Self-Medication Practices among Medical and Non-Medical Students

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ABSTRACT

BACKGROUND

Self-medication practice involves consumption of medicines by one's own initiative or on the consultation of others without the guidance of a doctor. Self-medication and use of over-the-counter drugs, are worldwide health concerns. This study evaluated the prevalence, behavioural patterns, knowledge of self-medication, and the attitudes toward this practice among medical and nonmedical university students.

METHODS

This is a cross-sectional descriptive study conducted among students with medical and non-medical backgrounds. A semi-structured questionnaire was constructed after reviewing literature to capture data regarding socio-demographic background, practice and knowledge of self-medication.

RESULTS

Out of a total of 98 students, 79.6 % of students practiced self-medication (medical - 77.5 % and non-medical - 85.2 %). The main reason for self-medication was convenience (50.8 %) and the choice of self-medication was based on their own experience (30.4 %) and previous doctors' prescription (20.2 %). Community pharmacies (64.0 %) were the most common source of acquiring the drugs in both groups. It was observed that 53.1 % students think self-medication is an acceptable practice. 28.6% were confident of treating infectious diseases through self-medication.

CONCLUSIONS

The present study shows a higher prevalence of self-medication among students. It also indicates a critical need for the implementation of quality education programs in order to prevent the self-medication among students.

KEY WORDS

Self-Medication, Medical, Non-Medical

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BACKGROUND

Self-medication is a global form of self-care and can be defined as “the taking of drugs, herbs or home remedies on one’s own initiative, or on the advice of another person, without consulting a doctor”. Prevalence of such practices among doctors and medicos were reported to be 50 % to 76 %.¹ Responsible self-medication involves the use of non-prescription, safe, quality medicinal products for conditions that are easily self-diagnosed or for recurrent conditions that have been previously diagnosed by a physician.¹

According to the World Self-Medication Industry, one of the reasons for self-medication is price and/or time effective. And in most of the low- and middle-income countries, patient care is quite expensive and, in some cases, poorly available and thus making self-medication an obvious choice.³ In chronic patients it provides psychological help, by reducing anxiety of shortage of medicines and help to sustain themselves in relieving their symptoms. From a social perspective, self-medication makes the patients more independent in making decisions in managing minor health conditions, and also saves scarce medical resources.¹

Over the counter medicines typically include the common medications like pain killers, cough and cold remedies, critically treating cardiovascular disease, vitamins and other essential supplements.² The outcome of this practice can lead to antibiotic resistance, and other serious consequences which can lead to inappropriate dosing, drug duplication, drug interaction, treatment failure, masking of health problems and symptoms, and delay in prescribing the appropriate treatment.³ Insomnia, depression, kidney failure, liver cirrhosis and ultimately death are also some of the outcomes of self-medication.⁴

The WHO emphasizes that self-medication must be appropriately communicated and controlled. Although the practice of self-medication is challenging to eliminate, interventions can be made to discourage the indiscreet practice.⁵

Students of both medical and nonmedical background have different levels of education especially related to health sector. This study was done to evaluate the frequency and patterns of self-medication and the behaviour towards this practice among medical and nonmedical students.

METHODS

This is a cross-sectional study conducted among students with medical and non-medical backgrounds after taking approval from the ethics committee and a valid informed consent. Medical Students from 2nd year and Non-medical students of 3rd year BBA were enrolled into this study. The method adopted was convenient sampling. A structured questionnaire published⁶ by Alshogran et al was modified for convenience to capture data regarding socio-demographic background, practice and knowledge of self-medication. The purpose of the study was explained clearly to all the respondents.

The questionnaire was in three sections: section A contained the socio-demographic characteristics of respondents; section B contained questions on self-medication and general awareness; section C - knowledge on antibiotics.

Statistical Analysis

Data were analysed and presented in frequencies, percentages, means, median and standard deviation. Bivariate analysis was done using chi-square test.

