

Original Research Article

Study of Self-Medication among Medical Undergraduate Students in a Tertiary Care Hospital, Maharashtra, India

Chhabra Rajat¹, Deshmukh J.B², Tamboli S.B³, Bhagunde Laxmi¹, Deshmukh A.C¹

¹P.G. Student, ²Associate Professor, ³Professor and Head,
Department Of Pharmacology, Dr. Shankarrao Chavan Govt. Medical College, Nanded, India.

Corresponding Author: Chhabra Rajat

Received: 14/10/2015

Revised: 17/11/2015

Accepted: 18/11/2015

ABSTRACT

Background: Self-medication practice is widespread in many countries. Self-medication involves the use of medicinal products by the consumer to treat self recognized disorders or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms. This study was done to determine the prevalence and pattern of self-medication among medical undergraduate students.

Materials & Methods: A cross-sectional questionnaire based study was conducted among medical undergraduate students and interns at Government Medical College, Nanded, Maharashtra during the period August - September 2014.

Results: A total 200 students were included in the study. 172(86%) students reported self-medication. Among self-medicated study participants, 91 (52.9%) were males and 81 (47.1%) were females with mean age of 21.02 years. There was significant association between self-medication and being male ($p = 0.04$) and being senior medical student ($p = 0.003$). The commonest indications for self-medication were fever (95.9%) and cough/cold (84.3%). Antipyretics (89.5%) were most common drugs used followed by analgesics (83.7%) and cough syrup (69.8%) with the main reasons being similar past experience (77.9%) and mildness of illness (58.7%). Old prescription for same illness (54.1%) and seniors or classmates (41.9%) were most frequently reported source of drug information for self-medication.

Conclusion: Our study shows that self-medication is widely practiced amongst under graduate medical students, and it is essential that they should be properly educated about the advantages and disadvantages of self-medication.

Keywords: Self-care, self-medication, medical students, undergraduate, MBBS student.

INTRODUCTION

Self-care is the actions individuals take every day for themselves and their families to stay healthy, take care of minor and long term conditions and to prevent and deal with illness. [1,2] It is also about knowing when to consult a doctor, pharmacist or other healthcare professional. [1] It includes self-medication, non-drug self-treatment, social support in illness, and first aid in everyday life. [3]

Self-medication is now increasingly being considered as a component of self-care. [4] It forms an integral part of self-care, which could be defined as the primary public health resource in the health care system. [3] Self-medication is the selection and use of medicines by individuals to treat self-recognised illnesses or symptoms. [5] It involves acquiring medicines without a prescription, resubmitting old prescriptions

to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home. [6]

Self-medication involves the use of drugs and drugs have the potential to do good as well as cause harm. Major problems related to self-medication are wastage of resources, increased resistance of pathogens and serious health hazards such as adverse reaction and prolonged suffering. [7]

A meta-analysis by Montgomery et al. included 27 published studies from different countries showed that prevalence of self-medication among medical students and healthcare professionals was ranging from 12 to 99%. [8] A study conducted at All India Institute of Medical Sciences, New Delhi observed that self-medication was considerably high among undergraduate medical and paramedical students in India and it increased with medical knowledge. [9] Survey of self-medication is important among student population because this population represents a segment of highly-educated members of society. Of particular significance is survey among medical students because they are the future doctors and drug prescribers of community. Hence, this study was planned with the objective to assess prevalence and patterns of self-medication among medical undergraduate students and interns.

MATERIALS AND METHODS

Ethics Committee approval was obtained from the Institutional Ethics Committee prior to the commencement of the study. This was a cross-sectional, questionnaire based study. The study was conducted in a tertiary care district medical college and hospital in Maharashtra. During the study period four batches (2010-11, 2011-12, 2012-13 and 2013-14) of MBBS students and interns were available in the institute.

The sample size for our study was calculated by using the following formula: [10]

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size,
N = population size and
e = level of precision.

In our study, the population size was 300 (250 undergraduate students were currently attending medical college and 50 interns were also included). Whereas 95% confidence level and $\pm 5\%$ precision level was applied. So the final sample size was 172. The 10% of non-response rate was added to final sample size.

Sample size = $172 + 17.2 = 189.2 \approx 190$

The purpose of the study was explained to the participating students and confidentiality was ensured. Informed/written consent was obtained from every student before filling the questionnaire. The study was done in August-September 2014. The study was conducted among undergraduate medical students from first year to final year immediately after regular classes and the interns were contacted in different wards and OPD's. Students were asked to fill up a printed, self-developed, pre-validated questionnaire consisting of both open-ended and close-ended items. The questionnaire was designed and pretested on 10 respondents and suitable modifications were done.

