication. Studies conducted on self-medication practice among undergraduate medical students in India, the prevalence of Self-medication was 57.05% in West Bengal¹² and 78.6% in Mangalore^{13,14}. Medical students, though, have not legal permit to prescribe the medicine, but have an inevitable urge of self-medication practice themselves and also for others as they are going through the professional course for their gradual acquirement of knowledge regarding different drugs and their proper use. As they reach their final semester self-medication practice increase with the increment in the ability of their diagnosis of different clinic conditions and knowledge of the use of drugs.¹⁶

In the present study, female student's self-medication practice is slightly higher when compared with males but statistically no significant difference between gender. These observations are contradicting Rajanish Kumar Sankdia *et al.*, findings where female students were more interested in taking Self-medication as compared to male students.¹ This may be because the female students are more hesitant to go to the hospital or outpatient department for minor illnesses.¹ In Badiger *et.al*, Patil Shivraj *et al* studies more male students (94%) practiced self-medication than female students (91%).^{17,18}

Nearly 72-76% of students know the dose, frequency, and ADR of

drugs that they are taking. William Osler once commented, “The desire to take medicine is perhaps the greatest feature which distinguishes man from animals.”¹⁹ Drugs commonly used for self-medication include analgesics, antitussives, antipyretics, antacids, multivitamin supplements, antiemetics, lozenges, antibiotics, decongestants, and antispasmodics. In the present study, 70.5% of students used analgesics. NSAIDs were the most common drug consumed by self-medication, which was at par with other studies. The improper use of NSAIDs may cause gastritis and nephrotoxicity. A study from Bahrain reported analgesics as the most common class of drugs self-medicated with antibiotics contributing only to 6%.²⁰ The reason given by researchers for the limited use of antibiotics in Bahrain is that the government in Bahrain has strict regulatory policies about the prescription and over the counter sale of antibiotics.²⁰

In the present study, 85.4 % of students taking self-medication for headache out of 40.6 % male and 44.6 % females. Compared to the male counterparts, the prevalence of headache among females students were found higher. Studies demonstrated that the prevalence of headaches among females is higher than male counterparts. This difference might be due to endocrine factors, the way they respond to stressors, and even psychosocial burdens on females.²¹ The most common indication for self-medication was headache, cold and cough, vomiting, stomachache, diarrhea, menstrual pain, and ocular disease. However, cold and cough are the most common indication for self-medication in a study conducted in Gulbarga.¹⁸ Whereas fever was the most common indication for self-medication in a study conducted in Mangalore¹⁹ and Ethiopia²¹.

The OTC Committee of the Organization of Pharmaceutical Producers of India (OPPI) is working to promote responsible self-medication. It aims to get regulatory support for problems like the accessibility of household remedies and increasing the concern of the importance of responsible self-medication with the general public and the Government. The sale of analgesic rises by 15.8% in 2009, which was 10.7% in 2008. Gastrointestinal drugs rise to 10.4%, and other OTC drugs increased by 38.9%. Vitamins, minerals, and other supplements are increased by 8.8% from 8.2%.²²

Media helps the public to create awareness about various aspects. Advertisements also contribute to people getting ideas or familiarity with particular drugs. But if a keynote message was not appropriately taken by the individuals leads to inappropriate self-medication. “The programs in which a doctor is talking on television are often harmful, because ordinary people do not properly understand the message, or they take some parts of the message they like and think they know everything about that disease, so they prescribe medication for themselves and others.” The availability and affordability of the internet as a reason for self-medication, although some students believed that the majority of websites were unreliable.⁴ In the present study, 4% of students depend upon the internet for self-medication.

Self-medication is widely practiced worldwide both in urban and rural populations, including India because various drugs are dispensed over-the-counter without a prescription, which provides a low-cost alternative to people.²³ In India, some individuals take medication either consult a pharmacist and obtain medicine, or consult a neighbour who may be having some left-over tablets from his/her previous illness.²³ In developing countries like India, the easy availability of a wide range of drugs coupled with inadequate health services result in an increased proportion of medicines used as self-medication.¹⁸

Across the world, a consumer on an average suffers from at least one aspect of un-wellness in 4 weeks. Accordingly, 50% of people wait for the symptoms to subside, 25% take resort of prescription medicines while the remaining 25% turn to OTC (over-the-counter) medicines for relief. The US and South Africa have the highest percentages of self-medication, only the reasons differ. While in the US it is more of a cost and time-saving alternative, in South Africa it is high due to lower levels of infrastructure and professional staff.²⁴

