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**Research Article**

# Determinants of Self-Medication Prevention in Women based on the Health Belief Model in Urmia City, Iran

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## ABSTRACT

Background and Aim: Self-medication, as one of the most important social-health issue, is a common phenomenon with high risks, especially among women in sensitive periods such as pregnancy and lactation. This study aimed to investigate the determinants of self-medication prevention based on the Health Belief Model (HBM) in Urmia City, Iran. In this cross-sectional study, 200 women under the coverage of Urmia health centers were randomly selected. Simple random sampling was applied and 10 centers were selected of 35 health centers. Data collection tool was a researcher-made questionnaire including questions about demographic information, awareness, self- medication prevention behaviors, and HBM constructs. Data were analyzed using chi-square and linear regression by $SPSS_{20}$. Findings of this study showed that 56% of all participants had self-medication. Self-medication prevention behavior had a significant correlation with the women's education level, health insurance, and economic status ($P < 0.05$). Among constructs of the HBM, perceived self-efficacy ($B = 0.39$), awareness ($B = 0.30$), perceived susceptibility ($B = 0.25$), and perceived severity ($B = 0.22$) played the greatest role in predicting the women's self-medication behavior, respectively. Based on the results, women's performance in self-medication prevention behaviors can be improved by providing them with necessary training on the perceived self-efficacy and awareness.

**Keywords**: Self-medication, Women, Health Belief Model

## INTRODUCTION

A healthy human is at the heart of the sustainable development in every society and the role of medicine is crucial, effective, and decisive in this regard. Medication has been variously suggested as one of the ways to combat the diseases from the past (Movahed E, 2014). Although medication use is an important pillar of the disease treatment, its unreasonable consumption not only does not treat the disease, but also causes long-term side-effects(Pourreza et al., 2009). Unfortunately, the current social perspective about the medications just portrays its safe and healing aspects. However, medical texts perceive the medications as a double-edged razor; one end considers the pathogens and the other endangers the human health by lack of awareness about its appropriate use (Moghaddam Nia, 2007)

Self-medication, as the most common form of self-care, can have many forms, such as taking an industrial or hand-made drug, obtaining medicines without the specialist's prescriptions, using previously prescribed medicines in similar cases, sharing the medications prescribed for one patient among other family members, consuming the medications remained at home, and failing to comply with the principles medication use regularly, either by consuming more than the regular amount or by failing to complete the course of medication(Neafsey, Jarrín, Luciano, & Coffman, 2007)

The side effects of self-medication include: increase in per capita of medication use, disruption in the pharmaceutical market, imposition of enormous costs on drug budgets of the government, insurance companies, and

general population, drug abuse, drug interactions, hiding symptoms and signs of severe illness, delay in treatment of a serious illness, drug resistance, bacterial resistance, lack of optimal treatment, poisoning, adverse effects, and mortality(Jalilian et al., 2013; Movahed E, 2014; Sharifi-Rad, Mohebi, & Motalebi, 2011).

Today, overuse of the medications and self-medication are among the greatest socio-economic and economic problems in various societies, including Iran. (Zareban, Shamsi, Kuhpayehzadeh, & Baradaran, 2013) In this regard, the World Health Day slogan in 2011 declared "resistance to antimicrobial drugs" as a worldwide threat (Panchal, Pandya, & Parmar, 2015). In a study among Italian families, 69% reported self-medication (Garofalo, Di Giuseppe, & Angelillo, 2015). Pavan reported that 5% of the individuals had self-medication (Panchal et al., 2015). The rates of self-medication were different in various cities of Iran: 94% in Ahvaz (Haji, 2005), 86% in Isfahan (Sharifirad, Pirzadeh, & Azadbakht, 2011), 83% in Yazd (Baghiani Mogadam & Ehrampoush, 2006), 54% in Arak (Tajik, Shamsi, & Beygee, 2008), and 63% in Tabriz (Maghbal, 1998)

In the meantime, attention to the female population is of paramount importance, since they should pass critical periods such as pregnancy and lactation, are more frequently in contact with the family members, and are considered as the role model for other family members. Various studies indicated that women showed especial tendency to self-medicate and use medications repeatedly to treat problems such as dysmenorrhea, menopausal symptoms, menstrual disorders, mood disorders, osteoporosis, as well as pregnancy- and lactation-related problems (Sharifi-Rad et al., 2011)

