

# Correlates of Cardiovascular Diseases-related Nutritional Behaviors among Women Using Health Belief Model: a Research from Iran

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## Abstract

**Background and Aim:** Cardiovascular disease is the main cause of mortality and morbidity in the world. Although a large proportion of cardiovascular diseases can be prevented, these diseases have continued to rise due to inadequate preventive measures. The aim of this study was to determine the predictors of nutritional behavior of women referred to health centers in Amol city, to prevent cardiovascular diseases using Health Belief Model in 2016-17.

**Methods & Materials:** This descriptive-analytical and cross-sectional study was conducted on 180 women of childbearing age, who were randomly selected and investigated. A researcher-made questionnaire was used to collect data and this self-administered questionnaire was designed based on HBM structures (knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived self-efficacy and behavior). Validity and reliability were determined through face and content validity, and internal consistency and test-retest, respectively. Descriptive-analytical statistical tests (correlation coefficient, regression analysis), ANOVA and T-test were used to analyze the data.

**Findings:** The results showed that three variables as self-efficacy, level of education and perceived susceptibility among demographic variables and HBM structures were stronger predictors for the behavior, respectively. It should be noted that self-efficacy and perceived sensitivity were direct predictors so that the behavior would be better with the increase of self-efficacy and sensitivity, but it had a reverse relationship with education level; it means that the higher education indicated the lower behavior.

**Conclusion:** Health Belief Model has very good predictability for preventive nutritional behaviors of cardiovascular diseases. It is recommended to design and implement the educational interventions based on HBM.

**Keywords:** Nutritional behavior, Women, Cardiovascular disease, HBM

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## Introduction

Cardiovascular disease is a pandemic that has pressured most of the world's countries; although many cardiovascular diseases can be cured it is still the most important cause of death worldwide(1). According to the report of World Health Organization (WHO), 17.3 million people died in 2008 due to cardiovascular diseases and that accounted for 30% of all deaths in the year. 80% of death has been in low and middle-income countries and is predicted by 2030 reach to more than 23.3 million people per year(2). Cardiovascular disease is the main cause of death and disability in the world. Although a large proportion of cardiovascular diseases are preventable, mainly due to inadequate preventive measures it is still rising(3). Today, most cardiovascular diseases cause frequent hospitalizations with high costs for society and the government(4). Increasing prevalence of cardiovascular diseases (CVD) and human and economic losses due to them has doubled the importance of prevention and control of these diseases(5, 6) . According to the World Health Organization (WHO), the majority of cardiovascular diseases can be prevented by identifying risk factors like tobacco use, unhealthy diet and obesity, physical inactivity, high blood pressure, diabetes and fat gain(2, 7) .

Many listed factors for cardiovascular disease are strongly influenced by diet(1) . High intake of dietary saturated fat, Trans fat, cholesterol and high salt and low intake of fruits, vegetables, and fish have been associated with risk of cardiovascular diseases(3, 8, 9) . In addition the importance of habits of eating, cooking and amount of salt intake are considered the factors affecting cardiovascular diseases(10) . In the meantime, the role of women is more important than men because many of concepts of diet are achieved by them(4). Today, in the industrial countries by

