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Prevalence of Self-Medication among the Elderly in Gorgan, North of Iran

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ABSTRACT

Background and objectives: Self-medication is a major global health problem. Regarding this issue, the elderly are one of the most vulnerable groups in the community. The aim of this study was to determine prevalence and pattern of self-medication among the elderly in Gorgan, Iran.
Methods: This cross-sectional study was carried out on 550 elderly residents of Gorgan in winter of 2017. Data were collected using a questionnaire consisting of 14 questions on demographic variables and medication use. The collected data were analyzed with SPSS (version 18) using Pearson's correlation coefficient and the chi-square test.
Results: The overall prevalence of self-medication was 76.2% among the elderly people. Self-medication was more frequent in women (82.2%), married elderly (78.2%), and those with low education level (81.3%). Moreover, the most common reasons of self-medication were common cold and cough (48%) and headache (38.9%). Analgesics (67.1%) and non-steroidal anti-inflammatory drugs (58.5%) were the most frequently used drugs for self-medication. Main derivers of self-medication were previous experience with the medication (63.7%) and the high cost of doctor's visit (54.5%). In addition, the most important sources of information about self-medication were previous prescription notes (53.2%) and previous experience with the condition (31%). Furthermore, we found a significant correlation between self-medication and some demographic variables including gender, marital status and education level ($P<0.05$).
Conclusion: We demonstrated that the prevalence of self-medication, especially with analgesics and non-steroidal anti-inflammatory drugs, is high among the elderly people in Gorgan, Iran. This highlights the need for preventive measures, including training programs and restriction on access to certain medications in this area.
KEYWORDS: Self-medication, Elderly, Medication

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INTRODUCTION

Due to recent advances made in various scientific fields, access to drugs has increased in different societies, which has led to drug misuse and increased burden of self-medication (1). Currently, medication overuse is a major social, health and economic problem in many countries, including Iran. Complications caused by this issue include drug resistance, increased per capita pharmaceutical consumption, treatment complications, side effects, etc. (2). Self-medication is defined as the consumption of one or more medications without prescription in order to prevent or treat an illness. This could be caused by acquiring medication without a physician's prescription, use of prescribed medicine for other family members, and excessive use of prescription medication (3). The severity of this issue may vary in different communities and influenced by social, economic and demographic factors (4, 5). Elderly people have a higher tendency to self-medicate since they often suffer from more problems and illnesses than other groups in the community (6). According to studies, the prevalence of self-medication among older people varies between 4% and 87% in different countries (7). Similarly, the rate of self-medication has been reported to be relatively high in some areas of Iran (8). On one hand, age-related changes in the metabolism, pharmacokinetics, pharmacodynamics, and ultimately response to drugs can exacerbate drug-related side effects and interactions in the elderly (6). On the other hand, statistics suggest that the global population of older people is growing, and may rise to 1.2 billion by 2025 (7). Considering the high prevalence of self-medication among the elderly, age-related physiological vulnerability and the rise in the population of this group of people, we aimed to investigate the prevalence and pattern of self-medication among elderly people living in Gorgan, Iran.

MATERIAL AND METHODS

Study design and participants

This descriptive and analytical cross-sectional study was carried out to determine the prevalence and pattern of self-medication in the elderly living in the city of Gorgan (Iran) in winter of 2017. Inclusion criteria included living in the city of Gorgan in the past 6 months and age of 60 years or older. Self-medication was defined as the use of medication (excluding herbal/traditional medicine) without prescription in the last three months (8). Consumption of over-the-counter (OTC) medications without prescription was also considered as self-medication. Sampling was done via two-stage cluster sampling: first, the population of Gorgan was divided into 50 clusters, and then families were selected randomly. Eleven older people were selected from each cluster. Sample size was determined using the following formula.

$$n = \frac{z^2 \times P\ (1-p)}{d^2}$$

In a study by Azami et al. (2015), the prevalence of self-medication in the elderly was 68% (9). Considering z-value of 1.96 (at 95% confidence interval) and d (error) value of 0.03, a sample size of 522 was calculated, which was increased to 550.

