Adopting Self-Medication Prevention Behaviors According to Health Belief Model Constructs

Sedigheh Rezaei Jaberee [1], Teamur Aghamolaei [2], Shokrollah Mohseni [1], Habib Eslami [3] and Laleh Hassani [1, 4, *]

[1] Health Faculty, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[2] Cardiovascular Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[3] Molecular Medicine Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[4] Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

*Corresponding author: Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran. +98-7633338583, Email: 7hassani1969@gmail.com

Abstract

Background: Self-medication is one of the most important social, health, and economic challenges of many countries, especially Iran.

Objectives: Therefore, this study aimed to predict the adoption of self-medication prevention behaviors according to Health Belief Model (HBM) constructs in the women attending health centers of Bandar Abbas, Hormozgan Province, Iran.

Methods: The participants of the present investigation were 180 women residing in Bandar Abbas in 2016. Convenient sampling method was applied to select the participants. Data were collected through a questionnaire containing questions on demographic information, as well as the HBM constructs. The collected data were analyzed by SPSS version 19 using Pearson's correlation coefficient and logistic regression.

Results: The mean age of the participants was 30.8 ± 8.6 years. Among the HBM constructs, it was found that there was a positive relationship between the perceived susceptibility and perceived severity that the relationship was 0.231 at the significant 2-tailed level of 0.01. While, there was a negative correlation between the perceived barriers and perceived benefits that the relationship was -0.231 at the significant 2-tailed level of 0.01. The results of multiple regression analysis represented that considering HBM constructs, only $R^2 = 0.048$ of the self-medication preventive behaviors could be explained ($R^2 = 0.048$, P = 0.042).

Conclusions: Regarding the results of this study, only four percent of Health Belief Model Constructs could predict the preventive behavior in self-medication. Based on the weak prediction of model constructs and the findings of this study, there is a need to focus on the benefits, perceived susceptibility, and perceived barriers in designing health promotion programs.

Keywords: Self-Medication, Women, Health Belief Model

1. Background

Self-medication is one of the most important medical behaviors of people. In fact, this behavior is often the first choice for treating primary symptoms and one of the most important tools used by patients to confront common health problems. Although these remedies are widely employed to treat different diseases or their symptoms, their uncontrolled and unsupervised use may lead to serious consequences and side effects (1). This harmful social phenomenon is widely practiced in different parts of the world. Uncontrolled drug use and self-medication is one of the most important social, health, and economic problems in different countries, including Iran. Studies have shown that there has been no balance between the rate of

drug prescription with the country's population and epidemiologic status of the diseases, which could result from self-medication (2).

It has been shown that 42% of people use supplements of self-medication in the US. In Latin America, 80% of people use antibiotics improperly for treating viral infections of the upper respiratory tract (3). It has been shown that 65% of the burden of diseases has been due to non-adherence to standard prescription patterns and irrational drug use. The rate of self-medication in Iran has been three times higher than the mean global rate. As for the medicine consumption rate, Iran has been one of the first twenty countries in the world and the second country in Asia after China; however, its population is smaller

than a number of Asian countries like India, Bangladesh, and Pakistan ([4](#)). The consumption of medicines has had an increasing trend in Iran in recent years. A study on self-medication of herbal and chemical drugs in Isfahan showed that 86% of the women practiced self-medicine for at least one disease in the past six months ([5](#)). The importance of this problem is even more in women, considering critical periods such as pregnancy and lactation, their high contact with family members, and their importance in the family as a role model ([6](#)). Several studies have shown that women tend to practice self-medication; they regularly use drugs for the treatment of different conditions like dysmenorrhea, menopausal symptoms, menstruation problems, mood disorders, osteoporosis prevention as well as the problems of pregnancy and lactation, which could predispose them to self-medication ([7](#)).

Different models are used to evaluate the health behaviors of individuals in health education ([8](#)). The Health Belief Model (HBM) is an accurate model employed to determine the relationship between behavior and health beliefs, and it is one of the most important models used for designing preventive programs.

