Determination of Health Belief Model structures and Health-Promoting nutritional behaviors In Prevention of cardiovascular disease

Mahmoud Mobasheri.[1],Akbar Hassanzadeh [2], Elahe Tavassoli[3], Mehnoush Raisi [4], Hemamodean Javadzade [5], Zabihollah Gharli pour [6], Hamid reza Gilasi [7], Arsalan Khaledifar[8], Masoome Alidosti[9]

[1] Ph.D in Epidemiology, Associate Professor, Department of epidemiology and Bio-statistics, Faculty of health, Shahrekord University of Medical Sciences, Shahrekord, Iran.
[2] Assistant professor in epidemiology, Department of Statistics and Epidemiology, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran
[3] PhD Candidate in Health Education & Health promotion, Department of Public Health, Faculty of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
[4] PhD Candidate in Health Education & Health promotion, The Student's Research Committee Department of Public Health, Faculty of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
[5] PhD Candidate in Health Education & Health Promotion, Department of Public Health, Bushehr University of Medical Sciences, Bushehr, Iran.
[6] Faculty member, Department of Public Health, Faculty of Health, Qom University of Medical Sciences, Qom, Iran
[7] Dept of Public Health, School of Health, Kashan University of Medical Science, Kashan, Iran.
[8] Assistant Professor, Echocardiography Fellowship, Department of Cardiology, Shahrekord University of Medical Sciences, Shahrekord, Iran
[9] Shahrekord University of Medical Sciences, Shahrekord, Iran

E-mail: m_alidosti@hlth.mui.ac.ir

Abstract: Background: Cardiovascular diseases are the main cause of death and disabilities in the world. The purpose of the present study is to determine Health Belief Model structures and Health-Promoting nutritional behaviors In Prevention of cardiovascular disease. **Methods:** This study was a descriptive-analytic survey in 2010. A total number of 68 housewives were recruited in this study using a randomly sampling method. Data were collected using a self-made questionnaire and FFQ. Obtained data analyzed by $SPSS_{16}$ software in two categories of descriptive and inferential statistics. **Results:** Results indicated that the scores of HBM structures were low. Also Mean consumption of fruits in housewives was 130/24±57/72 and Mean consumption of vegetables in housewives was 220/73±112/85. There was a significant relation between all the HBM structures and consumption of fruit and vegetables ($p<0.001$). **Conclusion:** It seems necessary; using interventional and educational approaches appropriate for target group features can help us take effective steps towards health promotion and Prevention of cardiovascular disease.

1. Introduction

Cardiovascular disease is known as the three main causes of death and disabilities in the world, involving one third of all deaths in the world (1, 2). Parallel with the increase in life expectancy, chronic diseases have become more prevalent, so at the end of the twentieth century, the rate of death from heart disease was more than 25 percent, and it is predicted by 2025, the mortality from heart disease would have reached more than 35 to 60 percent of all causes of death. On the other hand, with changes in lifestyle, non-communicable diseases have been the leading causes of mortality (3). Whereas, the risk of contagious diseases, by their very nature, is more

immediate, the ramifications of chronic diseases, such as cardiovascular disease, are more lasting, more expensive and more debilitating. Although some of the causes of cardiovascular disease, such as age, are unchangeable, there are some ways to prevent heart disease that by applying them we can also prevent developing cardiovascular disease, or at least delay its onset (1). Most heart disease has caused repeated hospitalizations with high costs for society and the state. One of the causes is that people do not aware of risk factors, and the ways to prevent it (4). Predisposing risk factors for cardiovascular disease are behaviors or situations that may increase the risk of developing disease. Sedentary lifestyle,

smoking, high fat diet, and not eating fruits and vegetables are known as main behavioral factors of developing cardiovascular disease (5). Given that studying this attitude (the Health Belief Model structures) in health promotion of housewives, as well as changing lifestyle and risk behaviors reduces incidence of heart disease by 80 percent, in health promotion system, by changing lifestyle to a healthy one--controlling risk factors for cardiovascular disease, and increasing the quality of life-- the burden of disease will be reduced which is also economical considering economic point of view (1, 6).