RESULTS

Demographics Characteristics of Study Participants

This study was conducted by sending the questionnaire to 220 students (120-medical and 100- non-medical). Out of them only 98 students, responded (71- medical and 27 Non-medical) with a response rate of 59 and 27 % respectively. The female respondents were slightly more than half (59.2%), and the mean age was 20.33±0.85 years for all participants. (Table-1)

Characteristics	Medical(N=71)	Non-Medical(N=27)	Total
Male	24 (33.8 %)	16 (59.3 %)	40 (40.8 %)
Female	47 (66.2 %)	11 (40.7 %)	58 (59.2 %)
Mean Age ± SD	20.17 ± 0.76	20.74 ± 0.94	20.33 ± 0.85

Table 1. Demographic Characteristics of the Study Participants

Question	Response	Medical	Non-Medical	Total	Chi-Square;	P-Value
18. Do you know what antibiotics are?						
	Yes	68 (95.8 %)	25 (92.6 %)	93 (94.9 %)	0.381	0.537
	No	3 (4.2 %)	2 (7.4 %)	5 (5.1 %)		
19. What are antibiotics used for?						
	Virus infection	6 (8.0 %)	12 (35.3 %)	18 (16.5 %)	16.902	<0.001
	Bacterial infection	68 (90.7 %)	19 (55.9 %)	87 (79.8 %)	12.669	<0.001
	Other	1 (1.3 %)	3 (8.8 %)	4 (3.7 %)	4.704	0.030
20. Which of the following statement(s) about antibiotics is (are) correct? ¶						
	Broad-spectrum antibiotics are better than narrow-spectrum ones	43 (50.6 %)	8 (25.0 %)	51 (43.6 %)	7.500	0.006
	Higher doses result in faster recovery	8 (9.4 %)	7 (21.9 %)	15 (12.8 %)	3.242	0.072
	Lower doses result in less adverse reactions	22 (25.9 %)	7 (21.9 %)	29 (24.8 %)	0.240	0.624
	Switching antibiotics enhances drug effects	6 (7.1 %)	8 (25.0 %)	14 (12.0 %)	7.166	0.007
	Switching antibiotics reduces adverse reactions	6 (7.1 %)	2 (6.3 %)	8 (6.8 %)	0.028	0.866
Table 2. Level of Knowledge about Antibiotics						
Multiple response variable. statistically significant if p<0.05						

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Multiple response variable, statistically significant if p<0.05

Self-Medication Behaviour

Out of a total of 98 students 79.6 % of students practiced self-medication (medical- 77.5 % and non-medical- 85.2 %). The main reason for self-medication was convenience (50.8 %) and the choice of self-medication was based on their own experience (30.4 %) and previous doctors' prescription (20.2 %). Community pharmacies (64.0 %) were the most common source of acquiring the drugs in both groups. (Table-3).

Majority of the participants (49.0 %) always checked the instructions that came with the package for self-treatment (p = 0.324) only 40.8 % were able to understand (p = 0.005). The knowledge about the dosage was known to them by almost all the sources available with least through the media. The dosage was deliberately changed by 57.1 % always or sometimes during treatment (p < 0.001).

