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## The prevalence of self medication in Karachi

Safila Naveed, Humera Ishaq, Bushra Ali, Humera Arshad, Mehmeen Maryam and Sundus Pervaiz

Faculty of Pharmacy, Jinnah University for Women, Karachi, Pakistan

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### ABSTRACT

Self-medication is the use of medication without prescription, orientation, or supervision of a physician or dentist. Self-medication might become a serious health problem [1]. In Pakistan; almost every pharmacy sells drugs without prescription, and there is no concept of community Pharmacy, furthermore no pharmacist is present on the counter to guide customers. As a result, antibiotics and potential habit-forming medicines are easily sold as OTC drugs to a common man. Improper use of combination of OTC drugs can be very harmful. The improper use of some drugs can lead to addiction. The purpose of this survey-based study was to identify the prevalence and factors associated with self-medication among population of Karachi that comprises of people with various age groups, in both genders. This study assessed the prevalence of self-medication, and determined what commonly used drugs are as self medication. 95% of population showed self medication which included pain reliever such as paracetamol and other NSAIDS, cough, cold medications, antihistamines, antacids and antibiotics. About 30% of the respondents suffered with adverse effects due to self medication. These substances are generally purchased for medicinal purpose and an often tend to be effective. But they may be later misused or overused. Basically, the poor awareness leaves the layman uninformed about the potentially lethal effects of some of these drugs. Cost issues causes the general public to approach various other doors instead of a doctor to seek help for a problem. This study presents the results of the Pakistani nation's knowledge, attitude, and practice towards self medication. Easy availability and accessibility to healthcare facilities helps reducing the practice of self medication.

**Keywords:** Prevalence, self medication, Pakistan



### INTRODUCTION

Self-medication includes several forms through which the individual him/herself decided to take any medicine without medical prescription which used for the symptomatic relief and cure of a condition. It involves sharing drugs with other members of the family and from their social group or disrespecting the medical prescription either by prolonging or interrupting the dosage and the administration period prescribed. <sup>1</sup> Self-medication is an important issue, which is responsible to delay diagnosis and cause resistant microorganisms and iatrogenic illnesses <sup>2</sup>. Even if the drugs are used correctly but the use of self-medication associated with adverse effects and increased chance of drug interactions. It also affects on treatment and quality of life <sup>3</sup>. The prevalence rates are high all over the world; up to 68% in European countries <sup>4</sup> while much higher in the developing countries <sup>5</sup> with

rates going as high as 92% in the adolescents of Kuwait. Our neighboring countries have a prevalence rate of 31% in India<sup>7</sup> and 59% in Nepal. Very few studies regarding self medication have been conducted in Pakistan which have also confirmed high rates of prevalence of around 51%.<sup>8</sup> One study demonstrates that about 76% of university students in Karachi self-medicate. Other study did report 51% of mothers giving medicines without prescription to their children in a district of Karachi [12]. Self medication in the general population of India, our neighboring country, has been reported to be around 31%.<sup>7</sup> Various previous studies have shown that self medication practices are more common in women and in those; have psychiatric conditions, are of younger age and students.<sup>9</sup> The misuse of nonprescription drugs amongst students has become a serious problem. This concerns of raises incorrect self-diagnosis, drug interactions and use of drug other than

original indication. In Pakistan, almost every pharmacy sells drugs without a prescription; a phenomenon seen in many developing countries<sup>10</sup>. 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. Our survey-based study showed that which class of drugs is commonly taken by our population as self medications, and what adverse effects they face on taking these medications<sup>11,12</sup>.

## METHODOLOGY

This Survey based study on self-medication was performed among random individuals both males' and females with in the age group of 16- 45 in Karachi.

**Study design:** Cross sectional study in which data was collected in the months of September to November 2013. His study was conducted on random individuals.

**Tool development:** The tool was a Questionnaire. Tool was developed with the help of existing literature and decision. It comprised of 10 questions which were divided in to two portions. One portion included demographic knowledge where as other included questions regarding medication use habits, common problems in which self-medication was done and medicines used commonly.

**Limitations of the study:** Our study was limited because of small sample size, self reporting public. We also could not cover all age groups.

