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A QUESTIONNAIRE BASED STUDY REGARDING KNOWLEDGE, ATTITUDE AND PRACTICE OF OVER-THE-COUNTER DRUGS AMONG SECOND YEAR UNDERGRADUATE MEDICAL STUDENTS IN A SOUTH INDIAN TEACHING HOSPITAL

Ancy N. S. and *Hema N. G.

Department of Pharmacology, Mysore Medical College and Research Institute, Mysore, Karnataka, India.

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***Corresponding Author**
Dr. Hema N. G.
Department of Pharmacology, Mysore Medical College and Research Institute, Mysore, Karnataka, India.

ABSTRACT

Background: Self-care is a primary public health resource in the health care system which includes self-medication with over-the-drugs (OTC). As among the public, the use of OTC drugs is also common among the medical students. The objective of this study was to assess the knowledge, attitude and practices of OTC drugs among second year undergraduate medical students as they are well-exposed to the knowledge about drugs. **Methods:** A questionnaire-based study was conducted among 150 second year undergraduate students from Mysore Medical College and Research Institute, Mysore from October 2021 to November 2021. A validated questionnaire consisting of 30 questions divided under 3 sections; knowledge, attitude and practice was used. Statistical analysis of data was done using MS-Excel spreadsheet. **Results:** Out of the 150 participants 119 had good knowledge about OTC. More than half of the students i.e., 96 (64%) agreed about the appropriateness of sharing OTC medication with others. Headache (88%), fever (62.6%), cough and common cold (61.3%) were the most common conditions for which the students practiced self-medication while analgesics 128 (85.3%), antipyretics 84 (56%) and antacids 52 (34.6%) were the most commonly used class of drugs. Less severe disease (86.6%) and an intention to save money (43.3%) were the main reasons for OTC medication practice. **Conclusion:** There is a need for elaborate chapters in the medical undergraduate curriculum about OTC drugs so that medical students are educated, empowered and trained with necessary skills to tackle issues arising with the use of OTC drugs.

KEYWORDS: Attitudes, Knowledge, Non-prescription Drugs, Practice, Self-Medication, Self Care.

INTRODUCTION

The measures taken to achieve well-being and freedom from illness are different based on the attitudes and experiences of individuals. Beliefs, feelings, and thoughts of an individual significantly influence the understanding of an illness, which in turn affects the decision taken to address it. Only around 10%–30% of symptoms experienced by an individual are brought to the attention of a physician and majority of symptoms are either tolerated or self-medicated.[1]

Self-care is a broad concept encompassing general and personal hygiene, nutrition, lifestyle, environmental factors, socioeconomic factors and self-medication.[2]

The WHO considers self-medication as an important element of personal self-care, hygiene, and nutrition. Responsible self-medication was defined as the practice where individuals treat their ailments and conditions with medicines that are approved, available without prescription, and are safe and effective when used as directed.[3]

Self-medication patterns vary among the different populations and are influenced by age, gender, self-care orientation, income, educational level, medical knowledge, previous experience, satisfaction, and seriousness of the disease.[4]

Responsible self-medication requires that the medicines used are of proven safety and quality and that medicines are indicated for conditions that are self-recognizable and for some chronic or recurrent conditions. These medicinal products are available in the pharmacy without prescription from a health care professional and are termed as over-the-counter (OTC) drugs.[2] OTC medicines or non-prescription medicines are the terms used to refer to medicines that can be bought without a prescription. The trend of Over-the-Counter medicine use has grown steadily in the last few years. The purchase of specific medicines over the counter is legally recognized in most countries. There is no separate allotted category for OTC medication in India and the drugs that do not come under the prescription medicines schedule are generally sold as over-the-counter medicines.[5]

In India, the term 'OTC' is used for the ways drugs are being used rather than being recognized officially as a category of medicines, unlike in other countries. To date, there are

no specific unifying regulations related to its use and sale. This has an impact on both access to better health care and patients' safety, due to inappropriate use of over-the-counter drugs.[5] The Organization for Pharmaceutical Producers of India (OPPI) has proposed that policies should be developed for drug classification, licensing, labeling, distribution, and pricing of OTCs. OTC medicines allow greater access to treatment of people at large at a lower cost for minor or self-limiting illnesses.

