

*Original Article****Self-medication practice and associated factors among adults in Gorgan, north of Iran***Mohammad Shokrzadeh¹ Reza Hoseinpoor² Danial Jafari³ Jafar Jalilian⁴ **Yaghoub Shayeste^{5*}**

1. Professor, Pharmaceutical Sciences Research Center, Department of Pharmacology and Toxicology, Faculty of Pharmacy, Mazandaran University of Medical Sciences, Sari, Iran
2. MSc in Epidemiology, Health Management and Social Development Research Center, Golestan University of Medical Sciences, Gorgan, Iran
3. General Practitioner, Health Management and Social Development Research Center, Golestan University of Medical Sciences, Gorgan, Iran
4. MSc in Toxicology, Faculty of Pharmacy, Mazandaran University of Medical Sciences, Sari, Iran
5. MSc in Toxicology, Health Management and Social Development Research Center, Golestan University of Medical Sciences, Gorgan, Iran

*Correspondence to: Yaghoub Shayeste
shayeste.yaghoub@gmail.com

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Abstract

Background and Purpose: Self-medication is an important concern in every part of the world. The aim of this study was to estimate the prevalence and to investigate the associate factors of self-medication among adults in Gorgan, north of Iran.

Materials and Methods: This descriptive cross-sectional study was carried out among adults aged 12 years and above who were residents in Gorgan city. The participants were selected using the multi-stage cluster sampling method. SPSS Software and Pearson's chi-squared test were used for data analysis.

Results: A total of 592 households with 2050 respondents were visited. The prevalence of self-medication was 67.9%. A larger number of females were self-medicating (71.3%) than males (63.5%). The majority of the respondents self-medicated because of the previous use experience (59.3%). The main indication for self-medication use was headache (60.8%). Analgesics were the most commonly self-medicated by the respondents (83.9%). Also, 88.6% of the respondents prepared their drug from drugstores. Furthermore, there were significant differences between self-medication and demographics characteristics including gender, age group, marital status, occupation, education level and income ($p < 0.05$).

Conclusion: The prevalence of self-medication especially with analgesics is relatively high among adult city-dwellers in Gorgan. So, preventive measures, such as strengthening of the communities' awareness on the side effects of self-medication practice and regulation of pharmacies are very important mechanisms to decrease the practice.

Keywords: Self-medication; Adults; Prevalence; Iran; Gorgan

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1. Introduction

Self-medication is a common practice in many parts of the world (1), and it can be defined as obtaining and consuming drugs without the advice or intervention of a physician either for diagnosis, prescription or surveillance of treatment (2). Today, self-medication is one of the social, health, and economic challenges in every part of the world including Iran (3). Moreover, self-medication practice, a new silent epidemic has now become a serious health problem to the society (4). The frequency and nature of self-medication varies in different countries and from one culture to the other, worldwide (1). The prevalence of self-medication in low income countries is in the range of 12.7% to 95% (4). In Iran, it's prevalence varies from 12% to 90% (5), and it is estimated to be approximately three times more than the global average (3). Furthermore, other studies in Iran, such as Kerman, Kermanshah, Gonabad and Ardabil, showed that in 76% of the studies conducted on self-medication, the prevalence of such cases was reported over 50% of the population (5).

There is a lot of public and professional concern around the irrational use of drugs in self-medication. In poor countries most episodes of illnesses are treated by self-medication because of easy availability of wide range of drugs and inadequate health services (1,6). Moreover, various studies reported that self-medication can lead to a delay in care cycle, which could then result in paradoxical economic loss due to a delay in the diagnosis of underlying conditions and suitable treatments (6). Also, self-medication may lead to an interaction between drugs which would be prevented, had the patients sought care from a licensed medical practitioner (7).

Self-medication can be influenced by various factors, such as socio-economic and socio-demographic factors, or easy accessibility of drugs in developing countries, pharmaceutical advertisement, previous medical history, and left over medicine at home (8). Unfortunately, many patients are susceptible to noncompliance of prescribed medications, and are convinced to look for self-medication. Previous studies have indicated that sometimes there is a misbelief among the patients that self-medication is totally safe, whereas, this type of remedy is usually harmful (9).