**Statistical analysis:** The entire statistical tests were done on SPSS 19 (Statistical package for social sciences version 19). Chi square test, Pearson's correlation, cross tabulation between drug groups and adverse effects were conducted. All the tests were significant when  $p < 0.05$ .

## RESULT

About 400 questionnaires were distributed out randomly out of which 380 forms were completed and returned. In this study majority of the participants were between the age of 15 – 26 years (72.89 %;  $\chi^2 = 273.6$ ;  $p = 0.000$ ), 86.32 % of the participants were females ( $\chi^2 = 200.46$ ;  $p = 0.000$ ). 69.47 % respondents were single ( $\chi^2 = 57.6$ ;  $p = 0.000$ ) and 97% participants affirmed self-medication ( $\chi^2 = 341.05$ ;  $p = 0.000$ ). Table 1. According to table 1 97% participants practice self-

medication. In table 2 it is shown that 34% take single agent as self-medication, 40% take two drugs, 20% take three drugs and 3.4% people take four drugs in combination as self-medication. As can be clearly seen from table 2 that most commonly used are pain relievers and NSAIDS (125 / 130; 96%) whereas most commonly used two drug combination was NSAIDS and anti-biotics (63/ 152; 41.45%). Very closely behind was the combination of pain relievers and drugs used I GIT ailments (44/152; 29%). In case of three drugs combination, most commonly used combination included NSAIDS, GIT agents and anti-biotic (37/75; 49%) and most popularly used four drug combination included NSAIDS, GIT agents, Anti-biotic and Anti-histamines (10/13; 77%). Drugs commonly included in each class of medication are given in table 3.

**Cross-tabulation:** Results of cross tabulation between groups of different drugs and different demographic parameters showed non-significant results except for cross tabulation between occurrence of adverse reaction and groups of drugs used. (Table 4) There was highly significant relation between ADRs and groups of different drugs as can be seen from table 4 ( $\chi^2 = 39.721$ ;  $p = 0.008$ ) and weak correlation (Correlation coefficient = 0.189;  $p = 0.000$ ). Major adverse reactions that the respondents developed were diarrhea, headache, fever, insomnia, allergy and hypertension.

## DISSCUSSION

Self-medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment.<sup>13</sup>Our study demonstrates that about 95% of population of Karachi self-medicate. While one study done on Self-medication amongst University Students of Karachi showed that about 76% of university students in Karachi self-medicate. Another study reported that 51% of mothers give medicines to their children without prescription.<sup>12</sup> Self medication in the general population of India, our neighboring country, has been reported to be around 31%.<sup>6</sup> Amongst University students it has been found to be up to 45% in Turkey<sup>14</sup>, 88% in Croatia<sup>15</sup> and 94% in Hong Kong<sup>16</sup>. Our study also shows quite high prevalence of self medication 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 even more serious. 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, the availability of the more complex drugs groups such as antibiotics without prescriptions is a source of great concern.<sup>17</sup> 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<sup>18</sup>, drug dependence and addiction<sup>19</sup>, masking of malignant and potentially fatal diseases<sup>20</sup>, hazard of misdiagnosis<sup>21</sup>, problems relating to over and under dosing<sup>22</sup>, drug interactions<sup>23</sup> and tragedies relating to the side effect profile of specific drugs.<sup>24</sup> One study conducted on Pakistani mothers, where good past experience (61.3%) with the medicine was the main reason for self-medication. People, even the well-educated youth are unaware of the gravity of this situation. Even though most people stated that they knew that it may be harmful to self medicate, this practice shows that they lacked complete knowledge. This was also seen in a study conducted in 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 were still indulged in this activity. 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 are purchased directly from pharmacies while the stock of medicines at home ranked second. The latter carries the risk of exposure to expired medicine<sup>[16]</sup>, 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 check and balance should be implemented to prevent this problem from escalating<sup>12</sup>.

