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Self-Medication Practices among Patients in Southwestern Iran: A Cross-Sectional Study

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ABSTRACT

Self-medication is a potentially hazardous behavior wherein individuals attempt to manage medical conditions without sufficient knowledge. This study investigated the prevalence of self-treatment among patients in Khorramabad, Iran. In this study, 390 patients referred to Shahid Rahim Hospital in 2024 completed relevant self-medication questionnaires. The data collection instrument was a questionnaire comprising five questions on demographic information, 21 questions addressing the causes of self-treatment, 19 questions regarding the types of medicines used, and 13 questions related to the types of diseases. The study results indicated that the highest rates of self-medication were observed among women, individuals with higher education, and urban residents. The most prevalent reasons for self-treatment included the use of traditional remedies by 148 individuals, the perception that the disease is not serious among 135 individuals, repeated prescriptions affecting 130 individuals, and high costs associated with treatment. Additionally, 128 individuals sought medical attention from doctors. The most frequently used medications were cold remedies, sedatives, antibiotics, antipyretics, and dermatological agents. In conclusion, self-medication represents a significant public health challenge, which can lead to severe consequences for patients if not adequately addressed. The incidence of self-medication behavior is high; therefore, it is essential to enhance awareness of drug side effects by disseminating information through various channels and shifting the perspective on self-medication.

Keywords: Self-medication; Drugs; Patients

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Introduction

Self-medication refers to the practice of individuals using drugs to treat a disease or alleviate its symptoms without the guidance of medical professionals [1]. This behavior presents both advantages and disadvantages. At the same time, it may appear to save time and reduce costs, but potential side effects can result in significant harm to the body and, in extreme cases, may lead to fatal outcomes [2]. However, it has been determined that self-medication is one of the most significant issues facing global society. This practice is associated with inadequate treatment of diseases, drug poisoning, adverse side effects, and an increase in resource wastage [3-5]. Several factors, including the reduction of treatment costs, the convenience of purchasing medication from pharmacies, prior experience with medications, symptom improvement, and recommendations from others, can significantly contribute to developing a sense of self-healing [6]. It has also been observed that cultural beliefs can contribute to the arbitrary use of drugs among individuals. When a person perceives self-medication and its outcomes as positive and beneficial, it fosters a favorable attitude toward this behavior, thereby increasing the likelihood of self-medication in themselves and others [7]. One of the most significant consequences of self-treatment with antibiotics is the spread of resistant microorganisms.

Additionally, self-treatment may lead to the alleviation of symptoms of underlying diseases without addressing the root cause, ultimately resulting in incomplete treatment [8, 9]. Self-medication for cold-related illnesses in Australia has been determined to exceed 40%. This raises concerns within the healthcare system due to the potential side effects of these medications, including drug interactions and physiological or pathological reactions. Additionally, self-medication may lead to increased healthcare costs resulting from disruptions in the accurate diagnosis of pathogenic agents [10].

In a study evaluating self-medication practices for pain management using over-the-counter medications, the quantity of pain relief medications utilized by patients was found to be greater than anticipated [11]. One of the significant side effects of non-steroidal anti-inflammatory (NSAID) analgesics is observed in individuals with respiratory conditions, including asthma. In these patients, the unawareness of NSAID side effects can lead to the diversion of Arachidonic acid toward the production of increased leukotrienes, ultimately exacerbating asthma symptoms [12].

Finally, the most significant side effects of self-treatment include the use of incorrect therapeutic doses, inappropriate drug concentrations, and improper administration methods [13]. Additionally, there are risks of drug interactions and pathological reactions [14], the potential development of drug resistance [15], increased treatment costs [16], the induction of secondary diseases [17], and even the risk of death due to drug overdose [18] for individuals lacking pharmaceutical knowledge.

The objective of this study is to investigate the prevalence of self-medication with various drugs among patients referred to the hospital affiliated with Lorestan University of Medical Sciences in Khorramabad, Iran.