The efforts to correct the pattern has not so far led to much success, and pharmaceutical system still faces with overuse of drugs and self-medication. Moreover, certain studies confirmed that about 65% of diseases were associated with noncompliance of prescribed drugs with the correct pattern of medication or irrational use of medicine by people (3). The objective of the present study was to estimate the prevalence and investigate the associate factors of self-medication among adults in Gorgan, north of Iran.

2. Materials and Methods

This descriptive cross-sectional study was carried out among adults aged 12 years and above who were residents in Gorgan city, which is the most populous city in Golestan Province, north of Iran, through house-to-house survey in the period of January to March, 2018.

In the current study, self-medication was defined as the use of chemical drugs without consulting qualified health practitioners within the three months of the data collection date.

The citizens migrated from other cities of Iran and people of extreme age groups

(<12) were excluded from the study. The medical professionals (doctors, pharmacists, and paramedical staff) who were not willing to participate in the study were also excluded.

The estimated sample size of this study was calculated to be 2041 by the formula: $n = (z^2pq)/d^2$, where $z=1.96$, p is the prevalence of self-medication based on average of prevalence rates of previous studies (50%), $q=1-p$, and d is the desired precision (0.02). In this study, the final sample was rounded to 2050.

Multi-stage cluster sampling technique was then used to collect the data. Based on this technique, the whole Gorgan City was divided into 50 clusters. In each cluster, 41 cases were selected through simple random sampling, and the information on self-medication was collected from all adult household members (aged 12 years and above).

To collect the required data, a self-constructed checklist consisting of two main parts (demographic characteristics with 11 questions and self-medication factors with 9 questions) was used.

A descriptive analysis was performed on all variables to obtain the frequency distribution. Quantitative variables were reported with range, frequency, percentage, and standard deviations (SD). Normality was also obtained through Kolmogorov Smirnov test. The analysis of difference between two categorical variables was done using the Pearson's chi-squared test (χ^2) and P-values less than 0.05 were considered statistically significant. Moreover, the collected data were analyzed using SPSS Software, ver.18 (Chicago, IL, USA).

Confidentiality of participants' information was maintained and ethical clearance was taken from the institutional

ethics committee of Golestan University of Medical Sciences (Gorgan, Iran) before the initiation of this research project (IR.GOUMS.REC.1396.271).

3. Results

A total of 2050 respondents from 592 households were selected. Majority of the respondents (779, 38%) were in the age range of 30 to 39 years with mean \pm SD= 13 ± 53 . The proportion of females in the study population was higher (1169, 57%) as compared to males (881, 43%). Among the respondents, 1691 (82.5%) were married and majority of them (881, 43%) had collegiate education. In the total sample population, 881 respondents (43%) had a monthly household income below 20,000,000 Rials. Moreover, majority of respondents (1902, 92.8%) had medical insurance.

Of the 2050 respondents, 1392 (67.9%) reported to have self-medication in the last 3 months preceding the study. The rate of self-medication was higher among female respondents (71.3%) as compared to that of males (63.5%) ($p < 0.001$). Also, the prevalence of self-medication was more among 50-59 years age groups (80.3%). Additionally, the practice of self-medication was found to be high (72.7%) among divorced/widowed respondents. Moreover, self-medication was found to be practiced more frequently among those with lower levels of education which also included the illiterate (81.5%) and primary school students (68.3%). Self-medication was, at the same time, highly practiced by office employees (77%). The majority of the respondents who self-medicated (72.4%) belonged to the upper socio-economic class (average monthly household income $> 30,000,000$ Rials).

Table 1 shows the association between self-medication and socio demographic characteristics of respondents. Among different independent variables, there was a significant association between gender, age, marital status, occupation, education

level and average monthly household income with self-medication ($p < 0.05$). The frequency of self-medication use varied among the respondents with a minimum of at least one time to a maximum of 35 times per three months.

