RESEARCH ARTICLE

STUDY ON IMPACT OF PHARMACOLOGY TEACHING ON KNOWLEDGE, ATTITUDE AND PRACTICE ON SELF-MEDICATION AMONG MEDICAL STUDENTS

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ABSTRACT

Background: The misuse of non-prescription drugs amongst students has become a serious problem. The youth is especially exposed to the media and the increased advertising of pharmaceuticals poses a larger threat to the young population. There is a paucity of studies on self-medication among medical students. Medical students may differ from the general population because they are exposed to knowledge about diseases and drugs.

Aims & Objective: To determine the knowledge, attitude and practice of self-medication among medical students and to compare impact of pharmacology teaching among them.

Material and Methods: This study was questionnaire based exploratory study. A self-developed questionnaire consisting of both open-ended and close-ended questions were prepared and given to fill up to students of first and second year medical students. Data was analyzed and associations were tested using the Chi square test. The results expressed as counts and percentages.

Results: Out of 157 respondents, 78 were of first year and 79 were of second year. Among first year students 40 and 38, among second year students 58 and 21 were male and female respectively. Among first year students 21(26.92%) had knowledge of generic name, 40(51.28%) had knowledge of side effects and 72(92.33%) had knowledge of expiry date. Figure of knowledge among second year students were 70(88.6%), 72(91.13%) and 76(96.2%) respectively. Attitude wise 60(76.92%) of first year and 53(67.08%) of second year students believe in Ayurvedic/homeopathic medicines. 50(64.1%) of first year and 59(74.68%) of second year students had felt the necessity of medical knowledge towards self-medication. Practice wise 66(84.61%) of first year and 76(96.2%) of second year students had taken self-medication in last 6 months.

Conclusion: This study shows that second year students tend to have greater knowledge of appropriate self-medication, have a more confident as well as concerned attitude towards self-medication, and tend to practice self-medication more often and appropriately.

KEY-WORDS: Self-Medication; Medical Students; Pharmacology Teaching

Introduction

Self-medication is defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment.[1] This includes 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.[2]

It is a growing trend of 'self-care' which has its positive and negative aspects. In several studies it has been found that inappropriate self-medication results in wastage of resources, increases resistance of pathogens and generally entails serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence.[3-5] On the other hand, if done appropriately, self-medication can readily relieve acute medical problems, can save the time spent in waiting to see a doctor, may be economical and can even save lives in acute conditions. It is now accepted that self-care in the form of responsible self-medication can be beneficial for patients, healthcare providers, the pharmaceutical industry and governments.[3] The World Health Organization (WHO) has also pointed out that responsible self-medication can help prevent and treat ailments that do not require medical

consultation and provides a cheaper alternative for treating common illnesses.[6,7] However, it is also recognized that self-medication must be accompanied by appropriate health information.

There is much public and professional concern about the irrational use of drugs.[2] The prevalence rates are high all over the world; up to 68% in European countries,[8] while much higher in the developing countries with rates going as high as 92% in the adolescents of Kuwait.[9,10] Our neighbouring countries have a prevalence rates of 76% in Pakistan and 59% in Nepal.[9,11]

The misuse of non-prescription drugs amongst students has become a serious problem. The youth is especially exposed to the media and the increased advertising of pharmaceuticals poses a larger threat to the young population. There is a paucity of studies on self-medication among medical students. Medical students may differ from the general population because they are exposed to knowledge about diseases and drugs. The present study was undertaken to determine the knowledge, attitude and practice of self-medication among first-year and second year medical students of the Pramukh Swami Medical college, Karamsad and to compare impact of pharmacology teaching among them.

Materials and Methods

This study was an anonymous, questionnaire-based exploratory study. Protocol was reviewed and approved by the Institutional Ethics Committee, Pramukh Swami Medical College, Karamsad. It was undertaken in December 2009.