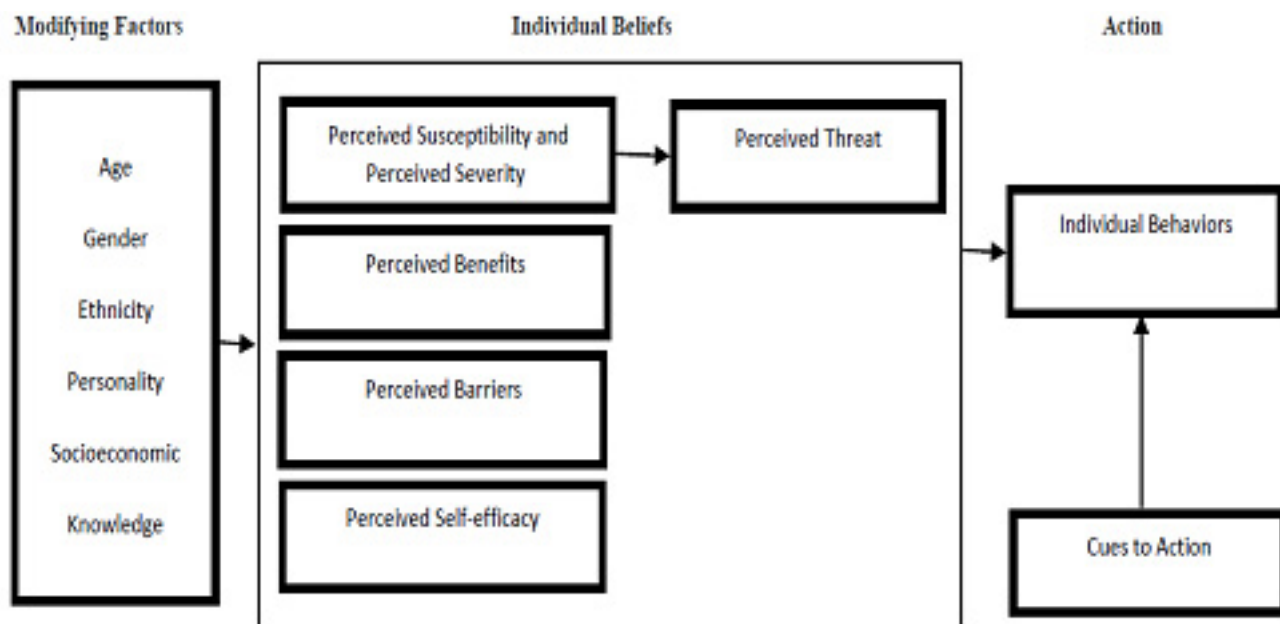
changes that are created in the lifestyle in terms of reducing the amount of fat intake and controlling tobacco and controlling blood pressure and increasing physical activity and other factors of risk, mortality from cardiovascular disease has been declining over the past 25 years(11) . Education plays a major role in this part. The first step in the process of training is needs assessment and value of training programs will depend on their efficiency, and the effectiveness of these programs depends largely on the proper use of theories and models in health education. By selecting a suitable model, the training program will be on the right path(4, 12).

One of the models used at the individual level to change behavior and in fact, one of the most widely used theories and models of health education and health promotion is Health Belief Model (HBM)(13).

According to this model, if people consider themselves susceptible to the condition (perceived susceptibility) and believe that the condition is potentially dangerous for them and has negative consequences for them (perceived severity) and believe that by doing a series of measures they can reduce the risks and effects and doing these actions and measures has interests (perceived benefits) over barriers of the lack of doing the behavior (such as time and money) (perceived barriers), they will do preventive behavior from risk. Individuals to overcome barriers of behavior feel adequacy (self-efficacy)(14) . (Figure 1)

Culturally in northern regions of Iran, different nutritional patterns to the Central and South regions as well as the uncontrolled growth of urban population in recent years have followed a change in life style(15). In order to prevent and control cardiovascular diseases associated with nutritional behavior and deal with behaviors and new ways of urban life, no study has been conducted in this

**Figure 1: Health belief Model Constructs (9)**



field in Mazandaran province and Amol city. Study conducting research and interventions in this field are inevitable. Given the importance of theories and patterns of behavior change in educational interventions programs should emphasize the most important behavioral determinants so this study is conducted with the aim to determine predictors of nutritional behavior of women referred to health centers in Amol, in order to prevent cardiovascular diseases, using HBM.

## Materials and Methods

### Study design & sampling

The present study was cross-sectional and was conducted in 2016. The sample size was 180 people and it was calculated utilizing similar precision studies ( $d$ ) 0.5 and confidence coefficient ( $z$ ) 1.96 and using the formula ( $n = z^2 \times S^2 / d^2$ ). From 18 health centers in Amol, 2 centers were selected randomly. Then the list of women of childbearing age 15-49 years covered who had literacy was prepared from Healthy Reproduction Office, 180 people were randomly selected from 4,300 women of childbearing age.

