Original Article

A CROSS SECTIONAL STUDY TO EVALUATE SELF-MEDICATION PRACTICE AMONG MEDICAL STUDENTS

Shamaila Khalid[1], Ateeba Ayesha Khan[2], Musarrat Sultana[3]

[1] Associate Professor, Department of Pharmacology, Dow Medical College, Dow University of Health Sciences, Karachi.
[2] Lecturer, Department of Pharmacology, Dow Medical College, Dow University of Health Sciences, Karachi.
[3] Associate Professor, Dow International Medical College, Dow University of Health Sciences, Karachi.
Correspondence: Shamaila Khalid. Email: shamaila.khalid1@gmail.com

Abstract

Background: Self-medication is unsupervised use of medication commonly practiced for minor or acute presenting symptoms. Inappropriate self-medication can lead to drug resistance, life-threatening adverse effects, drug dependence or aggravation of disease. This practice is becoming common among medical students due to their pharmacological knowledge and clinical posting despite the fact that they are aware of its harmful effects.
Methods: A cross-sectional study was conducted on a sample of medical students of all academic years from a public sector medical university. Data was collected using semi-structured questionnaire after verbal consent. Data was analyzed using SPSS-16.
Results: Sample consisted of 324 students divided in two groups. Group 1 consisted of students of pre-clinical academic years whereas Group 2 consisted of students of clinical years. 79.48% of Group 1 and 81.54% of Group 2 practiced self-medication. Antipyretics and analgesics were the most common self-medicated medicines in Group 1. Group 2 showed greater self-use of antibiotics and anxiolytics compared to pre-clinical year students. The preference of drug selection was different for both groups. Whereas pre-clinical students preferred anti-diarrheal, clinical academic students preferred antibiotics for diarrhea treatment.
Conclusions: Self-medication among medical students in highly prevalent despite awareness of adverse effects.
Keywords: over the counter drugs, self-medication, antibiotics

Introduction

Self-medication is described as unsupervised or unadvised use of medicines, not prescribed by any physician. This use could be either for the treatment of any self -diagnosed or a previously diagnosed condition by a qualified medical practioner for the individual himself or for others (1).World health organization (WHO) suggested self-medication as an efficient way of self-care and consider it as a cheap alternate for common minor health problems (2).. This developing trend of self-medication has both beneficial and undesirable effects (3). Several studies have reported that inappropriate self-medication might be associated with increased chances of drug resistance and could lead to serious health hazards due to adverse drug reactions, physical or psychological drug dependence or drug -drug interaction (4). Delay in seeking an expert advice or health care and aggravation of existing illness due to masking the symptoms are some important issues associated even with the use of correct medicines as well (5). On the other hand, an appropriate and careful use of medicines is quite helpful in relieving acute symptoms, saves time to seek medical help both for minor problems and certain emergency situations and hence sometimes becomes lifesaving effort (6)

Self-medication is now considered as a self-care plan in which people are involved in activities to improve their health associated conditions (7). This includes prevention and limitation of diseases along with restoration of overall health after and during any injury (8). For all such reasons, self-medication has gained acceptance as patients, health care providers, the pharmaceutical industry and government authorities all seem to have benefits at their levels. Yet, it has been recognized that certain risk factors like young age, high level of education, females or people living alone are more prone for self-medication (9). Self-medication is a global problem (10) with varied range from as low as 15.2% in Spain and 19.8 % in Romania (11) to much increased levels in under developed and developing countries like 67 % in Nigeria (12), 78% in Saudi Arabia (13) and 79% in India (14).

In developing countries where drugs are available without prescription, prevalence of self-medication is high (15). Not only the general population but studies involving students have also shown high incidence of self-medication (16). In medical students despite the fact that they are aware of its harmful effects, self-medication is common (17). Medical Students when start attending their clinical postings start thinking that they can write prescriptions and have enough knowledge to prescribe drugs to themselves and others. Keeping in mind this scenario, present study was designed to find out any difference in self-medication practice between the students who have not started their clinical postings and students who have started their clinical postings (18).

Methodology

Study type: This cross-sectional study was carried out from February 2017 to August 2017.

Study population: Study population comprises of medical student in a public sector medical university from all the academic years.

Sample size and sampling: With an estimated study population of 1800 students in public sector university, at 95% confidence interval the sample size calculated was equivalent to 321 of target population of medical students. Convenient sampling method was used for data collection.

Study tools: For study, a semi-structured questionnaire was developed in accordance with the previously conducted relevant studies (5, 22). Questionnaire included the demographic data of the students, the reasons and level of satisfaction for self-medication, the used medicines (brand or generic names), how the medicines were used and if prescribed to someone else what were the results. Drugs side effects were also enquired (results not included). Care was taken to explain any term used in questionnaire.

