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Student's Corner
Original Article

Self-medication amongst University Students of Karachi: Prevalence, Knowledge and Attitudes

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Abstract

Objective: To determine the prevalence, attitude and knowledge of self-medication amongst university students of Karachi, Pakistan.

Methods: This cross-sectional, study was conducted from Jan-Feb 2007. A convenience sample was taken from 2 medical and 2 non-medical universities of the city of Karachi, Pakistan. Data was analyzed using SPSS v 14 and associations were tested using the Chi square test.

Results: Of the 572 participants (mean age=21 ± 1.8 years, Male: Female ratio=1:1.5), 295 were medical and 277 were non-medical students. The prevalence of self-medication was 76%. Forty three percent students stated that they alter the regimen of prescribed medicines while 61.9% stated that they stop taking a prescribed medicine without consulting a doctor. The most common reason for self-medication was previous experience (50.1%) and the most common symptoms were headache (72.4%), flu (65.5%), and fever (55.2%). Commonly used medicines were analgesics (88.3%), antipyretics (65.1%) and antibiotics (35.2%). Eighty seven percent of students thought self-medication could be harmful and 82.5% students thought that it was necessary to consult a doctor before taking a new medicine. There was no significant difference between the self medication practices of medical and non medical students (p=0.8)

Conclusion: Prevalence of self-medication is high in the educated youth, despite majority being aware of its harmful effects. There is a need to educate the youth to ensure safe practices. Strict policies need to be implemented on the advertising and selling of medications to prevent this problem from escalating (JPMA 58:214;2008).

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]

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[3], while much higher in the developing countries[4] with rates going as high as 92% in the adolescents of Kuwait.[5] Our neighbouring countries have a prevalence rates of 31% in India[6] and 59% in Nepal.[4] Very few studies regarding self medication have been conducted in Pakistan which have also confirmed high rates of prevalence of around 51%.[7] It is also alarming that the prevalence rates are on the rise despite efforts to limit this problem.[8] Various previous studies have shown that self medication practices are more common in women and in those; who live alone, have a lower socioeconomic status, have more chronic ailments, have psychiatric conditions, are of younger age and in students.[4,9,10]

The misuse of nonprescription 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. This raises concerns of incorrect self-diagnosis, drug interaction, and use other than for the original indication A survey on widely advertised medications indicated that the majority of college students used at least one of the advertised products, without discussing this with their physicians.[11] To our knowledge, studies have been done in Pakistan to assess self medication in the youth.

In Pakistan, almost every pharmacy sells drugs without a prescription; a phenomenon seen in many developing countries.[12] Consequently, antibiotics and potentially habit forming medicines are easily available to the common man. This together with poor awareness leaves the layman uninformed about the potentially lethal effects of some of these drugs. Also, the lack of a good primary health care system coupled with cost issues causes the general

public to approach various other doors instead of a doctor's to seek help for a problem. Despite this, there is paucity of literature regarding self medication in Pakistan and no measures have been taken to address this problem. This study presents the results of the Pakistani youth's knowledge, attitude, and practice towards self medication.

Methodology

A cross sectional survey was conducted in four Universities of Karachi (two medical universities and two non-medical ones) during February 2007. Karachi is the largest city of Pakistan with a diverse population of over 13 million. A convenience sample of 600 participants was taken from the students enrolled at these colleges by approaching students sitting in the common rooms and main courtyards. Students who were not enrolled in the University and not Pakistani citizens were excluded. A self-administered questionnaire was distributed amongst the participants after explaining the purpose of the study and taking informed consent.

The study questionnaire was adapted from various similar studies conducted previously[4,8,13,14] and pre-tested on a sample of 30 participants Any ambiguities in the questions or responses were removed before its implementation. The questionnaire was divided into three parts, one assessed the demographic details of the participants and one assessed the prevalence and practice of self medication, while the last section dealt with the attitude of students towards self medication.

Data was double entered on Epi-data software version 3.1. Data management and analysis was done on SPSS version 14. Descriptive analysis was conducted by calculating means and proportions for continuous and discrete data respectively. Inferential analysis was done by using the Pearson chi square test of significance to identify associations amongst variables.

The study was given ethical approval by the Aga Khan University, Department of Community Health Sciences and approval was also obtained from the heads or relevant persons of all four Universities before administering the questionnaire. All other ethical requirements including informed consent and confidentiality were ensured.

