

# Frequency of Self-Medication and Its Associated Factors among Outpatients

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## Abstract

**Objectives:** To assess the frequency of self-medication and its associated factors among outpatients.

**Methods:** A cross-sectional study was conducted at the outpatient department of Fatima Hospital, Baqai Medical University, from May 2019 to September 2019. After checking eligibility, a total of 360 outpatients were included in the study using the convenience sampling technique. Being aged 18 years or above and belonging to either gender were the study's inclusion criteria, whereas refusal to give verbal informed consent was the exclusion criterion of the study. The data was collected by interviewing the study participants using a structured questionnaire. Statistical package for social sciences version 21 was used for data analysis, while inferential analysis was performed using univariate and multivariable binary logistic regression.

**Results:** The study results showed that 118 (32.8%) of the participants were suffering from a chronic illness, 240 (66.7%) of them kept medicines at their houses, 235 (65.3%) of them self-medicated, whereas the mean duration of their self-medication was found to be  $9.90 \pm 8.51$  years. Moreover, age, educational status, employment status, and keeping medicines at the house were significantly associated with self-medication of the participants were those who were aged 50 years or above (AOR, 7.83; 95% CI, 2.27-27.04;  $p=0.001$ ), able to read and write (AOR, 4.36; 95% CI, 1.58-11.98;  $p=0.004$ ) and kept medicines at the house (AOR, 46.35; 95% CI, 20.07-107.06;  $p<0.001$ ) had significantly higher odds of self-medication than those who were aged up to 30 years, were illiterate or did not keep medicines at house respectively whereas those who were employed/self-employed (AOR, 0.30; 95% CI, 0.10-0.88;  $p=0.028$ ) had significantly lower odds of self-medication than those who were unemployed.

**Conclusion:** Almost two-thirds of the participants were found to be self-medicating. Moreover, age, educational status, employment status, and keeping medicines at the house were significantly associated with the self-medication of the respondents.

**Keywords:** Prevalence, Self-Medication, Outpatients

**IRB:** Approved by the Departmental Research Committee, Baqai Institute of Health Sciences.

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## Introduction

Individuals may have different responses to any given illness, such as seeking medical care, taking someone's advice, or self-medicating. Such responses might be triggered by their awareness and knowledge, attitude and beliefs, past experiences, social norms and constraints, economic resources and independence, ease of access, and availability of medical care. Self-medication has been defined as "the taking of drugs, herbs or home remedies on one's initiative, or on the advice of another person, without consulting a doctor"<sup>1</sup>.

Due to a broad spectrum of influencing factors, self-medication is not uniformly practiced in different parts of the world and varies significantly between countries and even within themselves, according to particular economic, socio-cultural, and geographic contexts in play. The prevalence of self-medication has been found to vary from 8.5% to 98.0% in different countries of the world<sup>2</sup>. A recent systematic review in a neighboring country reported that 36% of households (95% CI, 17%-77%) practiced self-medication<sup>3</sup>. The World Health Organization estimates that more than 50% of medicines are not prescribed, dispensed, or sold appropriately and that 50% of patients don't take them correctly<sup>4</sup>. Examples of irrational use of medicines include using too many drugs per patient, inappropriately using antimicrobials, over-using injections, not following clinical guidelines for a prescription, inappropriately doing self-medication, and not adhering to dosing regimens<sup>4</sup>.

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Irrational use of drugs, especially antimicrobials, without medical supervision, may lead to inappropriate and/or incorrect therapy, missed diagnosis, proper treatment and management delays, microbial resistance, and increased morbidity<sup>5</sup>. Microbial resistance is a major public health problem worldwide, more so in the developing countries; illiteracy compounded with lack of awareness among the masses is a leading cause, together with lack of concern by the treating physicians and the pharmacists selling over the counter drugs<sup>6</sup>.