Materials and Methods

Procedure and sampling

This cross-sectional study was conducted between May and July 2024 among patients referred to the specialized clinic at Shahid Rahimi Hospital, affiliated with Lorestan University of Medical Sciences in Khorramabad, in southwestern Iran. The study population consisted of patients referred to the specialized clinic at Shahid Rahimi Hospital. The research investigated the relative frequency of self-treatment and the factors influencing this behavior. The inclusion criteria for the study comprised patients aged 18 years and older who were referred to the specialized clinic at Shahid Rahimi Hospital and who expressed a willingness to participate. The exclusion criterion was the incomplete completion of the questionnaires. Individuals were selected utilizing available sampling methods. According to the ratio estimation formula and informed by previous studies, a sample size of 384 participants was determined using a proportion (p) of 0.49, a margin of error (d) of 0.05, and a significance level (alpha) of 5%. The sample size was calculated using the following formula:

$$n=(Z_{(\alpha/2)}^2\, p(1-P))/d^2$$

Instruments

The data collection tool used was a questionnaire comprising five questions about demographic information, 21 questions addressing the causes of self-treatment, 19 questions concerning the types of medicine used, and 13 questions focused on the types of diseases. The validity of the questionnaire was established using the content validity method. The questionnaire was developed based on credible sources and literature and subsequently reviewed by qualified professors, whose feedback was incorporated into the final version [19].

Statistical Analysis

The collected data were input into SPSS software version 25, where appropriate central tendency and dispersion indices were calculated. Descriptive statistics, including central tendency and dispersion

indices for quantitative variables and frequency and percentage for qualitative variables, were employed to summarize the data. Following an assessment of data normality using the Shapiro-Wilk test, the independent t-test, analysis of variance, and chi-square tests were utilized where the data distribution was determined to be normal. A significance level of <0.05 was considered a significant level.

Results

1.Examining the relationship between demographic/contextual variables and self-treatment

In this study, the average age of individuals with no history of self-treatment was 26.84 ± 6.414 years, while the average age of individuals with a history of self-treatment was 30.35 ± 6.731 years. An independent t-test indicated a significant correlation between patient age and self-treatment history, revealing that older individuals were more likely to have a history of self-treatment (P=0.001) (Table 1).

Table 1. Examining the relationship between Age and self-treatment in the patient population studied

Self-treatment	Mean	SD	P Value
No	26.84	6.414	0.001
Yes	30.35	6.731	

This study found that 156 women (69.6%) and 61 men (36.7%) engaged in self-medication. The chi-square test indicated that the prevalence of self-medication among women was significantly higher than that among men (Tables 4-6).

Additionally, the chi-square test revealed that self-treatment was more common among home keepers and employees than self-employed individuals and students. Furthermore, the chi-square test demonstrated that self-treatment was significantly more prevalent among individuals with university education and those residing in urban areas than among those with less than university education and those living in rural areas (P<0.05) (Tables 2).

Investigations revealed that, in this study, 166 participants (42.6%) were male, 143 participants (36.7%) were housewives, and 234 participants (60%) held a diploma or sub-diploma education. Additionally, 324 participants (83.1%) were city residents (Table 3)

Table 2. Examining the relationship between demographic /contextual variables and self-treatment

Feature	Category	n(%)
Gender	Woman	224(57.4)
	Man	166(42.6)
Job	homemaker	143(36.7)
	Employee	136(34.9)
	Self-employed	79(20.3)
	Student	32(8.2)
Level of education	uneducated	26(6.7)
	Sub-diploma /diploma	234(60.0)
	Academic	130(33.3)
Place of residence	Rural	66(16.9)
	Urban	324(83.1)

2.Description of the study patients regarding self-treatment and its underlying causes

The analysis of the acquired data indicated that 217 participants (55.6%) exhibited self-treatment behavior. The primary factors contributing to self-treatment identified in this study include the use of traditional treatments by 148 participants (68.2%), a perception of the disease as unimportant by 135 participants (62.2%), repeated prescriptions by 130 participants (60%), and financial constraints affecting 128 participants (59%) who have the opportunity to consult with physicians (Table 4).

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Table 3. Distribution of demographic variable frequencies among the studied patients

Feature	Category	Self-treatment		*p*
		No	Yes	
Gender	Woman	68(30.4)	156(69.6)	0.001
	Man	105(63.3)	61(36.7)	
Job	Housekeeper	35(24.5)	108(75.5)	0.001
	Employee	64(47.1)	72(52.9)	
	Free	50(63.3)	29(36.7)	
	Student	24(75.0)	8(25.0)	
Education	uneducated	14(53.8)	12(46.2)	0.001
	Sub-diploma and diploma	122(52.1)	112(47.9)	
	Academic	37(28.5)	93(71.5)	
Place of residence	Rural	40(60.6)	26(39.4)	0.004
	Urban	133(41.0)	191(59.0)	

Table 4. Distribution of the frequency of self-treatment and its associated causes in the studied patients

