Original Article

Self-medication Patterns among Undergraduate Medical Students: A Cross Sectional Institution Based Study

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ABSTRACT

Objective: Self-medication practice among doctors develops during their undergraduate training. The aim of this study is to assess self-medication patterns among 3rd year undergraduate medical students at the end of their academic year, as pharmacology is taught to them in this year of MBBS course. **Methods:** This cross-sectional institution based study was conducted after approval by ERB-BUMDC at Bahria University Medical and Dental College, Karachi from October-December 2013 which is the end of their academic year. The participants were 3rd year medical students. All the descriptive data was collected by using specially designed questionnaire, filled on one to one basis by taking an oral interview. Data was analyzed using SPSS version 20 and reported as frequencies and percentage. **Results:** Self-medication was reported by 67 (72.82%) students out of 92 students. Quick relief (43%) was the common reason to provoke medical students in indulging self-medication. Acetaminophen was the commonly used analgesic (73%) as well as antipyretic (69%) whereas Metronidazole (19%) and Amoxicillin Plus Clavulanic acid (17.3%) were the commonly used antibiotics. 97% of students used acetaminophen in appropriate dose, frequency and duration. Whereas 85% and 94% of students used metronidazole and amoxicillin plus clavulanic acid in appropriate dose, frequency and duration respectively. **Conclusion:** Frequency of self-medication is high among 3rd year undergraduate medical students at the end of their academic year but majority of students are using medicines in appropriate dose, frequency and duration which may be due to influence of teaching pharmacology to them in this year of MBBS course.

Key words: Self-medication, Allopathic drugs, 3rd Year medical students, End of third academic year, Pharmacology teaching.

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INTRODUCTION

Self-medication is defined as the ingestion of medicines with curative purpose but without specialized recommendation.[1] It also includes procuring medicines without a doctor's prescription, acquisition of new medicines by using former prescriptions, sharing medicines with others or using left-over and extra medicines kept at home.[2] The increasing ease of access to pharmaceutical products, improving potential among people to deal certain illnesses by themselves; and extraterrestrial approach to information nowadays have overall increased the frequency of self-medication worldwide as reported by numerous studies.[3,4] The self-medication prevalence is elevated all over the world reaching up to 68% in European countries, while upraising up to 92% in the developing countries which is perhaps due to characteristic variances in their socioeconomic and ethnic factors, discrepancies in health care systems such as health care approach, drug distribution and refund policies.[5,6] In underdeveloped countries, people not only consume non-prescription medicines but also prescription drugs without any professional guidance. The World Health Organization put emphasis on rational use of self-medication.[7]

The negative upshots due to self-medication may include diminution of reserves, increasing resistance to organisms due to irrational use of antibiotics, problems due to drug-drug interactions and misdiagnosis, drug addiction, over and under dosing of medicines and adverse drug reactions.[8] It is documented that 2.9 - 3.7 % cases of deaths occurred in hospitals as a consequence of drug-drug interactions.[9] The youth is inspired by the media and the internet which is encouraging self-medication behavior.[10] Self-medication practice among doctors develops during their undergraduate training.[11] This study was especially designed to evaluate self-medication patterns among 3rd year undergraduate medical students at the end of their academic year, as pharmacology is taught to them in this year of MBBS course.

METHODOLOGY

Study design

This cross-sectional institution based study was conducted after approval by ERB-BUMDC at Bahria University Medical and Dental College, Karachi from October-December 2013. Partakers were medical students of third year. Data was collected at the end of their academic year by using specially designed questionnaire, adapted from similar studies conducted previously.[12,13] After the informed consent, respondents were given explanation about the purpose of the study. Each questionnaire was filled on one to one basis by taking an oral interview and confidentiality was ensured. This method of data collection excludes various problems of incomplete filling of the questionnaire, misunderstanding the asked questions and peer influence on filling the questionnaire.

Study Tool

Questionnaire development

The questionnaire consisted of two sections. The first section contained demographic information of the students such as age, gender, academic year and address etc. The second section consisted of a variety of open and closed ended questions concerned to self-medication practices. A total of 19 questions were asked in 2nd section with options such as reasons which provoked our students for self-medication, ailments for which self-medication was practiced, drugs they use in self-medication, dose, frequency and duration of drugs which they self-medicate, in-

formation regarding harmful effects and drug-drug interactions of the drugs which they self-medicate etc. Data was entered in Microsoft Excel and analysis was done by utilizing SPSS version 20.

