



BEHAVIOR AND PRACTICES OF GERIATRIC POPULATION REGARDING SELF MEDICATION: A CROSS SECTIONAL STUDY

Saif Ali Shah, Khawaja Uzair Wasif, Quratulain Akbar, Sadia Elahi,
Talia Siddiq, Abbas Mustafa Gain, Syed Muhammad Hussain and Muhammad Mussa

Internal Medicine, Dow Medical College, Dow University of Health Sciences, Baba-e-Urdu Road,
Karachi, 74200, Pakistan

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ABSTRACT

Background: Self-medication is the use of medication without supervision by a health care professional, it remains a danger in the society because of the major health risks it poses. Our study aims to evaluate the awareness among Pakistan's population as there is scarcity in the amount of literature regarding it.

Methods: A cross-sectional study was conducted in Karachi during the period of December 2019 to February 2020 and a total of 327 participants belonging to the geriatric age group took part in it. A structured questionnaire consisting of questions evaluating the knowledge regarding self-medication, questions on the participant's attitude towards self-medication, and questions to assess the practices of the participants were asked. Analysis was done using SPSS version 26 and Chi square test was applied. A P-value of less than 0.05 was considered as significant.

Results: Out of 327 participants from the geriatric population that were interviewed, 215 (65.7%) self-medicated. It was noted that a vast majority preferred visiting a doctor rather than medicating on their own (n=232). It was found that a great number of our subjects were practicing self-medication for more than 10 years (n=124). It was concluded that the most common symptom for which the respondents self-medicated was headache (n=158).

Conclusion: Self-medication has been found to be highly prevalent in the geriatric population, with paracetamol being the most commonly used drug. Although, a number of participants have gained relief by self-medicating, this practice should be discouraged as it poses great health risks to the individuals.

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INTRODUCTION

Self-medication can be defined as obtaining and consuming drugs without advice of a physician, either for diagnosis, prescription or surveillance of treatment [1]. In the developing countries, where literacy rates are low, self-medication is a growing problem and the high availability of medicines over the counter makes self-medication even more convenient [2]. Despite responsible self-medication being helpful in reducing load on medical services and saving an individual's time and money, especially in developing countries [3], its risks outweigh its benefits. Inappropriate self-medication can cause significant waste of resources and produce highly resistant strains of organisms that increase the probability of serious medical emergencies [4]. A study conducted in Kermanshah-Iran concluded that 83% elderly practiced self-medication [3]. However, the chance of adverse effects of the medicine on their body are high, owing to the changes which occur in the pharmacokinetics and pharmacodynamics because of their slow metabolism [3]. As demonstrated in a study by Fick *et al*,

which showed that 13% of the elderly in the US had to be hospitalized because of medication problems or medicine poisoning, which has resulted in 106000 deaths and has imposed 58 billion dollars expense on the U.S healthcare system [5]. Moreover, there is an increasing trend towards ayurvedic and homeopathic medicine for chronic illnesses such as peptic ulcer disease (PUD), arthritis, impotence and hair loss, among others, which were also considered to be free of adverse effects, but, contrary to popular belief, their use can show drug interactions [6].

There has been extensive research about the side effects of self-medication, its efficiency among other modes of healing and practices among the general population. However very little research has been done on this subject, particularly among the elderly, which are the most prone to self-medication [5].

Objectives

The primary objective of our research is to assess the prevalence of self-medication among the elderly in Karachi,

*Corresponding author: Saif Ali Shah

Internal Medicine, Dow Medical College, Dow University of Health Sciences, Baba-e-Urdu Road, Karachi, 74200, Pakistan

Pakistan. Our secondary objective is to find which specific drugs they are most likely to use.

Rationale

There has been very limited number of researches done in Pakistan to find out the frequency of self-medication in the elderly population. The purpose of this study was to find out not just the prevalence of self-medication but also the type of medications that were being used commonly in the elderly population. With the rise of antibiotic resistance in Pakistan, we hoped that our study would provide useful information as to how commonly antibiotics are being used, particularly without any prescription.

MATERIALS AND METHODS

Study design and participants

This is a cross-sectional study targeting the geriatric population, which was conducted in Civil Hospital Karachi (CHK) and other tertiary care hospitals in Karachi. The study was carried over a period of 12 weeks from December 2019 to February 2020.

Sample size and sampling method

A pilot study was conducted on 20 individuals to assess the response and find any limitations that could be taken into consideration.

A sample size of 272 was selected based on a previous study [7] and using sample size equation for estimating an equation with confidence of 0.95% and accuracy of 5%. To remove any ambiguity 350 responses were recorded out of which 327 appropriate responses were obtained and only those were included in this study. The ambiguities identified in the questionnaire were eliminated. The data collected through pilot study was not incorporated in the results.