### Instrument

Research-made questionnaire was the tool of data collection on the health belief model. The first part includes background information of women (age, education, occupational status, family history of cardiovascular disease). The second part consists of 24 questions on knowledge, 5 questions of perceived susceptibility, 7 questions of perceived severity, 10 questions of perceived benefits, 11 questions of perceived barriers, 6 questions of perceived self-efficacy, and 4 questions of performance. For questions of awareness, scores 2-1-0 were considered for the options of true, do not know and false respectively and a 5-point Likert scale was used for other structures where the score 5 was considered for the most desirable mode and score 1 considered for the worst mode. The Likert scale of performance measurement was; always, more often, sometimes, rarely, never.

### Validity & Reliability

In order to establish the validity of the tool based on HBM, content and face validity was used. Thus, a questionnaire relevant to the aims and hypotheses based on the contents and books and new articles was set. To determine the validity of its content, the comments of 8 professors and experts of health education were used. By doing CVR and CVI of questions of the questionnaire, three questions of perceived barriers were eliminated from the questionnaire. To assess the face validity, the questionnaire was given to 10 women of childbearing age (in terms of demographic characteristics similar to the studied population) to complete, and for any possible defects of the tool (questionnaire) to be resolved in terms of writing, placing of questions and unclear questions for the women and any other apparent difficulties of the questionnaire. To evaluate the reliability of the tool, the test-retest method was used for questions of awareness. This means that among 10 women of childbearing age (in terms of demographic characteristics similar to the studied population), the questionnaire was completed and again

after 10 days, the same questionnaire was given to the same individuals to complete and the correlation coefficient obtained in this way was 0.76, which is acceptable. (It should be noted that these women did not participate in the original plan). To assess the reliability of other questions of HBM structures, internal consistency of Cronbach's alpha was used. To assess the reliability of the questionnaire, other parts of the questionnaire (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, the performance) was given to 30 women who were later excluded from the main study. Cronbach's alpha related to perceived susceptibility was calculated as 0.74, perceived severity as 0.69, perceived benefits as 0.88, perceived barriers as 0.73, and self-efficacy as 0.46.

### Data analysis

Collected Data were analyzed in SPSS 16 software (descriptive and analytical tests such as; Regression, Pearson correlation, ANOVA, T-test).

### Ethical considerations

We used unnamed questionnaires in this study. Also, all individuals participated in the research with informed consent and voluntarily.

## Findings

The sample was 180 women of childbearing age covered by two health centers in Amol and their average age was  $5.88 \pm 29.97$  years. 53.9% of the women were under 30 years old and 46.1% over 30 years. Job status of women was 90% housewives, 10% employed. The education level was under high school (31.16%), high school diploma (42.8%), and academic education (26.1%). Family history of heart disease was (28.3%), absence of disease (71.7%).

In the study we entered the model structures of HBM with demographic variables. Among age, education, disease history, awareness, perceived susceptibility, perceived severity, perceived benefits, perceived barriers and self-efficacy with behavior, only three variables were predictors of behavior. These three variables included self-efficacy, perceived susceptibility and education. The strongest predictor among these three variables is the perceived self-efficacy; where perceived self-efficacy was high, the behavior was high and the more the perceived sensitivity was high, the behavior was high, but the more the education was high, the behavior was lower.

In general, three results were achieved in the regression test:

**A)** The 1st model: self-efficacy has a significant impact on behavior. (Due to the significant level (sig. less than 0.05) and the amount of this effect is 0.28. This means that for a unit change in self-efficacy, behavior changes 0.28.

**B)** The 2nd model: self-efficacy (0.31) & education level (-0.18) meaning higher education has a less effect on behavior.

**C)** The 3rd model: According to the values of self-efficacy (0.28) level of education (-0.02) susceptibility (0.18) we understand both of susceptibility and self-efficacy have a good effect on the behavior. But, high education has negative effect on behavior.