RESULTS

Out of total 96 students of 3rd Year MBBS at Bahria University Medical and Dental College, 92 students participated in the study. Demographic features of participants are shown in Table 1. Self-medication was reported by 67 students out of 92 students. Frequency of self-medication was found to be 72.82%. Allopathic system of medicines (95%) was the commonly used system of medicines utilized by medical students. Quick relief (43%) was the common reason to provoke medical students in indulging self-medication, based on their own decision (66%). General medical store was the common source of purchase of medicines (80%). 92% of medical students could recognize medicines by their generic name. Detailed information regarding self-medication gathered from students from second section of questionnaire is given in Table 2. Common drugs used for self-medication by medical students are shown in Table 3. It is apparent that Acetaminophen was the commonly used analgesic (73%) as well as antipyretic (69%) whereas Metronidazole (19%) and Amoxicillin Plus clavulanic acid (17.3%) were the commonly used antibiotics Table 3. It was found that 97% of students used acetaminophen in appropriate dose, frequency and duration. Whereas 85% and 94% of students used metronidazole and amoxicillin plus clavulanic acid in appropriate dose, frequency and duration respectively.

DISCUSSION

In the present study, 72.82 % of 3rd year medical students at Bahria University Medical and Dental College, Karachi (BUMDC), reported self-medication practice at the end of their academic year. In comparison, the frequency of self-medication was found to be 87.3% among third year medical students as reported by Kumar,[14] Whereas Supriya thadani reported 90.7% frequency of self-medication in 2nd year medical students as pharmacology is taught to them in this year of MBBS course.[15] The frequency of self-medication in medical students of Dow University of Health Sciences, Karachi was found to be 77.7%. But in this study medical students from all academic years of MBBS were included.[5] Similarly, in studies conducted within India, the prevalence of self-medication among the medical students was found to be ranging between 57.1% and 92%.[16,17,18]

Most of the study participants in our study followed allopathic system of medicines (95%). Similar results are found in other studies conducted on medical students in India. Among reasons, which provoked our students for self-medication were, "quick relief" (43%) followed by "ailments did not require consultation (21%). Similar findings were observed by Verma and Gupta.[19,20] However, Kumar reported illness being too trivial as the common reason in his study.[14]

Most medicines had been purchased directly from "General medical store" (80%) indicating easy access to medicines in our set of connections. Whereas, 92% of students could recognize medicines by their generic name. In our study, 92% of students declared that they have medicine stock available at their homes. Literature supports that there is more prevalence of self-medication in people having availability of medicines at home as compared to people not keeping medicines. 87% of students cited that health care center or physician is far away from their home. This supports the finding of Baig that self-medication practice tends to increase in those who have health care center or physician far away from their home.[21] Common ailments for which self-medication was sought in our study were: headache (95%) and fever (87%), like the findings narrated by Abay and Amelo.[22] However, Banerjee and Bhadury reported cough and common cold (35.21%) to be the principal ailments for

Table 1: Demographic Characteristics of Participants (N=92)

Variable	(%)
Mean Age:	21.5 year
Gender:	
Male	33 (36%)
Female	59 (64%)
Educational Level	Undergraduate
Academic Year	3rd Year M.B.B.S
Resident: Karachi	73 (79.3%)
Outsiders	19 (20.65%)

Table 2: Detailed information regarding self-medication practice collected by second section of questionnaire

Practice of self-medication			
Yes (Students who self-medicate)	72%		
No (Students who don't self-medicate)	28%		
Systems of medicine		**Recognition of medicine**	
Allopathic	**95%**	**Trade name**	**97%**
Homeopathic	3%	Generic name	92%
Herbal	2%	Packaging	1.1%
Unani	0%	Color/appearance	1.1%
Reason for self-medication		**Factors influencing self-medication**	
Ailments did not require consultation	21%	Use same prescription as for other family members	4%
History of same ailment	16 %	Medicines available at home	92%
High consultant fee	11%		
Busy schedule	13%	Nearby health care center or Pharmacy	87%
Quick relief	**43%**		
Recommendation for self-medication		**Common ailments leading to self-medication**	
Self-decision	66%		
Family	19%	**Headache**	**95%**
Friends	3%	Fever	87%
Medical store person	0%	Sore throat	50%
Internet	7%	Diarrhea	12%
Media	4%	Indigestion	7%
		Cough	2%
Source of purchase of medicine		Awareness about adverse drug effects	96%
Hospital Pharmacy	16%	Awareness about drug-drug interactions	(know) 44%
General medical store	**80%**		
Hakeem	3 %	Check expiry date of medicines	(Know) 98%
Quack	1%		

seeking self-medication possibly due to increased incidence of respiratory tract infections in their country during the study period.[16] The drug groups employed commonly were: analgesics (95%), antipyretics (87%) and antibiotics (36%). This is coinciding with the results of Sonkakke *et al.*[17] However, some studies conducted in developing countries have reported a higher use of antimicrobials for self-medication.[23] Antipyretics were the common class of drugs self-medicated by majority of the participants in study conducted by Kumar. Similar observations were