The HBM explains health-related behaviors with a special focus on health services uptake ([9](#)). Moreover, HBM has been one the most common theories used in health behavior studies ([10](#), [11](#)) and consists of 6 structures, including the perception of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. Perceived susceptibility addresses the subjective assessment of the risk of developing a health issue. Conversely, perceived severity is related to the assessments done by individuals themselves on the severity and outcomes of a health-related problem. Perceived benefits advert to an individual's assessment of the value or efficacy of being engaged in a health-promoting behavior to reduce risk of disease. Perceived barriers advert to an individual's assessment of the behavior change obstacles ([10](#), [12](#)). Self-efficacy cites individuals' competency to do a task well ([13](#)). This construct was added to the Health Belief Model in order to reveal specific discrepancies in health behaviors ([14](#)). Conferring with this model, everybody leads to doing activities carefully alone, and when she/he is persuaded, there is a circumstance of risk, which may cause adversity ([15](#)). Low perceived seriousness of disease, lack of sufficient time to visit a physician, easy purchase of medications, having experience of good results from previous self-medication and high costs of visiting a professional health care provider have been among the most frequently reported factors to adopt self-medication behavior ([16](#)).

2. Objectives

According to a previous study conducted in Bandar Abbas, the prevalence of self-medication was 79.5% ([17](#)), and it was thought that this model focuses on belief change. In addition, it has been stated that belief changes could lead to behavior changes ([10](#)). Therefore, this study was conducted to predict the adoption of self-medication preventive behaviors according to the HBM constructs in the women attending health centers of Bandar Abbas, Hormozgan, Iran.

3. Methods

3.1. Study Population and Sampling

The statistical population of this descriptive-analytical cross-sectional study was the women attending health centers of Bandar Abbas. The sample size of this study was determined according to Cohen formula ($n = \frac{2(-)S^2}{d^2}$), considering the error of 0.5, power of 80%, and using Niksadat et al.'s. study ([18](#)). It is entitled educational intervention based on Health Belief Model on improving the preventive behaviors of self-medication in the women under the supervision of health institution of zone 3 of Tehran. In this study, the standard deviation of the perceived self-efficacy was 6.7 and the minimum discrepancy of perceived susceptibility was 3. Therefore, by substitution of s:6.7 and d:3 in the above formula, the sample size will be 78. With regard to the 15% attrition of the sample, the sample size for each group was considered 90; and for two groups, it was estimated to be 180 women. The subjects were selected from different health centers in the city. There were 14 health centers in different parts of the city. Six out of 14 health centers were selected randomly. The participants were selected based on the health record number using simple random sampling method. Thirty women were selected from each center.

3.2. Inclusion Criteria

Having self-medication and healthy profile in the health center, being satisfied to take part in this study, being able to write and read, and not being sick were the inclusion criteria of this study.

3.3. Measures

The data were collected using a questionnaire developed by Shamsi et al. ([19](#)), who evaluated the effect of education based on the HBM on preventive behaviors of self-medication in pregnant women in Arak in 2010. This questionnaire started with demographic information (age, education, job, etc.) and the components of HBM and performance (a checklist containing 4 questions to assess

the respondents' performance in terms of self-medication for some diseases for which women usually seek self-medication).

In order to confirm the validity of the questionnaire, a content validity analysis was conducted with the help of a panel of experts and for checking the reliability, the questionnaire was availed to 15 women that met the research population criteria. To check the reliability of the HBM questionnaire, Cronbach's alpha test was applied; the questionnaire included the following components with reliabilities: perceived susceptibility: 0.751, perceived severity: 0.736, perceived benefits: 0.768, perceived barriers: 0.756, self-efficacy: 0.823 and cues to action without any reliability report.

3.4. Cues to Action

Two items examined this component, an example was "How do you get your information about drug usage?" The items were measured by one or more than one items (physician, family and relatives, book and booklet, journals, radio, television, other patients, etc.). Cronbach's alpha was not required for this item with these answers.