The concerns about misuse, adverse effects including dependence (especially to sedatives, analgesics, antacids, and laxatives), drug resistance, and delayed diagnosis of underlying conditions due to the use of OTC medicines pose formidable challenges.[5]

Many factors influence the practice of self-medication among medical students compared to the general public.[2] As they have easy access to information self-medication is considerably high among undergraduate medical and paramedical students in India and it increases with medical knowledge. There is a scarcity of literature on the prevalence of self-medication with over-the-counter drugs among medical students and their attitude towards the same.[6]

Medical students and medical educators, with good knowledge about OTC medications, could advocate, motivate, and impart essential knowledge to their patients and the general public for its responsible use. Furthermore, doctors should be knowledgeable about the self-medication practice in the community. This will help them to avoid drug interactions and provide optimized therapy.[7]

OBJECTIVES

To assess the knowledge, attitude and practices of OTC drugs among second year undergraduate medical students.

MATERIALS AND METHODS

Study design: An observational cross-sectional questionnaire-based study was conducted among second-year undergraduates in the Department of Pharmacology, Mysore Medical College and Research Institute from October 2021 to December 2021 for a period of three months.

Sample selection and study population: The study was conducted among the second-year medical undergraduates attending the Department of Pharmacology, Mysore Medical College and Research Institute. The sampling method was purposive sampling and the total sample

size was 150. Second-year undergraduate students consenting for the study were included in the study. Those who were not willing to participate and those who filled the questionnaire incompletely were excluded.

Methodology and data analysis

The study was approved by Institutional Ethics Committee and written informed consent was obtained from all study participants. Data was collected using a self-administered, structured, and pre-tested questionnaire taken from previously conducted similar studies and adapted to fit with the current set-up. A pilot study was conducted in 10 students to validate the questionnaire and changes were made accordingly. Before data collection, students were briefed on the aims and objectives of the study.

The questionnaire used consisted of three parts. The knowledge part had 9 questions and each correct answer counts "1" point while every wrong answer count "0". An overall score of ≥5 was considered as good knowledge. The attitude part composed of 7 questions. The responses were 'agree' or 'disagree'. The third part (practice part) consisted of 14 questions with many different options among which 5 were open ended questions. The practice-related questions were specifically designed to assess the self-medication rate of the study participants and the association of their educational background to their practice.

Statistical analysis

Descriptive statistical methods were used and data was analysed using MS-Excel spreadsheet and Windows 10 version 20H2. All categorical variables were presented as numbers and percentages.

RESULTS

A total of 150 questionnaires were distributed to be filled by the students, and all 150 were filled and collected, which gave response rate of 100%. Among the study participants 103 (68.67 %) were males. All the participants were within the age group of 19-23 years. About 140 (93.3%) of the respondents had good knowledge about the safety and effectiveness of OTC Medications. Amongst them, 115 (76.6%) students were able to define and 125(83.3%) students were able to name three OTC medications. Majority of the students (97.3%) reported that OTCs were usually used for treating minor illnesses and injury and should not be used after expiry date. About 137(91.3%) students agreed to the fact that sometimes OTC medication can cause side effects and 144 (96%) students reported that caution should be

taken mostly during pregnancy. About 81 (54%) students suggested immediate stoppage of drug in case of any adverse drug reaction (**Table 1**). The attitudes of the students regarding over-the-counter medication use is summarised in **Table 2.**

Table 1: Knowledge of the study participants towards OTC medication use; N=150.

