RESEARCH ARTICLE

Knowledge, attitude, and practice of self-medication among undergraduate medical students in an Institute of National Importance in North India

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ABSTRACT

Background: According to previous studies, self-medication is becoming increasingly common among medical undergraduates. Only a few studies, however, have been undertaken in Northern India. **Aims and Objectives:** The current study set out to evaluate the undergraduate medical students' knowledge, attitude, and practice of self-medication, as well as to look into any variations in knowledge and attitude (if any) among different subgroups of participants. **Materials and Methods:** This was a questionnaire-based, descriptive study. The individuals ($n = 137$) were given a pre-validated questionnaire that included open- and closed-ended questions. IBM Statistical Package for the Social Sciences software (version 26) was used to conduct the data analysis, and the findings are presented as counts and percentages. **Results:** The incidence of self-medication was 58.4%, which was very high. The most common reason for this was its usefulness for fever (91.2%). Antipyretics (82.5%), analgesics (63.7%), and antacids (48.7%) were the most regularly utilized drug groups. Seniors, classmates, and family members were the most prevalent sources of information. Common ailments included fever (91.2%), common cold, and cough (55%). Ironically, 41.6% of those surveyed opined that self-medication should be avoided. **Conclusion:** Self-medication is more widespread among medical undergraduates, suggesting that they are more exposed to drug side effects than the general population. Medical students are supposed to be trained to be made aware of the need to avoid self-medication; hence, action needs to be taken.

KEY WORDS: Questionnaire; Self-medication; Practice; Attitude; Knowledge; Undergraduate; Medical Students

INTRODUCTION

Self-medication is common among people. Medical students are more prone to do self-medication because of their incomplete knowledge of disease and medicines. Self-medication can be defined as obtaining and consuming drugs without the advice of a doctor/physician for diagnosis, prescription, or surveillance of treatment. Self-medication is the practice of delivering medicine to oneself to prevent, treat, or cure a disease whose diagnosis and severity are unknown.[1] Self-medication may include reusing leftover medications from previous treatment courses, drugs obtained from family or friends, and "over-the-counter" or "non-prescription" medication.[2]

The World Health Organization (WHO) advises self-medication to cure self-recognized illnesses or symptoms or to treat chronic or recurrent diseases or symptoms using doctor-prescribed medications,[1] indicating that self-medication has a legitimate role in developed countries. It does, however,

underline the necessity of educating the public on the correct use of over-the-counter drugs, adopting a more pedagogical approach to health education.[1] This is owing to the fact that the health consequences of this activity are numerous, depending on the type of substance and each individual's varying susceptibility to them. For instance, severe side effects of medications, increased resistance to certain types of medication, delayed proper diagnosis, reduced efficacy of treatments due to improper use, toxicity, hypersensitivity to certain drugs, drug dependency, dangerous drug interactions, resistance symptoms of withdrawal, and a slew of other health issues which include extreme dependence or drug overdose.[3-4] Nonetheless, the WHO states that cautious self-medication has the additional benefit of preventing and treating disorders that do not require prior medical evaluation, and it might turn out to be a less expensive option for treating prevalent ailments.[1]

There is a growing propensity to take drugs carelessly, which makes this behavior a public health concern[5] in both underdeveloped and industrialized countries. Except for a few Northern European and North American nations, self-medication is a widely accepted practice all over the world.[6] Although the incidence of self-medication may differ from nation to nation, a number of characteristics have consistently been linked to this behavior.[7] Self-medication is widespread among medical undergraduates, according to recent studies, with South Indian medical institutes having the highest rate (92%),[8] Karachi (76%),[9] and Egypt (55%).[10]

According to studies, the main causes of self-medication are having a mild illness, having treated similar illnesses in the past, economic conditions, difficulty accessing health-care providers, and generally having too much access to and availability of over-the-counter medicines.[4] Teenagers and high educational attainment are usually linked to a propensity for self-medication.[11]

Several national[12,13] and international[14-17] researches on self-medication practices were conducted in various countries, with a focus on students with medical and non-medical backgrounds throughout their undergraduate years of study, indicating a rise and high frequency in this specific group of students.[18] This might be attributable to several reasons, including sociodemographic factors, lifestyle, pharmaceutical accessibility and availability, increased information, advertising, and a high level of education.[11] Students pursuing medical degrees may be more likely to self-medicate because they have a higher level of education, more accessibility to medicines and information, and better illness understanding.[19]

Only a few investigations on self-medication have been conducted among the diverse group of disciplined students in Northern India. As a result, the key objective of this research was to describe the knowledge, attitudes, and self-medication

behaviors among medical students at the undergraduate level, as well as to examine the determinants of that behavior. Since inappropriate self-medication has the potential to cause serious harm, not only to the students themselves but also to those whom they suggest medication, potential problems of self-medication should be emphasized to the students to minimize this risk.

