



# JRHS

Journal of Research in Health Sciences

journal homepage: [www.umsha.ac.ir/jrhs](http://www.umsha.ac.ir/jrhs)



## Original Article

# Prevalence and Related Factors for Choosing Self-Medication among Pharmacies Visitors Based on Health Belief Model in Hamadan Province, West of Iran

Farzad Jalilian (MSc)<sup>a</sup>, Seyed Mohammad Mehdi Hazavehei (PhD)<sup>b\*</sup>, Ali Asghar Vahidinia (PhD)<sup>c</sup>, Mohsen Jalilian (MSc)<sup>d</sup>, Abbas Moghimbeigi (PhD)<sup>e</sup>

<sup>a</sup> Department of Nursing, School of Basic Science, Islamic Azad University, Hamadan, Iran

<sup>b</sup> Department of Public Health, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

<sup>c</sup> Department of Biochemistry and Nutrition, School of Medical, Hamadan University of Medical Sciences, Hamadan, Iran

<sup>d</sup> Department of Public Health, School of Public Health, Ilam University of Medical Sciences, Ilam, Iran

<sup>e</sup> Department of Biostatistics & Epidemiology, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

## ARTICLE INFORMATION

### Article history:

**Received:** 30 September 2012

**Revised:** 11 November 2012

**Accepted:** 18 March 2013

**Available online:** 07 April 2013

### Keywords:

Self medication

Pharmacy

Health education

Iran

### \* Correspondence

Seyyed Mohammad Mehdi Hazavehei  
(PhD)

**Tel:** +98 811 8260661

**Fax:** +98 811 8255301

**E-mail:** [Hazavehei@yahoo.com](mailto:Hazavehei@yahoo.com)

## ABSTRACT

**Background:** Self-medication has increased in the last decade in Iran; can be followed several complications. The aim of this study was to determine the prevalence and factors influencing self-medication based on health belief model.

**Methods:** A cross-sectional study was conducted among 1400 Hamadan Province pharmacies visitors, during spring and summer 2012 which was randomly selected with the proportional to size among different pharmacy at Hamadan for participation in this study. A structured questionnaire was applied for collecting data, which were analyzed by SPSS version 16 using bivariate correlations and logistic regression statistical tests.

**Results:** 35.4% of the participants had self-medication. Pain medication (10.6%), antibiotics (7.3%) and anti-cough and cold medications (4.5%) had the largest consumption. The main reasons of self-medication among participants were previous use of medication, symptoms improve and similar prescribed. The best predictor for self-medication was perceived severity with odds ratio estimate of 0.790 [95% CI: 0.694, 0.900].

**Conclusion:** It seems that designing and implementation of educational programs to increase seriousness about side effect of self-medication may be usefulness of the results in order to prevent of self-medication.

**Citation:** Jalilian F, Hazavehei SMM, Vahidinia AA, Jalilian M, Moghimbeigi A. Prevalence and Related Factors for Choosing Self-Medication among Pharmacies Visitors Based on Health Belief Model in Hamadan Province, West of Iran. *J Res Health Sci.* 2013; 13(1): 81-85.

## Introduction

Self-medication is one of health concerns worldwide and WHO has emphasis that self-medication must be correctly investigated and controlled<sup>1</sup>. The self-medication is defined as the use of medication for self-treatment. It is a common behavior in both developed and developing countries, especially in economically deprived communities<sup>1,2</sup>. Self medication associated with negative consequences such as lead to wastage of resources, increase resistance of pathogens and serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence<sup>3</sup>. The prevalence rate of self medication is high in developed and under developing countries. For example 68%, 31%, 12.6%, 59%, and

51% of self medication is reported in European countries, India, Nepal, and Pakistan respectively<sup>3</sup>. Iran is one of many countries in which the prevalence of the self medication has been increasing and the prevalence of self medication was between 16-83 %<sup>4-6</sup>.

The major factors that increase self-medication among population include: decrease in prescription coverage by the national health services, availability of over-the-counter products, and the effect of media in presentation of pharmaceutical products<sup>7</sup>. In addition, cognitive related factors, such as knowledge social norm and perceived severity of illness are responsible to predict self medication behavior<sup>3,7</sup>.