Table 1. Association between self-medication and socio demographic characteristics of respondents

variable	Total of respondents	Self-medication (n=1392)		No self-medication (n=658)		*P-value
		n	%	n	%	
Gender **						P<0.001
Male	881	559	63.5	322	36.5	
Female	1169	833	71.3	336	28.7	
Age (in years) **						P<0.001
12-19	197	99	50.3	98	49.7	
20-29	397	268	67.5	129	32.5	
30-39	779	507	65.1	272	34.9	
40-49	331	252	76.1	79	23.9	
50-59	203	163	80.3	40	19.7	
60 and above	143	103	72	40	28	
Marital status **						P<0.001
Single	447	255	57	192	43	
Married	1691	1057	62.5	634	37.5	
Divorced/widowed	110	80	72.7	30	27.3	
Occupation **						P<0.001
Unemployed	103	69	67	34	33	
Student	141	72	51.1	69	48.9	
University student	130	75	57.7	55	42.3	
Housewife	509	350	68.8	159	31.2	
Office employee	496	382	77	114	33	
Self-employed	581	384	66.1	197	33.9	
others	90	60	66.7	30	33.3	
Educational level **						P<0.003
Illiterate	54	44	81.5	10	18.5	
Primary school	205	140	68.3	65	31.7	
Secondary school	219	129	58.9	90	41.1	
High school	691	490	70.9	201	29.1	
collegiate	881	589	66.9	292	33.1	
Average monthly household income (Rials) **						P<0.004
Less than 20,000,000	881	599	68	282	32	
20,000,000 – 29,990,000	593	376	63.4	217	36.6	
More than 30,000,000	576	417	72.4	159	27.6	
Health Insurance						P=0.171
Yes	1902	1299	68.3	603	31.7	
No	148	93	62.8	55	37.2	

**p-value < 0.05 (Significant)

*Pearson's chi-squared test

The main indications for self-medication use were headache (60.8%), cough and cold (54.2%), and fever (16.9%). The medical

conditions that led to self-medication are given in Table 2.

Table 2. Conditions / symptoms for self-medication (n=1392)

Conditions/ Symptoms	n	%
Anemia	114	8.2
Bone and Joint disorders	128	9.2
Cardiovascular disease	160	11.5
Cough and Cold	754	54.2
Diabetes	42	3.2
Digestive problems	211	15.2
Eye disease	51	3.7
Fever	236	16.9
Genitourinary problems	51	3.7
Headache	846	60.8
Others	79	5.7
Psychopathy and insomnia	185	13.3
Skin problems	40	2.9

The results of the survey of what type of drugs are most commonly self-medicated showed that analgesics (83.9%), NSAIDs (62.6%) and cold /antihistamine drugs

(52.7%) were the most frequently used self-medication drugs within 3 months recall period (Table 3).

Table 3. Drugs used for self-medication (n=1392)

Name of drugs	n	%
Analgesics	1168	83.9
Antibiotics	530	38.1
Cardiovascular drugs	165	11.9
Cold drugs and Antihistamines	734	52.7
Diabetes drugs	46	3.3
Gastric medicines	231	16.6
NSAIDs	871	62.6
Ophthalmic drugs	56	4
Others	129	9.3
Sedative-Hypnotic drugs	250	18
Vitamins and Minerals	128	9.2

Based on the findings, the most common factors that led to self-medication were previous use experience (old prescriptions)

(59.3%), availability of drugs at home (46%) and simple sign and symptom of a disease (45.6%) (Figure 1).