Data were entered in Microsoft Excel sheet 2010 and analyzed by Open Epi Info version 2.3.

RESULTS

208 students were included in the study. The questionnaires were returned and correctly filled in by 200 (96.2%) respondents out of total 208 students, as follows: 48 (97.9%) from 49 1st year students, 41 (97.6%) from 42 2nd year students, 40 (95.2%) from 42 Final year (Part I) students, 51 (96.2%) from 53 from

Final year (Part II) students and 20 (90.9%) from 22 interns. Of these, 100 (50%) were females and 100 (50%) were males. The mean age of students was 20.9 ± 1.64 years.

Self-medication was reported by 172 (86%) of the students during the

previous year. Among self-medicated study participants, 91(52.9%) were males and 81(47.1%) were females. Figure 1 illustrates the flow of participants and table 1 shows the basic demographic characteristics of the participants and prevalence of self-medication.

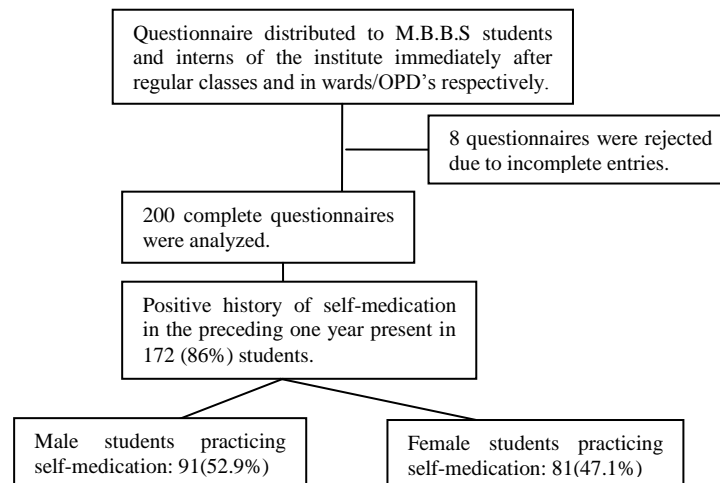


Figure 1: Flow of participants through different steps of the study

Table 1: Basic demographic characteristics and prevalence of self-medication

Sociodemographic details	Self-medication (Yes)	Self-medication (No)	p*
Gender, n (%) 0.04 ^a			
Males	91 (91)	9 (9)	
Females	81 (81)	19 (19)	
Age (years), mean \pm SD	21.02 \pm 1.6	20.46 \pm 1.82	0.09 ^b
Study year			0.003^a
1 st year	33 (68.8)	15 (31.2)	
2 nd year	37 (90.2)	04 (9.8)	
Final year (Part 1)	38 (95)	02 (5)	
Final year (Part 2)	46 (90.2)	05 (9.8)	
Intern	18 (90)	02 (10)	

* Statistical significance was considered at $p < 0.05$., ^a based on the results of chi square test., ^b based on the results of the unpaired t-test

Table 2: Condition for which self-medication was taken (Total =172)

Condition for which self-medication was taken	Frequency (%)	Percentage
Fever	165 (95.9)	15.3
Cough/cold	145 (84.3)	13.4
Headache	128 (74.4)	11.9
Bodyache	118 (68.6)	11
Gastrointestinal conditions (Constipation, diarrhoea, vomiting and dyspepsia/heart burn/gastritis)	108 (62.8)	10
Sore throat	88 (51.2)	8.2
Pain abdomen	79 (45.9)	7.3
Sprain/muscular pain	67 (38.9)	6.2
Allergy	45 (26.2)	4.2
Wound	34 (19.8)	3.1
Dysmenorrhoea	23 (13.4)	2.1
Oral/dental problem	22 (12.8)	2
Eye problem/discharge	18 (10.5)	1.7
Skin disease	18 (10.5)	1.7
Ear ache/discharge	7 (4.1)	0.6
Insomnia	7 (4.1)	0.6
Others ^a	7 (4.1)	0.6

(Figures in parenthesis denote percentages)

^a Others include Tonsillitis - 2, Urinary problems - 2, Mouth ulcers - 1, Rhinitis - 1 and Cervical spondylosis - 1.