3.5. Self-Medication Preventive Behaviors

Self-medication preventive behaviors were measured by a questionnaire that was developed by the researchers. This scale included 4 items, for example: "How often do you use drug without physicians' prescription?" This item was measured on a Likert scale ranging from never (4), per 6 months (3), every month (2), every week (1), and every day (0); so, the overall score varied from 0 to 16, and a higher score represented self-medication preventive behaviors. To test the reliability, the internal consistency was assessed using Cronbach's alpha coefficient and it was estimated to be 0.79.

3.6. Ethical Approval

This study was approved by the Ethics Committee of Hormozgan University of Medical Sciences (code: HUMS.REC.1395.86). Before the data collection, the purpose of the study was explained to the participants in health centers, and informed consent was obtained verbally.

3.7. Data Analysis

Data were analyzed using SPSS Ver 19. Initially, the score of each HBM construct was calculated independently. A higher score would imply higher susceptibility, severity, benefits and barriers perceived as well as higher self-efficacy, all concerning self-medication preventive behaviors. To explore the correlations between the HBM constructs, Pearson's correlation coefficient was calculated. To

predict the self-medication behavior using the HBM, multiple regression was conducted. P values less than 0.05 were considered significant.

4. Results

The subjects' demographic profile is presented in Table 1. According to this table, the mean age of the participants was 30.8 ± 8.46 years. Most women had high school education (46.2%), were married (85.2%), and had 1 - 2 children. About 45.6% of the participants reported self-medication.

Table 1. Women Demographic Characteristics[a]

Variable	Values
Age	30.66 ± 8.43
Number of children	
0	26 (15.4)
1 - 2	77 (45.6)
≥ 3	66 (40)
Education	
Elementary school	24 (14.2)
Junior school	20 (11.8)
High school	78 (46.2)
University degree	47 (27.8)
Marital situation	
Single	25 (14.8)
Married	144 (85.2)

[a]Values are expressed as mean $\pm$ SD or No. (%).

The mean and standard deviation of the HBM constructs and self-medication preventive behaviors are presented in Table 2. Among the HBM constructs, perceived susceptibility was shown to be positively correlated with severity; while, the perceived barriers had a negative correlation with the perceived benefits (Table 2). Multiple regression analysis revealed that in HBM constructs, only $R^2 = 0.048$ of the self-medication preventive behaviors was explained ($R^2 = 0.048$, P = 0.042) (Table 3).

5. Discussion

The aim of this study was to predict the adoption of the self-medication preventive behaviors according to the HBM constructs in the women attending health centers of Bandar Abbas, Hormozgan, Iran. The findings confirmed that in all HBM constructs, only 4 percent of the

Table 2. Correlation of HBM Constructs with Mean and Standard Deviation and Self-Medication Preventive Behaviors (Range = 0 - 20)[a]

HBM Constructs	Perceived Susceptibility	Perceived Severity	Perceived Benefits	Perceived Barriers	Self-Efficacy	Self-Medication Avoidance	Values
Perceived susceptibility							8.53 ± 5.01
Perceived severity	0.231[b]						10.89 ± 4.01
Perceived benefits	0.110	0.158[c]					12.46 ± 3.69
Perceived barriers	0.163[c]	-0.069	-0.231[b]				10.81 ± 4.04
Self-efficacy	0.025	0.045	-0.027	-0.010			7.59 ± 4.28
Self-medication avoidance	-0.074	-0.027	0.136	-0.015	0.130		11.09 ± 2.01

[a]Values are expressed as mean ± SD.
[b]Correlation is significant at the 0.01 level (2-tailed).
[c]Correlation is significant at the 0.05 level (2-tailed).

Table 3. Linear Regression of Self-Efficacy Preventive Behaviors on HBM Constructs

Variables	R[2]	B	SE	Beta	95.0% CI for B		P
					Lower	Upper	
Self-medication preventive behaviors	0.048						
Constant		9.792	0.893		8.028	11.555	< 0.001
Perceived susceptibility		-0.037	0.032	-0.093	-0.101	0.027	0.251
Perceived severity		-0.018	0.040	-0.036	-0.097	0.061	0.654
Perceived benefits		0.089	0.044	0.164	0.003	0.176	0.042
Perceived barriers		0.019	0.040	0.037	-0.061	0.098	0.644
Self-efficacy		0.065	0.036	0.139	-0.061	0.098	0.072

self-medication preventive behaviors was explained. In another study, in the BASNEF constructs, only 24 percent of self-medication was explained (20).

