Self-Medication Among the Elderly and Factors Associated with It

Zaheer Ali, Rabeeya Saeed, Fatima Kanwal, Faridah Amin, Noureen Durrani, Areeba Abdullah

ABSTRACT

Objective: Our study aims to assess the frequency of self-medication in elderly people of Karachi, identify its reasons and associated risk factors.

Study Design & Setting: This cross-sectional study was conducted in waiting areas of OPDs at Liaquat National hospital and its outreach centers.

Methodology: Study duration was June-December, 2021. We approached all patients and aged 60 years and above. After taking written informed consent, targeted population was interviewed to find out self-medication performed within last three months and its reason and causes. Participants' demographics, symptoms for which self-medication was performed, different type of medications used, reasons of opting self-medication and different approaches for dose adjustment were also investigated. Data was recorded by a pre-designed questionnaire. Data was analyzed using SPSS version 21.

Result: Out of 200 elderly included in the study, 87% of them reported self-medication in a 3-month recall period. Pain (63.8%), fever (56.9%), headache (50%), cough, and cold (37.4%) were the most common symptoms. Pain killers (81.6%), fever-reducing drugs (58%) and cough syrup (39.1%) were the top three medicines used for self-medication. One-fifth of the respondents reported self-medication of antibiotics. Top three frequent reasons for self-medication were convenience (99.4%), disease of mild nature (85.1%) and for quick relief of symptoms (78.7%). None of the patient's demographic factors were found to be associated with self-medication practice.

Conclusion: Self-medication is a highly prevalent practice in elderly people of Karachi including non-prescribed usage of antibiotics. Major reforms in primary health care are needed to address this growing problem.

Keywords: Elderly, Frequency, Geriatric, Prevalence, Self-medication

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INTRODUCTION:

The World Health Organization (WHO) defines self-medication (SM) as the selection and utilization of medicines to treat self-recognized symptoms or ailments without consulting a physician.[1] It also encompasses the use or re-use of previously prescribed or unused prescriptions, the purchase of prescription drugs without consulting a physician, and the irrational use of over-the-counter medications.[2] Self-medication is a major worldwide issue that affects both industrialized and developing countries.[3, 4] According to several researches, self-medication has a frequency of 32.5–81.5 percent globally.[5] The most commonly self-prescribed medications are analgesics, antipyretics, antitussives, antidiarrheal, calcium and vitamin supplements, anabolic steroids, sedatives, certain antibiotics, and many herbal and homeopathic remedies.[3]

The proportion of adults of age >60 years are growing globally. In 2019, there were 1 billion people over the age of 60. This number is predicted to increase to 1.4 billion by 2030 and 2.1 billion by 2050. Low- and middle-income nations will house 80 percent of all elderly people by 2050[6].

Pakistan, with a population of 207.7 million people, is one of Asia's five biggest countries. Our current population growth rate of 2.4 outpaces all of its neighbors. By 2050, Pakistan is predicted to have 26 million people aged =65 years.[7] Elderly have many changes in physical functioning that impact drug metabolism. They have several co-morbids, making them more vulnerable to the risks of self-medication.[8]

The downsides of self-medication, among the elderly, should be noted. Among them are excessive costs, delayed diagnosis and suitable therapy, potential dangers of combinations with prescription medications, bacterial resistance, adverse reactions, and intoxication.[9]

Majority of pharmacies in Pakistan sells medications without a prescription. As a result, antibiotics and potentially habit-forming drugs, notably benzodiazepines, are freely available. Because of this, as well as a lack of knowledge, the general population is uninformed of the possibly fatal repercussions of several of these drugs. The general public is forced to seek help from sources other than doctors due to a lack of a solid primary health care system and cost concerns. In Pakistan, there have been very few studies on self-medication, which has also revealed high rates of prevalence of around 51%[10]. This percentage is significantly higher in rural areas due to a lack of healthcare facilities. 70% of Pakistan's population does not have easy access to medicines or doctors[11]. It is especially concerning because, despite efforts to contain the problem, prevalence rates are rising.