Question	Response	Medical	Non-Medical	Total	Chi-Square	P Value
1. Have you ever treated yourself (self-medicated)?	Yes	55 (77.5 %)	23 (85.2 %)	78 (79.6 %)	0.758	0.684
2. Number of times treated yourself in the past 1 year *	-	2 (1.4)	2 (1.3)	2 (1.4)	897.00	0.619
3. What was (were) your reason(s) of self-medications? ¶	Convenience	47 (51.6 %)	19 (48.7 %)	66 (50.8 %)	0.155	0.694
	Others	34 (37.4 %)	4 (10.3 %)	38 (29.2 %)	9.013	0.003
	Cost saving	7 (7.7 %)	14 (35.9 %)	21 (16.2 %)	20.487	<0.001
	Lack of trust in doctor	3 (3.3 %)	2 (5.1 %)	5 (3.8 %)	0.409	0.522
4. Your selection of drug was based on recommendations by,	Own experience	41(34.5 %)	10 (20.4 %)	51 (30.4 %)	3.361	0.067
	Family members	21 (17.6 %)	15 (30.6 %)	36 (21.4 %)	5.690	0.017
	Previous doctor's prescription	27 (22.7 %)	7 (14.3 %)	34 (20.2 %)	1.265	0.261
	Friends	16 (13.4 %)	8 (16.3 %)	24 (14.3 %)	0.532	0.466
	Pharmacists	12 (10.1 %)	7 (14.3 %)	19 (11.3 %)	1.019	0.313
	Net citizens	2 (1.7 %)	2 (4.1 %)	4 (2.4 %)	1.053	0.305
5. Where did you usually obtain a drug from for self-medication?	Community pharmacies	54 (68.4 %)	19 (54.3 %)	73 (64.0 %)	0.333	0.564
	Leftover prescription drugs	16 (20.3 %)	7 (20.0 %)	23 (20.2 %)	0.125	0.723
	Others	8 (10.1 %)	3 (8.6 %)	11 (9.6 %)	0.0	0.983
	Online shopping / E-pharmacies	1 (1.3 %)	6 (17.1 %)	7 (6.1 %)	12.776	<0.001
6. Did you ever check the instructions that come with the package for self-treatment?	Yes, always	32 (45.1 %)	16 (59.3 %)	48 (49.0 %)	2.253	0.324
	Yes, sometimes	30 (42.3 %)	7 (25.9 %)	37 (37.8 %)		
	Never	9 (12.7 %)	4 (14.8 %)	13 (13.3 %)		
7. How much did you understand the instructions?	Fully understood	32 (45.1 %)	8 (29.6 %)	40 (40.8 %)	10.506	0.005
	Partially understood	38 (53.5 %)	14 (51.9 %)	52 (53.1 %)		
	Did not understand at all	1 (1.4 %)	5 (18.5 %)	6 (6.1 %)		
8. How did you know the dosage? ¶	By checking the package insert	14 (11.4 %)	10 (15.6 %)	24 (12.8 %)	3.173	0.075
	By consulting a doctor	29 (23.6 %)	6 (9.4 %)	35 (18.7 %)	2.955	0.086
	By consulting a pharmacist	15 (12.2 %)	16 (25.0 %)	31 (16.6 %)	13.152	0.001
	By consulting family members/friends	20 (16.3 %)	12 (18.8 %)	32 (17.1 %)	2.356	0.125
	From the newspapers, magazines, books, or TV programs	2 (1.6 %)	3 (4.7 %)	5 (2.7 %)	2.779	0.095
	From the Internet	9(7.3%)	9(14.1%)	18(9.6%)	5.567	0.018
	From my previous experience	30(24.4%)	5(7.8%)	35(18.7%)	4.800	0.028
	By guessing the dosage by myself	4(3.3%)	3(4.7%)	7(3.7%)	0.885	0.347
9. Did you ever change the dosage deliberately during the course of self-treatment?	Yes, always	2 (2.8 %)	10 (37.0 %)	12 (12.2 %)	21.339	<0.001
	Yes, sometimes	35 (49.3 %)	9 (33.3 %)	44 (44.9 %)		