Regulations usually discriminate between prescriptions only and over-the-counter medicines; the former requires medical prescription whereas the latter are available without any pre-condition<sup>7</sup>. Medicines available over the counter without the need for a prescription are the ones most commonly used for self-medication. It is hoped that enforcement of standard treatment guidelines for the healthcare providers and behavior changes at the patients' end may change the current situation<sup>6</sup>.

Effective and successful interventions to enhance rational use of medicines are generally multi-faceted. To prevent irrational use of medicines, the World Health Organization, therefore, advocates establishing multidisciplinary national bodies to coordinate relevant policies, following clinical guidelines; development a national list of essential medicines; establishing drug and therapeutics committees at various levels; using independent information sources about medicines; giving necessary education to masses; avoiding inappropriate financial incentives; enforcing pertinent regulations, and making due expenditures at the government level to ensure availability of required medicinal and human resources<sup>4</sup>.

Unfortunately, in Pakistan, the situation is no different, with many types of medicines are routinely sold without a prescription from community pharmacies<sup>8</sup>. Although the prevalence of self-medication and its associated factors have been assessed earlier, the relevant local data are limited at best to the best of the authors' knowledge. A study conducted in Islamabad, Pakistan, found that 61.2% of the respondents practice self-medication<sup>9</sup>. Another study from Pakistan, found self-care and self-medication among the most typical

responses to everyday symptoms, and consulting with a doctor was not preferred in treating minor illnesses<sup>10</sup>. A recent study in Sindh, Pakistan, reported 81.2% of rural dwellers interviewed to practice self-medication of antibiotics, with 74.7% of them not aware of the development of antibiotic resistance followed by their inadequate use<sup>11</sup>. Such unawareness should be a cause of serious concern. Besides health issues, antimicrobial resistance also has economic implications on Pakistan's already overburdened health care system, where the simpler treatments are increasingly difficult<sup>6</sup>. Another study carried out in 8 cities across four provinces of Pakistan found self-medication to be among the most common responses to ordinary symptoms experienced by the participants interviewed, with seeking professional advice or using conventional medicine being less common<sup>12</sup>.

In the given contest, this research was carried out to expand the local database to help understand the current state of affairs and assist in planning any future targeted intervention in this regard. This study was conducted to assess self-medication frequency and its associated factors among outpatients visiting a private tertiary care hospital in Karachi.

### **Material and Methods**

The cross-sectional study was carried out at the outpatient department of Fatima Hospital, Baqai Medical University, from May 2019 to September 2019. The study's ethical approval was taken from the Baqai Institute of Health Sciences, Baqai Medical University. Being aged 18 years or above and belonging to either gender were the study's inclusion criteria, whereas refusal to give verbal informed consent was the exclusion criterion of the study.

Keeping the percentage frequency of the study outcome at 50% for the most liberal estimates, with a 95% confidence level and 5.5% precision, the sample size was calculated to be 318 participants. Against this, a total of 360 participants were included in the study. A convenience sampling technique was used, and every patient coming to the outpatient department was approached and checked for eligibility.

All data were gathered by means of interviews of the study participants using a structured questionnaire designed explicitly for the study. The questionnaire contained a total of 13 questions; the initial 8 questions were about participants' socio-demographic characteristics, while the latter 5 questions assessed their frequency and duration of self-medication.

Statistical package for social sciences (SPSS) version 21 was used for data entry and analysis. Descriptive analysis was performed by calculating frequencies and percentages for categorical variables and means and standard deviations for continuous variables. Univariate and multivariable binary logistic regression were used to check for associations of various patient-related factors with self-medication of the participants, with the latter also serving to control for potential confounders. Only variables found in univariate analysis were included in multivariable analysis, and the significance level was kept at 0.05.