Feature	Scale	n(%)
Self-treatment	No	173(44.40)
	Yes	217(55.60)
Easy to obtain medicine from pharmacies without prescription	No	138(63.60)
	Yes	79(36.40)
Availability of medicines at home or getting them from acquaintances, etc.	No	132(60.82)
	Yes	85(39.18)
Previous experience with the disease	No	102(47.00)
	Yes	115(53.00)
Good results of previous self-treatments	No	129(59.45)
	Yes	88(40.55)
Not having enough time to visit the office or hospital	No	113(52.00)
	Yes	104(48.00)
Use of traditional therapies	No	69(31.80)
	Yes	148(68.20)
Overcrowding in the place of providing medical services	No	182(83.90)
	Yes	35(16.10)
Ignorance of diseases on your part	No	82(37.80)
	Yes	135(62.20)
Believing that herbal medicines do not have complications	No	50(23.00)
	Yes	167(77.00)
Expensive doctor's visit fees	No	89(41.00)
	Yes	128(59.00)
Repetitiveness of doctor's prescription	No	87(40.00)
	Yes	130(60.00)
Use of the previous medicine prescribed by the doctor and the improvement of symptoms	No	141(65.00)
	Yes	76(35.00)
Not having a health insurance book	No	131(60.36)
	Yes	86(39.64)
Believing that chemical drugs do not have complications	No	189(87.10)
	Yes	28(12.90)
No access to a doctor	No	157(72.35)
	Yes	60(27.65)
Lack of belief in drug-free treatment	No	184(84.80)
	Yes	33(15.20)
Insistence of the people around	No	150(69.12)
	Yes	67(30.88)
Distrust of doctors	No	116(53.45)
	Yes	101(46.55)
Recommendation in pharmacies to self-medication	No	185(85.25)
	Yes	32(14.75)
Lack of proper knowledge of the effects of drugs	No	165(76.00)
	Yes	52(24.00)
Deterioration of condition and inability to see a doctor due to illness	No	190(87.55)
	Yes	27(12.45)

Table 5. Distribution of the frequency of self-treatment and

Drug	Scale	n(%)
Cold medicines	No	81(37.32)
	Yes	136(62.68)
Analgesic drugs	No	116(53.45)
	Yes	101(46.55)
Antibiotic medications	No	96(44.23)
	Yes	121(55.77)
Antipyretic drugs	No	105(48.39)
	Yes	112(51.61)
Affecting the kidney/urinary tract	No	167(77.00)
	Yes	50(23.00)
Hormonal drugs	No	151(69.58)
	Yes	66(30.42)
Medicines affecting the skin	No	106(48.84)
	Yes	111(51.16)
Sedative drugs	No	92(42.4)
	Yes	125(57.6)
Aspirin	No	109(50.23)
	Yes	108(49.77)
Iron tablets	No	138(63.59)
	Yes	79(36.41)
Eye drops	No	182(83.87)
	Yes	35(16.13)
Folic acid	No	148(68.2)
	Yes	69(31.8)
Antihistamine drugs	No	189(87.1)
	Yes	28(12.9)
Sleeping pills	No	168(77.42)
	Yes	49(22.58)
Antifungal and antiparasitic drugs	No	195(89.86)
	Yes	22(10.14)
Vitamins	No	123(56.68)
	Yes	94(43.32)
Antitussive drugs	No	194(89.4)
	Yes	23(10.6)
Herbal /traditional remedies	No	122(56.23)
	Yes	95(43.77)
Antiemetic drugs	No	184(84.8)
	Yes	33(15.2)

3. Description of the Patients Studied Based on the Type of Drug Used for Self-Treatment

The most frequently self-medicated drugs reported by patients included cold medications (62.68%), sedatives (57.6%), antibiotics (55.77%), antipyretics (51.61%), and dermatological agents (51.16%). Conversely, the least commonly used drugs for self-medication were antifungal and antiparasitic medications (10.14%), antitussives (10.6%), and antihistamines (12.9%) (See Table 5).

4.Description of the studied patients regarding the type of disease for self-treatment

The most prevalent conditions for which patients engaged in self-treatment include colds (74.2%), fever (71%), respiratory diseases (69%), nervous disorders (57.61%), and skin conditions (53.92%). Additionally, eye diseases (16.13%), digestive disorders (19.82%), kidney diseases (23.04%), and allergies (27.65%) were among the least common conditions for which self-treatment was reported (see Table 6)

Table 6. Distribution of the frequency of drug types used by the studied patients