Table 3: Drugs Used for Self-medication

DRUG/ GROUPS	Percentage (%) Consumed	Commonly used drugs	(%)
Analgesics	95%	**Acetaminophen**	**73%**
		Aspirin	8.6%
		Pseudoephedrine + Ibuprofen	7.6%
Antipyretics	87 %	Ibuprofen	5.4%
		Diclofenac	4%
		Naproxen	2.1%
		Acetaminophen	**69%**
		Ibuprofen	7.6 %
		Pseudoephedrine + Ibuprofen	7.6%
Antibiotics	36 %	Aspirin	2.1%
		Metronidazole	**19%**
		Levofloxacin	5.4%
		Amoxicillin + Clavulanic	**17.3%**
		Amoxicillin	3.2%
		Erythromycin	4.3%
		Ciprofloxacin	3.2%
Antiallergics	14 %	**Loratadine**	**7.6%**
		Cetirizine	5.4%
Antacids	8.6 %	**Aluminum hydroxide + Magnesium hydroxide+ Oxethazaine**	**7.6%**
Cough Suppressants	7.6 %	Omeprazole	4.3%
		Guaifenesin + Dextromethorphan	**8.6%**
		Pholcodine + Chlorpheniramine + Pseudoephedrine	4.3%
Relaxants	4.3%	Alprazolam	2.1%

made in a study from South India and Ethiopia.[22,18] Headache and Fever was the most common indication for self-medication in our study which is similar to observations made in Ethiopia. However, in studies from Western[16] and Southern part of India,[18] cough and cold was the most common symptom for self-medication.

Acetaminophen was found to be the commonest analgesic and anti-pyretic (73%) whereas metronidazole (19%) followed by amoxicillin plus clavulanic acid (17.3%) were the common antibiotics. However, others have reported amoxicillin plus clavulanic acid (Augmentin) as the most frequently used antibiotic in contrast to our study. This may be due to the low cost of broad spectrum penicillin's throughout the world.[24,25] It was found that 94% of students used acetaminophen in appropriate dose, frequency and duration, 85% of students used metronidazole in appropriate dose, frequency and duration and 97% of students used amoxicillin plus clavulanic acid in accurate dose, frequency and duration.

About the side effects of used drugs, 96% of students were aware. 44% of students were aware about drug-drug interactions of medicines which they self-medicated, 98% of students told that they check expiry date of medicines before purchasing it.

CONCLUSION

Frequency of self-medication is high among 3rd year undergraduate medical students at the end of their academic year but majority of students are using medicines in appropriate dose, frequency and duration which may be due to influence of teaching pharmacology to them in this year of MBBS course.

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CONFLICT OF INTEREST

None.

ABBREVIATION USED

MBBS: Bachelor of Medicines and Bachelor of Surgery; **BUMDC:** Bahria University Medical and Dental College; **ERB-BUMDC:** Ethical Review Board-Bahria University Medical and Dental College.

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PICTORIAL ABSTRACT
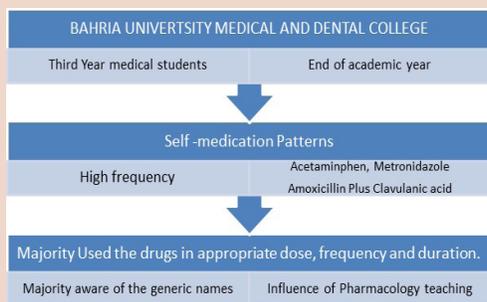
SUMMARY

• This study was conducted on 3rd year medical students at the end of their academic year. The subject Pharmacology which is the detailed study of medicines is taught to them in this year of MBBS course. The aim was to assess the patterns of self-medication in 3rd year medical students after teaching Pharmacology to them. Detailed information regarding various drug groups was given to students throughout the year. At the end of their 3rd academic year, detailed information was gathered from them by using especially designed questionnaire. It was found that frequency of self-medication is high among 3rd year undergraduate medical students at the end of their academic year but majority of students are using medicines in appropriate dose, frequency and duration. Also, majority of students are aware of the generic names of drugs and check expiry date of medicines. This may be due to influence of teaching Pharmacology to them in this year of MBBS course.