Data analysis Data was analyzed by using Statistical Package for Social Sciences program SPSS-16.

Results

A total of 350 questionnaires were distributed and collected back during the study period. After completion of survey, questionnaires were checked and 26 were rejected and not included in the results due to incomplete responses. We divided the data of students into two groups. Group 1 consisted of students of preclinical academic years (1st and 2nd). Group 2 students were of clinical years (3rd, 4th and 5th). Demographic data of two groups when compared showed that all demographic data were same except for age which is quite obvious.

Group 1 included 156 students (n= 156) whereas Group 2 has 168 students (n=168). From group 1, 124 students (79.48%) and 137 students (81.54%) from group 2 practiced self-medication. The difference between the 2 groups was not statistically significant.

Table 1 shows the most common clinical indications for the used drugs. The most common clinical indication for self-medication was headache followed by fever for Group 1. Group 2 students mentioned fever as most frequent reason for self-medication which was followed by headache/body ache. Group 2 students also reported stress and sleep disorder for the reason of self-medication.

Table 1: Common Clinical Indications for the Use of Drugs.

Indications	Group 1 (n= 156) %	Group 2 (n=168) %
Allergies	26	53
Acne problems	20	28
Cough	53	72
Common Cold	49	73
Fever	72	86
Headache / Body ache	76	79
Diarrhea	34	28
Sleep disorders	18	48
Stress	9	48

Table 2 shows the generic names of the drugs mostly used by the two groups when combined together. Combined preparations of amoxicillin and clavulanic acid were the most frequent antibiotic choice of the students.

Table 2: Most common drugs used by the two groups

| rug Groups	Individual Drugs
Analgesics	Paracetamol mefenemic acid, Ibuprofen, aspirin
Antacids and acid regulators	OTC products, Sodium bicarbonate, ranitidine
Antiallergics	Ibuprofen ,Pseudoephedrine (combined preparations), H1 receptor antagonist
Antibiotics	Amoxicillin, clavulanic acid (combined preparations),ciprofloxacin, tetracycline
Antidiarrheal	Loperamide, entamizole, metronidazole
Antipyretics	Paracetamol, mefenemic acid
Anxiolytics	Benzodiazepines
Cough syrups	OTC products, various cough preparations
Hypnotics	Benzodiazepines

Table 3 showed the different drugs used by the 2 groups for the different clinical indications. It was noted that the acetaminophen was the most frequently used antipyretic and analgesic for both the groups. The only difference was that in Group 1, students mentioned it by the name of paracetamol or by the used brand name whereas the group 2 students mostly used the chemical name of the same. Also it is shown that the choice of drugs also differ for the two groups. Group 2 students used antibiotics for cough, diarrhea and fever. Most of them found cough preparations and anti-diarrheals not much effective.

Table 3: Most preferred drugs of the 2 groups for different clinical indications,

Indications	Group 1 (n= 156)	Group 2 (n=168)
Allergies	Ibuprofen ,Pseudoephedrine (combined preparations)	Ibuprofen ,Pseudoephedrine (combined preparations), H1 receptor antagonist
Acne problems	Topical Steroids /antibiotics preparations	Topical Steroids /antibiotics preparations
Antacids and acid regulators	OTC products, Sodium bicarbonate, ranitidine	OTC products, Sodium bicarbonate, ranitidine
Cough	Various cough preparations, OTC products	Various cough preparations, OTC products, antibiotics.
Common Cold	OTC products, saline drops	Anti-allergies, OTC products
Fever	Paracetamol, mefenemic acid	Paracetamol, mefenemic acid, antibiotics
Headache / Body ache	Paracetamol, mefenemic acid, Ibuprofen, aspirin	Paracetamol, mefenemic acid, Ibuprofen, aspirin
Diarrhea	ORS, Loperamide, metronidazole	ORS, loperamide, entamizole, metronidazole, antibiotics
Sleep disorders	Benzodiazepines	Benzodiazepines
Stress	Benzodiazepines	Benzodiazepines

Figure 1 showed a comparison of different drug groups used by the 2 groups. Group 2 reported a much greater use of antibiotics (67%) and anxiolytics (68%) as compared to Group 1 (21 % and 9% respectively),

(P value<0.05) .Whereas students of group 1 showed a greater use of anti-diarrheal agents (15%) as compared to group 2(3%). Interestingly in the data it was noted that overall students preferred the self-medication but they were reluctant to prescribe it to others due to the fear of side effects. Also the side effects were the main reason to avoid self-medication for Group 2 whereas Group 1 students reported that little knowledge of pharmacology and fear for side effects were the main limitations for the self-medication (data not shown).