MATERIALS AND METHODS

Study Site and Design

Cross-sectional research was undertaken at the All India Institute of Medical Sciences (AIIMS) in Raebareli, Uttar Pradesh, India, among medical undergraduates. The self-medication questionnaire was designed with the support of standard references[6,19] and was written in English for the purpose of gathering data.

Institutional Ethics Committee (IEC) approval was taken (IEC code - 2021-9-IMP-1).

Data Collection Process

All of the students gave their informed consent to take part in the study. Age, gender, education level, information source, understanding of acceptable self-medication practice, types of medications used for self-medication, and illnesses that encourage self-medication were all included in the study. A Likert scale, which consists of a statement or question and a sequence of five answer statements, was used to evaluate attitudes.

Data Analysis

The data were given in the form of number counts and percentages. To depict the data, a descriptive analysis was employed. The data were analyzed utilizing IBM Statistical Package for the Social Sciences, version 26.0 (Armonk, NY, USA). $P = 0.05$ are considered to be statistically significant.

RESULTS

This research included 137 students, 93 (67.9%) of whom were males and 44 (32.1%) were females. The mean age was 20.1 ± 0.96 years (range 19–24 years). Among these 137 students, 38 (27.7%) were studying in Bachelor of Medicine, Bachelor of Surgery (MBBS) II (entry year 2019), and 99 (72.3%) in MBBS I (entry year 2020), respectively.

These findings indicate that prescription drugs (129, 94.2%) are well understood by the questioned population, followed by self-medication (128, 93.4%), contraindications/adverse effects (127, 92.7%), and, to a lesser extent, drug interactions. However, a lower proportion of respondents (103, 75.2%)

reported knowing the phrase "Over the Counter" drugs, suggesting that further education or clarification is needed in this area [Figure 1].

Notably, a significant number of respondents (46, 33.6%) seek assistance from seniors, classmates, and family members, followed by the Internet (27, 19.7%) and textbooks (18, 13.1%). A smaller proportion combines multiple sources for their self-medication knowledge [Table 1].

The results show that the majority of respondents (92, 76.2%) had a neutral attitude, with lesser numbers having a positive (14, 10.2%) or negative (31, 22.6%) attitude [Figure 2].

The *P*-value for attitude scores appears to be close to the threshold (0.062), indicating a likely correlation, however, the *P*-value for self-medication practices (0.277) indicates
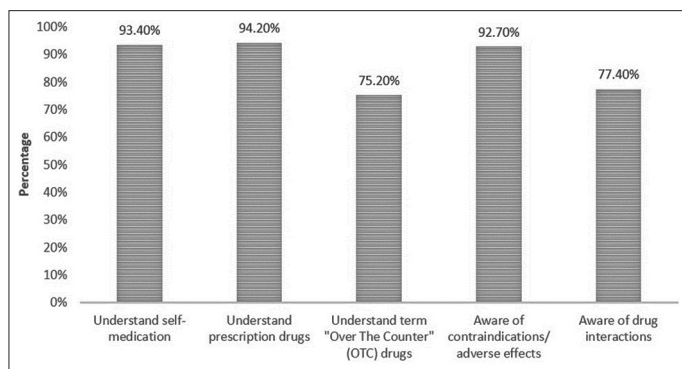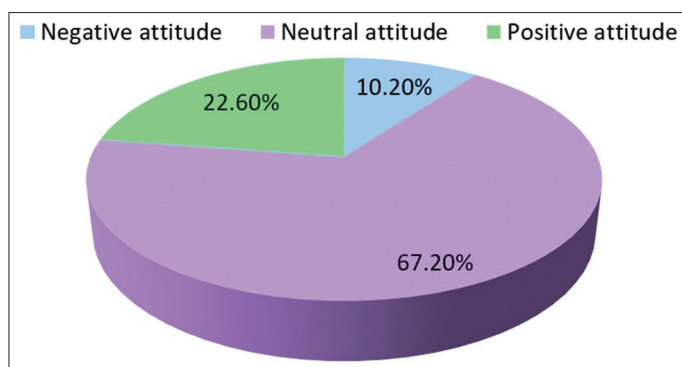

Figure 1: Knowledge

Figure 2: Attitude score

less evidence of a correlation between MBBS entering year and self-medication practices Table 2.