Keeping in mind the increasing number of the elderly in society, the side effects of using non-prescribed medicine, is cultural patterns. The current study was conducted to investigate self-medication practice and its reasons and related factors among the elderly population presenting to Primary care clinics of a tertiary care hospital.

METHODOLOGY:

This cross-sectional study was conducted after taking ERC approval (App# 0654-2020 LNH-ERC) from Liaquat National Hospital. Based on 84.68% estimated prevalence of self-medication in Pakistan, sample size was calculated via Open-Epi tool with 95% CI and 5% margin of error, which came out to be 200[11]. We approached all patients and their attendants aged 60 years and above in the waiting areas of Outpatient clinics and Outreach centers of Liaquat National Hospital. People not willing to participate were excluded. After taking written informed consent, the elderly were interviewed to find out self-medication performed within last three months. The assigned data collector (medical student) was given training to conduct the interview and gather the data on a predesigned questionnaire. Participants' demographics, symptoms for which self-medication was performed, different type of medications used, reasons of opting self-medication and different approaches for dose adjustment were also investigated.

Data was entered and analyzed using SPSS version 22.

Categorical variables were expressed as frequency and percentage. Numerical variable 'age' was expressed as median with interquartile range (IQR) after testing normality with Shapiro-Wilk test. Binary logistic regression was run to ascertain factors' association with self-medication in terms of odd ratio and their 95% confidence interval. Variable significant with p<0.25 in univariate analysis were used for building multivariable regression model. On final regression model, statistical significance was defined as two tailed p-value less than or equal to 0.05.

RESULTS:

A total of 200 participants were interviewed, with median age of 65 (IQR=62-70) years. Majorities were males (52.5%) and married (70%). Participants of different mother tongue such as Urdu (43.5%), Sindhi (13.5%), Punjabi (10.5%), Pashto (9.5%) and of other regional languages (23%) participated into the study. 41% were graduates, 15.5% primary pass, 18% secondary pass and 17.5% post-graduates. Few were uneducated (8%). Majority of the participants were unemployed (43.5%). 15.5%, 19.5%, 21.5% were self-employed, retried, working in private sector and part-timers respectively. Most participants had monthly income <25K (60%). Some reported their monthly income was 26-50K (14.5%), 51K-75K (9%), 76-100K (6%) and >100K (10.5%). Participants had diabetes (29%), hypertension 35.5%), osteoarthritis (19.5%) and ischemic heart diseases (10%).

87% reported that they self-medicated without prescription in the last 3 months. Figure 1 depicts different conditions for which self-medication was done. Table 1 represents reasons for using self-medications. All participants reported that medications are available at their home. Figure 2 shows the usage of different medications among study participants.

Participants reported that pain killers (99%), fever reducing drugs (94%), anti-allergy (48%), cough syrup (73.5%), anti-depressant (10.5%), anti-diarrheal (45%), antibiotics (88%), multivitamins (57%), sleeping pills (22%), weight reducing pills (2%), sexual activity enhancement pills (6.5%), homeopathic medicines (14%), herbal medicines (11%) were available at their home.

Table 2 represents ways of deciding dosage. 90.5% participants always check the expiry date of medicine before using it whereas 5.5% check it sometimes and 4% never check it. 57% participants considered self-medication as an acceptable practice.

Table 3 shows the comparison of participants' characteristics among those practiced and did not practice self-medication. None of the factors was found to be associated with practice of self-medication. Based on the criteria of p<0.25 in univariate analysis, only two variables age and gender were candidates to be enter in multivariable model. Multivariable regression analysis showed that age (aOR=1.04, 95% CI: 0.98-1.11, p=0.210) was significantly associated with practice of self-medication during past 3 years. The likelihood of