In order to understand a particular problem in a specific context, different models have been considered and designed based on a number of theories (Glanz, Rimer, & Viswanath, 2008). Therefore, in educational planning, one of the most important measures is to choose a model or theory based on the circumstances, problem identification, and alignment of the model efficacy and purpose with the training program's aim. Researchers adopted different models for behavior change; one of the most effective models in health education is the Health Belief Model (HBM). This model considers behavior as a function of one's knowledge and attitude. Considering its constructs, the HBM was designed to help individuals to perceive a health threat and drive their behaviors towards health. This model has six constructs including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, guidelines for action, and self-efficacy. One of the key applications of this early prevention model is for a disease or injury (Movahed E , Zareipour M, Arefi Z, & M., 2014)Therefore, theories and models of the behavior change, such as HBM, are required for behavioral change and persistence among women. According to the literature, application of this model was effective on adopting preventive behaviors (Amirzadeh Iranagh, 2016; Azadbakht et al., 2014; Khavoshi, Tol, Shojaeizade, & Shamshiri, 2015)Thus, according to HBM, people prevent self-medication, if they believe that its consequences are serious and dangerous. In addition, when individuals perceive the benefits of leaving self-medication, they will have an incentive to do so. Other individuals also may encourage a person to quit self-medication. Today, self-medication is prevalent in societies and individuals play a direct role in the selection and use of medications. In order to enable people to live a relatively healthy and active life, the effective factors on behavior change should be identified to achieve the optimal health behavior. The present study targeted at achieving this goal.

## MATERIALS AND METHODS

### Study design and participants

This descriptive-analytical study was conducted to investigate the determinants of self-medication among women based on the HBM in Urmia City in 2018. The inclusion criteria consisted of willingness to participate in the research, non-pregnant women, lack of hospitalization in psychiatric wards, non-use of antidepressants, stress- and anxiety-reducing medications, non-occurrence of terrible events (such as death of relatives, divorce, accident) in the last three months.

### Sample size

The prevalence of self-medication was estimated as 36% in Iran (Shamsi M, to, University, & 39-29), which was calculated as $\alpha = 5\%$, 95% confidence level, and $d = 6\%$ with a sample size of 200 people.

### Sampling

The multistage sampling method was conducted in this study. Simple random sampling was applied and 10 centers were selected of 35 health centers. Later, 20 women were randomly selected from each of these centers. These participants were asked to complete the questionnaire under the supervision of the researcher.

### Data collection tools

The data collection tool was a researcher-made questionnaire including the demographic information, self-medication awareness

questionnaire, self-medication prevention behaviors questionnaire, and HBM questionnaire. The items of each questionnaire were selected by reviewing the literature. The content validity and Cronbach's alpha tests were used to confirm the validity and reliability of these questionnaires, respectively. In order to determine validity of the questionnaire, 10 health education specialists and gynecologists were asked to review them and state their opinions. Later, the necessary revisions were made to the questionnaire based on the experts' opinions. The validity of the questionnaire was higher than 80%. To measure its reliability, the questionnaire was piloted on 30 women. Then, the Cronbach's alpha test was applied and the reliability coefficients were calculated for awareness (0.77), perceived susceptibility (0.75), perceived severity (0.82), perceived barriers (0.86), guidelines for action (0.81), perceived benefits (0.84), and self-efficacy (0.76).

The participants' awareness was investigated by 12 questions using "Yes" (2 scores), "No" (0 score), and "I Don't Know" (1 score) options. The awareness questionnaire scores ranged from zero to 24. The questions and score ranges of the HBM constructs included: Perceived susceptibility (5 questions, 5-15 scores), Perceived severity (6 questions, 6- 18), Perceived barriers (5 questions, 5-15 scores), Perceived benefits (7 question, 7-21 scores), Self-efficacy (10 questions, 10-30 scores), Guidelines for actions (7 questions, 7-21 scores). All questions were answered on a 3-point Likert scale using "Agree", "No idea", and "Disagree" options. To measure the self-medication prevention behaviors, a 10-item questionnaire was used by "Yes Always" (2 scores), "Yes Sometimes" (1 score), and "No" (0 score) options. In this regard, scores of the self-medication prevention behaviors questionnaire ranged from zero to 20.

Finally, the questionnaires were distributed among the participants after asking them to sign the informed consent forms and ensuring them about confidentiality of the information.

## DATA ANALYSIS

Data were analyzed using chi-square and linear regression tests by SPSS 20.

## RESULTS AND DISCUSSION

According to the results, 200 women with mean age of 26.51 ±11.46 years participated in the study. The majority of the participants (74%) belonged to the age group of 25-30 years. Considering the women's occupation, 148 (74%) were housewife and the rest were employed. In terms of the educational level, 42 (20.8%) were illiterate or had elementary-level education, 82 (42.1%) had the secondary school degree, and 76 (37.1%) had diploma and higher degrees (Table 1).