The Health Belief Model (HBM) is designed to predict and explain human behavior in specific contexts. In this regard, Becker and Maimon's explained that four main construct of health belief model, likelihood predict of an individual engage in a behavior (e.g. self medication behavior). The constructs relate to perceived benefits, perceived barriers, perceived susceptibility and perceived severity of the outcome. It is proposed that new behavior is more likely to occur if the perceived threat of outcome (susceptibility and severity) is high and the perceived benefits exceed the perceived barriers. Health belief construct are influenced by modifying factors including demographics and psychosocial factors. The model also states that an individual needs a prompt to guide him after engaging in health-related behaviors. These cues to action' may be internal or external<sup>8</sup>. There are published studies to support the predictive validity of the HBM with respect to the self medication and self management behavior<sup>6, 9-11</sup>.

The purpose of this study was to determine the prevalence of self-medication and factors related to self-medication among pharmacies visitors based on health belief model.

## Methods

This cross-sectional study was conducted on 1400 sample of population aged 14 to 72 yr old referred to pharmacies in Hamadan Province, west of Iran, during spring and summer 2012. The sample size was calculated at 90% significant level according to the results of a previous study<sup>4</sup> and a sample of 1400 was estimated.

To enroll the participants and collect data the following stages were done. First, each of cities of Hamadan was considered as a class (category) and different areas of the each city were classified based on the division of the geographical region, then based on proportional to size different pharmacy for each city were randomly selected. Then, subjects referred to the pharmacy for take a medication drug, were enrolled voluntarily. Finally, the volunteers were given the self-questionnaire, also for volunteers who reported literate education information was collected from interview. Of the population of 1400, 1208 (86.2%) signed the consent form and voluntarily agreed to participate in the study, which has been approved by the institutional review board at the Hamadan University of Medical Sciences, Iran.

Prior to conducting the main project, a pilot study was carried out. Initially the relevant questionnaires were administered to 30 participants who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability of the questionnaire. Estimated reliability using alpha Cronbach coefficient for each HBM constructs questionnaire were as follows: perceived susceptibility ( $\alpha = 0.86$ ); perceived severity ( $\alpha = 0.89$ ); perceived benefit ( $\alpha = 0.87$ ); perceived barrier ( $\alpha = 0.85$ ), and cues to action ( $\alpha = 0.80$ ).

Questionnaire included three sections that comprised of 36 questions: 10 questions for demographic factors, 3 questions about self medication and 23 questions for HBM variable.

### A: Demographics

The assessed variables included: age, gender, education level, job, marital status, having a chronic disease, having a health insurance, history of smoking, alcohol use, and history of drug use.

### B: Self medication questionnaire

To assess whether or not the participants had experimented with self medication, we used one questions "Have you ever self medication at during last month" which the response category was yes or no. In addition, reasons of self-medication and type drug used for self medication were asked in participants.

### C: HBM variable

HBM scale was designed based on standard questionnaires<sup>6-10</sup> and included 23 items under five constructs including (a) perceived susceptibility; (b) perceived severity; (c) perceived benefit; (d) perceived barrier; and (e) cues to action.

Four items were designed to measure perceived susceptibility about side effect of self medication (e.g. "If I have a self-medication, I would not have any bad side effects."). Four items were designed to measure perceived severity about side effect of self medication (e.g., "Self medication complication, it could seriously affect in my social life."). Four items were designed to perceived benefit for take drug by doctor prescription (e.g., "I treatment confident, if I take drug with doctor prescription"). Seven items were designed to evaluate perceived barrier to take drug by doctor prescription (e.g., "Doctor Cost is too expensive for me"). Three items were designed to cues to action to take drug by doctor prescription (e.g., "My friends encourage me to take drug with doctor prescription"). In order to facilitate participants' responses to the items, all items were standardized to a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Data were analyzed using SPSS version 16 using appropriate statistical tests including bivariate correlations and logistic regression at 95% significant level.

## Results

The mean age of respondents was 33.60 years [SD: 11.56], ranged from 14 to 72 years (Table 1). Nearly 16.6% (201/1208), 3.1% (38/1208), and 6.1% (74/1208) of the participants were cigarette smokers, social drinkers and drug users, respectively.