Results

With a response rate of 95.3%, 572 students with a mean age of 21 ± 1.8 years participated in this study. Amongst them 295 were medical students while 277 were non medical students. There were 235 (41.1%) males and 337 (58.9%) females. Majority of the participants were Muslims 94.5%.

The prevalence of self medication was found to be 76% (n=435). The most common factors that led to it were "previous experience with similar symptoms" (50.1% n=218) and self perception of "trivial nature of the problem" (48.3% n=210) (Table 1). The most common symptoms that led students to indulge in self medication were headaches (72.4%), fever (55.2%) and flu like symptoms (65.5%) (Table 1) and hence painkillers (88.3%), fever relieving medication (65.1%), anti-allergics (44.1%) and antibiotics (35.2%) were among the most commonly used drugs (Table 2). The frequency of use of these medicines is given in (Table 3) antibiotics, anti-allergics and anti-pyretics were used 2-3 times a year while analgesics were used every few months in

Table 1. Factors that lead to self medication (n=435).

Perceived reasons for self medication among University students		
Factor	**Count***	**Percentage**
Previous experience	218	50.1%
Problem too trivial	210	48.3%
Urgency of problem	134	30.8%
Advice from friend was enough	104	23.9%
Convenience	68	15.6%
Lack of time	53	12.2%
Cost of consultation	26	6.0%
Availability of transport	11	2.5%
Symptomatology leading to self medication		
Symptom	**Count***	**Percentage**
Headaches	315	72.4%
Flu/cough/cold	285	65.5%
Fever	240	55.2%
Pain elsewhere	207	47.6%
diarrhea	134	30.8%
Allergy	114	26.2%
inability to sleep	33	7.6%

*Multiple responses, total does not add to 100%

Table 2. Commonest drugs used to self medicate*

Medicines	**N (%)**
Pain killers	384 (88.3%)
Fever relieving meds	283 (65.1%)
Anti allergy	192 (44.1%)
Vitamins	192 (44.1%)
Antibiotics	153 (35.2%)
Pills for indigestion	81 (18.6%)
Sleeping pills	44 (10.1%)
Herbal/homeopathic	32 (7.4%)
Tonics	21 (4.8%)
Street drugs	15 (3.4%)
Birth control pills	13 (3.0%)

*Multiple response, total does not add to 100%.

Table 3. Frequencies of most common self prescribed medicines.

Frequency	Pain killers	Anti pyretics	Anti allergics	Antibiotics
Once	16 (5.3%)	17 (7.3%)	17 (11.2%)	30 (23.8%)
2-3 times/yr	60 (10.5%)	82 (35.3%)	61 (40.1%)	51 (40.5%)
Every few months	110 (36.3%)	68 (29.3%)	43 (28.3%)	31 (24.6%)
Every few weeks	61 (20.1%)	39 (16.8%)	9 (2.9%)	12 (9.5%)
All the time	56 (18.5%)	26 (11.2%)	22 (14.5%)	2 (1.6%)

Frequency was rated according to the scale, 1=Once, 2=Seldom (2-3 times a year) 3= Sometimes (every few months), 4=Often (every few weeks), 5= Always.

majority of the cases. Students mostly obtained these drugs from a pharmacy (64.6%) or/and stocks kept at home (64.4%) or from friends (9.7%).

Two hundred and forty-seven students (43.3%) reported that they altered the dosage of the drug prescribed to them by a certified medical practitioner according to the course of the symptoms. Moreover, 354 (61.9%) students reported that they intentionally stopped medication on the ablation of symptoms, against the doctor's advice. Ironically, 500 students (87.4%) were aware of the fact that self medication can be harmful and 472 (82.5%) students stated that it is indeed necessary to consult a medical doctor before taking a new medicine.

There was no significant difference between the self medication practices of medical and non medical students (p=0.8), males and females (p=0.46) or in the year of study (p=0.50). Self medication rates were not significantly lower in students who were aware of its harmful effects (p= 0.210).

Discussion

Our study demonstrates that about 76% of university students in Karachi self-medicate. As such a study has never been reported in Pakistan there is no data for comparison on a national level. However, one study did report 51% of mothers giving medicines without prescription to their children in a district of Karachi. Self medication in the general population of India, our neighbouring country, has been reported to be around 31%.[6] Amongst University students it has been found to be up to 45% in Turkey[13], 88% in Croatia[15] and 94% in Hong Kong.[14] The prevalence discovered by our study is also quite high and needs to be taken seriously. It is also worthy to note here that our participants belong to the well educated category of society and if the prevalence of self medication is so high in people who are aware of its dangers, then the prevalence in the rest of the people maybe an even more serious cause for concern.