The study was conducted after taking approval from the ethical review committee. Verbal informed consent was obtained from all the eligible participants. Patients were admitted through the emergency department. X-ray was performed in all the patients to diagnose and classify fracture. All patients were placed on a traction table after consent and counseling under general and spinal anesthesia for surgical intervention, with lateral incision skin, subcutaneous tissue, fascia lata dissected, vastus lateralis, and trochanteric ridge and abductors of hip identified. The fracture was discovered after the vastus lateralis was elevated from the femur. The anteversion guide wire was initially passed in the femur neck, followed by the jig of dynamic condylar screws at a 95-degree angle. The length of the screw was measured after the wire was confirmed in the best location on the anterior-posterior and lateral views with the C-arm. Reaming was done over the guiding wire. Following the tapping, the screw was inserted. The fracture was minimized using a side plate of adequate size that included at least four-plus screws below the fracture line. The 4.5 mm cortical screws were used to fix the plate. The incision was cleaned, a drain was placed, and the wound closed in layers. At two weeks, the stitches were removed. All patients were operated on by consultant orthopedic surgeon. Patients were kept in the orthopedic ward for two days and then discharged

with analgesics, oral antibiotics, and calcium supplements.

Patients were followed monthly for at least a year after surgery at 2<sup>nd</sup>, 6<sup>th</sup>, 12<sup>th</sup>, 16<sup>th</sup>, 20<sup>th</sup>, and 30<sup>th</sup> weeks in the out-patient department. At each visit, an x-ray was obtained, and the fracture was evaluated. Infection, union, and fixation failure were observed in all patients. On a pre-designed proforma, data on age, gender, mechanism of injury, side of fracture, kind of subtrochanteric fracture, and outcomes were noted by the researcher himself.

Data was entered and analyzed using a statistical package for social sciences (SPSS) version 23.0. Mean and SD was reported for a numeric variable like age. Frequency and percentage were reported for categorical data like gender, mode of injury, fracture site, type of subtrochanteric femur fracture, functional outcome, and complications. Chi-square/Fischer exact was used to assess the association between outcomes and age, gender and type of fracture. A p-value ≤ 0.05 was taken as statistically significant.

## Results

The mean age of the study participants was 34.68±12.38 years, 201 (55.8%) of them were males, 95 (26.4%) of them were illiterate while 68 (18.9%) of them were able to read and write, 255 (70.8%) of them were married, 245 (68.1%) of them lived in a joint family system, 93 (25.8%) of them were unemployed while 151 (42.0%) of them were employed/self-employed whereas 247 (68.6%) of them had a monthly household income of < 25,000 Rs. The study results showed that 118 (32.8%) of the study participants were suffering from a chronic illness, 240 (66.7%) of them kept medicines at their house, 235 (65.3%) of them self-medicated, and out of the 28 (11.9%) did it routinely. In contrast, the mean duration of their self-medication was 9.90±8.51 years (table 1).

**Table 1:** Details of Self-Medication

Variables		N=360
Are you suffering from any chronic illness?	Yes	118(32.8)
	No	242(67.2)
Do you keep medicines at your house?	Yes	240(66.7)
	No	120(33.3)
Do you self-medicate?	Yes	235(65.3)
	No	125(34.7)
If yes, how often? (n=235)	Occasionally	207(88.1)
	Routinely	28(11.9)
Duration of Self-Medication (Years) (n=235)		9.90±8.51

The results of univariate logistic regression analysis revealed that among the factors assessed for association with self-medication of the participants, only age, educational status, employment status, and

keeping medicines at the house were significantly associated with self-medication of the participants (Table 2).

