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## RESEARCH ARTICLE

### Exploring Self-medication Behavior among Clients of Pharmacies in Kerman Province of Iran

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#### Abstract:

##### Background:

Self-medication is considered as one of the biggest social, health, and economic problems in different societies, including Iran. Statistics show that medicine intake in Iran is not consistent with the population and the epidemiological status. So, it can be argued that the high rate of medicine use in Iran is partly attributable to self-medication.

##### Objective:

We aimed to explore and analyze self-medication behavior among clients of pharmacies in Kerman province of Iran.

##### Methods:

This is a qualitative study in which 32 participants were interviewed using the exit poll survey approach. Interviews were conducted with people who purchased medicines without doctors' prescriptions. Data were analyzed using conventional content analysis.

##### Results:

Three main categories of patient-related factors, physician-related factors and pharmacy-related factors were explored. These categories also had several subcategories, including easy access to medication and lack of trust in physicians. Among these categories, the most important cause of self-medication was related to the category of patient-related factors and its subcategory of easy access to medication.

##### Conclusion:

Considering the multidimensional nature of self-medication in Iran, which is influenced by a set of economic and cultural factors, as well as weakness in enforcing laws and regulations, overcoming this problem requires short-term and long-term inter-sectoral coordination, which should be carefully considered by health policymakers.

**Keywords:** Pharmacies, Self-medication, Qualitative, Health, Behaviour, Treatment.

#### Article History

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## 1. INTRODUCTION

Health has always been one of the most important concerns of human societies, and health systems have always tried to improve the overall level of community health. This goal is

realized through a set of factors in which medication plays an important role [1]. Although medication is an inevitable factor in the treatment of diseases [2], it acts like a double-edged blade. One edge, cures the disease, and the other edge endangers human life due to unwanted side effects and a lack of knowledge about the correct consumption of medication [3]. The social view has always taken the harmless and healing aspect of the medication [4], resulting in overuse of medication

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and self-medication, which are the biggest problems of health systems all around the world [5].

Self-treatment, which is different from the concept of self-care, is a behavior by which a person tries to take action to treat a disease or solve a health problem without the help and advice of experts [6]. Arbitrary use of medication is one of these actions that includes taking an industrial or homemade medication, obtaining medication without a physician's prescription, using previously prescribed medication for similar conditions, using medications that exist at home, and refusing to use prescribed drugs whether through additional consumption without physician's prescription or not taking the drug completely [4, 7].

The process of selling drugs in pharmacies takes one of these two forms: a) delivery of medicines that require a physician's prescription, and b) delivery of medicines without a doctor's prescription. Group a) is called Prescription Only Medicine (POM), which patients are not allowed to use on their own without a doctor's prescription. Group b) is called non-prescription or over-the-counter (OTC) drugs, which can be obtained without a doctor's prescription, according to the opinion of a pharmacist. Basically, some drugs are recognized as safe and healthy for non-prescription use. These medicines, after being used for a long time all around the world and also after being reviewed and analyzed in terms of possible side effects by authoritative authorities, have been considered safe to use without a physician prescription [8].

Due to the significant advances that have been made in various scientific fields, more people have gained access to various medications. However, this easy access to medication has become a harmful social phenomenon, which is referred to as arbitrary drug use or self-medication [9]. Since in most of the less developed countries, almost every drug on the market can be sold without a prescription, a wide range of POM drugs can be consumed without a doctor's prescription [10]. This problem itself causes many problems, such as inappropriate and indiscriminate use of medicine [8], lack of optimal treatment of the disease, long-term side effects of medication, unwanted poisoning, death, possible delay in the treatment of a serious illness, hidden symptoms of severe diseases and interaction with other drugs [5].

Studies conducted in this field have indicated irrational use of drugs and a high prevalence of self-medication in many countries, including Iran [11]. According to the statistics of the World Health Organization, Iran is one of the top 20 countries in the world in terms of drug consumption [12]. Every Iranian consumes 390 medications a year and uses 10-15% of the country's medications arbitrarily without consulting a doctor. It has been estimated that 83.3% of Iranians self-medicate, and painkillers, antibiotics, anti-cough and cold medications are the most commonly used drugs in self-medication [13]. According to these statistics and the culture of drug use in Iran, it can be said that the irrational use of drugs in Iran is much more critical than in countries, such as Bangladesh, Tanzania, Nigeria, Nepal, India, Jordan, Ethiopia, and Saudi Arabia, where the total self-medication rate is about 56, 81, 75, 63, 69, 42.5, 39 and 35 percent, respectively [14 - 18].

