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RESEARCH ARTICLE

A comparative evaluation of the perception of self-medication among medical students of a tertiary care teaching medical college and hospital – A cross-sectional study

Triveni Manchu[1], Meenakshi Lella[1], Susmitha Vemu[1], Sowmya Deepthi Chavla[2]

[1]Department of Pharmacology, Guntur Medical College, Guntur, Andhra Pradesh, India, [2]Department of Pharmacology, Maheshwara Medical College, Hyderabad, Telangana, India

Correspondence to: Meenakshi Lella, E-mail: drmeenu81@yahoo.co.in

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ABSTRACT

Background: Self-medication is the use of medicine without medical supervision to treat one's own ailment. It is most prevalent in developing countries like India and has the potential to do good as it is cost effective for treating common illness and also causes harm resulting in irrational drug use, adverse drug reactions (ADRs), and antimicrobial resistance. As medical students are exposed to knowledge about disease and drugs, self-medication is highly prevalent among them. **Aims and Objectives:** The present study was carried to evaluate the practice and perception of self-medication among the second and final MBBS students and to compare the self-medication pattern among them to know the influence of medical training. **Materials and Methods:** A cross-sectional and validated questionnaire-based study was conducted among the second and final MBBS students after the Institutional Ethics Committee approval. The students were asked to fill the questionnaire after obtaining informed consent. Chi-square test was used to compare self-medication pattern between the groups. **Results:** Awareness of the precautions of self-medication, correct dosage, ADRs, over-the-counter drugs, generic and branded drugs, and complete course of antibiotics was more and statistically significant in final MBBS when compared to the second MBBS students. Fever and headache were the major symptoms for self-medication in both groups. Drugs most commonly used as self-medication were analgesics and antipyretics. Previous prescriptions by physicians and textbooks were the common informants of self-medication in the second and final MBBS students, respectively. **Conclusion:** Self-medication is highly prevalent in undergraduate medical students. Various health education strategies are required to prevent and minimize drug interactions, irrational use, and adverse effects of drugs. Students need to be educated about the long-term adverse effects of the drugs and indiscriminate use of antibiotics to combat antimicrobial resistance.

KEY WORDS: Self-medication; Medical Students; Medical Training; Over-the-counter Drugs

INTRODUCTION

As per definition, self-medication is "Selection and use of medicines by individuals to treat self-recognized illnesses or symptoms."[1] It includes procuring medicines without a prescription, resubmitting previous prescriptions to purchase medicines, sharing medicines with relatives or friends, or using leftover medicines stored at home.[2] It is mostly prevalent in India because most of the drugs are available as over-the-counter (OTC) drugs without a medical prescription by a registered physician.[3] The prevalence rate is 71% in India.[4] Self-medication is very economical for people who cannot afford the cost of medical expenses.

Self-medication has the capability of causing both benefits and risks among the population as it is not supervised by the

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registered medical practitioner. As per the WHO guidelines, self-medication helps to prevent and treat minor illnesses which do not require medical consultation and thus limits the cost of medical services.[5] Misuse of self-medication may cause health problems such as drug interactions, adverse drug reactions (ADRs), drug dependence, and increased resistance to microorganisms.[6]

Although many studies discussed regarding practice of self-medication among different population, very few studies compared perception and practice of self-medication in undergraduate medical students.[7] The most important factors that favor self-medication among medical students are medical knowledge about drugs and access to prescription of drugs on seniors advice.[8] The exposure of the 2nd year medical students in the beginning of the third semester to the knowledge of the drugs is very limited and is equivalent to general population, whereas the final year students are more acquainted with medical knowledge about drugs and diseases. Hence, the current study was planned with the objective of evaluating the practice and perception of self-medication among the second and final MBBS students and to compare the self-medication pattern among them to know the influence of medical training.

MATERIALS AND METHODS

This was a cross-sectional, prospective study conducted in a medical college attached to a tertiary care hospital, Guntur, Andhra Pradesh, from December 2015 to February 2016. Permission from the Institutional Ethics Committee was taken before starting the study. The study involved the second (3rd semester) and final year MBBS students (9th semester). Those second MBBS students who have not yet exposed to clinical knowledge of drugs and diseases and final year students who have completed the course of MBBS and exposed to the knowledge of drugs and clinical spectrum of diseases were included after obtaining written informed consent.