Figure1;comparison of % for different drug groups used by the 2 groups
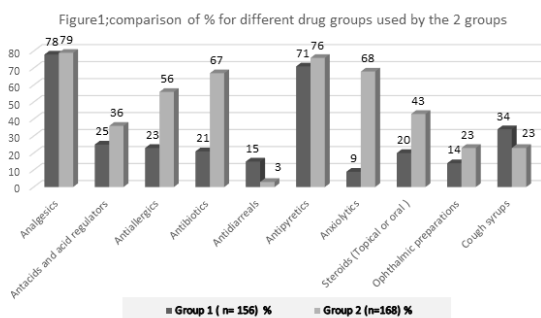
We noticed a greater use of sedative/hypnotics and anxiolytic agents by the group 2 students. Most of the students admit to increased use of such drugs prior to the exams which could be explained again to the knowledge and much increased study demands as compared to the junior students. Also, these drugs are generally considered very dangerous as mentioned by most of the group 1 students and this also limits their use in group 1.

We also noticed that senior students have a much accepted attitude towards the uses of medicines. However, the junior students were reluctant to the unsupervised use of medications particularly for the sedatives and hypnotic drugs.

Discussion

It is believed generally that use of medicines without proper consultation from a doctor or self-medication is really dangerous and should be avoided. On the other hand WHO supports self-medication in countries with a proper health care management in order to cut down the cost for health care systems and individuals (19).

In present study we found a high prevalence for self-medication that is 79% for group 1 and 81% for group 2. This is in accordance to various national and international studies, although some studies have shown comparatively low prevalence (3, 20, 21).

In our study we found antipyretics and analgesics as the most frequently used medicines by both the groups. This is in accordance with various national and international studies (22, 23). Studies have shown paracetamol is the preferred analgesic and antipyretic. This is in accordance of our study as we found paracetamol followed by aspirin were the drugs of choice for headache, body ache and fever. This is in contrast to Aysha et al 2015, who reported the antibiotic as the most frequently used drug group followed by cough suppressants for their study (3). Such inappropriate antibiotic practices including self-medication along with refilling the previously written prescription for any other infection or for the same problem now for any other member of the family, use of left over antibiotics or inadequate dosing or duration of treatment can result in antibiotic resistance (24). On the other hand studies have reported a low prevalence for antibiotics. This may be of particular importance because these studies are mostly from those countries where antibiotics are not available without doctor's prescription (25).

We noticed that both the groups have almost comparable prevalence for self-medication, yet the choices of drugs for same clinical indications were much different. This is true for the common cold, cough and diarrheal conditions. Group 1 students mostly used common cough and cold remedies available as syrups whereas group 2 students preferred antibiotics and anti-allergies respectively for the same. Tahir et al, showed similar result with 98% prevalence of over-the-counter analgesic use among university students (26). For diarrhea, anti-diarrheal drugs were the choice of group 1 whereas group 2 students used antimicrobials in our research. This preference may be due to the fact that senior students have better knowledge for pathology as well pharmacology. They know the etiology behind the symptoms and

hence tried to deal accordingly. A survey conducted by Sai Divya et al in medical colleges in Mumbai, showed 57% of self-medicated drugs were antibiotics among medical students of which 56% reported antibiotic use because of their medical knowledge (27).This correlates with our result which showed greater use of antibiotics by the group 2 students with prevalence of 67% as compared to 21% for group 1 students.

Conclusion

Our data suggest that both the groups have comparable outcome having high prevalence for self-medication. The preference of drug selection was different for both the groups. We therefore conclude that senior students who attend the wards and have more knowledge for the subjects of pharmacology and pathology were much better in choosing the drugs for particular disease or problem.

Limitations

For our study design we use small number of students belonging to same institute, in contrast to more students studying at different institutes in order to generalize the results. Also our study involved convenient sampling method which is considered inferior to probability sampling. We used a self-reported questionnaire which could be a reason for recall bias.

References

1. Jindal M, Sharma RK, Lata S, Sharma B. Self-medication practice of antihistaminics H1 blocker among undergraduate medical students in a tertiary care hospital. Natl J Physiol Pharm Pharmacol 2019;9(3):227-230.

2. World Health Organization. The role of the pharmacist in self-care and self-medication: Report of the 4th WHO Consultative Group on the Role of the Pharmacist. The Hague, Netherlands; 26-28 August 1998.

3. Siddique A, Mahmood H, Mukhtar S, Saleem S, Nasreen M. Self-Medication Practice Among First Year Medical Students In University College Of Medicine And Dentistry, University Of Lahore. Pakistan Journal of Physiology. 2015 Jun 30; 11(2):20-1.

4. Ruiz ME. Risks of self-medication practices. Current drug safety. 2010 Oct 1; 5(4):315-23.

5. Da Silva MG, Soares MC, Muccillo-Baisch AL. Self-medication in university students from the city of Rio Grande, Brazil. BMC public health. 2012 Dec; 12(1):339.