No	Knowledge item questions		Responses (%)
1	What is an OTC (over the counter) drug?	Correct Incorrect	115 (76.6%) 35 (23.3%)
2	Name three OTC drugs?	Correct Incorrect	125 (83.3%) 25 (16.6%)
3	All OTC drugs are safe and effective	Yes No Don't know	118 (78.6%) 25 (16.6%) 7 (4.6%)
4	OTC drugs can be used after their expiry date	Yes No Don't know	4 (2.6%) 144 (96%) 2 (1.3%)
6	OTC drugs can cause side effects	Sometimes Mostly Never Do not know	137 (91.3%) 11 (7.3%) 0 2 (1.3%)
7	All OTC drugs when taken along with the prescribed drug are safe	Yes No Don't know	21 (14%) 72 (48%) 57 (38%)
8	While using OTC drugs, caution should be taken mostly during	Pregnancy Lactation Adolescent & middle age adults Elderly Children	144 (96%) 120 (80%) 3 (2%) 28 (18.6%) 91 (60.6%)
9	If suspected side effects are seen, one should;	Immediately stop using the drug Take low dose until side effects subside Continue taking the drug regardless of the side effects Report to a doctor / pharmacist	81 (54%) 24 (16%) 2 (1.3%) 43 (28.6%)

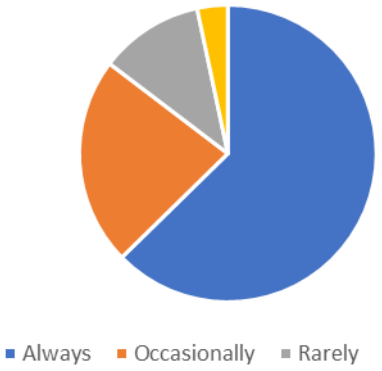
Table 2: Attitude of the study participants towards OTC medication use; N=150

Statements	Responses (%)	
	Agree	Disagree
1. OTC drugs are cheaper and convenient	147(98%)	3 (2%)
2. It is okay to share OTC medication with others	96(64%)	54 (36%)
3. OTC drugs can modify or alter the action of another drug	134(89.3%)	16(10.6%)
4. It is appropriate to seek a pharmacist's advice when someone has OTC medicines that he/she has never used before	131(87.3%)	19(12.6%)
5. OTC drugs are not affected by storage conditions like temperature, moisture and direct sunlight	18 (12%)	132 (88%)
6. When someone goes to a pharmacy for OTC medication, he/she should bring all medications he/she is currently taking	138 (92%)	12 (8%)

7. It is appropriate to treat minor ailments like common cold with OTC medications	140 (93.3%)	10 (6.6%)

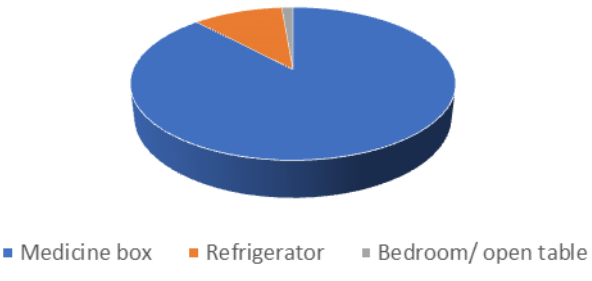
Majority of the students 117 (78%) reported that they have at least once used OTC drugs. Among them, 28 (24%) students practiced self-medication with over-the-counter drugs more than five times in the last year. The students reportedly self-medicated when the symptoms were minor 128 (85.3%), whenever they felt sick 13 (8.6%) and when they couldn't visit a doctor 9 (6%). 94 (62.6%) of the study participants reported that they always read the instructions on the drug labels before use, 5 (3.3%) of them reported they never read them (**Fig.1)**