Inclusion and Exclusion Criteria

We included only residents of Karachi in this study. Individuals above 60 years of age were included. Rest of the age groups were excluded along with anyone who did not wish to participate in this study. Furthermore, people residing in areas other than Karachi were excluded from the study.

Data Collection

An informed written consent was taken from each participant. Since most of the individuals did not understand English the consent form as well as the questionnaire was explained in Urdu/Sindhi.

The questionnaire comprised of three section (A, B and C). The first section comprised of demographic data (age, gender, level of education and monthly household income). Section B evaluated the common symptoms and the drugs that were frequently used for self-medication. It also assessed the time period for which they have been self-medicating and who did they approach for advice. Section C analysed the awareness regarding drug action and the accessibility of over the counter drugs.

Statistical Data Analysis

Statistical Package for the Social Sciences (SPSS) version 26 software was used to analyse collected data from all study participants. Descriptive statistics such as mean, standard deviation, frequency, and proportion were used to represent the

sociodemographic characteristics and Knowledge, Attitude and Practice (KAP) of the study population. Association of sociodemographic variables with KAP levels is determined using Chi-square test. P < 0.05 was considered as statistically significant.

RESULTS

A total of 327 elderly participants (above age of 60 years) responded to self-medication questionnaire, in these most 215 (65.7%) of the participants were found to be taking medicines without doctor’s prescription (self-medication) as shown in the figure 1 below.

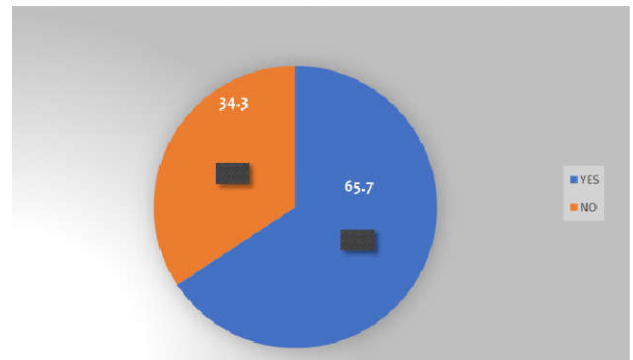


Figure 1 % of Respondents Self-Medicating

The majority of the participants (48%) were between 60 to 64 years old, 25% of them were between 65 to 69 years old, 15% between 70-74 years old while rest of them were between 75-95 years old. The % frequency of participants in a particular age group has been shown below in figure 2.

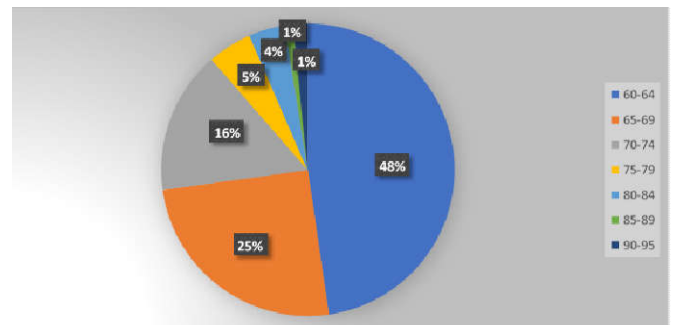


Figure 2 Age Distribution

Out of 327 respondent’s majority of them were male (218) whereas 109 were females. Out of these 218 male participants, 146 of them self medicated while 69 out of 109 females took medications without doctor’s prescription as shown in the figure 3 below.

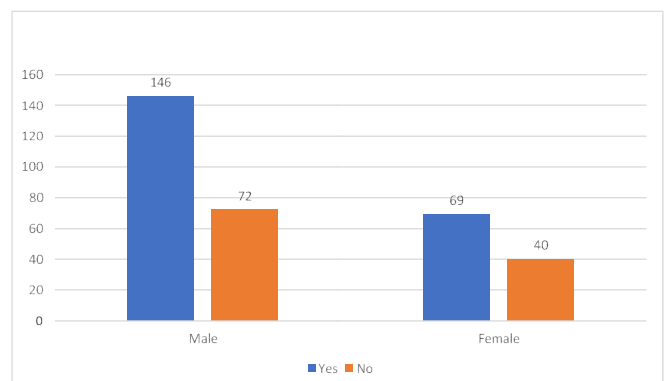


Figure 3 Number of Respondents Self-Medicating

Knowledge

Among 327 participants 292 (89.6%) believed that self-medication is practiced in Pakistan, majority 284 (86.8%) of them agreed with the fact that the basic knowledge about drug action is required for drug administration. Out of 327 people, 268 (82%) which is a large number believed that pharmacies in Pakistan sell medicines without doctor’s prescription. More than half of the respondents 241 (73.7%) think that they can discontinue medication once their illness or symptoms of disease are cured. 233(71.3%) of 327 respondents believed that taking drugs with food, drinks and tea other than water interfere with effects of medication as depicted in table 1 below.