	Never	34 (47.9 %)	8 (29.6 %)	42 (42.9 %)		
	Improving conditions	25 (33.3 %)	13 (38.2 %)	38 (34.9 %)	1.379	0.240
	Worsening conditions	12 (16.0 %)	10 (29.4 %)	22 (20.2 %)	4.556	0.033
10. Why did you change the dosage during the course of self-treatment? ¶	To reduce adverse reaction	14 (18.7 %)	4 (11.8 %)	18 (16.5 %)	0.314	0.575
	Drug insufficient for complete treatment	7 (9.3 %)	4 (11.8 %)	11 (10.1 %)	0.482	0.487
	Others	17 (22.7 %)	3 (8.8 %)	20 (18.3 %)	1.983	0.159
11. Did you ever switch drugs during the course of self-treatment?	Yes, always	4 (5.6 %)	10 (37.0 %)	14 (14.3 %)	15.775	<0.001
	Yes, sometimes	33 (46.5 %)	8 (29.6 %)	41 (41.8 %)		
	Never	34 (47.9 %)	9 (33.3 %)	43 (43.9 %)		
12. Why did you switch during the course of self-treatment? ¶	The former did not work	31 (47.7 %)	8 (32.0 %)	39 (43.3 %)	1.608	0.205
	The former ran out	8 (12.3 %)	8 (32.0 %)	16 (17.8 %)	4.828	0.028
	The latter one was cheaper	4 (6.2 %)	2 (8.0 %)	6 (6.7 %)	0.107	0.744
	To reduce adverse reactions	5 (7.7 %)	1 (4.0 %)	6 (6.7 %)	0.379	0.538
	Others	17 (26.2 %)	6 (24.0 %)	23 (25.6 %)	0.032	0.857
13. Are you concerned that counterfeit drugs have been consumed?	Yes, very much	8 (11.3 %)	5 (18.5 %)	13 (13.3 %)	2.999	0.223
	Yes, somewhat	23 (32.4 %)	12 (44.4 %)	35 (35.7 %)		
	No	40 (56.3 %)	10 (37.0 %)	50 (51.0 %)		
14. Have you ever found out that you had taken the same drug with different formulations at the same time?	Yes	23 (32.4 %)	14 (51.9 %)	37 (37.8 %)	3.093	0.079
	No	48 (67.6 %)	13 (48.1 %)	61 (62.2 %)		
15. When did you normally stop taking a drug? ¶	After a few days regardless of the outcome	2 (2.6 %)	8 (22.9 %)	10 (9.0 %)	15.348	<0.001
	After symptoms disappeared	26 (34.2 %)	12 (34.3 %)	38 (34.2 %)	0.504	0.478
	A few days after the recovery	11 (14.5 %)	8 (22.9 %)	19 (17.1 %)	2.501	0.114
	After antibiotics ran out	5 (6.6 %)	1 (2.9 %)	6 (5.4 %)	0.379	0.538
	At completion of course	32 (42.1 %)	5 (14.3 %)	37 (33.3 %)	5.868	0.015
	Others	0 (100 %)	1 (2.9 %)	1 (0.9 %)	2.657	0.103
16. What do you think about self-medication with drugs for self-health care?	Good practice	8 (11.3 %)	11 (40.7 %)	19 (19.4 %)	11.480	0.003
	Acceptable practice	40 (56.3 %)	12 (44.4 %)	52 (53.1 %)		
	Not acceptable	23 (32.4 %)	4 (14.8 %)	27 (27.6 %)		
17. Do you think you can treat common infectious diseases with drugs successfully by yourself?	Yes, I can	17 (23.9 %)	11 (40.7 %)	28 (28.6 %)	3.406	0.182
	Not sure	34 (47.9 %)	12 (44.4 %)	46 (46.9 %)		
	No, I cannot	20 (28.2 %)	4 (14.8 %)	24 (24.5 %)		
Table 3. Self-Medication Behaviour of the Study Participants *Data Presented as Median (Interquartile Range), ¶ Multiple Response Variable. Statistically Significant if p < 0.05						