**Table 2:** Univariate Logistic Regression Analysis of Factors Associated with Self-Medication.

Variables		OR	95% C.I.		p-value
			Lower	Upper	
Age	31 to 49 Years	1.08	0.48	2.42	0.85
	50 Years or Above	7.81	2.26	26.96	0.001
Gender	Male	1.36	0.60	3.08	0.458
	Able to Read and Write	4.35	1.58	11.95	0.004
Educational Status	Primary	1.51	0.55	4.08	0.415
	Secondary	1.01	0.34	2.96	0.977
	Intermediate	0.86	0.26	2.83	0.815
	Graduation or Above	2.23	0.56	8.90	0.253
	Religious Education Only	2.38	0.72	7.87	0.155
Marital Status	Single	3.91	0.71	21.49	0.117
	Married	2.59	0.63	10.67	0.187
Employment Status	Employed/Self-Employed	2.75	1.07	7.06	0.035
	Student	2.52	0.62	10.27	0.196
	Housewife	3.30	1.14	9.52	0.027
Monthly Household Income	Less than 25000 Rs.	1.05	0.49	2.21	0.897
Family Type	Joint	1.15	0.56	2.37	0.698
Suffering from Chronic Illness	No	1.39	0.67	2.88	0.369
Keeping Medicines at House	Yes	46.44	20.11	107.22	<0.001

The results of multivariable logistic regression analysis showed that all of the age, educational status, employment status, and keeping medicines at the house were significantly associated with self-medication of the participants were those who were aged 50 years or above (AOR, 7.83; 95% CI, 2.27-27.04; p=0.001), able to read and write (AOR, 4.36; 95% CI, 1.58-11.98; p=0.004) and kept medicines at the house (AOR, 46.35;

95% CI, 20.07-107.06; p<0.001) had significantly higher odds of self-medication than those who were aged up to 30 years, were illiterate or did not keep medicines at house respectively whereas those who were employed/self-employed (AOR, 0.30; 95% CI, 0.10-0.88; p=0.028) had significantly lower odds of self-medication than those who were unemployed (Table 3).

**Table 3:** Multivariable Logistic Regression Analysis of Factors Associated with Self-Medication.

Variables		AOR	95% C.I.		p-value
			Lower	Upper	
Age	50 Years or Above	7.83	2.27	27.04	0.001
Educational Status	Able to Read and Write	4.36	1.58	11.98	0.004
Employment Status	Employed/Self-Employed	0.30	0.10	0.88	0.028
Keeping Medicines at House	Yes	46.35	20.07	107.06	<0.001

## Discussion

Self-medication, on the one hand, is seen as a large component of self-care, which relies heavily on the consumer's expertise when it comes to medication use; on the other hand, though, if not practiced rationally, it can lead to multiple problems, including drug abuse and resistance<sup>13</sup>. A recent systematic review reported the frequency of patient medication errors to be between 19% and 59%, with the most common ones being incorrect dosage, forgetting, mixing up medications, failing to recall indications, and taking out-of-date or inappropriately stored drugs<sup>14</sup>. Arguments have been presented, though, in favor of rational self-

medication practices. Rational use of medicines has been defined as "patients receiving medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate time, and at the lowest cost to them and their community"<sup>4</sup>. In simpler words, it implies using the right drug for the right patient at the right time in the correct dose and manner of administration, at affordable cost, and with the right information<sup>15</sup>. It has been reasoned that rational self-medication facilitates faster relief to the patient, which is particularly important in countries with overburdened health systems, where getting an appointment with a physician could be difficult<sup>16</sup>.

Moreover, it gives patients greater independence in decision-making about managing their minor illnesses, empowering them<sup>17</sup>.

In our study, almost two-thirds of the respondents were self-medicating. Literature shows self-medication practice to vary greatly in different populations and different geographic regions of the world. Jafari et al., in 2015, reported the prevalence of self-medication to be 83% among the respondents<sup>18</sup>. Similarly, Joseph et al., in 2018, reported 81.7% of the subjects to self-medicate<sup>19</sup>. Likewise, Garofalo et al., in 2015, reported 69.2% of the participants practiced self-medication at least once<sup>20</sup>. Ahmad et al., in 2014 reported the percentage of patients who were seeking self-medication to be 50%<sup>21</sup>.

Similarly, Lee et al., in 2017, reported 45.8% of the subjects surveyed to be self-medicating<sup>22</sup>. Selvaraj et al., in 2014 though reported only 11.9% of the participants practiced self-medication<sup>23</sup>. Such a wide variation in prevalence might have several reasons, as a population of different countries may differ from each other in various aspects that may affect self-medication practices of their populations, such as age structure, gender ratio, literacy level, wealth distribution, economic affordability, societal taboos, awareness, availability of healthcare and ease of access, etc., any or all of which may operate at a given time.