Fig.1 Drug label reading behaviour before use

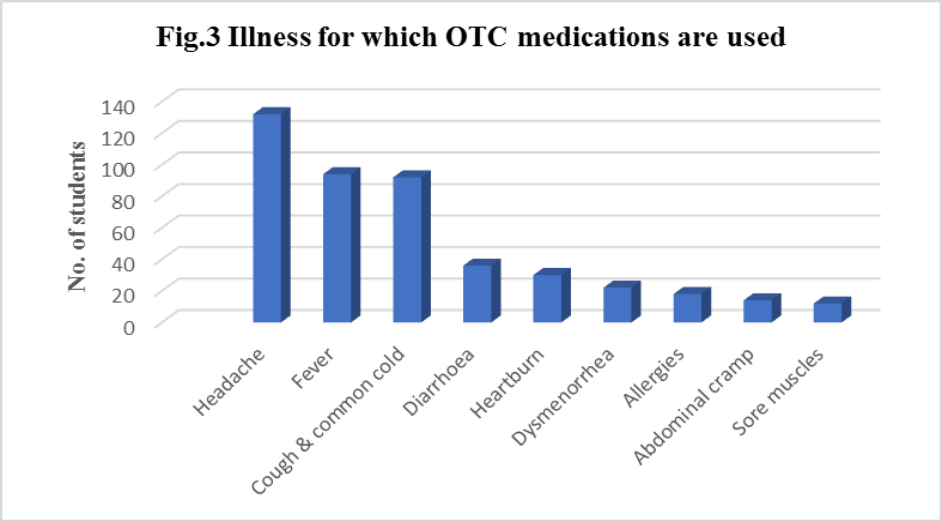


Among 150 study participants, 140 (93.3%) of them reported that they will immediately discard the drug in case of change in colour, shape or odour of an OTC drug and 143(95.3%) had the habit of checking expiry date before use. Students have used OTC medications in the form of tablets (98%), syrups (36%), topical agents (14.6%) and injections (0.67%). Among these, 29 students (38.6%) have used multiple dosage forms.

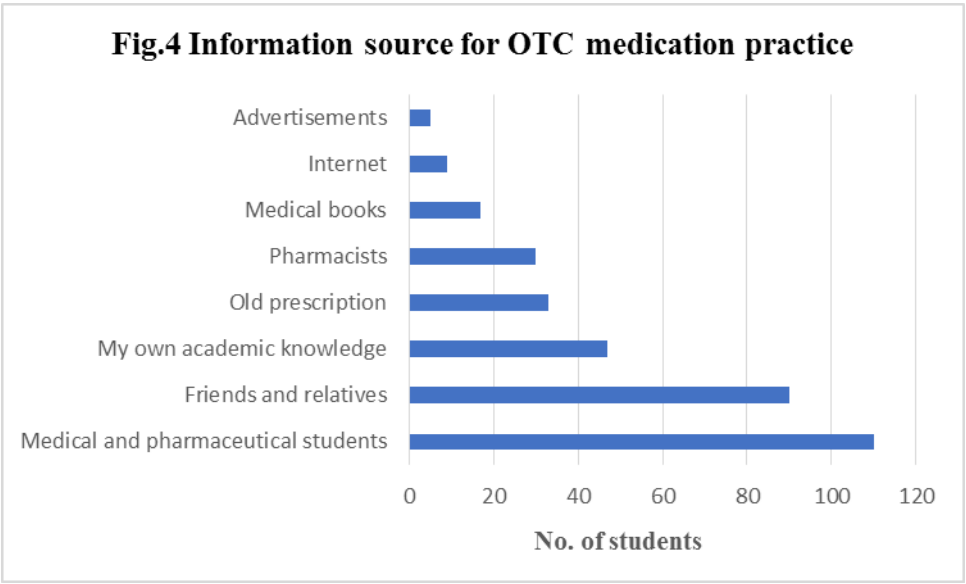
Fig.2 Practice of OTC medication storage among study participants