Regarding the obtained results, the perceived susceptibility was not a predictor of self-medication preventive behaviors; but, the results of the analysis meant that the excess of one degree in susceptibility, decreased the probability of self-medication to 0.37. Some other related literature proved that this component was effective in improving safe behaviors. In one study, the results showed that the perceived susceptibility was the strongest predictor (21). In many studies, it has been proven that the intervention based on HBM affected and raised the susceptibility, then the probability of risky behaviors was decreased (22).

Perceived severity was not shown to be a predictor of self-medication preventive behaviors. Although the perceived severity was not a predictor, the results of the analysis meant that the decline of one degree in the perceived severity decreased the probability of self-medication to 0.018. It was also found that the perceived susceptibility

had a significant positive correlation with the perceived severity. It has been known that the threatened appraisal process consisted of both the perceived severity and perceived susceptibility of a situation. It concentrates on the source of the threat and factors that enhance or reduce the probability of maladaptive behaviors (23). Some other research proved this process (18, 24, 25).

The safe behavior relations with decreased or omitted barriers have been proven. Some studies reported similar results (19, 26, 27). In a study about self-medication results, it has been shown perceived barriers were the strongest predictor (28). Among the barriers of self-medication, there have been diseases that happened in more frequency like common cold, headache, and stomach-ache. In order to reduce self-medication, the following barriers are better to be decreased: costs of referring to a doctor, insurance problems, unavailability of medications, dissatisfaction with the results of self-medication, ignoring the significance of the disease, having no access to formerly prescribed drugs, lack of knowledge, cultural, social, and

economic factors, etc. (28-30). In addition, qualitative research with in-depth interviews has been recommended to recognize the other barriers to self-medication preventive behaviors.

According to the findings of the present study, the perceived benefits did not show to be a predictor of self-medication preventive behaviors. In many studies, the perceived benefits were the strongest predictor of self-medication preventive behaviors (31). The results of the current study have shown the excess of one degree in perceived benefits, decreased the probability of self-medication to 0.089. Another result of the study was the correlation between the perceived benefits and perceived barriers that were shown to have a significant and negative correlation. However, a meta-analysis of 18 studies by Carpenter showed that the perceived barriers and perceived benefits have been two important predictors of prevention of unhealthy behaviors in the health belief model (10). Ultimately, the aim of the study and economic and cultural characteristics of people led to the differences in results. The perceived benefits were shown to be significantly correlated with safe behaviors in some other investigations (32). So, it seems that pointing out the benefits through intervention and increased knowledge can promote safe behaviors in the best way.

According to the present findings, self-efficacy did not seem to be a predictor of self-medication preventive behaviors. Similar to the findings of this study, a study done by Gillibrand did not show such an association in diabetes (33). However, in another research, the self-efficacy was the strongest predictor of self-medication preventive behaviors (34). The results of the present study have shown the excess of one degree in self-efficacy, decreased the probability of self-medication's preventive behaviors to 0.065. Another study's findings showed no significant correlation between self-efficacy and self-medication's preventive behaviors. Despite this, other research proved the impact of this construct on self-medication's preventive behaviors (35).

Like all investigations, the present research had some limitations, including the gender of the participants (who were only women), the method of data collection, and the sample size. The other limitation was the lack of generalization of the results in the community. Another limitation of this study was that some factors such as personality characteristics, individual differences, and psychological-mental state of the respondents at the time of completing the questionnaire could not be controlled. The use of a self-report method was another limitation of the current study, which could affect data quality.

5.1. Conclusions

Regarding the results of this study, only four percent of Health Belief Model Constructs could predict the preventive behavior in self-medication. Based on the weak prediction of model constructs and the findings of analysis, there is a need to focus on the benefits, perceived susceptibility, and perceived barriers in designing health promotion programs.

Supplementary Material

Supplementary material(s) is available here [To read supplementary materials, please refer to the journal website and open PDF/HTML].

Acknowledgments

Footnotes

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