In most of the pharmacies in Pakistan, pharmacists are not available. Therefore, counseling is rarely provided to the patient or their family members. Because of lack of counseling, a patient can face a number of problems and adverse effects associated

with the drugs. Through our study we found out that 30% of people face adverse effects of drug when they administer medication without doctors or physicians' prescription. Majority of the adverse effects were seen in those patients who used multiple agents as self medication. 30% of population takes aspirin, 83% taking ibuprofen and 43% taking mefenamic acid. All of these agents are OTC products but needs counseling about the various conditions these drugs should not be used in. for example ibuprofen or other NSAIDs and strong painkillers should not be taken in peptic ulcer, bleeding ulcer, kidney and renal insufficiency. Moreover, these medications should not be taken in an empty stomach or it may lead to irritation in GI. Ibuprofen and mefenamic acid should only be taken in severe conditions like dental pain, menstrual pain etc.

Our study shows that many people take Augmentin, metronidazole, atenolol by themselves to treat many ailments while these medications should be taken when doctor prescribed. Augmentin and metronidazole are antibiotics and should only be taken for specific time and specific complaints as prescribed by doctor. Atenolol is Beta-adrenergic antagonist (i.e., beta-blocker) It can produce toxicity and clinical manifestations including bradycardia, hypotension, arrhythmias, hypothermia, hypoglycemia, and seizures. This is an alarming situation that people taken medicines without clinical evaluation. People mostly prefer to self medicate instead of visiting to any clinic to get treatment. Its may be due to high cost, advertisements by pharmaceutical companies and lack of awareness among public.

## CONCLUSION

The prevalence of self medication practice is alarmingly high. Following approaches must be taken.

1. Awareness and educating the public about harm of self medication.
2. Strict rules must be made, so that no pharmacy could be run without a pharmacist.
3. Some strategies must be made to limit supply of medicines without prescriptions.
4. Make health care affordable to all.

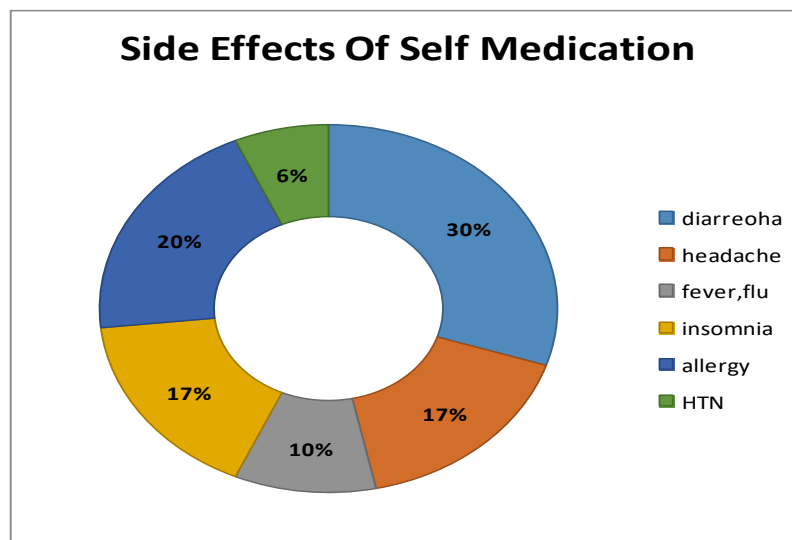


Figure 1: Commonly seen adverse symptoms associated with self-medication

Table 1. Demographic details of the respondents with Pearson’s chi square test.

Variables	Groups (N)	$\chi^2$ value	P value
Age	15 – 26 (277); 26 – 35 (71); 35 – 45 (32)	273.6	P = 0.000
Sex	Males (52); Females (328)	200.46	P = 0.000
Marital Status	Married (116); Single (264)	57.64	P = 0.000
Self-medication	No (10); Yes (370)	341.05	P = 0.000
ADRs	No (263); Yes (117)	56.09	P = 0.000

Table 2. Drugs and their combinations and %age of respondents using different drug combinations