Data Collection

Data were collected by direct interview at subjects' place of residence and using a researcher-made questionnaire consisting of 5 questions about demographic characteristics and 9 questions on status of drug use and self-medication. Those who failed to complete the questionnaire were excluded from the study. Items of the questionnaire were designed based on the study objectives and similar studies. Experts in the field of toxicology and social medicine confirmed validity of the questionnaire. The study received approval from ethics committee of Golestan University of Medical Sciences (code: IR.GOUMS.REC.1396.271).

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Statistical analysis

Statistical analysis of data was performed with SPSS software (version 18) using descriptive (frequency, percentage and standard deviation) and analytical (Pearson's correlation coefficient and chi-square test) statistics. P-values less than 0.05 were considered as statistically significant.

RESULTS

Of the 550 subjects, 50.9% were male, 89.1% were married, and 55.5% were illiterate or with primary education. Moreover, 87.6% of the subjects had insurance coverage, and 57% of the older people were living in a household with monthly income of less than 20 million rials. We found 419 cases (76.2%) of self-medication among the 514 subjects who took medication over the past three months. Mean frequency of self-medication in the three-month period was 5.84 ± 5.09 times.

In this study, self-medication was significantly more frequent in women (82.2%), married elderly (78.2%) and those with low education level (81.3%) (Table 1). Self-medication was slightly more frequent in older people with a household income of less than 20 million rials per month and insurance coverage (P>0.05).

Table 1. Association between self-medication and demographic variables

Variable	Not self-medication		Self-medication		P-value
	Frequency	Percent	Frequency	Percent	
Gender					
Man	83	29.6	197	70.4	P=0.004
Woman	48	17.8	222	82.2	
Marital status					
Married	107	21.8	383	78.2	P=0.002
Single	24	40	36	60	
Education					
Illiterate	24	18.7	104	81.3	
Primary	45	27.1	129	72.9	
Secondary	11	19	46	81	P=0.003
High-school	36	34.3	117	76.5	
University	12	34.3	23	65.7	
Monthly household income					
Less than 20 million rials	60	19.2	253	80.8	P=0.051
More than 20 million rials	71	30	166	70	
Insurance coverage					
Yes	114	23.7	368	76.3	P=0.187
No	17	25	51	75	

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A majority of students had moderate knowledge and good attitude about health and food safety. There was a significant relationship between level of education and attitude towards health and food safety (P=0.04) (Table 2).

Table 2. Frequency of reasons for self-medication among the elderly

Reason/illness	Frequency	Percent
Fever	59	14.1
Headache	163	38.9
Cold and cough	201	48
Gastrointestinal problems	125	29.8
Hypertension and cardiovascular disease	140	33.4
Diabetes	34	8.1
Insomnia and mental disorders	48	11.5
Bone, joints and muscle problems	82	16.9
Other	58	14

We found that analgesics (67.1%) and non-steroidal anti-inflammatory drugs (NSAIDs, 58.5%) were the most frequently used drugs (Table 3).

Table 3. Drugs used by the elderly for self-medication

Drug category	Frequency	Percent
Analgesic	281	67.1
NSAID	245	58.5
Cold and cough medicine	177	42.2
Antibiotic	117	27.9
Gastrointestinal medications	149	35.6
Cardiovascular drugs	140	33.4
Anti-diabetic drugs	34	8.1
Sedative-hypnotics	84	20
Ophthalmic drugs	23	5.5
Iron and supplements	24	5.7
Other	11	2.6

Previous experience with the medication (63.7%) and the high cost of doctor's visit (54.5%) were the main drivers of self-medication (Figure 1).