What is clear is that arbitrary drug use and self-medication are some of the worst behaviors in drug administration, and the responsibility of rationalizing prescription and drug use is on the healthcare providers [10]. In this regard, the first step is to identify the causes of arbitrary drug use among patients, and by identifying these causes, we can take effective measures to correct such behaviors. Therefore, this study was conducted to investigate the causes of arbitrary drug use among the clients of pharmacies in Kerman province. It is expected that the results of this study will help to make effective plans to eliminate or reduce arbitrary drug use among people.

## 2. METHODOLOGY

In this qualitative study, using the exit poll survey method, the researcher interviewed people who bought medication without a doctor's prescription outside the pharmacy. The interviews were semi-structured and lasted for 15-20 minutes. At the beginning of each interview, the objectives of the study were explained to the participants and with their permission, the interview process was recorded, and field notes were taken. We reached data saturation at the 32<sup>nd</sup> interview, which was the point in the process of the present research where we collected enough data to draw the necessary conclusions, *i.e.*, further data collection would not yield additional insights of value.

To ensure the reliability of study findings, the Lincoln and Guba approach was taken. Four criteria of credibility, dependability, transferability, and confirmability were used to check the data's trustworthiness [19]. To ensure credibility, the interview text and extracted codes were given to some participants to find out whether they could confirm them or not. They were also asked to make any comment or suggestion that they wanted, and their corrective comments were applied. It should be noted that the extracted codes were reviewed and discussed in several meetings with the members of the research team until a consensus was reached and the codes were finalized. To ensure the dependability of the study, enough time was allocated to data collection and communication with the participants. Also, field notes were taken while recording the interviews. To ensure the confirmability of the study, a complete description of the study process and stages, including data collection as well as code extraction and analysis, was provided to several readers and research colleagues to confirm the accuracy of the findings. In order to ensure transferability, a clear description of the sampling process, characteristics of the participants, and data collection and analysis was provided to the research team so that they could judge the application of the findings in other contexts.

To analyze the data, Colaizzi's seven-step method was used. These steps include: 1) Reading all the descriptions provided by the participants (in other words, the protocol) to get familiar with them. 2) Extracting important sentences from the protocol. 3) Formulating the meanings of each of the important sentences in the previous step. 4) Repeating the previous steps for each protocol identified in the first step and classifying related meanings in a set of themes (categories). 5) Combining the results in the form of a comprehensive description of the study topic. 6) Formulating a comprehensive description of the phenomenon under study in the form of an

explicit and clear statement about the basic structure of the phenomenon under the title of the inherent structure of the phenomenon. 7) Validating the findings by referring back to each of the participants [20]. For this purpose, in the first stage, the recorded conversations were reviewed several times to get a general understanding of the concepts and meanings of statements made by the participants. Then, each interview was reviewed in the second stage and phrases or sentences that were directly related to the desired phenomenon were identified. In the third step, a special concept was considered for each of the extracted sentences. Then, level two codes or sub-categories were obtained by merging the related codes at level one. In the fifth stage of analysis, a comprehensive description of the investigated topics and main categories was created. In the sixth stage, a comprehensive description of the phenomenon was created, and then the results were presented.

**2.1. Study Context**

Situated in the southeastern region of Iran, Kerman Province exhibits a complex landscape characterized by varying income levels, health statuses, and educational prospects. The province's economic foundation relies predominantly on agriculture, mining, and traditional crafts, contributing to discernible income disparities that prevail between its urban and rural areas. Specifically, urban centers, such as Kerman City, experience relatively higher incomes due to vibrant commercial enterprises and government employment opportunities, while rural communities grapple with a multitude of economic challenges. In the realm of healthcare, Kerman Province has made significant strides in recent years, bolstering its medical infrastructure and services and thereby enhancing healthcare accessibility for its population. Nonetheless, disparities in health outcomes persist, especially in remote regions. In the sphere of education, the province has achieved notable progress, evident in the expansion of schools and universities. Nevertheless, a crucial need remains for increased educational investments, particularly in rural areas, with the aim of ensuring equitable opportunities for all residents and further catalyzing the province's overall socio-economic development.