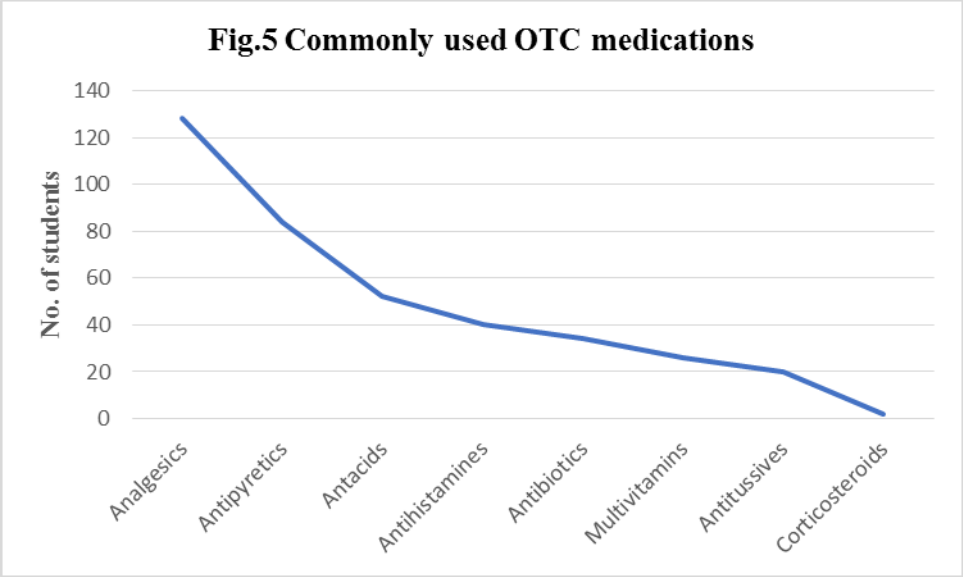
Headache 132 (88%) is the most common illness for which participants have consumed OTC medication (**Fig.3**).



Among the information sources for OTC medication practice, medical and pharmaceutical students 110 (73.3%) and friends & relatives 90 (60%) are the most common ones, the others being their own medical knowledge 47 (31.3%), old prescription 33 (22%), pharmacists 30 (20%), medical books 17 (11.3%) and internet 9 (6%) (**Fig.4**)



The most common reasons for OTC medication practice were less severe disease 130 (86.6%), comparatively lesser cost of the medications 65 (43.3%), urgent need to use the drug 28 (18.6%), crowd avoidance 23 (15.3%), confidence in their own knowledge 6 (4%), low quality of health care services 4 (2.6%) and less faith in the physician 2 (1.3%).



In our study, the most commonly used OTC medications were analgesics & antipyretics 128 (85.3%), antacids 52 (34.6%), antihistamines 40 (26.6%), antibiotics 34 (22.6%), multivitamins 26 (17.3%), antitussives 20 (13.3%) and corticosteroids 2(1.3%). Amongst 150 study participants 136 (90.6%) respondents never took OTC medication beyond the recommended dose and 57 students (38%) experienced one or the other side effects following OTC intake. The most common side effect experienced are gastrointestinal disturbances (40%) followed by sedation (11.3%).

DISCUSSION

Even though OTC drugs are relatively safe its inappropriate use can often lead to complications that affect public health.[8] Due to their greater availability and ease of acquisition, these drugs are consumed before or at the onset of symptoms.[9] OTC drugs can also have the potential for misuse and abuse such as codeine-based medicines, cold and cough medications, sedative antihistamines, decongestants etc.[10] The negative impacts of self-medication, especially with OTC drugs are often underestimated.[11]

In our study, the prevalence of OTC medicine use amongst medical undergraduates was found to be 78%, which is slightly higher than that observed in similar studies by Sudipto Chatterjee et al (73.42%) and Kasulkar et al (70.6%).[12], [13]

Our study revealed that 93.3% of the study participants have a good understanding of OTC medicines, which is better compared to 80% in the studies by Swapna RN et al and Bhuvana KB et al.[14,15]

In our study, the ailment being minor 130 (86.6%) and comparatively reduced cost of OTC drugs 65 (43.3%) were the most observed reasons for self-medication. The studies by Sawhney V et al and Ghosh A et al have got similar observations.[16,17]

