

PREVALENCE AND PRACTICE OF SELF-MEDICATION AMONG THE MEDICAL STUDENTS DURING COVID-19

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ABSTRACT

Background: COVID-19 is a communicable disease caused by severe acute respiratory syndrome corona virus 2. This outbreak has caused a massive stress on vulnerable health care system of developing countries like Bangladesh. Self-medication is very common in our country. It means the use of medicines to treat self-diagnosed symptoms without consulting doctor or physician by the people. **Aim:** Aim of this study was to assess the prevalence and practice of self-medication during COVID-19 among the medical students. **Materials and Method:** A descriptive cross sectional study was conducted among the medical students from July to December 2020 by non-probable convenience sampling and data were collected by telephone interview by using semi-structured questionnaire. After completion of data collection, statistical analysis was done using the Statistical Package for the Social Science. **Results:** The study revealed that prevalence of self-medication was very high among medical students during the pandemic. Students sometimes visited doctor before taking antibiotics and they practiced self-medication because it seems convenient to them. Common symptoms for self-medication were fever, diarrhea, runny nose, cough, nasal congestion, sore throat, aches and pain. Sources of medicines were pharmacy, personal stocks and doctor parents. The relationship between self-medication and year of study, occupation of the father or mother of the respondents, monthly family income were not statistically significant. **Conclusion:** Self-medication among medical students is very common practice. The study recommends to increase awareness and promote safe practice about self-medication with antibiotics to prevent the emergence of antibiotic resistance and other adverse effects.

Key words: Communicable disease, COVID-19, Self-medication.

Cite this article: Shams S, Shumi MB, Mohiuddin Z. Prevalence and Practice of Self-medication among the Medical Students during COVID-19. J Med Coll Women Hosp. 2024; 20 (1) 32-39:

INTRODUCTION

The outbreak of COVID-19 increased the vulnerability of the health care system of Bangladesh. Inadequate access and inequitable distribution of health care resources among low socio-economic population were increasing day by day during this pandemic. On the other hand, easy availability of information through telemedicine or other sources from internet were causing more self-medication practices among the high socioeconomic society even the highly educated society¹.

Self-medication with antibiotics is an important cause of antibiotic resistance which is a major public health problem in developing countries like Bangladesh². It causes a heavy burden to the economy of developing countries due to wastage of resources and negative health effects. Self-medication with antibiotics may also lead to masking of symptoms and treatment failure³.

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Medical students commonly practice self-medication due to easy availability of drugs, high self-care orientation and lack of awareness about the adverse effects of self-medication⁴. Medical students are important part of the population since they will be the future medical practitioners, responsible for antibiotic prescription and counselling about antibiotic use with their patients⁵. Self-medication is widely practiced among medical students due to easy access to information about drugs from drug indices, literature and other medical students⁶.

This study will help to know the associated factors of self-medication during COVID19 and its correlation with other factors of the students. Medical students have more exposure with patients. So, they can motivate other people about its harmful effects. Moreover, the study findings will contribute to reduction of self-medication as medical students are the future practitioner.

MATERIALS AND METHOD

It is a descriptive type of cross-sectional study which was conducted to assess the prevalence and associated factors of self-medication among the medical students during COVID-19. The study was conducted in Sir Salimullah Medical College, Dhaka. The study period was July to December, 2020. All undergraduate students both male and female from 1st year to 5th year were included. Post graduate students and students who were not interested were excluded. Standard method of sample size calculation was used to determine the sample size in the study.