**Table 1: Demographic characteristics of samples under study**

Variable	Sub-Group	(Percent), Number
<i>Age</i>	=<30	(53.9), 97
	>30	(46.1), 83
<i>Education</i>	Under high school	(31.1), 56
	High school and Diploma	(42.8), 77
	University	(26.1), 47
<i>Job Status</i>	Employed	(10), 18
	Housewife	(90), 162
<i>History of heart disease</i>	Yes	(28.3), 51
	No	(71.7), 129

**Table 3. The relationship between HBM constructs with behavior using regression analysis**

Model	Standard coefficient		Standard coefficient	t	Significant level	R	R <sup>2</sup>
	B	standard	Beta				
<i>Self-efficacy</i>	0.20	0.05	0.28	4.01	*0.001	2.88	0.83
<i>Self-efficacy</i>	0.22	0.051	0.31	4.37	*0.001	0.34	0.12
<i>Level of education</i>	-0.59	0.23	-0.18	-2.56	*0.001		
<i>Self-efficacy</i>	0.20	0.051	0.28	3.94	*0.001	0.38	0.15
<i>Level of education</i>	-0.67	-0.23	-0.20	-2.94	*0.004		
<i>Perceived susceptibility</i>	0.14	0.058	0.18	2.50	*0.013		

## Discussion

The aim of this study was the application of HBM for prediction of cardiovascular disease-related preventive nutritional behaviors among women attending the studied health centers. As the results showed, there was a direct correlation between disease history and perceived sensitivity. People who had disease history had more perceived susceptibility. This finding is logical. Because, people who have history of disease, experience disease and they are familiar with it, thus they perceive themselves as more susceptible to disease, and they believe that they may be re-affected. This finding is consistent with results by Canbulat Uzun(16) on female employees in Turkey. It is not, however, consistent with the study of L. Hasani et al (17) about predictability of health belief model constructs in adopting self-examination of the breast. Perceived susceptibility in people over 30 years is high and in people under 30 years is low. Regarding that the effects of behaviors occur in the long term and lead to chronic or heart diseases, it is required of people in early ages to adopt preventive behaviors. The results show that people who are younger possess do not have desirable behavioral status. Therefore, it is reasonable and necessary to design educational interventions. Among demographic variables, only there was a significant relationship between age and

behavior that was consistent with the research results of Baghiani et al in the field of the role of health beliefs on cardiovascular diseases' preventive behaviors in people at risk (18) and Ammouri et al about risk perception of adults to cardiovascular disease (19), and with the results of Al-Ali Haddad's study in the field of participation of patients with myocardial infarction in sports activities(20). A similar finding was not reported in the studies of Karimi et al in the context of Breast Self-Examination (BSE) (21) and Salehi et al about regular physical activity(22). There was a significant relationship between education and awareness as well as perceived benefits and perceived barriers and self-efficacy. This finding is quite natural and expected. This is logical that the more educated, the awareness of people in the field of heart disease rises. Meaningful relationship of education with awareness has been seen in the studies of Jalali et al (23) and the Al-Adsan(24) and Avis (25). In the present study, there was no correlation between awareness and behavior observed which is consistent with the results of Imanipour et al research about awareness and performance of teachers on preventing cardiovascular disease (26) and study of Jalali et al about awareness and the performance of people of Babol city on preventing cardiovascular disease(23). But it isn't consistent with the study of Baghiani et al (18). This is expected and natural, as beliefs such as