A self-developed, pre-validated questionnaire consisting of both open-ended and close-ended items was used. The study population comprised first-year and second year medical students of Pramukh Swami Medical college, Karamsad. All medical students of first and second year who were willing to participate in the study were enrolled. A briefing was given about the objective of the study, and the procedure of completing the questionnaire was explained. Informed written consent was taken from each student participating in this study. Consenting participants anonymously completed the questionnaire in the classroom. Total 45 minutes were given to students to complete the questionnaire.

For the purpose of the study, certain operational terms were defined. Self-medication was defined as the use of over-the-counter or prescription drugs, whether modern or traditional, for self-treatment, without prior consultation with a doctor. A doctor was defined as any person who is medically qualified to prescribe medications. It included practitioners of modern scientific medicine as well as practitioners of other healthcare systems. Medication was defined as any substance used for treatment or prevention of disease. It included modern scientific medications as well as medications from other healthcare systems.

The survey was descriptive and data were summarized as frequency and percentages. The χ^2 test was used to test the difference between proportions. A p value of less than 0.05 was considered significant. Some of the questions had multiple options to choose from; therefore the sum total of percentages is not always 100%.

Results

On the day when questionnaire was administered, 79 out of 100 students were present in each 1st and 2nd year of MBBS. Out of (n=158 students) all students who were present, one student from 1st year didn't respond to the questionnaire. In first year (n=78), 40 were male and 38 were female compared to 58 and 21 respectively in second year.

Knowledge

21 (26.92%) students of 1st year and 70 (88.61%) students of 2nd year had knowledge of generic name. p value is <0.0001, which is statistically significant. 39 (50%) students of 1st year and 61 (77.21%) students of 2nd year had knowledge of correct dose, duration & frequency. p value is 0.0149, which is statistically significant. 40 (51.28%) students of 1st year and 72 (91.14%) students of 2nd year had knowledge of side effects of medicines which they had taken. p value is <0.0001, it is statistically significant. Seventy two (92.31%) students of 1st year and 76 (96.20%) of

2nd year students were aware of expiry date of medicine.

Attitude

One (1.28%) student of 1st year and 4 (5.06%) students of 2nd year had attitude that medicine which had crossed expiry date can be taken. Thirty seven (47.44%) respondents of 1st year and 41 (51.90%) respondents of 2nd year believed that self-medication is harmful if they are taken without proper knowledge of drugs and disease. 60 (76.92%) students of 1st year and 53 (67.09%) students of 2nd year believe in homeopathic / ayurvedic medicine with p value is 0.0036 and is statistically significant. When asked about the influence of medical knowledge on their attitude towards self-medication 50 (64.10%) students of 1st tear and 59 (74.68%) students of 2nd year felt that medical education is necessary for better administration of self-medication.

Practice

Out of 78 responder of 1st year students, 34 (43.59%) of 40 male and 32 (41.02%) of 38 female and out of 79 responder of 2nd year, 56 (70.88%) of 58 (73.42%) male and 20 (25.32%) of 21 (26.58%) female had taken self-medication in last 6 months. Total 66 (84.61%) out of 78 students of 1st year practice self-medication those were not exposed to pharmacology teaching and 76 (96.20%) out of 79 students of 2nd year practice self-medication those were exposed to pharmacology teaching. The difference is statistically significant with p value of 0.0280.

The important reasons, for which self-medication had been taken without consulting a doctor, were described in table 1. The conditions for which self-medication had been taken were elaborated in table 2.

For frequency of self-medication, majority of 1st year students (n=41, 52.56%) and 2nd year students (n=56, 70.89%) have taken them as and when required basis. 15 (19.23%) and 10 (12.66%) students had taken medicines once daily of 1st year & 2nd year respectively. 4 (5.13) and 8 (10.13%) students had taken self-medication 2-3 times/month; 2 (2.56%) and 1 (1.26%) students had taken 2-3 times/week of 1st and 2nd year respectively.