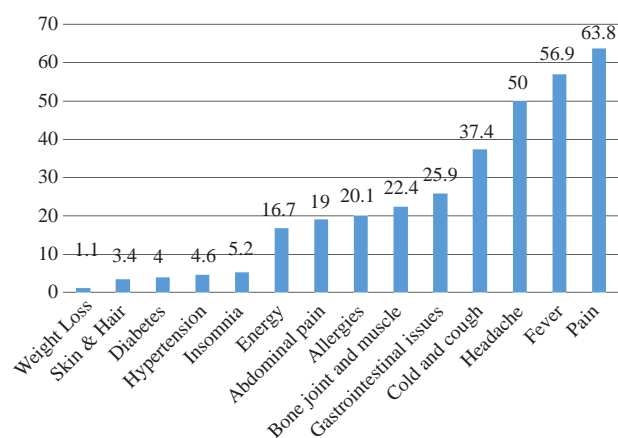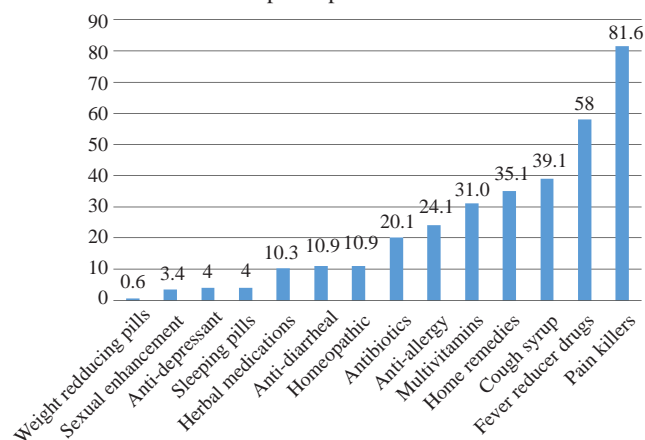Figure 1: Frequency of symptoms for which self-medication was performed

Table 1: Frequency of reasons for using self-medications

Reasons	Frequency	%
It was convenient	173	99.4
I had minor illness	148	85.1
For saving time and money	110	63.2
For quick relief of symptoms	137	78.7
I purchased directly from medical store	43	24.7
It was recommended by local pharmacist	38	21.8
Advised by friends/family	44	25.3
I had a social contact working in healthcare sector	71	40.8
I had experience about the drug	68	39.1
Unconsumed medication brought for family	8	4.6
I had no medical insurance	18	10.3
I was unable to afford doctor's fee	37	21.3
Unavailability of physician	26	14.9
Lack of trust in doctors	18	10.3
Attended a physician last year	78	44.8
Drug was advertised in TV	15	8.6

Figure 2: Usage of different types of medication among study participants

Table 2: Frequency of different approaches for dosage adjustments

Different approaches for dose adjustments	Frequency	%
Ask Family physician	77	38.5
Ask a doctor in family	98	49
Ask a friend	30	15
Ask local pharmacist	38	19
Read it on internet	14	7
Read the instruction on medicine	45	22.5
Patient Decided for themselves	119	59.5
Previous experience	119	59.5

performing self-medication was higher in males than females but statistically it was not significant (aOR=2.14, 95% CI: 0.88-5.21, p=0.094).

DISCUSSION

In the '90s, the trend of self-treatment for different ailments was first recognized in various parts of the world.[12] Self-medication is now a global phenomenon and plays a huge part in potential drug resistance along with many other adverse effects.[13] The elderly group is the most vulnerable cohort for practicing self-medication due to suffering from several acute and chronic diseases because of the aging process.

In the present study, a high frequency of 87% self-medication without prescription during the past three months was observed. Similarly higher prevalence of self-medication was also noticed in other studies from the south Asian region including Iran (76.2%), India (88.5%). Outside region studies show a similar prevalence of 80%.[14-16] In contrast to this observation, very few studies in the region reported a low prevalence (38%), of self-medication. In another recent study from Karachi, a comparatively lower prevalence of

65.7% was observed in self-medication.[17,18] We assume that the variability can be explained due to the difference in study time as the study by Saif Ali et al, was conducted in pre-covid era and our study was conducted during covid times when patients preferred home treatment to avoid hospitals and clinics exposure.[18]

However, some surveys conducted in Pakistan among the middle age in the pre-pandemic era also reported use of medication without prescription of the doctors which requires investigating the health-seeking behavior and the factors encouraging them to use medication without prescription of the doctors.[19]