The sample size was calculated by the following formula-

$$\begin{aligned} n &= z^2pq / d^2 \\ &= (1.96)^2 (0.5) (0.5) / (0.05)^2 \\ &= 384 \end{aligned}$$

Where, n= desired sample size, z= 1.96 at 95% level of confidence, p= the proportion of the target population estimated to have a particular characteristic. In respect of this study 'p' value was not known and set at 50%= 0.5, q= 1-p, d= degree of accuracy and the optimum sample size was 384 at d= 0.05. But in the pandemic situation students were not available at hostel or college. Moreover due to time and resource constraints and busy schedule of medical students total 230 students were included in this study. So, the sample size of this study was 230. Non-probability convenience sampling technique was used. Data were collected over telephone interview of the respondents by the researcher due to the pandemic situation. A pretested semi-structured questionnaire was prepared keeping in view the variables and objectives. Before collection of data from the study place, pre-testing of questionnaire was done from Dhaka Medical College. Total 10 interviews were carried out. Modification was done to the questionnaire according to the pre-testing.

Ethical Consideration

Ethical committee approval was not obtained because the study was a descriptive study based on history of self-medication. Privacy and confidentiality was maintained strictly. Participants had all rights to withdrawal from the study. They were assured that there would be no harm to them during the study as there was no invasive procedure applied.

RESULTS**Table 1 : Students of Different Year of Study with self-medication:**

Year of Study	Self-Medication		Total	<i>p</i> value
	Yes	No		
1st Year	28(93.3%)	2(6.7%)	30(100.0%)	0.068
2nd Year	32(91.4%)	3(8.6%)	35(100.0%)	
3rd Year	105(77.2%)	31(22.8%)	136(100.0%)	
4th Year	15(93.8%)	1(6.3%)	16(100.0%)	
5th Year	10(76.9%)	3(23.1%)	13(100.0%)	
Total	190(82.6%)	40(17.4%)	230(100.0%)	

Table 1 illustrates that among 230 students, 190 (82.6%) practiced self-medication. Among 30 students of 1st year, 28 (93.3%); among 35 students of 2nd year, 32 (91.4%); among 136 students, 105 (77.2%); among 16 students of 4th year, 15 (93.8%) and among 13 students of 5th year, 10(76.9%) students practiced self-medication. The association between year of study of the respondents and self-medication was not statistically significant ($p=0.068$).

Table 2 : Occupation of the father of the respondent in relation with self-medication

Occupation of the father of the respondent	Self-Medication		Total	<i>p</i> Value
	Yes	No		
Doctor	17(85.0%)	3(15.0%)	20(100.0%)	0.183
Service holder	106(80.9%)	25(19.1%)	131(100.0%)	
Business	57(89.1%)	7(10.9%)	64(100.0%)	
Farmer	10(66.7%)	5(33.3%)	15(100.0%)	
Total	190(82.6%)	40(17.4%)	230(100.0%)	

It shows in Table 2 that among all the respondents, the fathers of 20 students were doctors, among them 85.0% (17) stated that they practiced self-medication. Fathers of 131 students were service holders, among them 80.9% (106) practiced self-medication. Among 64 students having business man father, 89.1% (57) and among 15 students having farmer father, 66.7% (10) practiced self-medication. No association between self-medication and the occupation of the father of the respondents was found ($p=0.183$).

Table 3 : Occupation of the mother of the respondent in relation with self-medication

Occupation of the mother of the respondent	Self-Medication		Total	<i>p</i> Value
	Yes	No		
Doctor	6(85.7%)	1(14.3%)	7(100.0%)	0.549
Service holder	48(87.3%)	7(12.7%)	55(100.0%)	
Housewife	136(81.0%)	32(19.0%)	168(100.0%)	
Total	190(82.6%)	40(17.4%)	230(100.0%)	

Table 3 shows that among 230 participants, total 7 students had mothers who were doctors, among them 6 (85.7%) practiced self-medication. Mothers of 55 students were service holder, among them 48(87.3%) students did self-medication. Among 168 students having housewife mother, 136 (81.0%) students practiced self-medication. There was no association between self-medication and the occupation of the mother of the students ($p=0.549$).