Male students self-medicated more than the female students and the difference was significant [$\chi^2 = 4.15, p = 0.04$]. 1st year students self-medicated significantly less often than the 2nd year students [$\chi^2 = 6.08, p = 0.01$], final year (part 1) students [$\chi^2 = 9.65, p = 0.002$], final year (part 2) students [$\chi^2 = 7.06, p = 0.008$]. Interns also self-medicated more often than 1st year students but the difference was not significant [$\chi^2 = 3.4, p = 0.07$]. As regards frequency of self-medication there was no statistically significant difference among the students of 2nd year, final year (part 1), final year (part 2) and interns.

The most frequently reported illnesses or symptoms of illnesses that prompted self-medication of study participants were fever (95.9%), cough/cold (84.3%), headache (74.4%) bodyache (68.6%) and gastrointestinal conditions (62.8%) (Table 2).

Antipyretics (89.5%), analgesics (83.7%), cough syrup (69.8%), antacids (60.5%) and antibiotics (56.4%) were the most frequently used categories of drugs (Table 3).

Table 3. Drug/class of drug used for self-medication (Total = 172)

Drug/class of drug used	Frequency (%)	Percentage
Antipyretics	154 (89.5)	16
Analgesics	144 (83.7)	15
Cough syrup	120 (69.8)	12.5
Antacids	104 (60.5)	10.8
Antibiotics	97 (56.4)	10.1
Vitamins	78 (45.4)	8.1
Antiemetics	57 (33.1)	5.9
Antiallergics	52 (30.2)	5.4
Antispasmodics	41 (23.8)	4.3
Tonics/nutritional supplements	30 (17.4)	3.1
Eye drops	24 (13.9)	2.5
Herbal/homeopathic	17 (9.9)	1.8
Skin medicines	14 (8.1)	1.5
Ear drops	11 (6.4)	1.1
Body building supplements	8 (4.6)	0.8
Antimalarials	5 (2.9)	0.5
Sedatives/sleeping pills	5 (2.9)	0.5
Stool softeners	1 (0.6)	0.1

(Figures in parenthesis denote percentages)

The main reasons favouring self-medication and not taking physicians' advice were similar past experience (77.9%), mildness of illness (58.7%) and urgency of problem (22.7%) (Figure 2).

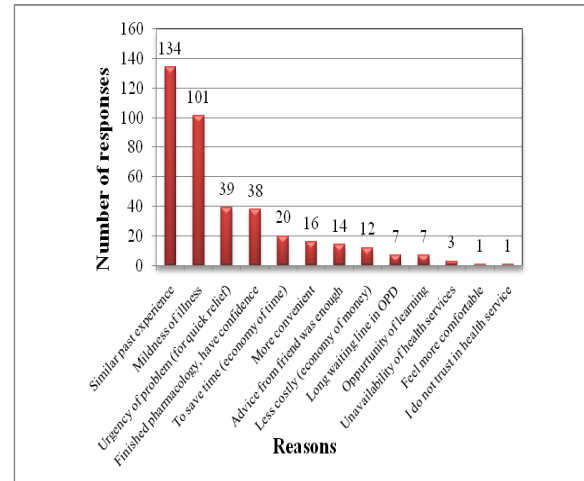


Figure 2: Reasons for not taking physicians' advice

Old prescription for same illness (54.1%), seniors or classmates (41.9%), parents or other family members (36.6%), textbooks (34.3%) and pharmacist (21.5%) were the most frequently reported source of drug information for self-medication (Figure 3).

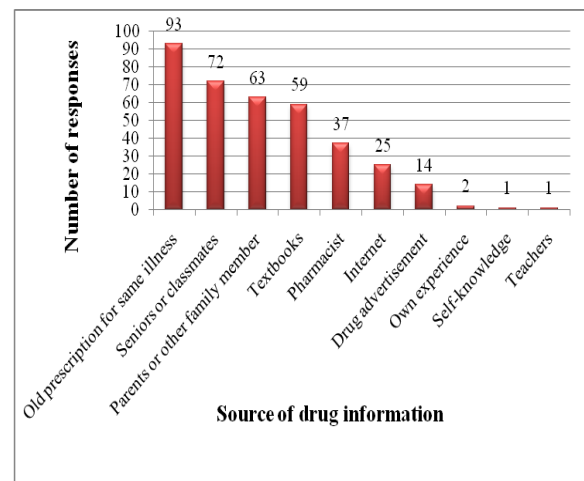


Figure 3: Source of drug information

DISCUSSION

In our study the prevalence of self-medication among undergraduate medical students and interns was 86%. In studies conducted in India the prevalence of self-medication was 88.18% in Karnataka, [11] 82.3% in Gujarat [12] and 57.05% in West Bengal. [13] In studies conducted in other countries, the prevalence of self-medication was 86.4% in Brazil, [14] 79.9% in Serbia [15] and 76% in Pakistan. [16] These differences can be attributed to regional differences in factors such as

differences in demographic characteristics, socioeconomic conditions and drug availability.