Disease	Category	Number
Cold disease	No	56(25.8)
	Yes	161(74.2)
Headache disease	No	116(53.45)
	Yes	101(46.55)
Digestive disease	No	174(80.18)
	Yes	43(19.82)
Muscular disease	No	116(55.00)
	Yes	101(45.00)
Skin disease	No	100(46.08)
	Yes	117(53.92)
Fever	No	56(29.00)
	Yes	161(71.00)
Anemic disease	No	117(53.92)
	Yes	100(46.08)
Arthritis	No	109(50.23)
	Yes	108(49.77)
Allergic disease	No	157(72.35)
	Yes	60(27.65)
Eye disease	No	182(83.87)
	Yes	35(16.13)
Neurological disease	No	92(42.39)
	Yes	125(57.61)
Kidney disease	No	167(76.95)
	Yes	50(23.05)
Respiratory disease	No	56(31.00)
	Yes	161(69.00)

Discussion

The data analysis revealed that, on the one hand, the most commonly used medications for self-medication are cold medicines, sedatives, and antibiotics. On the other hand, self-treatment behavior has been more prevalent in cases of cold diseases, respiratory diseases, neurological disorders, and skin diseases. In general, the prevalence of self-medication is higher among women, working individuals, academics, and city residents compared to other populations. The results of this study indicated that a lack of perceived importance of the disease, the repetition of medical prescriptions, and the high cost of consultations are among the most common factors contributing to self-medication in patients.

Various studies have demonstrated that sedatives [20], antibiotics [21], and antipyretic drugs [22] are among the most commonly used medications for self-treatment, and the findings of our study align with this trend. A study conducted by researchers among the working-age population in metropolitan areas of Thailand found that non-steroidal anti-inflammatory drugs and antibiotics were the most commonly used medications for self-medication behavior [23]. In this study, it was found that some individuals experienced an exacerbation of disease symptoms, the onset of side effects, and hospitalization following self-treatment [23]. A study conducted among French university students found that 95% of participants exhibited self-medicating behavior. The research indicated that analgesics accounted for 46.7% and anti-inflammatory drugs for 19% of the highest instances of self-medication.

Furthermore, the study identified female gender and stress as significant factors contributing to self-treatment behavior [24]. This study supports our findings, which indicate that 69.6% of the sample females are the most likely to engage in self-medication to alleviate or eliminate disease symptoms. Various studies have demonstrated that women engage in self-medication at higher rates than men, with this behavior being more prevalent among medical students compared to their non-medical counterparts [25, 26]. A study conducted at the University of Leipzig found that 59.3% of individuals engaged in self-medication within the past year, with adults and those with higher education exhibiting the highest rates of self-medication behavior [27]. This finding is consistent with our study, which indicated that 71.5% of adults and educated individuals also engaged in self-treatment. Research has demonstrated that non-cognitive behavioral factors can influence self-medication. Various behavioral elements, such as self-confidence stemming from prior experiences and clinical suspicions of illnesses, may contribute to developing and perpetuating self-treatment behaviors in patients [28]. A study conducted in Spain identified various factors influencing self-medication, including long-term illnesses.

Additionally, the research indicated an increasing trend in self-medication among this country's population [29]. A study conducted in Portugal found that individuals are more likely to engage in self-treatment when faced with financial constraints or limited access to healthcare and treatment facilities [30]. A study conducted in China found that individuals were inclined to self-medicate for minor illnesses or conditions lasting less than seven days [31].

Conclusion

This study demonstrates that several factors, including gender, incomplete information regarding the causes of the disease, the different experiences of the person or others, the costs associated with medical consultations, and financial constraints as well as accessibility to pharmacies based on residential location, can significantly influence an individual's approach to self-treatment. Changing societal attitudes toward visiting doctors and seeking medical treatments can be achieved through media outreach

and social programs. Providing information via non-governmental organizations, training pharmacy personnel, enabling online consultations with doctors, increasing the number of medical centers, and financing treatment costs through insurance can all significantly reduce self-treatment within the community.

Study limitations

Among the limitations of this study are hospital-based sampling, insufficient literacy in some patients, subjective biases, and lack of precise evaluation.

Authorship contribution statement

AS and AH: conceptualization. BB: Data analysis. AS, PA, BA, EE and AH: visualization and writing. AH: Administration. AS, BB, EE and AH: manuscript revision. All authors contributed to the article and approved the submitted version.

Declaration of Competing Interest

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request. All data were available for sharing upon reasonable request.

Ethical Consideration

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Ethical Approval and Consent of Participants: This study received approval from the Ethics Committee of Lorestan University of Medical Sciences for all protocols (IR.LUMS.REC.1403.098). At the outset, the objectives were thoroughly explained to all participants, who subsequently provided their informed and voluntary consent to participate in the study.

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