Attitude

Among all the respondents, a limited number 95(29.1%) preferred self-medicating rather than visiting a doctor. Most of the respondents agree about various statements of responsible self-medication as shown in Table 2 below.

Table 1 Knowledge of Participants Regarding Self-Medication

	Frequency
Do you think self- medication is practiced in Pakistan? (Yes)	292 (89.6%)
Do pharmacies in Pakistan sell medicines without doctor’s prescription? (Yes)	268 (82.0%)
Does medication administration require basic knowledge about action of drug? (Yes)	284 (86.8%)
Can you discontinue the use of medicines when the symptoms of disease are relieved? (Yes)	241 (73.7%)
Do you believe that taking medicines with food, drinks or tea interferes with the effects of medicine? (Yes)	(71.3%)

Table 2 Attitude of Respondents Regarding Self-Medication

	Frequency
Do you prefer self- medication over visiting a doctor? (Yes)	95 (29.1%)
Do you think there is a need of awareness on the usage and consequences of self- medication? (Yes)	273 (83.5%)
Do you think Pharmacies should stop selling medicines without doctor’s prescription? (Yes)	230 (0.3%)

The majority 273 (83.5%) of them think that there is a need of proper awareness on the usage and consequences of self-medication. Out of 327 people 230 (70.3%) of them agreed that pharmacies should stop selling drugs without doctor’s prescription and is unethical.

Practice

Among 327 respondents, most 215 (65.7%) of them were found to be practicing self-medication. 15 (7.0%) of them are practicing self-medication for less than 1 year, 49 (22.8%) for 1-5 years, 27 (12.6%) for 5-10 years while majority 124 (57.7%) of them for more than 10 years.

The main complaints for which majority of the respondents (215 participants) were practicing self-medication were headache (158 participants 73.5%) and fever (150 participants 69.8 %). Other group of complaints include vomiting/diarrhea

(84 participants 39.1%), sore throat (39 participants 18.1%), runny nose (36 participants 16.7%), pain (21 participants 9.1%) and others (12 participants 5.6%) as depicted in figure 4 below

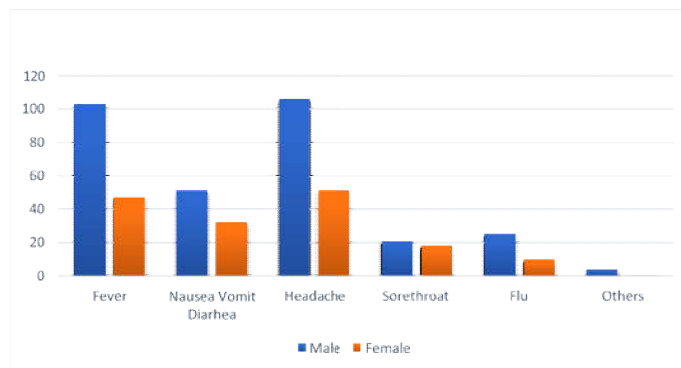


Figure 4 Symptoms for which Respondents were Self-Medicating

Paracetamol was the widely used drug which 177 respondents (82.3%) were using for self-medication, Nsaids were used by 77 participants (35.8%) whereas homeopathic and antibiotics were used by 28 (13.0%) and 18 (8.4%) respondents, respectively as shown in figure 5 below.

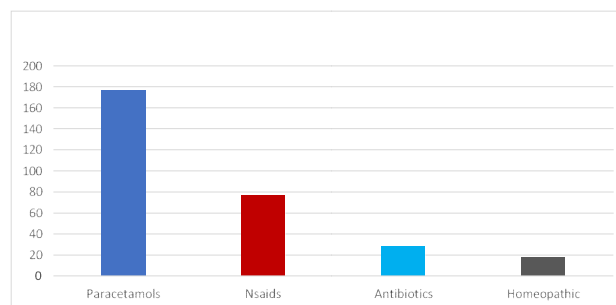


Figure 5 Drugs Consumed by Participants

Out of 215 self-medicating respondents’ majority 186 (86.5%) of them had their symptoms relieved and only one-third 55 (25.6%) of them experienced side effects of the drugs. Among 215 practitioner’s, majority 103 (47.9%) of them took drugs on advice of their friends while 52 (24.2%) of them self-medicated on the suggestion of their family members whereas 38 (17.7%) of them self-medicated on the recommendation of community pharmacist. 20 (9.3%) of them self-medicated based on previous experience, 6 (2.8%) of them self-medicated after learning through internet while 21 (9.8%) of them on opinion from other sources.129 (39.4%) out of 327 respondents have advised medicines on their own to other people whereas 184 (56.2%) of the them have discouraged people from self-medication.