**Table 2. The relationship between the HBM structures and the demographic variables**

	Age		Education			History of Heart Disease		
	=<30	>30	Under High School	High School & Diploma	University	Yes	No	
								$\bar{x} \pm SD$
<b>Awareness</b>	36.48±5.70	37.84±5.60	11.34±6.26	37.55±4.87	39.98±4.38	36.71±6.00	38.14±4.61	0.12
<b>P. susceptibility</b>	18.24±3.06	19.05±2.30	18.05±3.33	18.51±2.50	19.45±3.39	17.95±2.89	20.27±2.28	0.001
<b>P. severity</b>	27.08±4.01	28.43±4.16	27.39±4.36	27.49±4.13	28.43±3.83	27.5±3.97	28.22±4.56	0.29
<b>P. benefits</b>	44.52±5.19	45.37±4.17	43.46±5.27	44.84±4.68	46.74±3.52	44.54±5.00	45.84±3.93	0.09
<b>P. barriers</b>	33.98±8.31	33.70±7.18	31.68±8.79	33.91±6.93	36.34±7.24	33.18±7.67	35.55±7.91	0.06
<b>Self-efficacy</b>	25.26±3.45	25.48±3.39	25.16±3.75	24.88±3.32	25.36±3.41	25.33±3.32	25.45±3.67	0.82
<b>Behavior</b>	13.99±2.20	14.89±2.64	14.89±2.70	14.31±2.28	13.98±2.45	14.37±2.47	14.49±2.42	0.77

perceived benefits are rooted in the awareness of people. As it was seen, awareness of people rises by increasing high educational level, so it is expected benefits rise. Also regarding perceived barriers, the more education rises, people know better the strategies to overcome the barriers. Otherwise, individuals with lower education face more barriers. In general, people who have higher education are probably less influenced by media and less affected by pressures of relatives. Thus, we observed in this study a significant correlation between the level of education and the self-efficacy that is consistent with the study of Taghdisi et al on evaluating pregnant women on infections during pregnancy based on the health belief model (27) while it isn't consistent with the study of Sahar Sabooteh et al on investigating health belief model structures about anxiety in nulliparous pregnant women(28).

In regression findings of the present research, self-efficacy had the most direct effect on nutritional behavior which is consistent with the research results of Mehri et al on factors associated with heart disease preventive behaviors in students of Islamic Azad University(29) and Teimuri et al on mammography treatment in women in Sanandaj (30) as well as studies of Teimuri on factors affecting mammography (31) and the study of Noruzi on factors affecting BSE(32) and on investigating predictors of oral health care in pregnant women. While it isn't consistent with the study of Azam Namdar et al on investigating prediction of health belief model in adopting preventive behaviors of cervical cancer(33) . They reported perceived barriers and awareness as the strongest predictors of behavior. Self-efficacy and perceived susceptibility are two factors predicting behavior in this study. The more self-efficacy, as well as, more perceived susceptibility, adopting preventive behaviors is more. Studies of Karimy et al(34) variables of perceived barriers, self efficacy and perceived sensitivity were identified as the most important constructs of the HBM in predicting nutritional practices, as well as in the study of Karimy et al (35) where a significant correlation was observed in perceived barriers, sensitivity, severity, benefits, barriers and perceived self-efficacy with nutritional practices of pregnant women, and studies of Padula and Sev Livan (36), Yarachesky et al(37) were confirmed in the present study. Based on the findings of this study we can say three variables of perceived self-efficiency, education level, and perceived susceptibility are stronger predictors. So, the necessity of designing and implementing educational interventions related to susceptibility and self-efficacy is seriously required. It could be conducted using role models or using documentation and credible sources to strengthen this belief in people that all men and women in any age are at risk for heart disease. Also, self-efficacy of individuals could be improved using patterns (successful examples) and using peers and successful experiences and also breaking down complex behaviors to simple behaviors.

### Conclusion

Health belief model has a very good predictability for cardiovascular diseases-related nutritional behaviors. It is recommended educational interventions based on the HBM be designed and implemented. In this aspect and according to the findings of present research, most emphasis should be on improving perceived susceptibility, and perceived self-efficacy.

### Research limitations

This study has some limitations. One is applying self-report questionnaire where people may not have accurately answered the questions. Another is that, only women of childbearing ages were studied here. That is, results may not be generalized to all members of society.

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## Ethics approval

Ethics committee of the Shahid Beheshti University of Medical Sciences, Tehran, Iran. This article is extracted from an approved project (No: 4943) in Vice-Chancellor in Research Affairs of Shahid Beheshti University of Medical Sciences.