In India, Schedule H (prescription drugs) and Schedule H 1 (antibiotics and other restricted medications) can be sold by a legally qualified registered pharmacist upon presentation of valid prescription as per the Drug and Cosmetics Act of 1940. In India, advertisement in media or any other form regarding drugs and diseases are banned under Drug and Magic Remedies Act and Schedule J under drug and cosmetics act but pharmaceutical companies do advertise their products such as

sexual products, baldness or prevent hair fall, cancer, heart diseases and others related to women health, etc. In developing countries including India, a wide range of medications are easily available without prescriptions, and insufficient healthcare budget or health-related services are provided by the state.²⁵

Though Pharmaceutical laws are strict regarding the sale of expired products, it is the consumer's responsibility to check for the expiry date at the time of purchase. The present study results revealed that 95.7 % of students check the expiry date. This practice was appreciably good in the present study. Medical students, future doctors, and medical educators, with good knowledge about self-medication, could advocate, motivate, and impart essential knowledge to their patients and the general public for responsible self-medication.²⁶ Furthermore, doctors should be knowledgeable about the self-medication practice in the community so that they could enquire about self-medication by their patients before prescribing medicines. This could help them optimize therapy and avoid drug-drug interactions.²⁷

In India, certain Universities include the source of drug information, critical appraisal of drug promotional literature in the pharmacology practicals in the MBBS curriculum like that responsible self-medication may be included in the MBBS curriculum to avoid or minimize the inappropriate self-medication. Awareness should be created among the medical students to be responsible for self-medication.

Acknowledgment

We are very much thankful to the students of the second MBBS for their support and participation in this study.

REFERENCES:

- Sankdia RK, Agrawal M, Rekha PB, Kothari N. A Questionnaire Based Study Regarding the Knowledge, Attitude and Practice of Self-Medication Among Second Year Undergraduate Medical Students. *Int J Pharmacol Clin Sci*. 2017;6(1):01-05. doi:10.5530/ijpcs.6.1.1
- Jain S, Malvi R, Purviya JK. Concept of Self Medication: A Review. *Int J Pharm Biol Arch*. 2011;2(3):831-836.
- Jagadeesh K, Chidananda K, Revankar S, Prasad N. Study on self-medication among 2nd year medical students. *Int J Basic Clin Pharmacol*. 2015;4(1):164-167. doi:10.5455/2319-2003.ijbcp20150235
- Soroush A, Abdi A, Andayeshgar B, Vahdat A, Khatony A. Exploring the perceived factors that affect self-medication among nursing students: A qualitative study. *BMC Nurs*. 2018;17(1):1-7. doi:10.1186/s12912-018-0302-2
- Chari HS, Kadeangadi DM, Mallapur MD. Practice of self-medication among urban households—A community based cross sectional study. *Journal of community medicine* 2015;6(2):226-229.
- Kasulkar A, Gupta M. Self medication practices among medical students of a private institute. *Indian J Pharm Sci*. 2015;77(2):178-182. doi:10.4103/0250-474x.156569
- Kaur Bhatia GMC Patiala M, Farid B, Bhatia MK, Ripudaman S, Akashdeep S. Knowledge, Attitude and Practice of self medication among undergraduate medical students of Punjab. *J Med Res*. 2017;3(3):151-154.
- Arman Latifi, Ali Ramezankhani, Zahed Rezaei, Hossein Ashtarian, Behnam Salmani, Mohammad-Reza Y, Mehdi Khezeli. Prevalence and associated factors of self-medication among the college students in Tehran. *J Appl Pharm Sci*. 2017;7(7):128-132. doi:10.7324/JAPS.2017.70720
- Shankar PR, Dubey AK, Dwivedi NR, Nandy A, Barton B. Knowledge, perception and practice of self-medication among premedical and basic science undergraduate medical students. *Asian J Med Sci*. 2016;7(6):63-68. doi:10.3126/ajms.v7i6.15246
- Sontakke SD, Bajait CS, Pimpamkhute 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):561-564.
- Subhashini, Garla BK, Karuppaiah M, Taranath. Prevalence of Self-medication Practice among People Attending Oral Health Outreach Programmes in Madurai East, Tamil Nadu. *J Acad Adv Dent Res*. 2017;8(1&2): 14-20. 222941121772910. doi:10.1177/2229411217729104
- Banerjee I, Bhadury T. Self-medication practice among undergraduate medical students in a tertiary care medical college, West Bengal. *J Postgrad Med*. 2014;58(2):127-131. doi:10.4103/0022-3859.97175
- Bagewadi HG, Deodurg PM, Patil B V., Dass AP. Knowledge, attitude, perceptions and assessment of effectiveness of educational intervention on Pharmacovigilance among undergraduate medical students at Gulbarga Institute of Medical Sciences, Kalaburagi, India. *Int J Basic Clin Pharmacol*. 2017;7(1):103-108. doi:10.18203/2319-2003.ijbcp20175683
- Bagewadi HG, Deodurg PM, Patil B V, Zahid SH. Perceptions and practices of self-medication among undergraduate medical students at Gulbarga Institute of Medical Sciences. *Int J Basic Clin Pharmacol*. 2018;7(1):63-67.
- Abdi A, Faraji A, Dehghan F, Khatony A. Prevalence of self-medication practice among health sciences students in Kermanshah, Iran. *BMC Pharmacol Toxicol*. 2018;19(1):1-7. doi:10.1186/s40360-018-0231-4
- Shah H, Patel R, Nayak S, Patel H, Sharma D. A questionnaire-based cross-sectional study on self-medication practices among undergraduate medical students of GMERS Medical College, Valsad, Gujarat. *Int J Med Sci Public Health*. 2018;7(4):249-254. doi:10.5455/ijmsph.2018.0101324012018
- Badiger S, Kundapur R, Jain A, et al. Self medication patterns among medical students in South India. *Australas Med J* 2012;5(4): 217-220.
- Patil Shivaraj B. Self-Medication Practice and Perceptions Among Undergraduate Medical Students: A Cross-Sectional Study. *J Clin Diagn Res*. 2014;8(12): HC20-HC 23. doi:10.7860/JCDR/2014/10579.5313
- Mapala P, Holla R, Acharya S, Zachariah T, Aipaniguly P. A comparative study of knowledge, attitude and practice of self-medication among medical and para medical students in a medical college, Mangaluru, Karnataka, India. *Int J Basic Clin Pharmacol*. 2016;5(3):865-868. doi:10.18203/2319-2003.ijbcp20161536
- James H, Handu SS, Al Khaja KAJ, Ootom S, Sequeira RP. Evaluation of the