Minor illnesses are a common occurrence and self-medication for minor ailments offers low-cost, quick, and feasible solutions. The high frequency of self-medication reflects that there is significant potential in enhancing patient awareness regarding self-health care.[12] In the present study, the common symptoms for which self-medication was performed were pain, fever, headache, cough, and cold. Another study conducted in Karachi also reported headache (73.5%) and fever (69.8%) as the top symptoms for which

Table 3: comparison of participants characteristics among patients practiced and did not self-medicate in the last three months

Variables	Groups	Medication without prescription in last 3 months		OR (95% CI)	p-value
		Yes n (%)	No n (%)		
Age (in years)#	-	65(62-70)	69(65-70.3)	1.1(0.98-1.11)	0.052
Gender	Male	87(82.9)	18(21.7)	2.3(0.93-5.44)	0.067
	Female	87(91.6)	8(8.7)	Ref	
Marital Status	Single	18(78.3)	5(6.4)	2.3(0.55-9.62)	0.308
	Married	123(87.9)	17(19.3)	1.1(0.36-3.62)	
	separated/divorced/widowed	33(89.2)	4(10.8)	Ref	
Mother tongue	Urdu	72(82.8)	15(18.1)	2.19(0.68-7.03)	0.506
	Sindhi	24(88.9)	3(3.4)	1.31(0.27-6.36)	
	Punjabi	20(95.2)	1(1.1)	0.53(0.06-5.01)	
	Pashto	16(84.2)	3(3.6)	1.97(0.40-9.79)	
	Others	42(91.3)	4(4.4)	Ref	
Educational level	Uneducated	15(93.8)	1(1.1)	0.40(0.04–3.73)	0.904
	Primary	27(87.1)	4(4.6)	0.89 (0.22 – 3.66)	
	Secondary	28(82.4)	6(7.3)	1.20(0.33–4.36)	
	Graduate	72(87.8)	10(11.4)	0.83(0.26–2.65)	
	Postgraduate	30(85.7)	5(5.8)	Ref	
Occupation	Unemployed	78(89.7)	9(10)	0.88(0.28-2.79)	0.372
	self employed	24(77.4)	7(9)	2.2(0.63-7.78)	
	Retired	34(87.2)	5(5.7)	1.12(0.30-4.19)	
	Private sector	38(88.4)	5(5.7)	Ref	
Monthly income	<25000	105(87.5)	15(17.1)	0.61(0.18-2.05)	0.654
	26,000-50,000	27(93.1)	2(2.1)	0.32(0.05-1.90)	
	51,000-75,000	15(83.3)	3(3.6)	0.85(0.16-4.43)	
	76,000-100,000	10(83.3)	2(2.4)	0.85(0.13-5.51)	
	>100,000	17(81)	4(4.9)	Ref	
Diabetes	Yes	48(82.8)	10(12.1)	1.64(0.70-3.87)	0.254
	No	126(88.7)	16(18)	Ref	
Hypertension	Yes	60(84.5)	11(13)	1.39(0.60-3.22)	0.437
	No	114(88.4)	15(17)	Ref	
Osteoarthritis	Yes	32(82.1)	7(8.5)	1.64(0.63-4.22)	0.306
	No	142(88.2)	19(21.5)	Ref	
Ischemic heart diseases	Yes	16(80)	4(5)	1.79(0.55-5.86)	0.304
	No	158(87.8)	22(25.1)	Ref	

CI: Confidence interval, Ref: Reference category, OR: Odds ratio

self-medication was taken followed by other complaints including diarrhea (39.1%), sore throat (18.1%), runny nose (16.7%) and other pains (9.1%).[18] The findings of the Iranian study demonstrated cold and cough (48%) and headache (38.9%) as the most common reasons for self-medication in the elderly population whereas one-third of elders performed self-medication for hypertension and cardiovascular diseases (33.4%).[14] In our study, self-medication to manage hypertension and diabetes was comparatively low. Hence it could be perceived that our patients were cautious about using the medication without a prescription for illnesses that may have a serious impact on their overall health in long term. A community-based study conducted in India also documented fever (66.3%), headache (54.7%) and cough and cold (38.4%) were the most frequent illnesses for opting for self-medication.[20] Even the studies investigating self-medication in students and the general population in different countries also reported headache, fever, and cough to be the most common symptoms.[3,5,19]