The results presented here compare attitude scores and self-medication practices during the COVID-19 pandemic year (2020) to the previous year (2019), recognizing the influence of the pandemic on health-care attitudes and practices.

The results presented here show that 80 individuals (58.4%) of the 137 survey participants acknowledged using self-medication. On the other side, 57 people (41.6%) either do not self-medicate or do not know whether they do.

The results show that people choose self-medication for a variety of reasons, with the treatment of minor illnesses being the most popular cause (40, 50%). The lack of time to see a doctor was also highlighted by a sizable percentage of respondents (19, 23.75%), while others expressed trust in their medical expertise garnered from their MBBS courses [Table 3].

Self-medication for fever is most prevalent (91.25%), followed by self-medication for headache, nausea/vomiting, common cold and cough, gastritis, diarrhea, injury, oral ulcers, and other conditions [Figure 3].

Antipyretics, which reduce fever, are the most often used drugs, with a usage rate of 82.50%, followed by analgesics, which relieve pain, at 63.75%. Although to varied degrees,

Table 1: Drug information source for self-medication

Drug information for self-medication	Frequency	Percent
Internet	27	19.7
Internet, pharmacist/medical store seller	3	2.2
Pharmacist/medical store	21	15.3
Senior/classmate/family	46	33.6
Textbook	18	13.1
Textbook, Internet	22	16.1
Total	137	100.0

Table 2: Association of attitude and self-medication with MBBS entry

Variables	MBBS entry year				*P*-value
	2019		2020		
	n	%	*n*	%	
Attitude score					
Negative attitude	7	18.4	7	7.1	0.062
Neutral attitude	26	68.4	66	66.7	
Positive attitude	5	13.2	26	26.3	
Do you practice self-medication?					
Yes	25	65.8	55	55.6	0.277
Maybe/no	13	34.2	44	44.4	

MBBS: Medicine, bachelor of surgery

Table 3: Reasons in favor of self-medication

Reasons in favor of self-medication	*n*	%
Confident enough since you are doing MBBS	9	11.25
Do not want to consult faculty	12	15
Lack of time to consult a doctor	19	23.75
Minor ailment	40	50
Total	80	100.0

MBBS: Medicine, bachelor of surgery
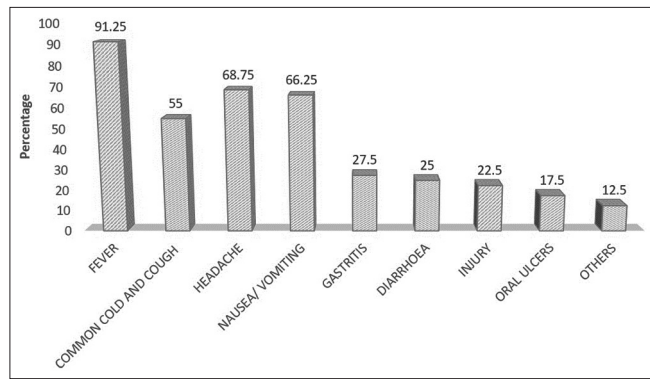
Figure 3: Common indications for self-medication are (can check more than one option) *n*=80

Table 4: Nature of medication taken for self-medication (can check more than one option) (*n*=80)

Nature of medication taken for self-medication	*n*	%
Antipyretics	66	82.5
Analgesics	51	63.75
Antibiotics	37	46.25
Antacids	39	48.75
Antihistaminic	28	35
Multivitamins	25	31.25
Steroids	3	3.75
Others	10	12.5

Table 5: If not practicing self-medication, reason/s for that is/are (can check more than one option) (*n*=57)

Variables	*n*	%
Incorrect dosage	52	91.23
Incorrect self-diagnosis	43	75.44
Dangerous drug intake	38	66.67
Incorrect choice of therapy	18	31.58
Irresponsible	42	73.68
Masking of a severe disease	35	61.40
Risk of adverse health effects	45	78.95
Dangerous drug	15	26.32
Infrequent but severe adverse reactions	13	22.81
Risk of dependence and abuse	5	8.77
Delays in seeking medical advice when needed	3	5.26

self-medication also frequently involves the use of antibiotics, antacids, antihistaminic medications, and multivitamins. Only a small fraction of people take steroids and "others" who are not on the list do as well [Table 4].