Moreover, 35.4% [95% CI: 32.7%, 38.1%], of respondents had a self-medication in the last month. 12.5% (151/1208) and 22.9% (277/1208) of participants report-

ed POM and OTC drugs used without the physicians recommendation.

**Table 1:** Distribution of the demographic characteristics among the participants

Variables	Number	Percent
<b>Age group (yr)</b>		
14-19	109	9.0
20-29	390	32.3
30-39	326	27.0
40-49	254	21.0
Over the 50	129	10.7
<b>Gender</b>		
Men	619	51.2
Women	589	48.8
<b>Education</b>		
Illiterate	72	6.0
Primary school	198	16.4
Secondary school	169	14.0
High school	381	31.5
Academic	388	32.1
<b>Chronic illness</b>		
Yes	145	12.0
No	1063	88.0
<b>Health Insurance</b>		
Yes	886	73.3
No	322	26.7

The main reasons of self-medication among participants were previous use of medication, symptoms improve and similar prescribed (Table 2). Pain medication (10.6%), antibiotics (7.3%) and anti-cough and cold medications (4.5%) had the largest consumption for self-medication.

Table 3 shows the Zero-order correlations. Significance levels at the 0.01 and 0.05 were the criteria for the analysis. The bivariate assessment of variables revealed

**Table 3:** Correlation between different components of health belief model; bold figures show that the correlations are statistically significant ( $P < 0.05$ )

Component	Mean (SD)	Susceptibility	Severity	Benefit	Barrier	Cues to action
Susceptibility	9.41 (4.19)	1.000	-	-	-	-
Severity	7.08 (3.44)	<b>0.878</b>	1.000	-	-	-
Benefit	8.77 (4.43)	<b>0.464</b>	<b>0.528</b>	1.000	-	-
Barrier	24.09 (6.42)	<b>-0.264</b>	<b>-0.302</b>	<b>-0.208</b>	1.000	-
Cues to action	10.13 (3.23)	<b>0.091</b>	<b>0.095</b>	0.023	<b>-0.066</b>	1.000

**Table 4:** The correlation between different components of health belief model and self-medication using logistic regression analysis

Variables	Odds Ratio	95.0% CI		P value
		Lower	Upper	
<b>Step 1</b>				
Susceptibility	0.968	0.735	1.245	0.802
Severity	0.836	0.661	1.126	0.277
Benefit	0.937	0.815	1.078	0.363
Barrier	1.055	0.930	1.196	0.408
Cues to action	0.925	0.821	1.042	0.202
<b>Step 2</b>				
Severity	0.839	0.720	0.977	0.024
Benefit	0.937	0.815	1.078	0.362
Barrier	1.055	0.930	1.196	0.408
Cues to action	0.925	0.821	1.042	0.200
<b>Step 3</b>				
Severity	0.711	0.711	0.959	0.012
Benefit	0.812	0.812	1.073	0.332
Cues to action	0.820	0.820	1.040	0.191
<b>Step 4</b>				
Severity	0.797	0.700	0.908	0.001
Cues to action	0.925	0.821	1.042	0.201
<b>Step 5</b>				
Severity	0.790	0.694	0.900	0.000

that there were signs of multicollinearity among HBM variables. For the sample, susceptibility was significantly related to severity ( $r = 0.878$ ), benefit ( $r = 0.464$ ), barrier ( $r = -0.264$ ), and cues to action ( $r = 0.091$ ). Severity was significantly related to benefit ( $r = 0.528$ ), barrier ( $r = -0.302$ ), and cues to action ( $r = 0.095$ ). Benefit was significantly related to barrier ( $r = -0.208$ ), and not significant related with cues to action ( $r = 0.023$ ). In addition, barrier was significantly related to cues to action ( $r = -0.066$ ).