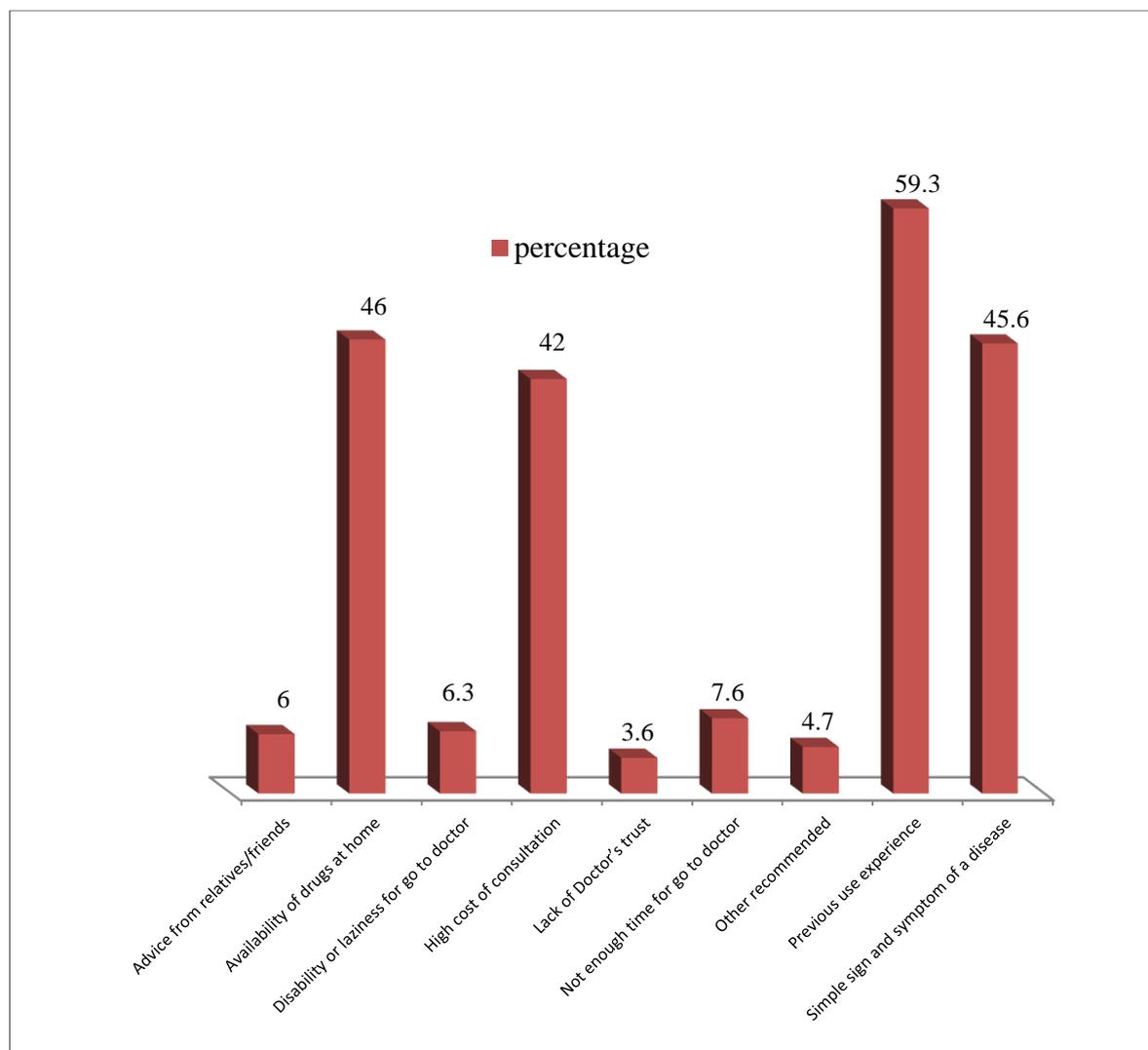


Figure 1. Reasons for self-medication (N=1392)

↑↑ Disability or laziness for going to doctor

↑↑ Not enough time for going to doctor

Overall, 1233 (88.6%) of the respondents prepared their drug from drugstores. Approximately, 433 cases (31%) took the medication from the storage of drugs at home, and 58 (1.8%) respondents prepared drugs from their family and friends.

We also found that, 498 (35.8%) of the respondents used previous experience. The other reported sources of drug information included; previous prescription of doctor (495, 35.6%), relatives and friends (377, 27.1%), pharmacy (355, 25.5%), healthcare providers (183, 13.1%), and others (92, 6.7%).