Although it is true that self medication can help treat minor ailments that do not require medical consultation and hence reduce the pressure on medical services particularly in the underprivileged countries with limited health care resources[15], the availability of the more complex drugs groups such as antibiotics without prescriptions is a source of great concern.[9] Moreover, the practice of self medication often has many adverse effects and can lead to many problems, including the global emergence of Multi-Drug Resistant pathogens[16], drug dependence and addiction[17], masking of malignant and potentially fatal diseases[18], hazard of misdiagnosis[19], problems relating to over and under dosaging[20], drug interactions[21] and tragedies relating to the side effect profile of specific drugs.[22]

It was surprising to find that there was no significant difference in the prevalence rates of self medication amongst medical and non-medical students. We generally think that since medical students are much more knowledgeable about medicines than non-medical students they would be self medicating more. Studies have shown high rates of self medication amongst medical professionals.[23] Conversely it would be assumed that non-medical students would self medicate less than medical students, but this was not the case in our study. It is difficult to explain the reason for this surprising finding from the data that we collected but it is certainly an interesting prospect for future research. Perhaps non-medical students also consider themselves to be as knowledgeable about medicines as medical students. Or it just maybe that university students both medical and non-medical students do not care much about the implications of such behaviour and thus do not hesitate to indulge in such activities.

In the ideal setting the only justifiable rationale for self medication would be 'urgency of the problem' but amongst our participants this was not the most popular reason; 'previous experience with similar symptoms' (50.3%) and the 'problem seeming to be too trivial' (48.3%) were the commonest. This is comparable to the study conducted on Pakistani mothers, where good past experience (61.3%) with the medicine was the main reason for self-medication.[7] Attitudes like these are indeed unfavourable and show that people, even the well educated youth are unaware of the gravity of this situation. Even though most people stated that they knew that it maybe harmful to self medicate, this practice shows that they lacked complete knowledge. This was also seen in a study conducted on University students of Turkey where it was found that even though 89% of students knew that it is wrong to take antibiotics without consulting a doctor, 45% of them still indulged in this activity.[13] We are of the opinion that if the students knew exactly how devastating self medication could be instead of just knowing that it is wrong; the prevalence rates would be much lower.

Most medicines had been purchased directly from pharmacies while the stock of medicines at home ranked second. The latter carries the risk of exposure to expired medicine[15], medicine meant for someone else or drugs that may

have been originally prescribed for a different problem. The former should make us realize that it is disastrous to let pharmacies and medical stores continue as the way they do in Pakistan. Medicines that are not over-the-counter drugs should not be given without prescription and a strict system of checks and balances should be implemented to prevent this problem from escalating. A very small percentage of pharmacists actually give the appropriate medication when consulted.[24] It has also been shown by recent studies that familiarity and easy access to certain pharmaceuticals are determinants for self medication.[2] This brings us to the issue of advertising of medicines by pharmaceutical companies. Although it was not researched in this study, previous research has demonstrated that advertising directly affects the youths decision to self medicate.[11] Thus further research and strict rules and regulations also need to be placed in this regard.

An alarming percentage, 35.2%, of students had taken antibiotics without proper clinical evaluation. These results are comparable to studies conducted in Southern Spain[25] and on students in Croatia [15] where 41% and 38% people respectively took antibiotics without consulting a doctor. A serious issue associated with this is that of antibiotic resistance developing over time with such indiscriminate use.[16] However, our study only touches upon and briefly explores this issue, the relation between self medication and antibiotic resistance in Pakistan could be a useful subject for future studies.

There are a few limitations of this study, the first is that the questionnaire was a self reported one and this could have led to under reporting of the self medication practices which is even more distressing. Objective studies in this regard will be difficult to conduct but do need to be carried out both amongst university students and the general population. The second limitation of this study was that we took a convenience sample which is inferior to probability sampling in its representativeness to the rest of the city. However our sample size was fairly large and could balance out this limitation.

Conclusion

The prevalence of self medication practices is alarmingly high in the educated youth of Pakistan, and is the same in both medical and non medical students despite the majority knowing that it incorrect. We recommend that a holistic approach must be taken to prevent this problem from escalating which would involve (i) awareness and education regarding the implications of self medication (ii) strategies to prevent the supply of medicines without prescription by pharmacies (iii) strict rules regarding pharmaceutical advertising and (iv) strategies to make receiving health care much less difficult. Our study has also opened gateways for further research in this issue, besides showing that it is a real problem and should not be ignored.

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