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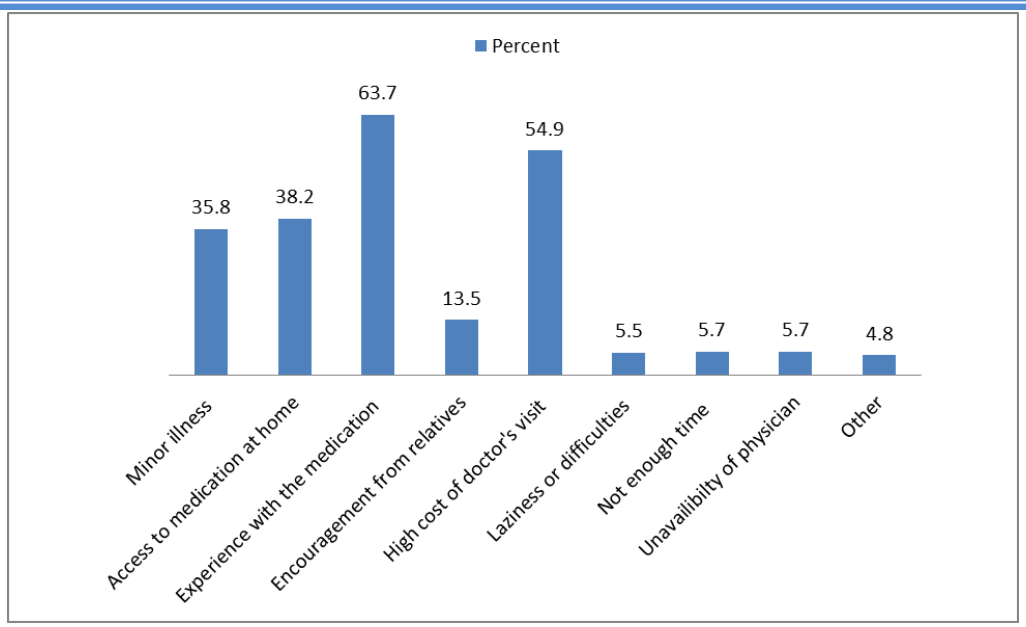

Figure 1. Drivers of self-medication in the elderly

Moreover, tablets (92.3%), capsules (32.9%), ampules (28.4%) and syrups (22.4%) were the most common forms of medication used by the elderly. In addition, the most common sources of information about the medication use were previous prescription notes (53.2%), previous experience with the condition (31%), family members and relatives (28.6%), and pharmacy personnel (28.6%).

DISCUSSION

In this study, we determined the prevalence and pattern of self-medication among the elderly people in Gorgan, Iran. We found that 76.2% of the elderly self-medicated over the past three months. In a study in Khoramabad and Kermanshah, the prevalence of self-medication among older people was 39.4% and 83%, respectively (8, 9). A considerably higher rate (97%) was reported by a similar study in Australia (7). Studies in Ethiopia, Nepal, Pakistan, India and Brazil reported the prevalence of self-medication to be 43.2%, 59%, 84.7%, 48% and 35.7%, respectively (7, 10). The difference in the prevalence of self-medication in different countries can be due to socioeconomic and demographic factors (8).

In this study, self-medication was more frequent among older women, which is consistent with findings of two previous studies (8, 10). This could be attributed to the fact that women are generally more likely to seek and use health care services (8). We also found that self-medication is more frequent among people with low education levels, which is similar to the result of a study in India (10). However, a number of previous studies in Iran claimed that self-medication is more common in people with higher education level (11, 12). Older people with a high education level believe that the information required for medication use can be obtained through brochures and previous prescription notes (8).

In the present study, common cold and cough, followed by headache were the most important reasons of self-medication, which is consistent with findings of previous studies in Iran (9, 13). However, abdominal pain and gastrointestinal problems were reported as the most important reason for self-medication in India (7) and Nepal (14), respectively. Another study in India showed that older people self-medicate mainly due to bone and joint pain (10). A study in Pakistan also

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reported headache as the most important reason for self-medication (15). Considering the fact that the present study was carried out in winter when most respiratory infection outbreaks occur, it was expected to observe such high rates of self-medication for cold and cough.

In line with previous studies (8, 15-18), we found that analgesics and NSAIDs were the most commonly used drugs for self-medication. Ease of access to drugs, awareness of the effects of certain medications, and cultural factors could influence the category of drugs used for self-medication (7). Similar to some previous studies, we found that previous experience with the medication and the high price of doctor's visit are the main drivers of self-medication (6, 8).

A previous prescription note and previous experience with the condition were the most important sources of information for self-medication. This result is line with findings of two studies (8, 19) but inconsistent with results of a study in India, which reported pharmacy personnel as the most important source of information (10).

CONCLUSION

The prevalence of self-medication is high among the elderly in Gorgan, Iran. Therefore, relevant organization and authorities need to take preventive measures, including training programs for the elderly and placing restriction on access to certain medications in this area. It is also suggested to conduct similar studies regarding the use of OTC medications and their role in self-medication.

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DECLARATIONS

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Ethics approvals and consent to participate The study received approval from ethics committee of the Golestan University of Medical Sciences (code: IR.GOUMS.REC.1396.271).

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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