The reasons for which participants were self-medicating were prior experience about the drug (286 respondents 87.9%), saving time (183 respondents 85.1%), easy availability in drug stores (20 respondents 9.3%), saving money (103 respondents 47.9%), prior experience about illness treatment (151 respondents 70.2%), non-seriousness of illness (161 respondents 74.9%) as depicted in table 3 below.

Table 3 Practices of Self-Medicating Respondents

	Frequency
Have you ever taken any medicine without your doctor's prescription? (Yes)	215 (65.7%)
For how long have you been practicing self-medication?	
Less than 1 year	15 (7.0%)
1-5 years	49 (22.8%)
5-10 years	27 (12.6%)
More than 10 years	124(57.7%)
For which of the following complain(s), did you self-medicate?	
Fever	150 (69.8%)
Headache	158 (48.3%)
Vomiting/ Diarrhea	84 (39.1%)
Sore throat	39 (18.1%)
Runny nose	36 (16.7%)
Pain	21 (9.8%)
Others	12 (5.6%)
Which of the following medicine(s) have you used without consulting a doctor?	
Paracetamol	177 (82.3%)
NSAIDS	77 (35.8%)
Homeopathic Drugs	28 (13.0%)
Antibiotics	18 (8.4%)
Did the medicine alleviate the symptoms?	186 (86.5%)
Have you ever experienced any side effects of self-medication?	55 (25.6%)
On who's advice did you self-medicate?	
Opinion of a friend	103 (47.9%)
Opinion of a family member	52 (24.2%)
Recommendation of community pharmacist	38 (17.7%)
On the basis of previous Experience	20 (9.3%)
Internet	6 (2.8%)
Others	21 (9.8%)
Have you ever advised medicines to anyone? (Yes)	129 (39.4%)
Have you ever discouraged anyone from self-medication? (yes)	184 (56.3%)
What was the reason(s) of self-medication?	
Prior experience about the drug	189 (87.9%)
Saving time	183(85.1%)
Easy availability in drugstores	20 (9.3%)
Saving money	103 (47.9%)
Prior experience about the illness treatment	151 (70.2%)
Non-seriousness of the illness	161 (74.9%)

There was no significant association between group receiving any formal education or no formal education ($p=0.45$), but there was a significant association between males and females ($p=1.5 \times 10^{-7}$ (<0.05)) and monthly family income below 10,000 Rs and above 10,000 Rs ($p=7.1 \times 10^{-8}$ (<0.05)) as shown in the table 4 below.

Table 4 P Values

Gender	Male	Female	P-values
	146 (n)	69 (n)	1.5×10^{-7} (<0.05)
Education level	No Formal Education	Formal Education	0.45 (>0.05)
	113 (n)	102 (n)	
Income	Below 10,000	Above 10,000	7.1×10^{-8} (<0.05)
	68 (n)	147 (n)	

DISCUSSION

This study aims to determine the pattern of usage of non-prescribed medication amongst the residents of Karachi, to establish the reason behind self-medication and their preference to self-medicate versus visiting a health care unit, to identify the commonly used drugs and any side effects they encountered due to the drugs, and to recognize the relationship of this growing trend of self-medication with the lack of awareness. Self-medication remains a common practice. Several reasons why individuals self-medicate have been cited as; the need of self-care, the feeling of empathy towards their family member in times of sickness, poverty, ignorance, lack of health care facilities and drugs accessible at places other than drug shops [8]. This study conducted amongst the patients of tertiary care hospitals within Karachi shows that 65.7% of the respondents have practiced self-medication at least once in their lives. A previous study conducted in Karachi highlights that 85% inhabitants of rural areas self-medicate. Another study conducted in Karachi in 1995 showed that there was 51% prevalence of self-medication which was performed by mothers who gave medication to their children without consulting a doctor [9].

On the contrary, a study indicated that 76 % of university students of Karachi self-medicate [10]. Whereas another study conducted in India amongst the elderly showed that 88.5% of the participants practiced self-medication [11]. Majority of the people responding to this questionnaire believe that it is necessary to have a basic knowledge regarding the action of the drug being self-medicated for whatsoever illness. Similar KAP study conducted in India among Pharmacy college students supports this ideology [12].