In our study it was found that practice of self-medication was more prevalent among males than females and the difference was significant [$\chi^2 = 4.15$, $p = 0.04$]. Similar observations were made in studies from India [9, 17] and Brazil. [14] Although this differs from previous studies conducted in India among medical students which showed greater prevalence among female students. [13,18] However in a study conducted in Slovenia researchers failed to demonstrate any statistically significant sex difference in self-medication practices in university students. [19]

In congruence with other studies, prevalence of self-medication was more among senior students as compared to junior students, as they are exposed to knowledge about drugs and disease. [13, 21] This suggests that higher level of medical education is associated with increased practice of self-medication. However in a study conducted by Correa da Silva et al in Brazil and Sontakke et al in Nagpur, the prevalence of self-medication among junior and senior medical students did not differ significantly. [14, 20]

The most frequently reported illnesses or symptoms of illnesses that prompted self-medication of study participants in our study were fever (95.9%), cough/cold (84.3%) followed by headache (74.4%). There is a slight discrepancy with other previous studies where fever (72.7%), headache (69.1%), upper respiratory tract infections (64.1%) followed by others like bodyache, abdominal pain, diarrhoea etc. were the common illnesses for which self-medication was taken. [12]

In our study it was noticed that the classes of drugs that were commonly used were antipyretics (89.5%), analgesics (83.7%) and cough syrup (69.8%). This is similar to a previous study done in south

India where antipyretics (71%) and analgesics (65%) were the common class of drugs used. [17] Banerjee *et al* observed common use of antibiotics followed by analgesics, antipyretics and antiulcer medications. [13]

The main reasons favouring self-medication and not taking physicians' advice were similar past experience (77.9%), mildness of illness (58.7%) and urgency of problem (22.7%), which differs in certain issues with other studies where minor ailments (82%), [17] (40%) [22] and lack of time to consult a doctor (11%), [17] (32%) [22] were the most common reasons.

In our study, old prescription for same illness (54.1%), seniors or classmates (41.9%), parents or other family members (36.6%), textbooks (34.3%) and pharmacist (21.5%) were the most frequently reported source of drug information for self-medication, which is in concordance with other studies done in Gulbarga, Karnataka [11] where old prescription (54.63%) was the most common source of information followed by textbooks and pharmacists. Though in another study done by Pandya RN et al, [12] showed relatives and physicians (48.6%), seniors and friends (45.4%) as common sources for self-medication.

Self-medication is a double edged sword; at one side responsible self medication is useful and convenient option to treat minor illnesses, whereas on the other side inappropriate self-medication can have its harmful effects. There could be serious consequences if over the counter drugs are used in an unsafe manner due to insufficiency of adequate knowledge about their side effects and interactions. It is necessary to educate the students regarding the concept of self-medication.

The study findings are based on a single centre study in south-eastern part of Maharashtra and hence, the study observations cannot be generalized. All the students were encouraged to fill the

questionnaires independently but mutual influence cannot be ruled out. The study was based on self reported data about self-medication in last one year hence recall bias cannot be ruled out. As more and more multicentric studies would be conducted on periodic basis, we will have an enhanced insight on the changing pattern of drug use. The role of socio-economic status and its influence on practice of self-medication needs to be explored in future studies.

CONCLUSION

This study has shown that self-medication is widely practiced amongst under graduate medical students. Factors such being male and senior medical student is associated with increased prevalence of self-medication. It is essential that students should be properly educated about the advantages and disadvantages of self-medication.

ACKNOWLEDGEMENTS

Authors are thankful to 2nd MBBS students Omkar S Shelke, Varsha Kapate and Pranjali Garudkar for data collection during the study.