Drug and combinations	N	% age
No self-medication	10 / 380	2.6%
Single drug in self medication	130 / 380	34%
NSAIDS	125	23.8%
Anti-hypertensive agents	1	0.3 %
Anti-biotic	1	0.3 %
Anti-histamine	3	0.8 %
<b>Two drugs in self medication</b>	<b>152 / 380</b>	<b>40%</b>
NSAIDS + GIT agents	44	11.5 %
NSAIDS + Anti-hypertensive	12	3.1 %
NSAIDS + Anti-biotics	63	16.5 %
NSAIDS + Anti-histamines	29	7.6 %
GIT agents + Antibiotics	1	0.3 %
GIT agents + Anti-histamine	1	0.3 %
Anti-hypertensive agents + Anti-biotic	1	0.3 %
Anti-biotics + Anti-histamines	1	0.3 %
<b>Three drugs in self medication</b>	<b>75 / 380</b>	<b>20%</b>
NSAIDS + GIT agents + Anti-hypertensive agents	5	1.3 %
NSAIDS + GIT agents + Anti-biotics	37	9.7 %
NSAIDS + GIT agents + Anti-histamine	13	3.4 %
NSAIDS + Anti-biotics + Anti-histamine	11	2.9 %
NSAIDS + Anti-hypertensive + anti-biotics	7	1.8 %
NSAIDS + Anti-hypertensive + Anti-histamine	2	0.5 %
<b>Four drugs used for self-mediations</b>	<b>13 / 380</b>	<b>3.4%</b>

NSAIDS + GIT agents + Anti-hypertensive agents + Anti-biotics	2	0.5 %
NSAIDS + GIT agents + Anti-hypertensive agents + Anti-histamine	1	0.3 %
NSAIDS + GIT agents + Anti-biotics + Anti-histamine	10	2.6 %

**Table 3. Drugs commonly used in each class of drugs used as self-medication.**

Self medication groups	Medicines comonly used	N %
Pain killers, NSAIDS	Paracetamol	99
	Ibuprofen	83
	Mefenamic acid	43
	Aspirin	30
	Diclofenac sodium	10
GIT agents	Imodium	19
	Ranitidine	10
Anti-hypertensive agent	Atenolol	8
Anti-biotic	Augmentin	40
	Metronidazole	20
Anti-histamine	Pheniramine	19
	Orphenadrine citrate	15

**Table 4: Cross tabulation showing adverse drug reactions in different combinations of drugs used in self medication**

Number of groups used for medication vs. Adverse reaction Cross-tabulation		Adverse reaction				Total
		No	%	yes	%	
Number of groups used for medication	No	6	60	4	40	10
	NSAIDS	101	86.5	24	38.5	125
	Anti-hypertensive agents	0	-	1	100	1
	Anti-biotic	0	-	1	100	1
	Anti-histamine	2	67	1	33	3
	NSAIDS + GIT agents	28	64	16	36	44
	NSAIDS + Anti-hypertensive	11	92	1	8	12
	NSAIDS + Anti-biotics	42	67	21	33	63
	NSAIDS + Anti-histamines	23	79	6	21	29
	GIT agents + Antibiotics	1	100	0	-	1
	GIT agents + Anti-histamine	1	100	0	-	1
	Anti-hypertensive agents + Anti-biotic	0	-	1	100	1
	Anti- biotics + Anti- histamines	1	100	0	-	1
	NSAIDS + GIT agents + Anti-hypertensive agents	3	60	2	40	5
	NSAIDS + GIT agents + Anti-biotics	21	57	16	43	37
	NSAIDS + GIT agents + Anti-histamine	7	54	6	46	13
	NSAIDS +Anti-biotics + Anti-histamine	6	86	1	14	7
	NSAIDS + Anti-hypertensive + anti-biotics	1	50	1	50	2
	NSAIDS + Anti-hypertensive +Anti-histamine	5	45.5	6	54.5	11
	NSAIDS + GIT agents + Anti-hypertensive agents + Anti-biotics	1	50	1	50	2
NSAIDS + GIT agents + Anti-hypertensive agents + Anti-histamine	0	-	1	100	1	
NSAIDS + GIT agents + Anti-biotics + Anti-histamine	3	30	7	70	10	
Total	263		117		380	
Pearsons' Chi square = 39.72 (p = 0.008)						
Spearman's Correlation = 0.174 (p = 0.001)						
Pearsons' Correlation coefficient = 0.189 (p = 0.000)						

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