The present study, therefore, aimed to investigate health belief model structures and health-promoting nutritional behaviors in prevention of cardiovascular disease of housewives in Esfahan.

2. Methods

This cross sectional descriptive-analytic study was conducted in 2010. A total number of 68 housewives were recruited in this study using a randomly sampling method. To this end, a list of all medical centers in Esfahan was made, and one center was chosen randomly. Then, a list of all 30 to 40-year-old housewives who visited the center was provided. All of them held the following qualifications for this selection: they are literate women who have family and child, and are able to give information to their family. Out of this list, 100 subjects were randomly selected. Only 68 subjects completed the questionnaire. Data collection questionnaire was designed based on the health belief model. The first part consists of five questions concerning Housewives' demographic data (age, household size, and education level, history of special diet and cardiovascular disease in family). The second part consists of six knowledge questions ($65/0 = \alpha$), four questions about perceived susceptibility ($88/0 = \alpha$), four questions about perceived severity ($80/0 = \alpha$), three questions about perceived benefits ($79/0 = \alpha$), seven questions about perceived barriers ($72/0 = \alpha$), and eight items to measure perceived self-efficacy ($84/0 = \alpha$). It should be mentioned that based on this model, for adopting nutritional behaviors to prevent cardiovascular disease: people should first sense the danger of cardiovascular disease (perceived susceptibility) , then perceive the depth of the danger and the seriousness of its effects on the physical , psychological, social and economic dimensions of their lives (perceived severity) , believe usefulness and applicability of nutritional behaviors (perceived benefits), find that the preventive factors of the action are more cost-effective than its benefits (Perceived barriers) , and believe that they can practice the nutritional behavior

preventing cardiovascular disease (self-efficacy) so that they finally adopt the preventive behavior .

To assess the performance of housewives concerning nutritional factors related to heart disease, a modified quasi-quantitative form was used. The food frequency questionnaire consists of 168 items concerning all food groups. This questionnaire was about the food intake on the scale of daily, weekly, monthly, never. Questions perceived susceptibility, severity, benefits and barriers were designed as a five-option Likert scale (totally agree, agree, neutral, disagree, and totally disagree). Score of 100 was considered for all parts of the questionnaire. Therefore, the most desirable score was 4, and the worst state zero, so the maximum score for each section was 24, and then the highest score in each section were multiplied by 100 and divided by the number of questions in each section. Similarly for the knowledge questions, the correct answer was given a score of 1 and the rest zero. To assess the performance of housewives, we scored the responses as follows: according to the table on household scales which indicate grams of food per unit of material, we converted the amount consumed to grams. To gain the amounts consumed by housewives, we calculated the mean consumption of vegetables, fruits, sweets and fat for each individual, according to the table of food composition. In order to validate the questionnaire, we gave it to six experts of science of nutrition and health education, then we applied their views on the questionnaire. For the questionnaire to be reliable, we gave it to 30 housewives who are excluded later from the original study, and using internal consistency, Cronbach's alpha was calculated for each item that was mentioned above. After coordination with provincial health department officials, the researcher entered the health center and introduced himself to the subjects, and explained to them about the study objectives. Respecting ethics, freedom of choice, and confidentiality (by obtaining a consent for housewives), the researcher distribute the questionnaires among subjects. After data collection and scoring, data was entered into the computer, and then analyzed by using statistical software SPSS16 and descriptive and inferential statistical methods.