**Table 1: Demographic characteristics of the women who referred to the health centers**

| Demographic variable | | Number | Percent |
|---|---|---|---|
| Age | 20-25 | 60 | 30 |
| | 25-30 | 74 | 37 |
| | 30-35 | 46 | 23 |
| | Higher than 35 | 20 | 10 |
| Marital status | Married | 142 | 71 |
| | Single | 21 | 10.5 |
| | Widowed | 37 | 18.5 |
| Education level | Illiterate or primary school | 42 | 20.8 |
| | Secondary school | 82 | 42.1 |
| | Diploma and higher | 76 | 37.1 |
| Occupation | Housewife | 148 | 74 |
| | Employed | 52 | 26 |
| Health insurance | Yes | 162 | 81.2 |
| | No | 38 | 18.8 |
| Economic status | Weak | 44 | 22 |
| | Average | 108 | 54 |
| | Good | 48 | 24 |

The results of self-medication information showed that 56% of women had self-medication over the past 3 months and the most taken drugs were painkillers (68.7%) as well as cold pills and syrups (58.8%).

Demographic data analysis showed that educational level, health insurance, and economic status had a statistically significant relationship with self-medication prevention behavior ($P < 0.05$). Preventive behavior scores

were significantly higher in women with low education (P = 0.05). Furthermore, self-medication prevention behavior scores were higher among the individuals with insurance (P = 0.01). On the other hand, women with good economic status had higher levels of self-medication prevention behavior (P = 0.02) (Table 2).

**Table 2: Demographic information and its relationship with self-medication prevention behavior among the studied women**

| Demographic variables | | Self-treatment prevention behavior score | P-value |
|---|---|---|---|
| | | Mean (standard variation) | |
| Age | 20-25 | 16.33(3.8) | 0.09 |
| | 25-30 | 16.43(2.9) | |
| | 30-35 | 18.1(3.6) | |
| | Higher than 35 | 17.9(4.6) | |
| Marital status | Married | 17.7(2.8) | 0.1 |
| | Single | 16.6(4.5) | |
| | Widowed | 17.1(3.7) | |
| Education level | Illiterate or primary school | 18.9(2.1) | *0.05 |
| | Secondary school | 16.6(2.1) | |
| | Diploma and higher | 13.1(4.8) | |
| Occupation | Housewife | 14.8(2.8) | 0.8 |
| | Employed | 15.9(3.9) | |
| Health insurance | Yes | 18.8(3.8) | *0.01 |
| | No | 15.4(2.9) | |
| Economic status | Weak | 18.4(2.4) | *0.02 |
| | Average | 16.7(4.3) | |
| | Good | 15.8(3.6) | |

With regard to the self-medication preventing behaviors, the regression test showed that the strongest predictive constructs were perceived self-efficacy (B = 0.39) and awareness (B = 0.30), respectively. These constructs were followed by perceived susceptibility (B = 0.25) and perceived severity (B = 0.22). These constructs of the HBM were statistically significant in predicting the self-medication preventing behaviors among women (P <0/05) (Table 3)

**Table 3: Findings of the linear regression model in predicting self-medication behavior among women in Urmuieh**

| Variables | Regression coefficient B | Standard err of regression coefficient | beta | T value | Signify |
|---|---|---|---|---|---|
| Awareness | 0.30 | 0.088 | 0.18 | 2.8 | 0.02 |
| Perceived susceptibiliy | 0.25 | 0.082 | 0.18 | 2.3 | 0.04 |

| | | | | | |
|---|---|---|---|---|---|
| Perceived severity | 0.22 | 0.071 | 0.16 | 2.6 | 0.05 |
| Perceived benefits | 0.09 | 0.056 | 0.17 | 2.1 | 0.65 |
| Perceived barriers | -0.03 | 0.059 | -0.23 | 1.6 | 0.69 |
| Perceived self efficacy | 0.39 | 0.097 | 0.37 | 2.9 | 0.002 |
| Guidelines for actions | 0.04 | 0.041 | 0.06 | 1.8 | 0.3 |

## DISCUSSION

In this study, 56% of the women had self-medication, which is lower than the studies conducted in Ahwaz (94%) (Haji, 2005), Isfahan (86%) (Sharifirad et al., 2011), United Arab Emirates (92.6%)(Sharif, Bugaighis, & Sharif, 2015), Yazd (83%) (Baghiani Mogadam & Ehrampoush, 2006), and Chile (75%) (Albarrán & Zapata, 2008). However, our result was in line with the findings reported in Egypt (55%) (El Ezz & Ez-Elarab, 2011), Arak (54%) (Tabiei, 2012), and Tabriz (63%) (Maghbal, 1998). Comparison of our results with other studies showed that different cities and countries were significantly different with regard to the rate of self-medication. Moreover, the level of self-medication was significantly different within different segments of the society. This variety may reflect differences in the culture, perception, beliefs, and economic status of individuals in different cities and countries under study.