4. Discussion

The results of the current study showed that the Prevalence of self-medication among adults in Gorgan was 67.9%. Findings from studies performed in Iran, such as Tehran (35.7%), Bojnourd (41.9%), and Kermanshah (83%) showed that self-medication prevalence varied from 12% to 90%. Moreover, the overall prevalence of self-medication in Iran was found to be 53% (3,5). So, the prevalence of self-medication among the study site population was high. Also, the range of self-medication practices as indicated in other

countries was very wide and between 15% to 80% (10). Some of the reasons accounting for these wide variations included differences in educational levels, socio-economic status, and lack of health structures and easy access to over the counter drugs (5,8,10). Moreover, this variation to report self-medication may be due to the differences in study population, definition of self-medication, and the tool used to collect the data from the respondents (11).

The results of our study indicated that the prevalence of self-medication was more among females. A study conducted in Kashan reported that females had a higher rate of using self-medication than males (12). Similar results were reported in a study conducted in India, Turkey, and Spain (13). On the other hand, opposite results were reported in the study conducted in urban India (14) and Sri Lanka (4). This may be the reason that women seem to perceive drugs as more powerful, and to believe that prevention and treatment are more effective (15). Moreover, in some cultures, women might be restricted to move freely outside the house, hence it decreases the trend to seek assistance from physician, and choose to self-medicate until the illness can no longer be self-managed (16).

In our study, the prevalence of self-medication was primarily high among illiterate respondents. This finding differed from other studies conducted at Rajasthan (17) and India (18), where the highest prevalence of self-medication was among literate respondents. Also, a study in Mazandaran revealed that the highest prevalence of self-medication was among those with diploma degree (3). Based on previous studies, the low level of education among people presented a challenge

especially in understanding the content of drug guide and prescription as sources of drug information, thus potentially contributing to inappropriate use of medications (1).

The present survey showed that the most common reason for which respondents self-medicated was "previous use experience". When the reasons of self-medication expressed by the respondents were investigated in our study, the most frequent reason of self-medication was "I used it before and it was successful". Similar to our results, studies in Yazd and India revealed that a high number of patients rely on the previously prescribed drugs (3,19). Another study in urban Delhi reported that the most common reasons for not seeking medical advice was considering disease as minor ailments (20). So, as previous experiences affect the use of drugs significantly, the physician should inform the patient on the medication being for that instant only (19). In the present study, most common symptoms warranting self-medication were headache followed by cough and cold, which were consistent with the results of other studies in Hamadan, India, and Ethiopia (5, 20-21). In a survey conducted in Islamabad, Pakistan, 82% of the subjects chose self-treatment for headache (22).

Our results indicated that the most commonly used drug among the respondents was analgesics. In the study conducted in Yazd (3) and Pakistan (23), analgesics were the frequently used drugs for self-medication, similar to our study, whereas our findings were not in line with that of Rohini Pentareddy et al. (24), who found that cough suppressants were the most commonly used class of drugs. Analgesics drugs are among the most frequently used drugs in the world (19). This high prevalence of analgesics for self-

medication might be associated with their easy access as over the counter (25). Moreover, easy access to medications, awareness of drugs and their use, belief in their efficacy and previous experience of drug use were among important drug related factors which relatively affected self-medication (3).

Regarding the source of information about the drugs used for self-medication, the commonest source of information were the "used previous experience" and "previous prescription of doctor". The overall sources of information showed that self-medication practices among adults in this study were not influenced by advertisements or the Internet; they were the least common sources of information. This finding was similar to a report from study done in Saudi Arabia (26) and Egypt (27).

The present study was based on self-reported data, and it comprised questions for the period of three months, thus it was possible that some incorrect data was given due to forgetfulness, or so-called recall bias. In summary, the prevalence of self-medication among adults in Gorgan city was relatively high. Also, there was a significant association between gender, age, marital status, occupation, education level and income with self-medication. Furthermore, the most common reasons given by the respondents for self-medication were previous use experience and availability of drugs at home. Analgesics and NSAIDs were the most commonly reported types of drugs for self-medications.

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Conflict of interest

The authors declare that there is no conflict of interest.

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