Table-1: Reasons for Practice of Self-Medication

Reasons For Not Consulting a Doctor	1st Year (%)	2nd Year (%)	p value
Minor ailments	18 (23.17%)	35 (44.3%)	**0.028**
Previous expertise	**29 (37.18%)**	**40 (50.63%)**	0.228
Quick relief	26 (33.33%)	28 (35.44%)	0.891
To save time	6 (7.69%)	17 (21.51%)	**0.037**
Ease & convenience	5 (6.33%)	26 (32.91%)	**0.003**
Learning opportunity	4 (5.12%)	4 (5.06%)	0.724
To save money	2 (2.56%)	4 (5.06%)	0.683
Crowd avoidance	1 (1.28%)	0	-
Lack of accessibility	0	1 (1.27%)	-
Others-Free physicians sample	0	1 (1.27%)	-
Not answered	17 (21.79%)	4(5.06%)	**0.009**

Table-2: Conditions for which Self-Medication Practiced

Conditions	1st Year (%)	2nd Year (%)	p value
Cough, cold, sore throat	**41 (52.56)**	48 (60.76)	0.524
Fever	38 (48.72)	42 (53.16)	0.737
Headache	32 (41.03)	**51 (64.56)**	**0.048**
Menstrual symptoms	10 (12.82)	5 (6.33)	0.302
Skin symptoms	9 (11.53)	12 (15.19)	0.662
Diarrhoea	9 (11.53)	11 (13.92)	0.823
Stomach-ache	8 (10.25)	2 (2.53)	0.114
Vomiting	6 (7.69)	4 (5.06)	0.751
Eye symptoms	4 (5.13)	2 (2.53)	0.683
Allergy	4 (5.13)	10 (12.66)	0.181
Body ache	2 (2.56)	1 (1.26)	1.000
Ear symptoms	0	2 (2.53)	-
Inability to sleep	0	1 (1.26)	-
Not answered	8 (10.25)	5 (6.33)	0.579

Table-3: Sources of Procurement of Medicines for Self-Medication by Medical Students

Source of Medicines for Self-Medication	1st Year (%)	2nd Year (%)	p value
Purchase from pharmacy store	**44 (56.41)**	**60 (75.95)**	0.141
Family members/friends	13 (16.67)	15 (18.99)	0.850
Free physicians sample	2 (2.56)	3 (3.8)	1.000
Remaining medicines of prior illness	1 (1.28)	6 (7.59)	0.131
Not answered	23 (29.49)	3 (3.8)	**0.002**

Most of students 1st year (n=60, 76.92%) and also of 2nd year (n=76, 96.20%) took self-medication by oral route. 2 (2.53%) students of 2nd year took self-medication by inhalational route. 3 (3.85%) students of 1st year took self-medication as injection. 6 (7.69%) and 5 (6.32%) took self-medication by topical route. 15 (19.23%) and 2 (2.53%) students not answered question of 1st year and 2nd year respectively.

Total 7 and 17 adverse events experienced by 1st and 2nd year students respectively. Among 1st year students 2 events were gastrointestinal, 3 events were rashes/skin reaction, and one event was other than these. Among 2nd year students 11 events were gastrointestinal, 11 events were sedation, 2 events were rashes/ skin reaction, and two events were other than these.

Among the sources of procuring the medicines for self-medication, most common in 1st year students was purchase from pharmacy store (n=44) which was also most common for 2nd year students (n=60). Second most common source was family members/friends, in 1st year students it was 13 and 15 in 2nd year students. Others minor sources are summarized in table 3.

In our study, we found that most common source of information for self-medication in 1st year students was family & friends (n=26) which was also common in 2nd year students (n=33). Others sources are detailed in following table 4.

Table-4: Sources of Information for Self-Medication

Source of Information	1st Year (%)	2nd Year (%)	p value
Family & friends	**26 (33.33)**	33 (41.77)	0.435
Private medical practitioner	19 (24.36)	16 (20.25)	0.735
Pharmacist	11 (14.10)	6 (7.59)	0.332
Previous illness expertise	6 (7.69)	13 (16.46)	0.168
Other medical staff	5 (6.41)	0 (0)	-
Learning Pharmacology	3 (3.85)	**56 (70.89)**	**<0.0001**
Advertisements	1 (1.28)	5 (6.33)	0.221
Not answered	16 (20.51)	4 (5.06)	**0.014**

Practice of self-medication in our study like reading the label of medicine strips were followed by 71 (91.02%) and 78 (98.73%) of 1st year and 2nd year respectively. p value was 0.94, which is statistically not significant. Following the instruction of the label were practiced by 70 (89.74%) and 74 (93.67%) of 1st and 2nd year respectively with a p value of 0.52; which is statistically not significant. Complimentary drug system (ayurvedic/homeopathic medicines) was practiced by 37 (47.44%) and 27 (34.18%) students respectively with a p value of 0.03; which is statistically significant.