Before the start of the study, a structured questionnaire was pretested on 10 students from each batch who were excluded from final analysis. The reliability was assessed using Cronbach's alpha and was found to be 0.82. The purpose of the study was explained to the students, before filling the questionnaire. The validated questionnaire consisting of 19 questions was distributed to study participants to collect the information regarding their demographic details, perception and practices of self-medication, drugs self-medicated, indications, basis for self-medication, and informant about drugs. Confidentiality of the students was not revealed. Descriptive statistics were used to analyze the data. The attitude regarding self-medication between two groups was assessed using Chi-square test. Differences were interpreted as statistically significant at $P < 0.05$. GraphPad Prism software, online version 8.0, was used to calculate Chi-square test.

RESULTS

In the present study, 149 and 150 students from the second and final MBBS, respectively, completed the questionnaire. Among the 2nd year, 103 (69%) were female and 46 (31%) were male and their mean age was 19.13 + 0.803 years while in final year, 89 (59%) were female and 61 (41%) were male and their mean age was 21.95 + 0.892. Response to open-ended question regarding the definition of self-medication was 53% in the second MBBS students compared to 84% in final MBBS students. The perception of medical students regarding self-medication is compared in Table 1.

As shown in Table 1, the awareness of the precautions of self-medication, correct dosage, ADRs, OTC drugs, and generic and branded drugs was more in final MBBS students and this was statistically significant when compared to the second MBBS students. Reading of package inserts was not significant between the groups. Awareness regarding irrational drugs use and drug dependence was not statistically significant between the two groups of medical students. Awareness of complete course of antibiotics was significantly more in final MBBS students and they also agreed that injudicious use of antibiotics leads to antimicrobial resistance. Early relief was the main reason for not completing the antibiotic course in both groups.

The symptoms for which self-medication was practiced among medical students are depicted in Figure 1. Both the groups practiced self-medication for the treatment of fever and headache, followed by diarrhea, acidity, myalgias, cough with cold, and constipation. In final MBBS students, significantly more number of students practiced self-medication for the treatment of acidity, diarrhea, constipation, and myalgias compared to the second MBBS students. Significantly more number of the second MBBS

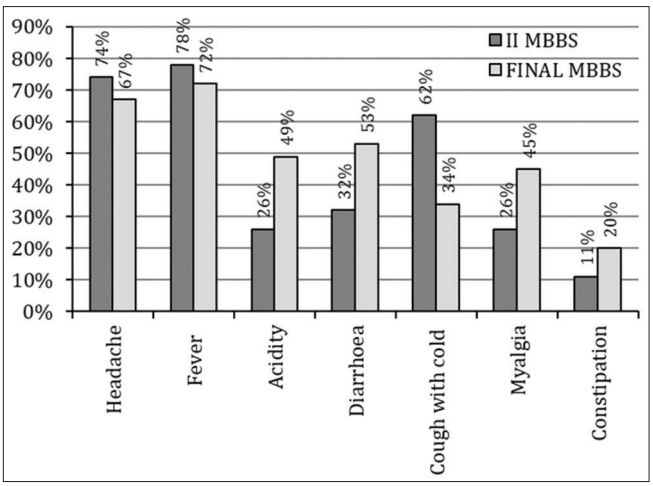

Figure 1: Comparison of symptoms for self-medication among medical students

Table 1: Comparison of medical student's perception regarding self-medication

Items	II MBBS students' *n* (%)	Final MBBS students' *n* (%)	*P* value
Awareness of precautions of self-medication	Yes–95 (64)	Yes–128 (85)	0.0001*
	No–54 (36)	No–17 (15)	
Awareness of correct dosage of drugs	Yes–44 (29)	Yes–67 (45)	0.0068*
	No–105 (71)	No–83 (55)	
Awareness regarding OTC drugs	Yes–45 (30)	Yes–123 (82)	<0.0001*
	No–104 (70)	No–27 (18)	
Awareness of generic and branded drugs	Yes–15 (10)	Yes–111 (74)	<0.0001*
	No–134 (90)	No–39 (26)	
Awareness of adverse reactions of drugs	Yes–63 (42)	Yes–127 (85)	<0.0001*
	No–86 (58)	No–23 (15)	
Agree that self-medication leads to irrational use of drugs	Agree–129 (87)	Agree–136 (91)	0.26
	Disagree–20 (13)	Disagree–14 (9)	
Agree that self-medication leads to drug dependence	Agree–107 (73)	Agree–101 (67)	0.61
	Disagree–42 (27)	Disagree–49 (33)	
Reading of package inserts	Yes–139 (93)	Yes–144 (96)	0.29
	No–10 (7)	No–6 (4)	
Awareness of complete course of antibiotics	Yes–80 (54)	Yes–109 (73)	0.0013*
	No–69 (46)	No–41 (27)	
Reasons for incomplete course of antibiotics			
Early relief	53 (74)	31 (76)	
Forgetfulness	16 (26)	10 (24)	
Agree that self-medication of antibiotics leads to emergence of antibiotic resistance	Agree-114 (77)	Agree–136 (91)	0.0001*
	Disagree–35 (23)	Disagree–9 (9)	