The age of the study participants was significantly associated with their self-medication, both in bivariate and multivariable analysis. Similarly, Selvaraj et al., in 2014, found a significant relationship between age and self-medication of the respondents<sup>23</sup>. Contrary results have also been reported, though. Joseph et al., in 2018 did not find any association between age and self-medication<sup>19</sup>. Likewise, Garofalo et al., in 2015, also did not report a significant relationship between age and self-medication of the participants<sup>20</sup>. As literature presents equivocal findings, further exploration of this relationship is suggested before making any meaningful conclusions.

The gender of the respondents did not have a significant association with self-medication, neither in bivariate nor in multivariable analysis. Likewise, Lee et al., in 2017, also did not find any association between

gender and self-medication of the respondents<sup>22</sup>. Interestingly, contrary results were reported by Jafari et al., in 2015<sup>18</sup>, Joseph et al., in 2018<sup>19</sup>; and Garofalo et al., in 2015<sup>20</sup>.

There are several possible explanations for such a difference. First and foremost, none of the studies cited above were carried out in Pakistan. Thus there is every reason to suspect variations among the study populations with regard to their characteristics. Secondly, as opposed to this study conducted among outpatients, all of the studies cited above were carried out among the general population, possibly resulting in certain differences between the study populations.

In this study, the educational status of the respondents was significantly associated with their self-medication. Literature reports equivocal findings in this regard. Jafari et al., in 2015, reported a significant correlation between self-medication and the education level of the participants<sup>18</sup>. Similarly, Garofalo et al., in 2015, found education level to be significantly associated with self-medication of the respondents<sup>20</sup>. On the contrary, Kulkarni et al., in 2018 did not report education level to be associated with self-medication of patients<sup>24</sup>. If such an association exists, it is debatable whether people with low education or higher education do more self-medication.

Interestingly, arguments can be presented in favor of both these viewpoints. When illiterate, people cannot comprehend the seriousness of possible side effects of irrational self-medication, which may lead them to self-medicate. Still, when people are literate, though they better understand the harms of self-medication, they tend to know more about various treatment options of their illness. They thus may have greater possibility of ending up with self-medication. The study findings did not show a significant relationship between monthly household income and self-medication of the respondents in multivariable analysis. Similarly, Lee et al., in 2017, did not find any significant association between household income and self-medication of the participants<sup>22</sup>. As self-medication is a multifactorial entity, there could be some characteristics among those with high and those with low monthly household incomes to influence their self-medication practices.

The multivariable analysis did not show the presence of any chronic illness to be significantly associated with the self-medication of the participants. Similar findings were reported by Garofalo et al., in 2015<sup>20</sup>.

It is acknowledged that outpatients are not an ideal surrogate of the general population, thereby limiting the generalizability of the study findings. Furthermore, being a cross-sectional study, the study findings might have been affected by limitations in the recall of the study participants.

It is recommended that necessary endeavors such as increasing awareness of the masses about potential harms of self-medication, ensuring that physicians are following clinical guidelines while prescribing medications, discouraging the public from unduly keeping medicines at their houses, and strictly monitoring over the counter sales of any unauthorized drugs should be made by all stakeholders. The authors also advocate that to maximize benefits and minimize risks, any such preventive effort aimed at decreasing the malpractice of irrational self-medication should consider the patient factors identified in this study. It is recommended that any preventive effort aimed at increasing awareness of the masses regarding their self-medication should take into account the factors identified in this study.

### Conclusion

Almost two-thirds of the participants were found to be self-medicating. Moreover, age, educational status, employment status, and keeping medicines at the house were significantly associated with the self-medication of the respondents.

### Conflict of Interest

Authors have no conflict of interest and no grant/funding from any organization.

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