Table 4 : Monthly family income among the students in relation with self-medication

Monthly family income in Taka (Tk)	Self-Medication		Total	<i>p</i> value
	Yes	No		
Less Than 20,000 Tk	10(71.4%)	4(28.6%)	14(100.0%)	0.568
20,001 to 50000 Tk	98(81.7%)	22(18.3%)	120(100.0%)	
50,001 to 80,000 Tk	58(86.6%)	9(13.4%)	67(100.0%)	
More Than 80,000 Tk	24(82.8%)	5(17.2%)	29(100.0%)	
Total	190(82.6%)	40(17.4%)	230(100.0%)	

Table 4 demonstrates monthly family income ranged from below Tk 20,000 to more than Tk 80,000. It was found that among 14 students with less than Tk 20000 monthly family income, 10 (71.4%) practiced self-medication. Total 120 students had monthly income range Tk 20,001 to Tk 50,000, among them 98 (81.7%) practiced self-medication. Among 67 students with monthly family income Tk 50,001 to Tk 80,000, 58(86.6%) did self-medication. Among 29 students having monthly family income more than Tk 80,000, 24 (82.8%) stated that they practice self-medication. There is no significant association between self-medication and the monthly family income of the respondents ($p=0.568$).

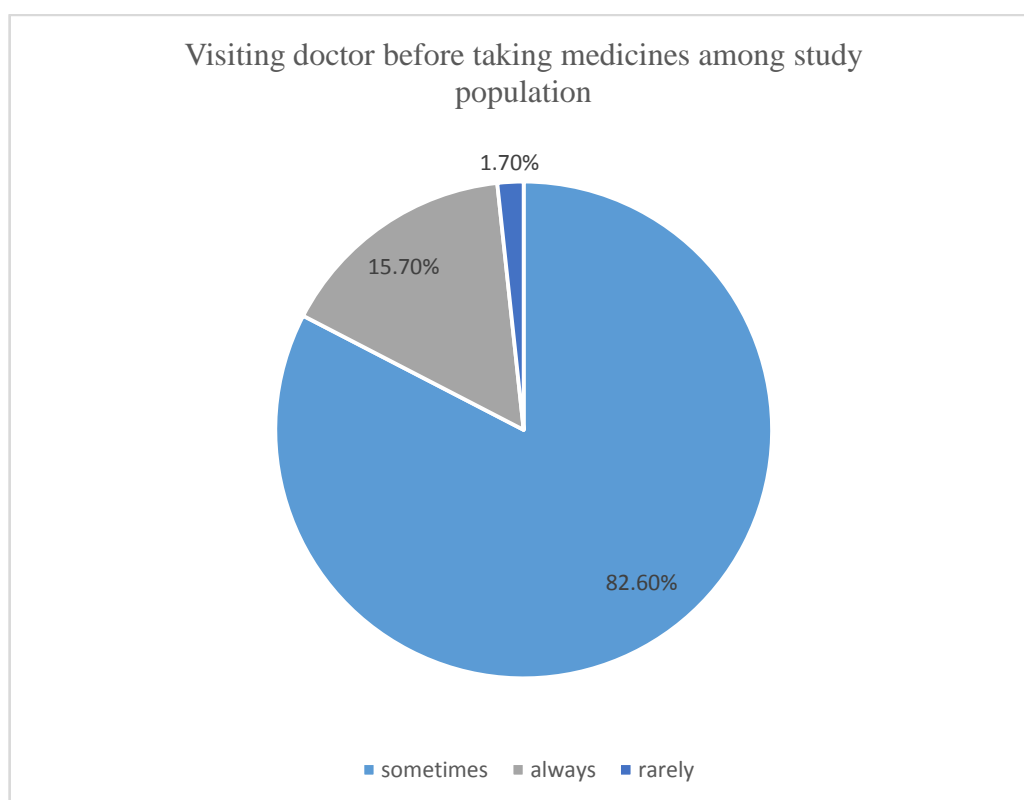
**Figure 1 : Visiting doctor before taking medicine among the respondents**

Figure 1 illustrates that among 230, majority students 82.6% (190) stated that they sometimes visited doctor before taking medicines, 15.7% (36) students always visited doctor and only 1.7% (4) students rarely visited doctor before taking medicines.