Among the source of information for complimentary medicines (ayurvedic/ homeopathic), the most common for 1st year was family members (n=35, 44.87%) and 36 (45.57%) for 2nd year students. Other sources: consult a doctor were found 28 (35.90%-1st year; 35.44%-2nd year) students of each year, relevant books/magazines were found 12 (15.38%) and 13 (16.45%) students of 1st and 2nd year respectively. 14 (17.95%) students of 1st year and 22 (27.84%) students of 2nd year not answered the question.

The groups of medicines which were taken as a self-medication were described in figure 1. Ear/eye drops were more frequently taken as self-medication by 1st year students (15, 19.23%) than 2nd year students (4, 5.06%) with p value of 0.022. Antibiotics usage were seen more frequently in 2nd year than 1st year students (p=0.012). Rests all are not statistically significant.

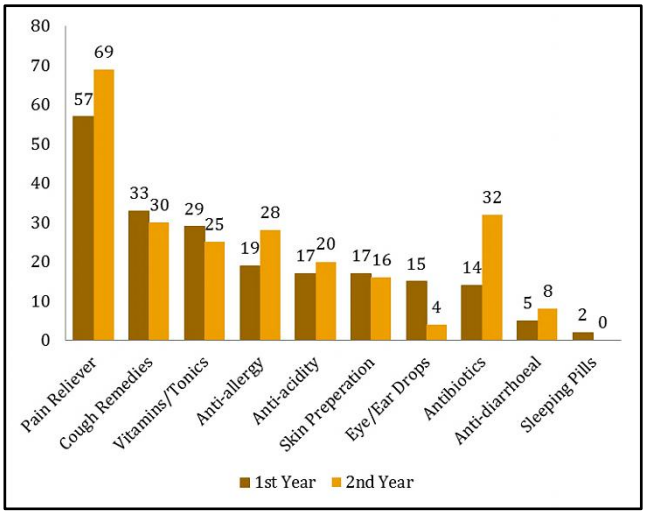

Figure-1: Groups of Medicines Taken as Self-Medication by Medical Students

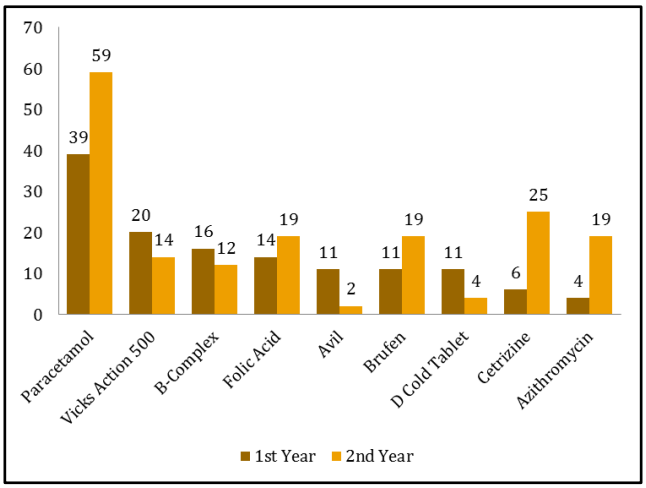

Figure-2: Most Common Medicines Taken as Self-Medication by Medical Students

Medicines had been taken as self-medication was described figure 2. Cetrizine, avil and azithromycin were more frequently taken by 2nd year students with statistically significant difference, p value for these were 0.0001, 0.026 and 0.003 respectively. Rest all the medicines taken by both the groups medical students was not have statistically significant difference.