- Knowledge, Attitude and Practice of Self-Medication among First-Year Medical Students. *Med Princ Pract*. 2006;15(4):270-275. doi:10.1159/000092989
- Birru EM, Abay Z, Abdelwuhab M, Basazn A, Sirak B, Teni FS. Management of headache and associated factors among undergraduate medicine and health science students of University of Gondar, North West Ethiopia. *J Headache Pain*. 2016;17(1):56. doi:10.1186/s10194-016-0647-4
- Organisation of Pharmaceutical Producers of India. India OTC Pharma Profile. Available from <https://www.indiaoppi.com/sites/default/files/PDF%20files/India OT Cpharma Profile2011.pdf>.
- Agrawal R, Sharma SK, Jaiswal MK, Sharma R, Ali SS. Evaluation of knowledge, attitude and practice of self medication among second year undergraduate students in Bastar Region : a questionnaire based study. *Int J Basic Clin Pharmacol*. 2019;8(4):817-820.
- Parulekar M, Mekoth N, Ramesh CM, Parulekar A. Self-medication in Developing Countries a Systematic Review. *J Pharm Technol Res Manag*. 2016;4(2):103-127. doi:10.15415/jptm.2016.42007
- Ahmad A, Khan MU, Srikanth AB, et al. Evaluation of Knowledge, Attitude and Practice about Self-medication Among Rural and Urban North Indian Population. *Int J OfPhara Clin Res* 2015;7(5):326-332.
- Priyan MS, Maharani B, Jafin AL, Chavada VK, Sivagnanam G. Self-medication practices among residents of Puducherry – A cross sectional questionnaire based survey. *Indian J Pharm Pharmacol* 2017;4(4):168-171.
- Gyawali S, Ravi Shankar P and Archana Saha. Knowledge, Attitude and Practice of Self-Medication Among Basic Science Undergraduate Medical Students in a Medical School in Western Nepal. *J Clin Diagn Res*. 2015;9(12):FC 17-FC 22. doi:10.7860/JCDR/2015/16553.6988