Self medication among medical students

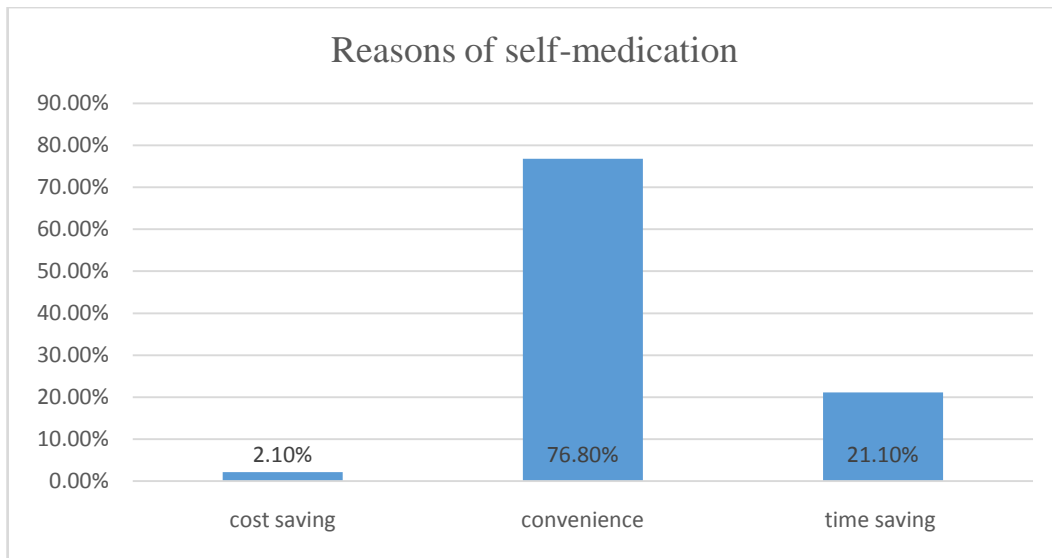


Figure 2 : Reasons of self-medication

Among 190 students who practiced self-medication, majority of students i.e. 76.8% (146) practiced it because it seems convenient to them, 21.1% (40) students did it to save time and only 2.1% (4) students did it due to cost saving as demonstrated in Figure 2.

Table 5 : Symptoms for self-medication

Symptoms for Self-Medication	Frequency	Percentage (%)
Runny Nose	20	10.5
Fever	91	47.9
Nasal Congestion	9	4.7
Aches & Pain	2	1.1
Cough	11	5.8
Sore Throat	9	4.7
Diarrhea	48	25.3
Total	190	100

Out of the 190 students who practiced self-medication, majority of the students i.e. 47.9% (91) did it due to fever, 25.3% (48) due to diarrhea, 10.5% (20) due to runny nose. 5.8% (11) students did it with the symptoms of cough. Symptoms of nasal congestion and sore throat represents the same percentage of 4.7% (9). Only 1.1% (2) students did it due to aches & pain as shown in Table 5.

Table 6 demonstrates that majority of the students i.e. 65.8% (125) bought medicines from pharmacy. In case of 23.7% (4), source is personal stocks and 10.5% (20) got it from doctor parents among the 190 students who practiced self-medication.

Table 6 : Sources of medicines for self-medication

Source of Medicines	Frequency	Percentage (%)
Pharmacy	125	65.8
Doctor Parents	20	10.5
Personal Stocks	45	23.7
Total	190	100

DISCUSSION

This cross sectional study revealed that among 230 students, 190 (82.6%) practiced self-medication, which is supported by a study where prevalence of self-medication was found to be 88% among the undergraduate pharmacy students in a study⁷.

