Health Education and Health Promotion (HEHP) (2017) Vol. 5 (2)

Prediction of Nutritional Improvement of Elderly Based on Protection Motivation Theory (PMT)

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Abstract

Aim: A theory-based research program can increase the participation of elderly people in terms of good nutritional behaviors. This study aimed at assessing the prediction of the nutritional improvement of elderly based on protection motivation theory (PMT).

Methods: This cross-sectional study was conducted on 200 elderly people over 60 years of age in the City of Hamadan in early April in 2016. The PMT-based questionnaire data were analyzed using measures of central tendency, dispersion, and independent t-tests.

Findings: The results showed that the knowledge item of the questionnaire had significant effect on all constructs of the model.

Conclusion: This study revealed that the PMT-based program had an effect on the improvement of nutritional performance of the elderly people; however, further investigations in other age and gender groups as well as using other educational methods are also recommended.

Keywords: Nutritional performance, Protection Motivation Theory, Elderly

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Introduction

One of the important subjects of health is the right nutrition [1-3] because proper nutrition has a significant effect on the physical and intellectual performance of individuals [1]. Taking a healthy diet is one of the most important well known preventive health strategies [4]. In the last few decades, as people's nutrition improved, with increasing of population and accelerated passage from traditional society to modern society, nutrition has become increasingly important [5]. Malnutrition is deficiency or overtake of calorie-protein or all types of micronutrients in the wrong direction [6, 7]. Many chronic diseases such as cancers [6-14], cardiovascular diseases (CVDs), diabetes, and others all relate to excessive intake of certain nutrients or maladaptive diets [15]. There is a general view that there is a link between diet, lifestyle and health [16]. The advent of modern technology in all aspects of human life and changing patterns of life and behavior of people, have provided the background for many chronic diseases [17]. Among the top ten causes of death and burden of disease in high-income countries are ischemic heart disease, CVDs, diabetes mellitus and cancer [18]. Non-communicable diseases account for 60% of deaths and 47% of the burden of diseases worldwide, with 75% of these deaths being attributed to the developing countries [19]. In addition, the prevalence of overweight and obesity is increasing at an alarming pace. Nearly 1.6 billion adults are overweight and more than 400 million are obese throughout the word [20]. A promising report predicts that in 2050, about 60% of the adult population will be obese, plus 35% of overweight people [21]. In addition, it is estimated that the diet is responsible for approximately 30% of cancers in the industrialized countries, which makes it a second risk factor for post-smoking variability [20]. Major changes in the pattern of life have put most of the countries in the Eastern Mediterranean region, and in particular the countries of the Persian Gulf Cooperation Committee, including Iran, in jeopardy [22]. Non-communicable diseases such as CVDs, diabetes and cancer are significantly increasing in this area [22-24]. Since CVDs are the first cause of death in Iran [23], it is estimated that by 2020, these diseases will increase to 60% [22]. The type of community is related to the type of nutrition. Differences are not related to the degree of income difference, rather they are also influenced by climatic, traditional and communicative conditions. Different regions of the country do not have the same conditions for food consumption [25]. The statistics of Iran's Statistics Center on the urban household budget showed that these differences are significant in the consumption of fruits and vegetables; while in Tehran Province, a

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considerable amount spent annually on the purchase of fruits and vegetables, this amount is low in the border areas such as Hamadan [26]. Although chronic diseases are the most prevalent and costly diseases in the health sector, they are also among the most preventable diseases [11]. A healthy diet can reduce the risk factors for chronic diseases [27-29]. Correct nutrition can reduce heart disease deaths by 25%, cancer and infectious diseases by 20% and diabetes by 50%, according to the American Agricultural Association [28]. The aim of this study was to determine the effect of knowledge on nutritional preventive behaviors in the elderly population of Hamedan based on the theory of protection motivation (TPM) in 2016.

Materials and Methods

This cross-sectional study was conducted on 200 elderly people over 60 years of age in the City of Hamadan in early April in 2016. The PMT-based questionnaire data were analyzed using the measures of central tendency, dispersion, and independent t-tests. The sampling method was in a random simple form and according to the sample size. A researcher-designed questionnaire was used to collect the data. After the required permits were obtained from the Research Deputy Vice-Chancellor of the University and considering the ethics, the objectives and the essence of this study were described for the participants. Then the questionnaires were distributed among the participant service personnel based on their consent and tendency, and the required data were collected. The methodology of implementing the program included lectures, brainstorming, and subsequent discussions raising their health and well-being knowledge. At the end of the research session, a pamphlet was given to the participants to raise their awareness and knowledge. The data were collected through questionnaires and interviews via the $SPSS_{16}$ software. Then they were analyzed considering central tendency, independent t-test, and Chi-square test. The required matching was carried out for the demographic variables of gender and education level among the participants in the program. Data collection instrument was a questionnaire. The first section of the questionnaire was related to the elderly people's demographic information (2 items). The second section of the questionnaire was based on knowledge and behavior items to measure the level of knowledge and performance among the individuals towards considering hygiene standards and taking protective measures. Content validity and face validity of the questionnaire were evaluated under the supervision of specialists in health education and environmental health, and its reliability was confirmed by doing a pilot

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study on 15 samples and calculating Cronbach's alpha (alpha range in the pilot study was between 0.89 and 0.99 in the total sample).