In Pakistan dispensing medications without prescriptions and over-the-counter availability of medications such as analgesics, anti-diarrheal agents, antihistamines, cough suppressants, and even antibiotics, is an alarmingly common practice.[21,22] Even if new medicines develop, misuse of medications will continue to pose a challenge and will increase morbidity due to medication interactions, side effects, and antibiotic resistance. Disturbingly, one-fifth of our study participants reported the use of antibiotics without proper prescription. Another survey conducted in Karachi reported a closed prevalence of antibiotics usage (13%) to our study.[18] A lower prevalence of antibiotics usage was reported in the geriatrics population in a Karachi-based study which was conducted during the pre-pandemic period.[11] However, an estimated 5% of over-the-counter antibiotics are used without a prescription in most parts of the world.[23]

In Pakistan, the provision of primary health care is majorly a financial burden borne by the common man. That is a potential cause of the increased prevalence of self-medication practices.[24] In the present study, the majority of participants were found to be unemployed with monthly income for the most being <25K (60%). Almost all of the participants reported that they opted for self-medication because it was convenient for them. Other top reasons were time and money-saving, minor ailment, quick relief of symptoms, physician visits within a year, and having prior experience of the drug. Direct purchasing of medicines from pharmacies and recommendations by family/friends and local pharmacists were uncommon reasons in the present study. Similar reasons including mild illness (74.9%), time-saving (85.1%), and prior experience of treatment (70.2%) were reported in another study.[18] Familiarity with treatment was also reported as the most frequent reason for self-medication from a survey of the general population in UAE and along with high cost from an Iranian study (63.7%)[25]. A study from Iran reported prior experience with medication and high cost as the main reason for self-medication, Other reasons include minor illnesses and availability of medicines at home (38.2%).[14]

Further analysis was done to assess any significant difference in self-medication practices with respect to demographic features. In our study, we did not find an association of self-medication with any of the patients' factors including age, gender, marital status, monthly income, or existence of non-communicable diseases. Other studies from Karachi and outside do report some significant associations with gender, age, education, income, marital status.[14,15,18,19] We assume that a high frequency of self-medication and limited sample size were the potential reasons for this non-significant association of patients' socio-demographic factor with self-medication practice in the current study.

Our study had a few limitations, Firstly study was conducted in waiting area of a hospital setting with a limited sample size so being a patient or caretaker of the patient, chances of having knowledge and experience of medications are higher as compared to elderly people in the community, hence results cannot be generalized for an overall geriatric population of Karachi. Further, it was conducted during the first wave of the COVID-19 pandemic when the fear of acquiring COVID was high in every age group especially in elderly and people were avoiding hospital/clinical exposures which may have overestimated the true frequency of self-medication in the current study. Hence a future community-based study with a larger sample size may overcome the gaps of the current study and achieve generalizable research.

It seems justified to opt for self-medication when the disease is of mild nature and patients had prior experience with the treatment. However, self-medication practices such as frequent use of pain killers, and unjustified use of antibiotics based on suggestions of family, friends, and medicine dispensers should be highly discouraged. Inappropriate self-diagnosis and self-medication could worsen the disease course and increase morbidity.

CONCLUSION

A higher frequency of self-medication practice was determined in this study. Fever, headache, cough, and cold were the main symptoms of practicing self-medication. Reasons for self-medication were patients' convenience, disease of mild nature, and prior experience of the drug. None of the patients' factors was associated with self-medication practice. Increasing patient awareness, regular checkups, medication review by the primary physicians' and strict regulation of prescription-based medicine supply are suggested ways forward for better health outcomes, especially in the elderly population.

Authors Contribution:
Zaheer Ali: Study concept, design of the work, initial drafting of the manuscript
Rabeeya Saeed: Critical review of the initial draft and final approval
Fatima Kanwal: Initial drafting of manuscript
Faridah Amin: Study concept, design of the work
Noureen Durrani: Perform Data analysis, interpreted results, complied the manuscript
Areeba Abdullah: Data collection, data entry and assisted in result presentation and writing

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