## References

- Mazloomi MS, Shahbazi H, Motlagh Z, MOMENI SM, Sadeghzadeh J. The study of knowledge, attitude and practice of Yazd restaurant chefs in preventing cardiovascular diseases risk factors in 2010. *Toloo-e-Behdasht* 2011;10(1):14-27.
- World Health Organization (WHO). Cardiovascular disease. Available From: [http://www.who.int/cardiovascular\\_disease/en/](http://www.who.int/cardiovascular_disease/en/) [Accessed 15 July, 2013]. 2013.
- Mendis S, Puska P, Norrving B. Global atlas on cardiovascular disease prevention and control: World Health Organization; 2011.
- Tavassoli E, Hasanzadeh A, Ghiasvand R, Tol A, Shojaezadeh D. Effect of health education based on the Health Belief Model on improving nutritional behavior aiming at preventing cardiovascular disease among housewives in Isfahan. *Journal of School of Public Health and Institute of Public Health Research*. 2010;8(3):12-23.
- Ramezani Y, Mobasheri M, Moosavi SG, Bahrami A, Rayegan F, Parastui K, et al. Exposure rate of cardiovascular risk factors among clients of health-care clinics in Kashan, Autumn 2010. *Journal of Shahrekord University of Medical Sciences*. 2011;13.
- Safari Moradabadi A. Prevalence of hypertension and respective risk factors in adults in Bandar Abbas, Iran. *Bimonthly Journal of Hormozgan University of Medical Sciences*. 2014;18(3):201-9.
- Aghamolaei T, Farshidi H, Safari-Moradabadi A, Dadipoor S. Effect of interventions based on the theory of planned behavior on promoting physical activity: a systematic review. *Journal of Preventive Medicine*. 2017;3(4):1-15.
- Dadipoor S, Madani A, Ghanbarnejad A, Safari Moradabadi A, Amani F, Hosseini M, et al. Effective Factors related to Fast-foods Consumption in Bandar Abbas: A Community-Based Study. *Iranian Journal of Health Education and Health Promotion*. 2014;2(2):77-86.
- Dadipoor S, Fallahi S, Moradabadi AS, Ghanbarnejad A, Montazerghaem H. Investigation of the epidemiology of hypertension and BMI in the adult population in the province of Hormozgan, during 2011. *Life Science Journal*. 2013;10(10s).
- Darafshi Ghahroudi S, Bondarianzadeh D, Houshiar-Rad A, Naseri E, Shakibazadeh E, Zayeri F. Relationship Between perception of cardiovascular disease risk based on the Health Belief Model and food intake in a group of public employees in Tehran, 1391. *Iranian Journal of Nutrition Sciences & Food Technology*. 2013;8(3):55-64.
- Bobadilla JL, Frenk J, Lozano R, Frejka T, Stern C. The epidemiologic transition and health priorities. 1993.
- Hassani L, Aghamolaei T, Ghanbarnejad A, Madani A, Alizadeh A, Moradabadi AS. The effect of educational intervention based on BASNEF model on the students' oral health. *Journal of Research & Health*. 2016;5(4):36-44.
- Butler JT. Principles of health education and health promotion: Morton Publishing Company; 1994.
- Glanz K, Rimer BK, Viswanath K. Health behavior and health education: theory, research, and practice: John Wiley & Sons; 2008.
- Hajian K, Heydari B. Prevalence of obesity and its associated factors in population aged 20 to 70 years in urban areas of Mazandaran. *Journal of Mazandaran University of Medical Sciences*. 2006;16(55):107-17.
- Canbulat N, Uzun Ö. Health beliefs and breast cancer screening behaviors among female health workers in Turkey. *European Journal of Oncology Nursing*. 2008;12(2):148-56.
- Hasani L, Aghamolaei T, Tavafian S, Zare S. Constructs of the Health Belief Model as Predicting Factors in Breast Self-Examination. *Journal of hayat*. 2011;17(1):62-9.
- Baghianimoghadam MH, Mirzaei M, Rahimdel T. Role of health beliefs in preventive behaviors of individuals at risk of cardiovascular diseases. 2012.
- Ammouri AA, Neuberger G, Mrayyan MT, Hamaideh SH. Perception of risk of coronary heart disease among Jordanians. *Journal of clinical nursing*. 2011;20(1□2):197-203.
- Al-Ali N, Haddad LG. The effect of the health belief model in explaining exercise participation among Jordanian myocardial infarction patients. *Journal of Transcultural Nursing*. 2004;15(2):114-21.
- Karimy M, Niknami S, Amin SF, Shamsi M, Hatami A. The Relationship of Breast self-examination with Self-esteem and Perceived Benefits/Barriers of Self-efficacy in Health Volunteers of Zarandieh city. 2009.
- Salehi L, Taghdisi M, Ghasemi H, Shokervash B. To Identify the facilitator and barrier factors of physical activity among elderly people in tehran. *Iranian Journal of Epidemiology*. 2010;6(2):7-15.
- Jalali F, HAJI AM, Hosseinpour M, Angari M, Asadi E. Knowledge, attitude and practice (KAP) of people living in Babol about clinical symptoms and risk factors of coronary artery diseases (CAD). 2004.
- Al-Adsan A, Memon A, Peneva A, Baidas G. Clinical epidemiology of acute myocardial infarction in Kuwait. *Acta cardiologica*. 2000;55(1):17-23.
- Avis NE, McKinlay JB, Smith KW. Is cardiovascular risk factor knowledge sufficient to influence behavior? *American Journal of Preventive Medicine*. 1990.
- Imanipour M. Knowledge, attitude and performance of educational staff about cardiovascular diseases. 2010.
- Taghdisi M, NejadSadeghi E. Evaluation of pregnant women in the field of Urinary Tract Infection according to the components of Health Belief Model. 2011.
- Alavijeh M, Mazloomi S, Yassini S, Askarshahi M. Fathers' subjective norms, normative beliefs and motivation to comply regarding prevention of children tendency toward addictive drugs. *J Health Syst Res* 2013;9(14):1757-64.