MBBS: Bachelor of Medicine Bachelor of Surgery, **P*<0.05 interpreted as statistically significant, OTC: Over the counter

students practiced self-medication for the treatment of cough with cold. The self-medication practice for headache and fever was not statistically significant between the two groups of medical students.

Figure 2 represents comparison of drugs used by both groups of medical students for self-medication. In both groups of medical students, antipyretics/analgesics were the most common drugs followed by antacids, antihistamines, antibiotics, topical agents, and antidiarrheals.

The informant about self-medication in both groups of medical students is depicted in Figure 3. The main informant in the second MBBS students was old prescriptions by physicians, followed by advice from pharmacist, internet, textbooks, and friends or seniors advice, whereas in final MBBS students, textbooks were the main informant followed by internet, old prescription prescribed by physician, advice from friends or seniors, and pharmacist advice were the informants about self-medication.

The basis for self-medication among medical students is compared in Figure 4. Prior exposure to same illness and mild illness was the main basis for self-medication in the second MBBS and final MBBS students.

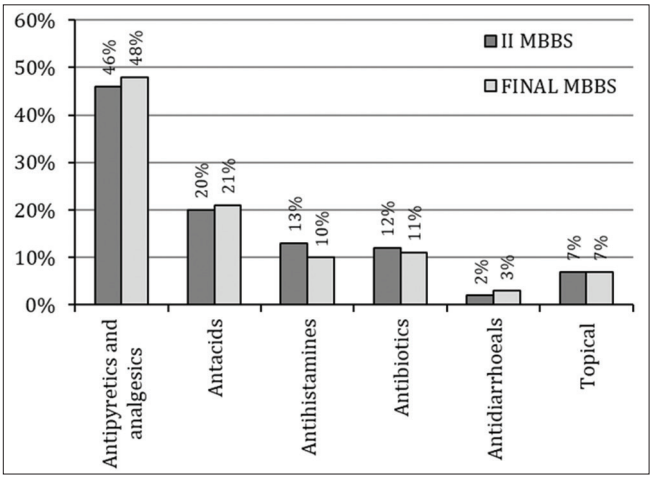

Figure 2: Comparison of drugs used for self-medication in medical students

DISCUSSION

Self-medication can be considered when a person consumes a drug without any prior prescription and medical supervision. Both developed and developing countries practice self-medication.[9] The practice of self-medication differs among different individuals and is dependent on socioeconomic