The most common source for self-medication with OTC drugs was peer medical and pharmaceutical students (73.3%) followed by friends and relatives (60%) and then their own academic knowledge (31.3%). On the contrary, in studies by Swapna R N et al and Zafar SN et.al the common source of information with OTC drugs was Pharmacy.[14,18]

About 20.79% of the respondents in the current study reported that they rarely or never check the expiry date of the OTC medications. This finding was higher than the study conducted by Tesfamariam S et al in which only 7.5% of the participants reported that they hardly checked the expiry date.[8] This is worrisome because piling up of expired medicines may occur in the household because of the habit of not checking expiry date of medicines and this can result in deleterious effects.[19]

Regarding the response in case of change in shape, colour and/or odour, 5.3% of respondents had reported continued usage till it expires and 1.3% reported that they will continue using the drug even after the expiry date. The counts are on the lower side in contrast to the results from a study by Bekele et al[20] where 14.9% of the respondents had reported continued usage till expiry date and 3.3% even after the same. This is very important because of the professional background of the study participants who are expected to be role models to others and condemn these types of improper behaviour. Headache 132(88%) and fever 94(62.6%) were the most common illnesses in our study for which students practiced OTC medication which was similar to studies by Bekele et al and Robin Shetty et al, which got similar observations.[20,21]

The commonly used OTC medicines in our study were analgesics & antipyretics 128 (85.3%), antacids 52 (34.6%) and antihistamines 40 (26.6%). The findings are similar to that found in similar studies by Joshi DK et al and Aithal S et al.[22,23]

In contrast to the study by Aithal S et al in which about 40.37% students were not aware about possible side effects[23], in our study most of the students were aware about side effects of OTCs & 57 students (38%) reported common side effects of gastrointestinal discomfort and sedation.

The Government of India, on August 30, 2013, made an amendment to the Drugs and Cosmetics Act, 1940, and brought the schedule H1 notification. But to date, there is no separate OTC drug schedule in India.[24] This study reveals lacunae in the knowledge, attitude and practice among the medical undergraduates about OTC drugs, which highlights the need for special emphasis in the undergraduate curriculum for medical students about OTC drugs.

CONCLUSION

There is a need to teach medical students thoroughly about over the counter medications. Comprehensive chapters on over-the-counter drugs, primarily focusing on the rationale for their use, advantages, disadvantages, and ethical considerations should be included in the medical undergraduate curriculum. Also, we should empower students with necessary skills to address the problems arising with the use of over-the-counter drugs.

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REFERENCES

1 Ayalew MB. Self-medication practice in Ethiopia: a systematic review. Patient Prefer Adherence, 2017; 11: 401-413.

2 Jagadeesh K, Chidananda KN, Revankar SP, Prasad NS. Study on self-medication among 2nd year medical students. Int J Basic Clin Pharmacol, 2015; 4: 164-167.

3 Alkhatatbeh MJ, Alefan Q, Alqudah MA. High prevalence of self-medication practices among medical and pharmacy students: a study from Jordan. Int J Clin Pharmacol Ther, 2016; 54(5): 390-398.

4 Susheela F, Goruntla N, Bhupalam PK, Veerabhadrappa KV, Sahithi B, Ishrar SM. Assessment of knowledge, attitude, and practice toward responsible selfmedication among students of pharmacy colleges located in Anantapur district, Andhra Pradesh, India. J Edu Health Promot, 2018; 7: 96.

5 Marathe PA, Kamat SK, Tripathi RK, Raut SB, Khatri NP. Over-the-counter medicines: Global perspective and Indian scenario. J Postgrad Med, 2020; 66(1): 28-34.

6 Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V et al. Perceptions and practices of self-medication among medical students in coastal South India. PLoS One, 2013; 8(8): e72247.