Discussion

The study population in this survey consisted of 1st and 2nd year medical students.

Knowledge

2nd year students had significantly higher knowledge about generic name, correct dose, duration and frequency of administration, adverse effect of self-medicated drugs as compared to 1st year students. This is because they had been exposed to pharmacology teaching module. Both year students had fairly good knowledge of adverse events and expiry date.

Attitude

Most of responders both of 1st and 2nd year believed that self-medication is harmful if taken without proper knowledge of drugs and disease. 1st year students had significantly positive attitude towards homeopathic/Ayurvedic medicines. Most students of both the year believed that medical education is necessary for better administration of self-medication.

This suggests that public health education and increased awareness are important for making self-medication safe and useful. This has also been noted by the WHO report 1995 and by Hughes (2001).[3,9] This confirms that increasing medical knowledge affects prescribing behavior of medical students with James, 2006.[12]

Practice

Ninety one per cent students practiced self-medication. Compared to Shukla Allahabad study 82% medical students practiced self-medication.[13] Our results are comparable with this study. Studies on self-medication have reported various prevalence figures, ranging from 26.2% (Martins, 2002) to as high as 92% (Abahussain, 2005).[10,14] Prevalence of self-medication in non-medical students also shows a wide variation, ranging from 56.90% (Sawalha, 2008) to 98% (Figueiras, 2000).[15,16] The prevalence of self-medication is difficult to compare between different studies as there are different socio-economic profiles and demographic characteristics and also change in methodologies of self-medication study.

We found that higher number of senior students (84.61%) was practiced self-medication than junior students (96.20%). The study from India by Sontakke, (2011) stated that 77.98% respondents from first year and 74.71% from second year practiced self-medication with no statistically significant difference between two groups.[17] Another study has reported significantly greater prevalence of self-medication in senior medical students (73.3%) compared to their junior counterparts (52.6%).[18] We found that the similar proportion of males and females practiced self-medication, there were gender-based differences in the practice of self-medication. Second year students practiced self-medication more frequently than first year students mainly because they have knowledge about drugs and also of diseases as they were exposed to medical teaching.

Most common reason for not consulting a doctor was previous expertise in both year students. This has implications, because many diseases have similar symptoms, and a person using previous experience may be exposed to the dangers of misdiagnosis and consequently wrong treatment.
The most common condition for which self-medication practiced were cough, cold sore throat followed by headache (1st year) and headache followed by cough, cold, sore throat (2nd year). Compared to James H (2008) study conducted in Arabian Gulf University at Bahrain commonest indications for self-medication were cough, cold and sore throat (63.2% in Year 2) and headache (78.3% in Year 4), which are also comparable.[18] Similar study conducted by Sontakke, 2011 stated that fever and pain were most common condition for which self-medication was practised by medical students.[17]

Analgesics and antipyretics were most commonly practised as self-medication (82.38% in junior and 100% in senior students).[17] Similar finding had been also observed by James, 2008.[18] Our study also found similar results. Among the analgesics, paracetamol was the most commonly used drug. This correlates well with headache being the most common indication for self-medication. Paracetamol is widely used for headache, fever and body ache and pain.

Most of students of both year practiced reading label, followed instruction written on label. The practice of Ayurvedic/Homeopathic medicine was seen more in 2nd year students. Most students procured medicines from pharmacy store as these medicines are easily available in developing country without prescription as 'over the counter' (OTC) drugs. Learning pharmacology (70.89%) was most common source of information in 2nd year students as compared to 1st year students where most common source of information was family and friends (33.33%). Similar results were observed in Sontakke, 2011 study in Nagpur medical college students (textbooks and Pharmacopoeias as sources of drug information - 61.79% versus 5.03% in senior and junior students respectively, p< 0.001).[17]

Adverse effects were reported higher in 2nd year students as they having knowledge about adverse effects. This helps in safer administration of self-medication.

Conclusion

This cross-sectional study shows that 2nd year medical students tend to have greater knowledge of appropriate self-medication, have a more confident as well as concerned attitude towards self-medication, and tend to practice self-medication more often and appropriately.

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