The results showed that self-medication was significantly higher in women with higher education levels than those with lower levels of literacy. Osemene in Nigeria (Osemene & Lamikanra, 2012) and Moghadamnia in Babol (Moghadamnia & Ghadimi, 2001)showed that people with academic education had higher levels of self-medication. This may be due to the fact that these people think that they can get enough information from the drug brochure or diagnose the disease after several visits with the same prescriptions. So, they consume the medications prescribed in the similar situations.

The highest prevalence of self-medication prevention behaviors was among those who had insurance; this finding is in line with similar study carried out in Arak (Shamsi M et al.). However, Asifzadeh(Asefzadeh, 2002) and Tabiee et al. (Tabiei, 2012) showed that self-medication was more prevalent in people with rural insurance, which is inconsistent with our research. This discrepancy in the results may be due to the fact that individuals with rural insurance refuse to pay for a doctor's visit by self-medicating or using the pre-existing medications. In this regard, people under the coverage of health insurance are more inclined to visit physicians in the case of a disease, since the insurance covers a percentage of their treatment costs.

Pagan et al. (Pagan, Ross, Yau, & Polsky, 2006)found that self-medication in Mexico had a significant association with the economic status of the community. Moreover, Gorabi et al. reported that the frequency distribution of self-medication was significantly correlated with the individuals' assessment of their income level(Tahergorabi, Kiani, & Moodi, 2016). In other words, people with poor levels of income had more self-medication, which supports our results.

Perceived self-efficacy is defined as the individuals' judgments about their own abilities to prevent self-medication. In the present study, perceived self-efficacy was the best predicting factor of the self-medication prevention behaviors. This finding is consistent with the results achieved by Baghiani Moghaddam et al. (Baghianimoghadam, Mirzaei, & Rahimdel, 2012) , who studied the role of health beliefs in conducting preventive behaviors of cardiovascular diseases among high risk individuals in Yazd Furthermore, Courtney (Courtney, Tong, & Walsh, 2000) and Conn et al. (Conn, 1998) introduced self-efficacy as an important precondition for self-management in behavior change and reported that its enhancement promoted the self-care behaviors.

Women with high awareness were less likely to self-medicate. This finding was also consistent with that of Mazlumi et al. (Mahmoodabad, Zareipour, Askarishahi, & Beigomi, 2018), who showed a significant relationship between awareness and preventive behaviors in the elderly. In order to prevent self-medication, women's levels of awareness about the predisposing factors of self-medication should be increased; as a result, they can change their health behaviors. However, studies have shown that increasing the awareness levels alone cannot promote the self-care behaviors. So, in order to achieve long-term self-care, the individuals'

attitude and motivation are more important than their awareness (Imai et al., 2008; Oldroyd, Unwin, White, Mathers, & Alberti, 2006).

We found that higher levels of the perceived severity and susceptibility increased the self-medication preventing behaviors. These findings are consistent with the results of Daniel et al. (Daniel & Messer, 2002), who predicted the perceived severity of glycemic control behaviors and Najaji et al. (Arezoo , samad, & Zareipour, 2018) ,who investigated the perceived threat to predict self-care behaviors. Our results indicated that self-medication perceived severity caused complications such as drug poisoning, kidney and urinary damages, gastrointestinal swelling, drug allergies, and even death. Obviously, perceived severity of the self-medication complications should be considered in an educational intervention program to enhance self-medication prevention behaviors.

## CONCLUSION

The constructs of perceived self-efficacy, awareness, perceived susceptibility, and perceived severity should be considered in predicting the self-medication prevention behaviors. In this regard, the necessary training programs should be designed emphasizing on these constructs to enhance the self-medication prevention behaviors among women.

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### Ethical Considerations

This study was approved by the Ethics Committee of Branch of Urmia Islamic Azad University and the goals of the study were explained to all Women and all of them accepted to participate and were assured consider the confidentiality of their individual information as well as the voluntary nature of participating in the study.

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