**Table 2:** Reasons of self-medication among the participants

Self medication Reason	Frequency	Percent
Not have self medication	780	64.6
Previous use of medication	130	11.4
Similar prescribed	108	8.9
Symptoms improve	60	5.0
High costs of doctor's visits	44	3.6
Not enough time for go to doctor	22	1.8
Congested doctors office	16	1.3
Ensure the safe medication	12	1.0
Fear of medical checkups	8	0.7
Lack of doctor's trust	4	0.3
Pharmacies recommend	4	0.3
Non-expert recommended	4	0.3
Others	8	0.7
Total	1208	100.0

Logistic regression analysis and backward stepwise method was calculated for predictability of HBM variables on self-medication (Table 4). A step-wise model building procedure was conducted and finally on 5<sup>th</sup> step the procedure stopped and the best model among the HBM variables was selected as perceived severity with odds ratio estimate of 0.790 [95% CI: 0.694, 0.900], more influential predictor on self-medication.

## Discussion

The aim of this study was to determine the prevalence and factors related to self medication among sample of population aged 14 to 72 yr old referred to pharmacies in Hamadan Province, west of Iran, based on HBM. Determined factors related to self medication among different social classes is important for implementing of the self medication preventative programs. The perceived severity was the most influential predictors on self medication.

35.4% of the participants had a self medication in the last month. Some studies showed prevalence self-medication was 16-83% in Iran<sup>4,6</sup>. Abbasi reported that 15.9% of population in Ilam City had a self medication<sup>4</sup>. Moreover, Sarahroodi reported, 53% of Iranian student in Tehran had a self-medication<sup>5</sup>. These results are higher than self medication in other countries. For example studies performed in Vietnam, West Nepal, Finland, and

Spain have reported a prevalence of self-medication as 29.8%, 59%, 44%, and 12.7% respectively<sup>7, 12-14</sup>. In addition, Melo et al. reported 21% of the pharmacies visitors in Portuguese had a self-medication<sup>15</sup>. In addition, Shailendra rate of self medication among freshman medical students in Bahrain was 44.8%<sup>1</sup>. The comparison of the results of the studies about self medication in Iran with similar studies in others countries showed that discrepancy exists between the results, which indicate that self medication, is much higher among Iranian population compared to other countries. These results can be warning to health policy makers in Iran; and should be the focus of special attention.

Our result showed pain medication, antibiotics, and anti-cough and cold medications had the largest consumption for self medication. This result is similar to the results reported by other studies<sup>16-17</sup>. Sahebi carried out a research on pharmacies visitors in Tabriz and reported pain medication (among OTC drugs) and antibiotics (among POM drugs) were the most prevalent drugs used for self-medication<sup>16</sup>. Our findings showed that use of antibiotics for self-medication was high, so supervision on pharmacies for prevention of sales POM medicines without a physician order by the food and drug administration is recommended.

According to our results, previous use of medication, similar prescribed, and symptoms improve are largest reasons of self-medication among the participants. Similar studies have reported previous experience<sup>3</sup> and fear of treatment<sup>17</sup> are some of the most common reason for self-medication.

Logistic regression analysis showed among the HBM variables, perceived severity was the best self-medication factor prediction. Several studies have reported HBM variables' predictability to explain health related behavior such as self medication or self management<sup>6, 9-11</sup>. In this regard, Andersson<sup>18</sup> reported a significant relationship between low perceived severity and self medication. In addition Ratanasuwana<sup>11</sup> et al. and Allahverdipour<sup>19</sup> reported perceived severity and susceptibility predictors' health related behavior.

Although the present study has several strengths, such as theory driven, data collected from the several of population group and high sample size, the findings have certain limitations. First, the use of two methods for data collection (self-reporting and interview), which always faces the risk of recall bias. Second, data collection were only in two season of year (spring and summer) we suggest because prevalence and types of self medication are investigated on various seasons of year it investigated in all of seasons at future research.

## Conclusion

The perceived severity of a threat is an important fear arousal factor in predicting or explaining the behavior while people believe that they are susceptible to get a

disease or engage in an unhealthy behavior<sup>19</sup>. Perceived seriousness to side effects of the self medication was mediators for promoting effectiveness of the self medication preventative programs.

## Acknowledgments

This article is a part of research project supported by Hamadan University of Medical Sciences. We would like to thank Deputy of Research of Hamadan University of Medical Sciences for financial support.