Fever and headache were the most common symptoms for self-medication in elderly. A previous study conducted in Karachi in the elderly population also showed headache as the most common symptom for which self-medication was practiced [11]. Abdominal pain and headache were identified as the most common symptoms for which self-medication was practiced amongst the elderly in India [11]. Paracetamol was the most common drug used for self-medication, this finding is similar with previous researches on self-medication in elderly from Pakistan and other countries.

Paracetamol is a common OTC drug which is readily available from pharmacies and medical stores [11,13,14,15]. Researches have shown that easy availability of drugs is an important factor for self-medication in our societies [16].

The most common reason that was identified in our study for self-medication was having prior experience with the drug (87.9%) and saving time (85.1%). Another study conducted in India identified convenience and cost as the reasons for self-medication [17].

Rising antibiotic resistance due to the indiscriminate use of antibiotics [18], has led to serious complications with the most recent being the typhoid XDR strain [19], which is resistant to first line drugs (chloramphenicol, ampicillin, and trimethoprim-sulfamethoxazole) as well as fluoroquinolones and third generation cephalosporins. One thing that should be noted here is that the number of people using antibiotics has decreased when compared to a previous study conducted in Karachi [20].

With a decrease in the number of people using antibiotics without supervision, can be seen as a positive step to control the rise of this issue. However, fact of the matter is that people are still using antibiotics without the proper approval of their doctor and this is something that the government needs to be vigilant about and must take several decisions to make sure that such practices are eliminated from the society.

According to this research, a moderate number of participants have recommended medicines to others without knowing the adverse outcomes of this (129 out of 327). Therefore, it is extremely important to bring into the knowledge of the people about the hazards of recommending medicines randomly. Similar study carried out in Karachi back in 2015 also supports the point [21]. But over half of the participants discourage people from self-medicating as well. Approximately 25.6% of the respondents suffered the side effects due to self-medication which means that they really have no awareness as to how dangerous can this practice turn out to be [22]. Majority of the respondents are found to be practicing self-medication based on an opinion of a friend (47.9%) and family members (24.2%) that is proven by another research conducted in Karachi based on self-medication [21]. The research shows a positive attitude of respondents towards the need of awareness on the usage as well as consequences of self-medication. A very common practice in Pakistan is the selling of non-prescription drugs by pharmacists and this is a major contributing factor for self-medication [23]. Our study showed that the respondents believed that pharmacies should stop selling drugs without doctor's prescription because of the risks of potential side effects caused by this. Therefore, there is a need to educate all community pharmacists to avoid selling drugs over the counter.

The rise of COVID-19 Pandemic has not only highlighted the fragile nature of healthcare in Pakistan but also has shown the prevalence of self-medication. With the closure of OPDs in an attempt to control the infection and a lack of online healthcare facilities a number of patients have been left stranded. With no proper guidance and a rise of unofficial people prescribing medications on various social media platforms the general public has resorted to self-medicating with various drugs such as ivermectin [24], to protect themselves from corona virus. Although ivermectin has a good safety margin but the risk of unknown drug-drug reactions still exists. In these challenging times it is the sole duty of the government to take an initiative to discourage people from self-medicating and provide people with access to healthcare professionals who not only can educate people about the virus but also about the dangers of self-medicating.

Limitations

A limited number of people were selected to fill the questionnaires; mainly from CHK and other tertiary care hospitals of Karachi. Hence, the research cannot be generalized to the entire population of Karachi. It was a cross-sectional survey conducted from December 2019 to February 2020, this limitation in the time period could compromise the validity of the data. There is a probability that the patients overrated the socially accepted norms and purposely avoided any unfavourable response. There were no methods implemented to confirm the authenticity of the information provided by the respondents. Furthermore, the cohort had difficulty recalling the drugs used by them over a certain

period, leading to a recall bias, which omitted the infrequently used drugs.

CONCLUSION

Completion of this study revealed self-medication to be highly prevalent in elderly population, paracetamol being the most frequently taken medication. Staggering number of participants experienced alleviation of symptoms with self-medication, thus increasing the likelihood of them self-medicating again in the future. However the most important conclusion which can be drawn from our study is that despite responsible self-medication being helpful in reducing load on medical services and saving an individual's time and money, its poses great health risks which outweigh its benefits, hence an increase in awareness must be implemented. Efforts should likewise be made to strictly decrease the easy availability of counter medicines without a prescription, which would thus inevitably decrease the incidence of self-medication. This article lays the groundwork for future research regarding this matter in Pakistan. More researches are needed to be conducted in Karachi on Self-Medication.

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