6. Syed N, Naseer M, Memon MQ, Rani K. Prevalence of Self-Medication and its Practice among the Medical and Non-Medical Students. JLUMHS. 2014 May; 13(02):79.

7. World Health Organization. Report of the WHO Expert Committee on National Drug Policies 1995. Available from: WHO/Int/medicinedocs/documents/s16221e/s16221e. pdf

8. Helal RM, Abou-ElWafa HS. Self-medication in university students from the city of Mansoura, Egypt. Journal of environmental and public health. 2017; 2017.

9. Akram A, Maqsood U, Latif MZ, Arshad HS, Riaz H, Qureshi MA. Self-Medication Phenomenon; A Population Based Study from Lahore. Cough. 2019;402:53-9.

10. Afridi MI, Rasool G, Tabassum R, Shaheen M. Prevalence and Pattern of Self-Medication in Karachi: A Community Survey. Pakistan Journal of Medical Sciences. 2015; 31(5):1241.

11. Grigoryan L, Haaijer-Ruskamp FM, Burgerhof JG, Mechtler R, Deschepper R, Tambic-Andrasevic A, Andrajati R, Monnet DL, Cunney R, Di Matteo A, Edelstein H. Self-medication with antimicrobial drugs in Europe. Emerging infectious diseases. 2006 Mar; 12(3):452.

12. Oshikoya KA, Senbanjo IO, Njokanma OF. Self-medication for infants with colic in Lagos, Nigeria. BMC pediatrics. 2009 Dec; 9(1):9.

13. Al Rasheed A, Yagoub U, Alkhashan H, Abdelhay O, Alawwad A, Al Aboud A, Al Battal S. Prevalence and predictors of self-medication with antibiotics in Al Wazarat Health Center, Riyadh City, KSA. BioMed research international. 2016; 2016.

14. Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, Papanna MK, Holla R, Uppal S. Perceptions and practices of self-medication among medical students in coastal South India. PloS one. 2013 Aug 28; 8(8):e72247.

15. Haseeb A, Bilal M. Prevalence of using non prescribed medications in economically deprived rural population of Pakistan. Archives of Public Health. 2016 Dec;74(1):1.

16. Xu R, Mu T, Wang G, Shi J, Wang X, Ni X. Self-Medication with Antibiotics among University Students in LMIC: A systematic review and meta-analysis. J Infect Dev Ctries. 2019;13:678-689

17. Baral K, Dahal M, Shrestha S, Adhikari A. Self-medication: Prevalence among Undergraduates in Kathmandu Valley. Journal of Advances in Medical and Pharmaceutical Sciences. 2019 Jul 18:1-3.

18. Kanwal ZG, Fatima N, Azhar S, Chohan O, Jabeen M, Yameen MA. Implications of self-medication among medical students-A dilemma. JPMA. The Journal of the Pakistan Medical Association. 2018 Sep;68(9):1363-7.

19. World Health Organization. Guidelines for the regulatory assessment of Medicinal Products for use in self-medication. Geneva: World Health Organization; 2000.

20. Syed N, Naseer M, Memon MQ, Rani K. Prevalence of Self-Medication and its Practice among the Medical and Non-Medical Students. JLUMHS. 2014 May;13(02):79.

21. Alshogran OY, Alzoubi KH, Khabour OF, Farah S. Patterns of self-medication among medical and nonmedical University students in Jordan. Risk management and healthcare policy. 2018;11:169.

22. Zafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M, Yousaf W, Shahid S, Saleem S. Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. Journal of the Pakistan Medical Association. 2008;58(4):214.

23. Naik RK, Naik GS, Jharapala P. Prevalence, Behaviour, Awareness And Attitude Regarding Self Medication: A Comparative Study Between Medical And Dental Students In South India. Global J. Res Analysis. 2019:8(4):36

24. Atif M, Asghar S, Mushtaq I, Malik I, Amin A, Babar ZU, Scahill S. What drives inappropriate use of antibiotics? A mixed methods study from Bahawalpur, Pakistan. Infection and drug resistance. 2019;12:687

25. Mainous AG, Diaz VA, Carnemolla M. Factors affecting Latino adults' use of antibiotics for self-medication. J Am Board Fam Med. 2008 Mar 1;21(2):128-34.

26. Tahir MU, Shoaib N, Usman A, Sadiq S. Prevalence of Analgesic use amongst university students. PJMHS 2011;5(4):775-777

27. Divya S, Katlam S, Mohanty IR, Jindal JD. Comparative assessment of self-medication practices among under-graduate medical and engineering students. J Comm H Mang. 2014;1(1):23-29