REFERENCES

1. World Self-Medication Industry (WSMI). The Shanghai Declaration–on International Self-Care Day, 24 July [Internet]. 2012. Available from: http://www.wsmi.org/wp-content/data/pdf/INTLSELF CARE_DAYS/TheShanghaiDeclaration.pdf (Accessed on 2015 Oct 12).
2. World Self-Medication Industry (WSMI). The Story of Self-Care and Self-Medication. 40 years of progress 1970-2010 [Internet]. 2010. Available from: http://www.wsmi.org/wp-content/data/pdf/storyofselfcare_bdpage.pdf (Accessed on 2015 Oct 12).
3. World Health Organization (WHO). Guidelines for the regulatory assessment of medicinal products for use in Self medication [Internet]. 2000. Available from: <http://apps.who.int/medicinedocs/pdf/s2218e/s2218e.pdf> (Accessed 2015 Oct 12).
4. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self medication. *Drug Saf.* 2001; 24: 1027–1037.
5. World Health Organization (WHO). The role of the pharmacist in self-care and self-medication [Internet]. 1998. Available from: <http://apps.who.int/medicinedocs/pdf/whozip32e/whozip32e.pdf> (Accessed on 2015 Oct 12).
6. Loyola Filho AI, Lima-Costa MF, Uchoa E. Bambuí Project: a qualitative approach to self-medication. *Cad Saude Publica.* 2004; 20(6):1661–1669.
7. Bennadi D. Self-medication: A current challenge. *J Basic Clin Pharma* 2014; 5:19-23.
8. Montgomery AJ, Bradley C, Rochfort A et al. A review of self-medication in physicians and medical students. *Occup Med* 2011; 261: 490–97.
9. Self-medication popular among medical students: AIIMS study. [Internet]. 2008 [updated 2008 Mar 05] Available: <http://www.livemint.com/Politics/XcN44QD5g8aW4dwltcUdtl/Selfmedicationpopular-among-medical-students-AIIMS-study.html> (Accessed on 2015 Oct 12).
10. Israel GD. Determining Sample Size. Agricultural Education and Communication Department, UF/IFAS Extension Institute of Food and Agricultural Sciences (IFAS), University of Florida, Gainesville, FL 32611. PEOD-6, 2013. Available from: <http://edis.ifas.ufl.edu/pdf/EDIS/EDIS00600.pdf> (Accessed on 2015 Oct 12).
11. Patil SB, Vardhamane SH, Patil BV et al. Self-Medication Practice and Perceptions Among Undergraduate Medical Students: A Cross-Sectional Study. *J of Clin and Diag Res* 2014;8(12):HC20-HC23.
12. Pandya RN, Jhaveri KS, Vyas FI et al. Prevalence, pattern and perceptions of self-medication in medical students.

- Int J Basic Clin Pharmacol 2013; 2:275-80.
13. Banerjee I, Bhadury T. Self-medication practice among undergraduate medical students in a tertiary care medical college, West Bengal. *J Postgrad Med* 2012; 58:127-31.
 14. Corrêa da Silva et al. Self-medication in university students from the city of Rio Grande, Brazil. *BMC Public Health* 2012; 12:339.
 15. Lukovic JA, Miletic V, Pekmezovic T et al. Self-Medication Practices and Risk Factors for Self-Medication among Medical Students in Belgrade, Serbia. *PLoS ONE* 2014; 9(12): e114644. doi:10.1371/journal.pone.0114644
 16. Zafar SN, Syed R, Waqar S et al. Self-medication amongst University Students of Karachi: Prevalence, Knowledge and Attitudes. *J Pak Med Assoc* 2008; 58:214-18.
 17. Badiger S, Kundapur R, Jain A et al. Self-medication patterns among medical students in South India. *AMJ* 2012; 5, 4: 217-220.
 18. Kumar N, Kanchan T, Unnikrishnan B et al. Perceptions and Practices of Self-Medication among Medical Students in Coastal South India. *PLoS ONE* 2013; 8(8): e72247. doi:10.1371/journal.pone.0072247.
 19. Klemenc-Ketis Z, Hladnik Z, Kersnik J. A cross sectional study of sex differences in self-medication practices among university students in Slovenia. *Coll Antropol* 2011; 35:329-34.
 20. Sontakke SD, Bajait CS, Pimpalkhute SA et al. Comparative study of evaluation of self-medication practices in first and third year medical students. *Int J Biol Med Res* 2011; 2:561-64.
 21. Parakh R, Kohli S, Kulshreshtha S et al. Self-medication practice among medical college in North India. *IJPRBS* 2012; 1:282-95.
 22. James H, Handu SS, Khalid AJ et al. Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Med Princ Pract.* 2006;15:270–275.

How to cite this article: Rajat C, Deshmukh JB, Tamboli SB et. al. Study of self-medication among medical undergraduate students in a tertiary care hospital, Maharashtra, India. *Int J Health Sci Res.* 2015; 5(12):190-196.