**3. RESULTS**

The information obtained from the semi-structured interviews, after coding and analysis, were categorized into three main categories: patient-related factors, physician-related factors, and pharmacy-related factors. Each of these categories

represents the main causes of arbitrary drug use among pharmacy clients. These categories also had several subcategories. In total, 9 subcategories and three main categories were created (Table 1).

**3.1. Main Category 1: Patient-related Factors**

This category refers to the causes of arbitrary drug consumption that are influenced by the patients or those around them.

**3.1.1. Sub-category 1-1: Previous Use of Medication and Improvement of Symptoms**

Previous use of medication and improvement of symptoms was one of the reasons for arbitrary drug use from the viewpoint of the interviewees. In this regard, a participant stated: "Whenever I get sick, I take the medication I took once before for the same symptoms, and I feel better." (P: 2) In this regard, other participants stated, "Taking one or two pills, which are not dangerous, is nothing to worry about. It is not cost-effective to pay for GP visit for minor symptoms."

**3.1.2. Sub-category 1-2: Making Sure that the Medicine is Safe**

The public view usually considers the safety and healing power of medication, and this issue plays an important role in the tendency of people to self-medicate. In this regard, one of the interviewees stated: "We take medication when we get sick. It is not poisoning, you know. Now, we either get better or the medication has no effect. In the end, taking a few pills does not cause any harm." (P: 10).

**3.1.3. Sub-category 1-3: Peer Recommendation**

Most people, when they suffer from mild or asymptomatic disease, pay attention to the advice of their friends, acquaintances, and people around them to get rid of their symptoms. In this regard, an interviewee stated: "Most of the time, I have seen people around me recommend a medication, and these recommendations increase self-medication and the unnecessary and incorrect use of medications." (P: 3).

**3.1.4. Sub-category 1-4: Recognizing the Disease and Considering it Harmless**

Considering the disease as harmless was another issue raised by the participants. One of the people stated: "The diseases, for which we go to the pharmacy and get medication, are not so serious, and they don't require a doctor visit. A simple disease can be cured with a few medications." (P: 28).

**Table 1. The causes of arbitrary drug use among the pharmacy clients summarized in main categories and subcategories.**

No.	Category	Subcategory
1	Patient-related factors	1-1 Previous use of medicine and improvement of symptoms
		1-2 Making sure that the medicine is safe
		1-3 Peer Recommendation
		1-4 Recognizing the disease and considering it harmless
		1-5 Easy access
2	Physician-related factors	Lack of trust in doctors to diagnose the disease

(Table 1) contd....

No.	Category	Subcategory
3	Pharmacy-related factors	3-1 Ease of purchasing medicines from the pharmacy
		3-2 Advice by pharmacy technicians
		3-3 Technical fees for dispensing

### 3.1.5. Sub-category 1-5: Easy Access

Access was one of the issues mentioned by the participants. From their point of view, many factors affect access to medication. One of the interviewees stated: "The cost of a visit affects people's desire to visit the doctors, and these high costs make us unable to visit the doctor" (P: 1). Another interviewee stated: "It is not people's fault. Medication is expensive, so is the doctor's visit. We don't have money to go to the doctor, so we buy medication from the pharmacy." (P: 23).

Another person participating in the interview said: "Because of the high price of gasoline and taxi fare, I do not spend money to go to the doctor just to get medicines that we all know ourselves" (P: 17). Lack of access to doctors or medical centers and the availability of medication in the pharmacy are other factors raised by the participants. Another participant stated: "The office of well-known doctors is busy, and it is not worth it to leave work just to sit in the doctor's office. On the other hand, doctors often do not prescribe the first appointment; instead, they order too many tests and radiography, so we prefer to tell our problem to pharmacy technicians and get medication. This way is better and less expensive and time-consuming." (P: 12).

### 3.2. Main Category 2: Physician-related Factors

This category refers to the causes of arbitrary drug consumption that are influenced by the doctor.