3. Findings

The mean age for housewives was 34.92 ± 2.55: (39.7 percent of housewives (n = 27) were younger than 34, 50 percent (n=34) were 38-34 years old, and 10.3 percent (n=7) were older than 38 years). In terms of education level, 16.2 percent (n = 11) were at elementary levels of proficiency, 26.5 percent (n = 18) had studied at middle level, and 33.8 percent (n = 23) at high school, and 23.5 percent (n = 16) had

studied in university. Household size for 5.9 percent (n=4) was 2 persons, for 33.8 percent (n=23) 3, for 48.5 percent (n = 33) 4, and for 11.8 percent (n=8) was 5. 20.6 percent (n=14) had specific dietary history and 79.4 percent (n=54) had no history of dietary. Moreover, the family history of cardiovascular disease for 36.8 percent (n=25) was positive and for the rest 63.2 percent (n=43) was negative. The mean score for housewives' knowledge of cardiovascular disease was 48.43 ± 11.87, the mean of perceived susceptibility of housewives 41.17 ± 17.00, the mean scores of perceived severity 42.09 ± 24.05, the mean of perceived benefits 41.42 ± 15.00, the mean of perceived barriers for housewives 34.98 ± 15.32 and of self-efficacy regarding preventive actions as well as nutritional behaviors of cardiovascular disease was 37.95± 10.46 (see table 1). The mean consumption of fruits, and vegetables for housewives was 130.24±57.72 and 220.73 ±112.58, respectively. There was a statistically significant relationship between HBM structures, and consumption of fruit and vegetables (P<0.001) (Table 1).

Table 1: The mean scores of HBM structures, and their relationship with the consumption of fruits and vegetables for housewives

Variables	Standard deviation ± mean	Consumption of fruits and vegetables
knowledge	48.43 ± 11.87	0.001< p
Perceived susceptibility	41.17 ± 17.00	0.03< p
Perceived severity	42.09 ± 24.05	0.001= p
Perceived benefits	41.42 ± 15.00	P< 0.002
Perceived barriers	34.98 ± 15.32	p-0.04
Perceived self-efficacy	37.95± 10.46	P<0.001

4. Discussion

Several risk factors, including obesity, dyslipidemia, and hypertension last from childhood and adolescence to adulthood, and lead to diseases later. The previous studies indicate that people have low awareness and put in poor performance in avoiding the risk factors for heart disease (7-9). For example, the study of Jalali *et al,* showed that most people in Babol (65.3%) had little knowledge of cardiovascular risk factors, and in this way, most of them (53.7%) put in poor performance in this case (10). Meanwhile, the biggest success of developed countries in harnessing cardiovascular disease has been achieved through the knowledge and control of risk factors (4, 7).

Improving the mean score of knowledge questions is of vital importance, because of the fact that having knowledge of one particular subject is considered a prerequisite to establish a correct outlook on that subject and adopt the right attitude. The findings of the present study indicate a relatively low level of perceived susceptibility, perceived severity, perceived benefits, perceived barriers and perceived self-efficacy in the target group. It should be mentioned that perceived susceptibility is one of significant factors in adopting the preventive behaviors. Thus, the successful prevention depends on the factual information about the personal susceptibility and its related risks. In addition, one's perception of the seriousness and severity of the disease and its consequences is a major component of health belief model which is significant in adopting preventive behaviors against the disease. With regard to the performance of housewives in the consumption of food groups preventing cardiovascular disease, the findings show that the average consumption of fruits and vegetables is low, and needs to be improved for women. Meanwhile, Sahebalzamani et al (11) showed in their study that 55.2% of the subjects had heavy meat consumption. 92% of them expressed that they had good intake of dairy, while only 8 percent did not. It is reported that 95% of students had optimal consumption of fruits and vegetables. 96.3% had the optimal consumption of bread and cereals, and 63.4% had the optimal consumption of group of oil, fat and sweet, while 36.6% did not so. 69 percent of the students had excessive consumption of snack products and only 31 percent of them had the optimal consumption. The findings of the study of Sedighi (12) indicated that boys and girls consumed 958.6, and 15475.0 grams of fruits and vegetables per month, respectively. In the last couple of decades, the behavioral dimensions of people have been considered mostly form nutritional view point. From anthropological perspective, the recognition of behavioral foundations suggests that allocating resources and cultural practices in selecting food basket, preparing food, and protecting the health and quality of life, have mainly cultural and behavioral dimensions. Their role in shaping consumption patterns and maintaining health is crucial. In fact, dietary habits of individuals and families in a community is one of the most important factors which lead to nutritional disorders and diseases-- either in short term, or long term. For this reason, Understanding of dietary patterns and determining