7 Gyawali 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. J Clin Diagn Res, 2015; 9(12): 17-22.

8 Tesfamariam S, Anand IS, Kaleab G, Berhane S, Woldai B, Habte E et al.Self-medication with over the counter drugs, prevalence of risky practice and its associated factors in pharmacy outlets of Asmara, Eritrea. BMC Public Health, 2019; 19: 159.

9 Sánchez-Sánchez E, Fernández-Cerezo F.L, Díaz-Jimenez J, Rosety-Rodriguez M, Díaz A.J, Ordonez F.J et al. Consumption of over-the-Counter Drugs: Prevalence and Type of Drugs. Int. J. Environ. Res. Public Health, 2021; 18: 5530.

10 Cooper RJ. Over-the-counter medicine abuse- a review of the literature. J Subst Use. 2011; 18(2): 82- 107.

11 Ravichandran A, Basavareddy A. Perception of pharmacists regarding over-the-counter medication: a survey. Indian J Pharmacol, 2016; 48(6): 729-732.

12 Chatterjee S, Vijendra R, Girish K, Koroth MHM. Assessment of knowledge, attitudes and practice among interns about over-the-counter drugs in a tertiary care hospital in India. Int J Basic Clin Pharmacol, 2019; 8: 2485-2489.

13 Kasulkar AA, Gupta M. Self-medication practices among medical students of a private institute. Indian J Pharm Sci, 2015; 77(2): 178-182.

14 Swapna RN, SabariAnand JV. A questionnaire-based study to assess the knowledge of 2nd year medical students on self-medication / OTC. Int. J. Res. Pharmacol. Pharmacother, 2021; 6(2): 127-133.

15 Bhuvana KB, Patil RT. Perception, Practice, Prevalence & Pattern of self-medication in medical under graduate students in kerala. Int J Biol Med Res, 2015; 6(3): 5109–5113.

16 Sawhney V, Bhat MY, Singh Z; A descriptive study of prevalence, pattern and attitude of selfmedication among second professional medical students in a tertiary care centre: Int J Basic Clin Pharmacol, 2015; 4(3): 542-546.

17 Ghosh A, Biswas S, Mondal K, Haldar M, Biswas S. A study on knowledge and practices of over-the-counter medications among 2nd year medical students. World J. Pharm. Pharm Sci, 2015; 4(7): 1074-1081.

18 Zafar SN, Reema S, Sana W, Akbar JZ, Talha V, Mehrine S et.al. Self-medication amongst university students of Karachi: Prevalence, knowledge and attitudes. J Pak Med Assoc, 2008; 58(4): 214-217.

19 Annear B, Sinclair K, Robbé IJ. Response to 'Returned medicines: waste or a wasted opportunity?'. J Public Health, 2008; 30(2): 209.

20 Bekele KM, Abay AM, Mengistu KA, Atsbeha BW, Demeke CA, Belay WS, Yimenu DK. Knowledge, Attitude, and Practice on Over-the-Counter Drugs Among Pharmacy and Medical Students: A Facility-Based Cross-Sectional Study. Integr Pharm Res Pract, 2020; 9: 135-146.

21 Robin S, Sharath KK. A study on knowledge, attitude and practice of over-the-counter drugs among 3rd year medical students of a teaching hospital in Dakshina Kannada, South India. Int. J. Compr. Adv. Pharmacol, 2018; 3(1): 23-25.

22 Joshi DK, Srujana P, Patil BS, Shareef SM, Karunasree P, Shrinivas R et.al, Study on Self-medication Practices, among Second year MBBS Undergraduates; Int. J. Pharma. Phytopharmacol. Res, 2015; 4(5): 298-300.

23 Aithal S, Swetha ES, Rubina A, Kumar C. Self Medication among second year medical students in a Teaching Hospital. Sch J. App. Med. Sci, 2014; 2(3): 1091-1094.

24 Hazra A. Schedule H1: hope or hype?. Indian J Pharmacol, 2014; 46(4): 361-362.