Most respondents (43.75%) said that they self-medicate every 2–3 months, followed by those who self-medicate more frequently than 5 times annually (27.50%). A smaller number of people reported using self-medication more frequently, such as every 2–4 weeks, once per week, practically all the time, whenever it seemed necessary, and whenever required.

Among the 57 respondents who do not self-medicate, the main worries center on the potential risks and uncertainty of self-administered remedies. A significant majority, 91.23%, worry about incorrect dosage, emphasizing the importance of precise medication management. In addition, 75.44% express concerns about making incorrect self-diagnoses, while 66.67% fear dangerous drug intake. A notable portion of respondents, 78.95%, cite the risk of adverse health effects as a significant concern [Table 5].

DISCUSSION

The WHO defines self-medication as "the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms." It entails getting pharmaceuticals without a prescription, taking prescriptions on the advice of pharmacists, relatives, or friends without consulting medical experts, exchanging medications with family or friends, or eating leftover medications that have been stored at home.[20] People utilize both prescription and over-the-counter medicines for self-medication without a doctor's supervision. The total number of participants in this study was 137, of which 93 (67.9%) were male and 44 (32.1%) were between the ages of 19 and 24 years, with a mean age of 20.1± 0.96 years.

In the current study, the authors reported that 58.4% of students practiced self-medication. However, several further research [6,13,21] have shown disparate prevalence rates

ranging from 43.2 to 95%. The diverse socioeconomic levels, demography, and accessibility of over-the-counter, non-prescription medications might play a role in this.

The results of our study found that referrals from a senior, classmate, or family were the most common sources of information regarding the drugs. Then came counsel from the doctor without a prescription and information from the Internet. In contrast, several research[22,23] found that reading material was the main contributor, followed by outdated prescriptions.

Fever is the most prevalent ailment for which people self-medicate, followed by headache, common cold, and cough. Similar results were seen in a research carried out in Ethiopia.[6] The most frequent causes, according to studies from South India, are a cough and a cold.[13] The ability to treat minor ailments has been found to be the most popular justification for self-medication, followed by lack of time to visit a doctor. This outcome is in line with the outcomes of other research done in India.[8,24] In a survey carried out in Eritrea, more than 50% of participants said they learned about the pharmaceuticals they used for self-medication from their academic knowledge, whereas only 2.6% said they obtained this information online.[25]

Our analysis reveals that antipyretics are the most often prescribed drugs, followed by analgesics and antacids, when it comes to treating common illnesses. Antibiotics were the most often prescribed medications, according to a survey done in West Bengal.[24] Another study was out in Karachi revealed an increase in antibiotic usage. This suggests that there is an increase in the use of antibiotics for self-medication.[26] This justifies putting in place regulatory controls on counter-drugs.

The percentage of students who clearly understood the prescription drugs was 94.2%, followed by self-medication. Those who were aware of the contradictions/adverse effects of some of the drugs accounted for 92.7%. Despite these results, 41.6% of the participants felt that self-medication should not be practiced. This contrasts with the opinions of the students in a Bahraini research.[27] Regardless of the study, the majority of students claimed to be aware of the drawbacks of the drugs they used, which is similar with the findings of other research.[8,28] Although they differ from those of past studies,[27,29] the findings on the adverse effects of drugs are consistent with those from studies carried out in Egypt and India.[10,30] According to past studies,[31,32] the majority of students believed that in order to self-administer medicine, one needed to have medical expertise.

The present study's robustness lies in its execution at the AIIMS, Raebareli, a nationally significant institution in India. Notably, self-medication practices are prevalent among medical students at this institute. However, it is imperative to acknowledge that this study's scope was limited to 137 students, specifically those in their 1st and 2nd years of the MBBS program, which is a noteworthy constraint.

It can be inferred that the practice of self-medication is widespread among medical students across the globe, although in varying degrees. Given that the AIIMS, Raebareli, recently commenced its MBBS program in 2019, it is imperative to underscore the significance of this matter from the outset, to facilitate subsequent measures aimed at mitigating the prevalence of self-medication.

CONCLUSION

This study demonstrated that medical undergraduates, who are similarly exposed to the risks of self-medication as the general population, practice self-medication extensively. Self-medication should only be used when necessary and should never be performed proactively. It is necessary to educate medical undergraduates on safe self-medication practices. Even among medical students, awareness should be raised regarding the different negative effects of medications, the risk of interactions, and antibiotic resistance. Therefore, medical students'' self-medication is safer. This will raise awareness, which will help society as a whole.

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