the strong and weak points will be helpful for nutritional planning and remedying the weaknesses and wrong patterns (13). Given that insufficient knowledge of risk factors for cardiovascular disease leads to poor performance of health-promoting behaviors, public education for reducing these risk factors may help disseminate information, and change norms and social values associated with the risk factors for cardiovascular disease, as well as make people aware of them (1, 14). Since there is a significant relationship between Health Belief Model, and the consumption of fruits and vegetables, considering educational interventions in this area, providing health-supportive environments for housewives, encouraging them to have a healthy lifestyle, in addition to providing appropriate facilities can be helpful.

Corresponding Author:
Masoome Alidosti
Shahrekord University of Medical Sciences,
Shahrekord, Iran.
E-mail: m_alidosti@hlth.mui.ac.ir

References
[1] Tol A, Esmaeili Shahmirzadi S, Shojaeizadeh D, Eshraghian M R, Mohebbi B. Determination Of Perceived Barriers And Benefits Of Adopting Health-Promoting Behaviors In Cardiovascular Diseases Prevention: Application Of Preventative Behavior Model. Payavard Salamat 2012; 6(3): 204-214.
[2] WHO. Prevention of cardiovascular diseases. Swiss: Geneva; 2007: 1-16.
[3] WHO. Life expectancy improves. Available at http://www.who.int/ whr/2003/en/ whr03_en. pdf.2012.
[4] 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) : 11-24
[5] American Heart Association. Risk factors and coronary heart disease. 2007. Available at: http://www.heart.org/HEARTORG/Conditions/More/My HeartandStrokeNews/Coronary. 2012.
[6] Ford ES. Prevalence of the Metabolic Syndrome Defined by the International Diabetes Federation Among Adults in the U.S. Diabetes Care 2005; 28(11): 2745-9.
[7] Gunnell D J, Frankel SJ, Nanchahal K. Childhood obesity and adult cardiovascular mortality: a 57-y follow-up study based on the Boyd Orr cohort. Am J Clin Nutr 2008; 67: 1111-1118.
[8] Power C, Lake JK, Cole TJ. Body mass index and height from childhood to adulthood in the 1958 British born cohort. American Journal of Clinical Nutrition 2005; 66: 1094-101.
[9] Reilly J J, Methven E, McDowell Z C. Health consequences of obesity. Archives of Disease in Childhood 2003; 88: 748-52.
[10] Bowman S A, Gortmaker S L, Ebbeling C B. Effects of fast-food consumption on energy intake and diet quality among children in a national household survey. Pediatrics 2004; 113: 112-118.
[11] Saheb zamani M, Fesharaki M, Abdollahi mofrad Z. Association of life style and self-esteem among adolescent girls of daily public high schools of Tehran. Medical Sciences Journal of Islamic Azad University 2011; 20(1): 45-51.
[12] Sodeify Roghayeh .a study to determine the iranian govermental high school students' food habits and their comparison with food guide pyramid. Journal of Urmia Nursing and Midwifery Faculty 1386; 5(3): 117-125.
[13] zamanian azodi M, ramazankhani A, tavassoli E, gharli poor Z, motalebi M, babaee A, et al . Evaluating the Nutritional Status of Dormitory Resident Students in Shahid Beheshti University of Medical Science. Journal of Ilam University of medical sciences 2013; 21 (3) :109-117.
[14] Mosca L, Linfante AH, Benjamin EJ, Berra K, Hayes SN, Walsh BW, et al. National study of physician awareness and adherence to cardiovascular disease prevention guidelines. Circulation 2005; 111(4): 499-510.

5/27/2014