### 3.3. Sub-category: Lack of Trust in Doctors to Diagnose the Disease

One of the participants stated: "People no longer believe in the diagnosis of diseases by doctors because, in the long run, they concluded that doctors are only looking for money." (P16). Another participant stated: "Doctors have lost their legitimacy because some doctors start prescribing medication as soon as the patient enters their room. How can you trust a doctor in this situation?" (P3).

### 3.4. Main Category 3: Pharmacy-related Factors

Pharmacy-related factors are considered the most important and main causes of arbitrary drug use in Iran. This category also has three subcategories.

#### 3.4.1. Sub-category 3-1: Ease of Buying Medication from the Pharmacy

The ease of buying medication from the pharmacy was one of the issues mentioned by the participants in this study. An interviewee in this regard stated: "If buying medication over the counter is bad, it's the pharmacy's fault that it gives medication to anyone. When it's so easy to get medication, then we don't have to pay for the doctor visit." (P: 22).

#### 3.4.2. Sub-category 3-2: Providing Advice by Pharmacy Technicians

Among the factors identified in the interviews was the role of pharmacy technicians in providing advice on purchasing drugs and drug therapy. One of the interviewees said: "After working in a pharmacy for a while, pharmaceutical technicians consider themselves equal to doctors and pharmacists, so they allow themselves to prescribe drugs for patients." (P: 25).

#### 3.4.3. Sub-category: Technical fee for Dispensing

According to the statements of the interviewees, the technical fee for dispensing is very high. In this regard, one of the interviewees said: "Amoxicillin syrup with insurance coverage is more expensive than over-the-counter purchase because you have to pay for the doctor's visit and the medication, which is increasing every day. Instead of paying for both the visit and the technical fee, we buy and take medication ourselves." (P: 20).

## 4. DISCUSSION

In the present study, the causes of self-medication among the clients of pharmacies in Kerman were explored. Improper use of drugs has long-term side effects for patients and imposes a heavy cost on society, insurance companies, and the government. For this reason, it is important to identify and analyze the causes of self-medication. As the results of this study showed, several factors have an effect on self-medication, which can be considered in the three main categories of patient-related factors, physician-related factors, and pharmacy-related factors.

Previous use of medication and improvement of symptoms, making sure that the medication is safe, recommendation of other people, recognizing the disease, and considering it harmless and easy to access were found to be the main causes of self-medication in this study. However, in other studies, such as the study of Jalilian *et al.*, the previous use of drugs was known as the most important cause of self-medication from the perspective of participants [21]. This result is in line with the findings of the present study. In another study by Baghani-Moghadam and his colleagues, the student's attitude toward the reasons for self-medication was evaluated, and among the variables studied, the variable of considering the drugs harmless obtained the highest mean score [22]. In another study, the effect of this issue on the self-administration of drugs was highlighted in such a way that among the 428 people participating in the study, 12 considered the harmlessness of drugs as a reason for self-medication [13]. These two studies confirm the results of the present study. Moreover, according to studies conducted in other countries, reasons including busy schedule, desire for quick relief, ease and convenience, the influence of advertisements, cheapness, unawareness of side effects, and lack of access to healthcare were determined as the factors behind self-medication [23 -

27].

In Jalilian *et al.*'s study, the advice of non-specialists on the therapeutic benefits of drugs was identified as one of the reasons for self-medication [13]. This issue has also been investigated in Amani *et al.*'s study, which investigated the attitude of students in Ardabil City toward self-medication. The results of this study showed that students' positive attitude towards self-medication was one of the main reasons for arbitrary drug use [28]. The recommendation of other people to take medication, as the third sub-category found in the present study, as well as the results of previous studies, confirm this issue as one of the causes of arbitrary drug use. Two studies by Jalilian *et al.* and Sharifirad *et al.* have identified the minor symptoms and the lack of need to visit a doctor as the causes of arbitrary drug use. In the study of Sharifirad and his colleagues, among the 295 elderly people who participated in the study, 75 considered the minor symptoms of the disease and not visiting the doctor as the most important reasons for self-medication [29]. These studies confirm the result of the present study regarding recognizing the disease and considering it harmless.