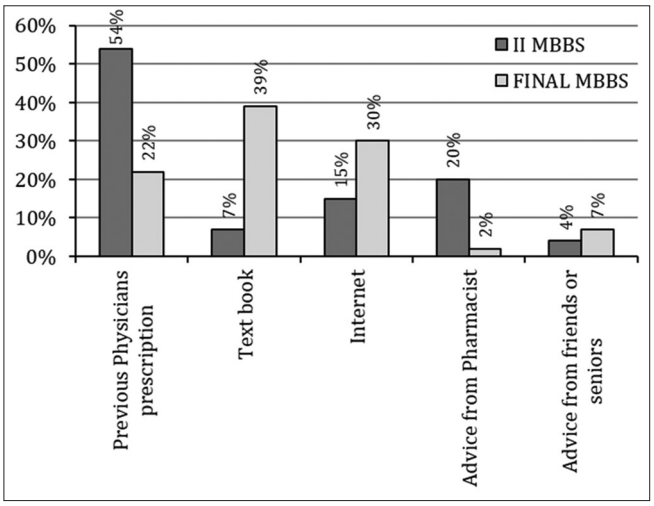

Figure 3: Comparison of informant about self-medication in medical students

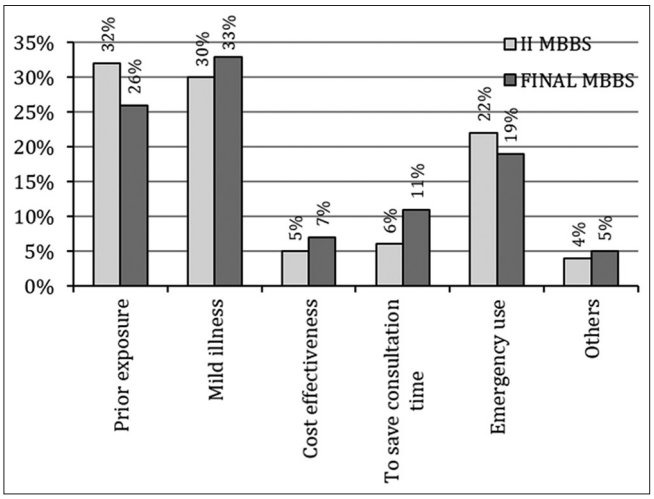

Figure 4: Comparison of basis for self-medication in medical students

status, education level, presence of medical knowledge, satisfaction, and perception of disease.[10] Our study compared the perception of self-medication in the second and final MBBS medical students. As expected, the awareness of the precautions of self-medication, correct dosage, OTC drugs, ADRs, and generic and brand drugs was more in final MBBS students and it was statistically significant. Knowledge of generic drugs is very important as it reduces cost on medicines. Awareness of complete course of antibiotics was significantly more among final MBBS students and majority of them completed full course of antibiotic course which reflects influence of medical training about complete course of antibiotics and antimicrobial resistance. Awareness of the irrational drug use, drug dependence, and importance of reading of package insert was not significant statistically between the two groups of medical students.

Similar to other studies, in the present study, fever and headache were the major symptoms favoring self-medication in both groups of medical students.[11,12] It corresponds well with most commonly used drugs (analgesics and antipyretics) for self-medication in both groups of medical students and this was similar to other studies on self-medication.[13,14] This is in contrast to another study, where cough with cold was the main indication.[15] In a study done by Banerjee *et al*., antibiotics were the main class of drugs used for self-medication and this can be due to lack of strict regulatory policies by the government on supply of antibiotics OTC without prescription.[16] In our study, more number of the second MBBS students practiced self-medication for the treatment of cold with cough and it was statistically significant. This finding also corresponds with the usage of more number of antihistamines in the second MBBS students. The previous old prescriptions by physicians and textbooks were the most common informants of self-medication in the second and final MBBS students, respectively, which influence the knowledge of medical training in final year students. These observations are similar to Sontakke *et al*. study, where textbooks and pharmacopoeias' were major source of self-medication in senior medical students, whereas junior students relied on internet, media, and package inserts.[12] In the present study, the main basis for self-medication was prior exposure to illness and mild illness in the second MBBS and final MBBS students, respectively, which is similar to a study done by Arti *et al*.[17] These observations were in contrast to other studies which reported that lack of time for consultation of doctor, previous expertise, and time saving as main reason for self-medication.[18-22]

Acquiring of the knowledge of drugs and clinical spectrum of diseases through medical training influenced the practice of self-medication in final MBBS students which adds to the strength of the study. In this study, recall bias cannot be eliminated as the data reported was self-reported by the students. The study will be more precise and accurate if it is multicentered involving other medical colleges also. Even though the students were asked to fill the questionnaire independently, mutual influence cannot be excluded.

CONCLUSION

Results of our study showed that self-medication is highly practiced in undergraduate medical students. In India, due to the lack of regulations governing the supply of OTC drugs and as it is economical to use previous old prescriptions, the second MBBS students even before their exposure to knowledge of drugs, also practiced more self-medication, Moreover, nowadays, students gain knowledge of various aspects through internet even before they get exposed. Various health education strategies are required to prevent drug interactions, irrational drugs use, and ADRs. Students need to be sensitized and educated even before entering into medical profession about the long-term adverse effects of the drugs and indiscriminate use of antibiotics and policies has to be made about OTC drugs which ultimately decreases the morbidity and antimicrobial resistance.

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