Results

Mean scores of behavior and the constructs of PMT were calculated for the subjects. In general, in all the cases studied, the subjects were considered to be about half of the total score in the questionnaire. Demographic characteristics are shown in Table 1. Mean and standard deviation of Performance Theory mechanisms of the elderly in Hamedan are shown in Table 2. Mean and standard deviation of knowledge, protective motivation, performance, fear and perceived severity of the subjects by sex are shown in Table 3.

Table 1: Frequency distribution of the demographic variables of elderly people

Variables		Number	Percent
Gender	Female	117	58.5
	Male	83	41.5
Money	Less than 270000	83	41.5
	More than 270000	117	58.5
Education level	Less than diploma	109	54.5
	University Education	91	45.5
Age	60-74 years	112	56
	Over 74 years	88	44
Total		200	100

Table 2: Mean and standard deviation and percentage of scores obtained from the total scores compared to the Motivational Protection and Performance Theory mechanisms of the elderly in Hamedan

Variables	Awareness	Action	Belief	Fear	Severity
Mean	5.2	6.3	7.4	7.1	10.8
SD	1.2	1.8	1.2	1.7	1.6
Percent	8	28	8	14	14
Minimum	2	4	1	4	6
Maximum	8	10	8	14	14

Table 3: Mean and standard deviation of knowledge, protective motivation, performance, fear and perceived severity of the subjects by sex

Variables	Gender	Number	Mean	SD	p
Awareness	Female	117	4.9316	1.41255	0.001
	Male	83	5.6867	.85437	
Action	Female	117	6.1795	1.04729	0.006
	Male	83	6.4819	2.65202	
Belief	Female	117	7.2650	1.39205	0.001
	Male	83	7.7349	.84224	
Fear	Female	117	7.1795	1.95913	0.13
	Male	83	7.1325	1.47971	
Severity	Female	117	10.7350	1.73897	0.05
	Male	83	11.0964	1.58971	

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Analysis of independent T-test showed that there was no significant relationship between gender and performance and fear. However, there was a positive relationship between gender and knowledge, attitude and perceived severity.

Discussion

The results of this study indicated the positive effect of the program on promotion of nutritional health behaviors among the samples. Increasing awareness improves social norms. Moreover, health behaviors and engagement in the design of relevant plans are among the benefits of this approach. In numerous studies, including the Akbarzadeh Nouri Sistani's study [30], the effectiveness of education has been confirmed on the improvement of health behaviors. The results of this study confirm the effectiveness of this health education model in changing behavior, especially with regard to the effect of the perceived benefits on nutritional behavior of the elderly. The results of this study are consistent with the findings of other studies concerning the effect of education on the nutritional knowledge of students. The findings of Pourabdollahi et al. confirmed the effect of education on knowledge and practice on consumption of snacks [31]. Seyyed Mohammad Mehdi Hazavehi et al. showed the effect of educational program on knowledge and nutritional performance [32]. In this study, observing food hygiene leads to improved nutritional performance in elderly people.

The findings of Sharafi Rad's study on foot care in diabetic patients showed that knowing the sensitivity, severity, threat, benefits and perceived barriers was higher, and foot care was done more than anything else [33]. Also the results of another study by Sharifi Rad, entitled "The Effect of Health Education Based on the Health Belief Model on the Preventive Functions of Smoking in Students", showed an increase in the mean score of components of HBM, including sensitivity, severity and perceived benefits. There was also an increase in the average score of adopting preventive measures for cigarette smoking [34].

Conclusion

In the mentioned studies, the role of one or more structures has been confirmed in predicting health behaviors. It seems that the reason for the effect of the perceived benefits greater than the other model structures is the understanding of the profits of behavior. The attractiveness of the benefits of a nutritional health behavior is more than the repulsion of the harm caused by a non-health nutritional behavior. Most seniors stated that they had transferred educational materials to the members of their families and friends.

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Conflict of Interest

The authors have declared that no competing interests.

Acknowledgements

The authors would like to thank all the elderly people who participated in this project, their family, and honorable health care workers and staff from the centers of Hamedan City.

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