Table 3. Self-Medication Behaviour of the Study Participants *Data Presented as Median (Interquartile Range), ¶ Multiple Response Variable, Statistically Significant if $p < 0.05$

The reason for change of dosage during self-treatment among both groups of students mainly being improving conditions (34.9 %). During the course of treatment, they have switched the drug in 56.1 % ($p < 0.001$) and the reason being the drug did not work (43.3 %). (Table -3). 49 % participants also believe that they have taken counterfeit drugs. Surprisingly 37.8 % of the participants have taken the same drug with different formulations at the same time ($p = 0.079$).

The main reasons for stopping the drug intake were disappearance of symptoms (34.2 %) and completion of course (33.3 %). Medical students however mainly stopped the drug usage after completion of course (42.1 %).

It was observed that 53.1 % students think self-medication is an acceptable practice. And 28.6 % were confident of treating infectious disease through self-medication. ($p=0.003$). (Table – 3)

Out of 98 participants, 94.9 % students were aware of antibiotics ($p=0.537$) and 79.8 % knew that it was used for bacterial infection. Surprisingly medical students responded that broad-spectrum antibiotics are better than narrow-spectrum ones (50.6 %). (Table-2).

DISCUSSION

This study conducted among medical and nonmedical student's found self-medication to be a very common practice in both groups. The common symptoms students primarily treat themselves are pain, common cold and fever. The response rates from the students were poor due to the Covid pandemic. The prevalence of self-medication in our study was 79.6 %, slightly more in non-medical students. Previous studies conducted elsewhere showed a prevalence of 40.5 %, 44.8 % and 62.9%.⁷⁻⁹ the differences in prevalence between students in our study might be due to the variable sample size or the level of knowledge about self-medication between students. The higher level of self-medication in non-medical students indicates that students are becoming more familiar with medicines and their uses and learn about medications from the internet.

The main reasons for self-medication were observed as "convenience (50.8 %)" and "cost saving (15.2 %)" which was similar in both groups. Other reason for the high prevalence of self-medication being "lack of time to seek physician appointment".¹⁰ In a study conducted in Kerala convenience (41 %) was the reason for antibiotic self-medication.¹¹ Whereas in Egypt the frequently reported causes were "no need to visit the doctor for a minor disease" and the least was "unavailability of health service," while "fear of adverse/side effects" was the most frequent cause for not self-medicating.⁸

In fact, nonmedical students were more dependent on family & friends and their personal experiences as a source of advice of self-medication, compared to medicos which indicate that they are easily influenced by their friends. The "community pharmacies" are the most common sources to obtain drugs in both the groups. In addition "use of leftover drugs" by medical students and "online E-pharmacies" by non-medical students was other sources. Another study showed that medical students acquired the drugs from pharmacies, doctor's advice and considered self-medication was not very safe practice. On the other hand, students without healthcare background acquired the drugs from healers and friends.¹²

It is also very important to know the dose of drug to be consumed. The students learnt about dosage by the participants through pharmacists (25.0 %), previous experiences (24.4 %), consulting a doctor (23.6 %) and family members (18.8 %). In a study conducted in Puducherry (38.1%)¹³ and Jordan (20.7 %)¹⁴ also had pharmacist (38.1 %) as the main source of their drug usage.

The reasonably positive response observed in our study was the drugs were stopped after completion of course (42.1 %), disappearance of symptoms (34.2 %) and recovery (22.9 %). Study conducted in Jordan showed that 65.2% of participants did not complete their prescribed antibiotic treatment course in the past one year.¹⁵ It was observed in our study that 53.1 % students think self-medication is an

acceptable practice ($p=0.003$) as compared to 47.64 % in a study conducted in Nepal.¹⁶

Knowledge about antibiotics is very essential in the present days because of the risks of development of resistance. This study showed 94.9 % students were aware of what an antibiotic ($p = 0.537$) but only 55.95 % of the non-medical students considered to be used in bacterial infection. This is much higher and better than the study conducted elsewhere.¹⁷ But preferring broad spectrum over narrow spectrum antibiotics by medical students was highly questionable.

Although self-medication practice was high in this study, awareness about the use of medications was reasonably good. More than half of Medical students read medication instructions every time they purchased a drug, Nevertheless, the university students should be appraised regarding the good and bad consequences of self-medication. Awareness programs has to be conducted regularly especially at the institutions without health background.

CONCLUSIONS

Self-medication is common among both the both medical and nonmedical students. Although the prevalence is similar among both the groups, some differences exist with respect to medical indications and the type of drugs utilized by them. This practice, if it is not curtailed, can contribute to significant health problems. Creating awareness through interventions by health care regulators is necessary. Small sample size was a limitation of this study.

Way Forward

The first step towards this objective involves the organization of wide-spread educational workshops and forums which impart knowledge to the public about the nuances of medical drug use. In this regard, regulation of pharmacies is also a critical complementary need to bring down the practice of self-medication. Policy makers and regulatory authorities also have an important role to play in devising ways to streamline the drug regulation process, and updating the list of essential medicines, as well as safety concerns associated with over-the-counter drugs. A re-evaluated national drugs policy with an essential drugs list, segregating prescription and non-prescription drugs, is thus, an absolute need of the hour.

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