29. Mehri A, MOHAGHEGH NM. Utilizing the health belief model to predict preventive behaviors for heart diseases in the students of Islamic Azad university of Sabzevar (2010). 2010.
30. Taymoori P, Habibi S. Application of a health belief model for explaining mammography behavior by using structural equation model in women in Sanandaj. *Scientific Journal of Kurdistan University of Medical Sciences*. 2014;19(3):103-15.
31. Taymoori P, Berry T, Farhadifar F. Predicting mammography stage of adoption among Iranian women. *Journal of education and health promotion*. 2012;1.
32. Noroozi A, Jomand T, Tahmasebi R. Determinants of breast self-examination performance among Iranian women: an application of the health belief model. *Journal of Cancer Education*. 2011;26(2):365-74.
33. Namdar A, Bigizadeh S, Naghizadeh MM. Measuring Health Belief Model components in adopting preventive behaviors of cervical cancer. *Journal of Fasa University of Medical Sciences*. 2012;2(1):34-44.
34. Karimy M, Taher M, Azarpira H. Measurement Of Health Belief Model Construct In Relation With Nutritional Practices Of Pregnant Women In Saveh University Of Medical Sciences. *Scie of Hamadan Nurs & midwife Faculty* 2016;24(3):167-73.
35. Karimy M, Taher M, Fayazi N, Bayati S, Rezaei E, Rahnama F. Beliefs Effective on Nutritional Practices of Pregnant Women in Health Centers of Saveh, Iran. *J Educ Community Health*. 2015;2(3):28-35.
36. Mary Sullivan PhD R. Long-term married couples' health promotion behaviors: identifying factors that impact decision-making. *Journal of Gerontological Nursing*. 2006;32(10):37.
37. Yarcheski A, Mahon NE, Yarcheski TJ, Cannella BL. A meta-analysis of predictors of positive health practices. *Journal of Nursing Scholarship*. 2004;36(2):102-8.