## Conflict of interest statement

The authors declare that they have no conflict of interest.

## Funding

This study was funded by Vice-chancellor of Research and Technology, Hamadan University of Medical Sciences.

## References

1. James H, Handu SS, Al Khaja KA, Otoom S, Sequeira RP. Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Med Princ Pract.* 2006;20(15):270-275.
2. Bi P, Tong S, Parton KA. Family self-medication and antibiotics abuse for children and juveniles in a Chinese city. *Soc Sci & Med.* 2000;50(10):1445-1450.
3. Zafar SN, Syed R, Waqar S, Zubairi AJ, Waqar T, Shaikh M, et al. Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. *J Pak Med Assoc.* 2008;58(4):214-217.
4. Abbasi N, Abedzadeh M. Status of self medication in Ilam 2003. *Scientific Journal of Ilam University of Medical Sciences.* 2004; 12(42-43):53-60. [Persian]
5. Sarahroodi S, Arzi A. Self medication with antibiotics, is it a problem among Iranian college student in Tehran. *J Biol Sci.* 2009;9(8):829-832.
6. Shamsi M, Tajik R, Mohammadbegee A. Effect of education based on health belief model on self-medication in mothers referring to health centers of Arak. *Arak University of Medical Sciences Journal.* 2009;12(3):57-66. [Persian]
7. Figueiras A, Caamaño F, Gestal-Otero JJ. Sociodemographic factors related to self-medication in Spain. *Eur J Epidemiol.* 2000;16(1):19-26.
8. Adams J, Scott J. Predicting medication adherence in severe mental disorders. *Acta Psychiatr Scand.* 2000;101(2):119-124.
9. Umeh K, Rogan-Gibson J. Perceptions of threat, benefits, and barriers in breast self-examination amongst young asymptomatic women. *Br J Health Psychol.* 2001;6(4):361-372.
10. Wai CT, Wong ML, Ng S, Cheok A, Tan MH, Chua W, et al. Utility of the Health Belief Model in predicting compli-

- ance of screening in patients with chronic hepatitis B. *Aliment Pharmacol Ther.* 2005; 21(10):1255-1262.
11. Ratanasuwan T, Indharapakdi S, Promrerker R, Komolviphat T, Thanamai Y. Health belief model about diabetes mellitus in Thailand: the culture consensus analysis. *J Med Assoc Thai.* 2005;88(5):623-631.
  12. Shankar PR, Parsa P, Shenoy N. Self medication and non doctor prescription practice in Pokhara. *BMC Fam Pract.* 2002;3(17):172-179.
  13. Okumura J, Wakai S, Umenai T. Drug utilisation and self-medication in rural communities in Vietnam. *Soc Sci Med.* 2002; 54(12):1875-1886.
  14. Sinikka S, Ahonen A, Mikander H, Hemminki E. Self medication with vaginal drugs: physician experience and women's utilization patterns. *Fam Pract.* 2000;17(2):145-149.
  15. Nunes de Melo M, Madureira B, Nunes Ferreira AP, Mendes Z, Miranda Ada C, and Martins AP. Prevalence of self-medication in rural areas of Portugal. *Pharm World Sci.* 2006; 28(1):19-25.
  16. Sahebi L, Vahidi RG. Self-Medication and Storage of drugs at home among the clients of drugstores in Tabriz. *Curr Drug Saf.* 2009;4(2):107-112.
  17. Mulder AA, Boerma RP, Barogui Y, Zinsou C, Johnson RC, Gbovi J, et al. Healthcare seeking behaviour for Buruli ulcer in Benin: a model to capture therapy choice of patients and healthy community members. *Trans R Soc Trop Med Hyg.* 2008;102(9):912-920.
  18. Andersson HI, Ejlertsson G, Leden I, Scherstén B. Impact of chronic pain on health care seeking, self care, and medication. Results from a population-based Swedish study. *J Epidemiol Community Health.* 1999;53(8):503-509.
  19. Allahverdi-pour H, Jalilian F, Shaghghi A. Vulnerability and the intention to anabolic steroids use among Iranian gym users: An application of the theory of planned behavior. *Subst Use Misuse.* 2012;47(3):309-317.