Easy access to drugs was found in the present study as one of the causes of arbitrary drug use. This issue has been investigated as one of the most important causes of self-medication in many studies. For instance, Karimi and colleagues in a study showed that 60.5% of the participants referred to the availability of drugs as one of the most obvious causes of self-medication [30]. Considering the causes of self-medication found in the present study, it seems necessary to recognize and address this basic issue as the most important cause of arbitrary drug use among people. Therefore, improving public awareness about the harms and side effects of arbitrary drug use by using new methods, such as storytelling, effective advertising, and using informative and exciting games, can be considered as one of the effective measures that we can take to increase people's resistance toward self-medication.

Another cause of self-medication found in this study was physician-related factors, which also had a sub-category of "lack of trust in doctors for diagnosis and treatment". Other studies have also highlighted this factor as one of the reasons for self-medication. For instance, the studies of Karimi *et al.*, Amani *et al.*, and Mohammadi *et al.* have considered a lack of trust in doctor's treatment as one of the reasons that encourage self-administration of drugs [28, 30, 31]. In this regard, we can refer to factors, such as improving the relationship between physician and patient, improving the performance of the referral system, and increasing patient participation in the decision-making and treatment process as factors that increase people's trust in physicians.

The "pharmacy-related factor" was the last cause of arbitrary drug use found in this study. This category had three sub-categories "ease of buying medication from the pharmacy", "providing advice by pharmacy technicians," and "technical fee of prescription". These factors have also been considered in many studies. For example, in the study of Baghani Moghadam and the study of Aghakhani and colleagues, selling medication without a doctor's prescription was considered as one of the reasons for self-medication [22, 27]. Mohammadi *et al.*'s study refers to the "recommendation of self-medication in the pharmacy" as one of the causes of arbitrary drug use [31]. Concerning the subcategory of

"technical fee of prescription", the literature review could not find any study in this field, but in many studies, such as Mohammadi *et al.*'s study, Amani *et al.*'s study, and Karimi *et al.*' study, high cost of the prescription was referred to as contributing factor in the arbitrary use of drugs [28, 30, 32]. In this regard, increasing the price of non-prescription drugs, reducing the technical fee of prescriptions, and increasing the public's awareness about the role and responsibility of pharmacy technicians as drug suppliers can be considered as effective solutions to the problem of arbitrary drug use.

## CONCLUSION

Results of the present study showed that there are many challenges regarding self-medication or arbitrary drug use at the community level; the challenges are felt more by patients, doctors, and pharmacies. Despite their special position in the country's health system, pharmacies play an important role in self-medication and arbitrary drug use by facilitating easy access to medications. At first glance, the cause of this problem may be related to the absence or weakness of competent bodies that monitor and supervise the activities of pharmacies and even the pharmacies' specialists. But as the results of this study show, the misplaced and wrong culture of the society plays a major role in this regard, and correcting such culture is beyond the capability of a single organization. Therefore, raising public awareness about the prescription and consumption of drugs, reforming the medical education system, correcting the public culture regarding the consumption of drugs, improving the infrastructure of the pharmaceutical system, and strengthening health insurance to cover all medications have significant roles in improving the consumption and prescription of drugs. Also, monitoring the performance of pharmacies and convincing people not to take medicine without a doctor's prescription can make a significant contribution to reducing self-medication and improving drug consumption behavior.

## AUTHORS' CONTRIBUTIONS

M. Aliramezany and M.Iranmanesh conceived the presented idea. M.Iranmanesh developed the theory and conducted the interviews. M. Aliramezany and M.H. Iranmanesh verified the analytical methods. F. Yousefi encouraged M.Iranmanesh to investigate [a specific aspect] and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

## LIST OF ABBREVIATIONS

<b>POM</b>	=	Prescription only medicine
<b>OTC</b>	=	Non-prescription or over-the-counter

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The Ethical Committee of the Kerman University of Medical Sciences Kerman, Iran, approved the study.

## HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

**CONSENT FOR PUBLICATION**

Before each interview, the aim of the interview was explained to the interviewee, and informed consent was obtained. The interviews were recorded and then transcribed verbatim immediately.

**STANDARDS OF REPORTING**

COREQ guidelines were followed.

**AVAILABILITY OF DATA AND MATERIALS**

The data supporting the findings of the article is available upon reasonable request from corresponding author [M.A].

**FUNDING**

None.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

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