According to this study, 93.3% students of 1st year, 91.4% students of 2nd year, 77.2% students of 3rd year, 93.8% students of 4th year and 76.9% students of 5th year practiced self-medication. In a similar study, self-medication prevalence was 100% and it was found that 32%, 30.7% and 37% students of 2nd year, 3rd year and 4th year practiced self-medication⁶. In another study, significant relationship was found between academic year and self-medication but as they were university students it was not relevant with this study⁸.

Among all respondents, 85.0% having fathers who were doctors, 80.9% having service holder fathers, 89.1% having businessman fathers and 66.7% having farmer fathers practiced self-medication. 85.7% students having mothers who were doctors, 87.3% having service holder mothers and 81.0% having housewife mothers practiced self-medication. No similar study was found in Bangladesh. So further studies are needed to reveal findings in this regard.

In case of monthly family income of the respondents, it was found that 71.4%, 81.7%, 86.6% and 82.8% students who did self-medication had monthly family income respectively of less than Tk 20,000, Tk 20,001 to Tk 50,000, Tk 50,001 to Tk 80,000 and more than Tk 80,000. It matches with a study in Kuwait where no significant relationship was found between income and self-medication practice⁹.

Our research found that among 230 students, majority (82.6%) sometimes visited doctor, 15.7% students always visited doctor and only 1.7% students rarely visited doctor before taking medicines. It was matched with a study conducted among undergraduate medical students in India where majority of students (47%) sometimes, 39% always and only 3% students rarely visited doctor whenever they fell ill¹⁰.

It denotes that 76.8% students practiced self-medication because it seems convenient to them, 21.1% did it to save time and only 2.1% students did it for cost saving. It was found that self-medication was done by 71% students for minor illness, 58% students for time saving, 44% students for ease and convenience in a study among undergraduate medical students¹⁰.

Here 47.9% did self-medication for fever, 25.3% for diarrhea, 10.5% for runny nose, 5.8% for cough.

Self medication among medical students

Symptoms of nasal congestion and sore throat represents the same percentage of 4.7%. Only 1.1% students did it for aches and pain. In a study among undergraduate university students it was 47.83% for common cold, fever, cough, 14.49% for sore throat, 13.04% for diarrhea, 13.04% for skin infection, 1.45% for eye infection, 2.90% for headache, 1.45% for wound and 5.80% did not specify any disease which matched with this study¹¹. Sources of medicines were pharmacy (65.8%), personal stock (23.7%), doctor parents (10.5%). This is similar to a study among undergraduate university students where it was found that sources of antibiotic for self-medication were 72.46% community pharmacy, 3.04% friends, 7.25% leftover medicines and 7.25% not mentioned¹¹.

CONCLUSION

The prevalence of self-medication is very high among medical students, where most of them sometimes visited qualified doctor before taking antibiotics but they practiced it because it seems convenient and time saving to most of the students. There was no association between self-medication and year of study, occupation of the father or mother of the respondents or monthly family income. Common symptoms for self-medication were fever, diarrhea, runny nose, cough, nasal congestion, and sore throat, aches and pain. Sources of information about antibiotics were family members, friends, previous prescriptions, own experience, doctor parents and community pharmacy. Sources of medicines are pharmacy, personal stocks and doctor parents. This study highlights that as a future physician medical students should be aware of the alarming condition of self-medication. The role of socio-economic status and its influence on antibiotic self-medication need to be revealed in future studies.

LIMITATIONS OF STUDY

Sample was collected conveniently so that study finding might not reflect the true

picture of the whole population. The study was conducted with small size sample so that the study might not reflect the real situation. Data collection was done through telephone interview so there might be some unrevealed factors. It was a descriptive study, there was no comparison among students of different study year. So, the pattern of antibiotic self-medication in different study year was not revealed. The study was conducted in single centre due to shortage of time for research works. If the study was conducted in different medical colleges, it would be possible to get more extensive scenario on the antibiotic self-medication practice among the medical college students of Bangladesh.

CONFLICT OF INTEREST

There is no conflict of interest.

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