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Research

Study to traditional training methods based on Health Belief Model on exercise performance in patients with myocardial infarction

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ABSTRACT

In Iran death due to coronary artery diseases is increased levels, and unfortunately every year due to lack of physical activity and decreased activity the age of this disease in decreasing in a way that now this disease is seen in youth; And one of basic tools in changing in patients lifestyle in the educational program as a part of treatment plan. This study has been don with the aim of compared to traditional training methods based on Health Belief Model on exercise performance in patients with myocardial infarction. In this quasi- experimental research, 74 patients with myocardial infarction chosen by purposefully sampling method. then were chosen randomly in both training and control groups, training Group achieved education based on the concepts and components of health belief model training aimed at increasing Perceived severity of patients and control group achieved traditional education. The health belief model of education based on the performance of activity in the experimental group than the control group and found no significant difference (P = 0.000). The perceived benefits of physical activity after intervention using the Student T test with a mean of 46.19 in the test group and the average 94.17 in the control group was significant .Education on the Health Belief Model in patients with myocardial infarction increases the perceived severity of patients and improvement in performance activity.

Key words: Health Belief Model, performance activity, myocardial infarction

1. INTRODUCTION

Myocardial infarction is the most common health problem threatening human life in the world so that about one and a half million cases of myocardial infarction occur in the United States of America, and one per 30 seconds is diagnosed with myocardial infarction(1, 2). Every 10 minutes, one person loses his life due to myocardial infarction, and more than 50% of patients will need rehabilitation measures following myocardial infarction (3). It has been estimated that by 2030, 32.5% of deaths would be caused by cardiovascular disease in Europe. Cardiovascular disease has also become a social problem in Iran so that the disease accounted for the largest share with 4 deaths of every 6 deaths per 10,000 of population. Unfortunately, the age of onset of cardiovascular diseases has declined in Iran; thus now, they are seen not only in the middle ages, but also in the young people (4). Accurate estimates of the prevalence of risk factors of cardiovascular diseases are unattainable; however, the prevalence of identified risk factors has changed by increased awareness among the patients and diet changes as well as

changes in the patient's lifestyle. It was found in studies conducted in order to detect risk factors of the incidence of cardiovascular diseases in women (2010) that the risk of cardiovascular diseases is less women with more physical activity who sit only 4 hours a day than in women with low activity (5, 6), It was mentioned in countless reviews articles that inactivity has a considerable role among risk factors for cardiovascular diseases with adverse effects on the progression of coronary atherosclerosis in men and women, and found that exercise may reduce the risk of coronary diseases (7). Considering the overwhelming evidence, the presence of relationship between the individuals' lifestyle and developing of cardiovascular diseases, the necessity of emphasis on individuals' lifestyle as an important factor in prognosis and prevention of recurrent cardiovascular diseased have been demonstrated. It should be noted that regular activity in patients experienced heart attack leads to reduced risk of cardiac arrhythmias and improved perfusion through the coronary arteries and increased blood subflow to the heart and enables the person to return to the status before illness (8). Also, physical inactivity is the causing factor in 15% of chronic diseases, including heart disease (7). One of the most needed care services for cardiac patients after myocardial infarction is providing a developed educational program regarding compliance a daily exercise program (9). In many countries, there are programs to encourage the community toward a Healthy Heart through education and counseling and encouraging the public and the patients to reduce risk factors such as sedentary lifestyle. Different approaches are required to change the behavior and beliefs of the society individuals, one of which is using the effective model on health education and behavior change of the Health Belief Model (10, 11). The "Health Belief Model" was first introduced in 1950 by a number of psychologists (12). Based on this model, an individual adopts a preventive behavior when is affected by following factors, including:

- ✓ Perceived susceptibility: Understanding and believing in being exposed to the risk of disease
- ✓ Perceived severity: Understanding and believing in the seriousness of the problem that the problem can lead to death or other serious consequences for the individual
- ✓ Perceived barriers: Physical, psychological or financial barriers against adopting hygiene practices
- ✓ Perceived benefits: Person's belief achieved in analysis of behavior advantages
- ✓ Guiding instructions: Including acceptable health messages, mass communication and individuals capable of influencing on taking measures of the target group
- ✓ Taking measures: Observing targeted health behavior influenced by above structures.

Health advices to adopt healthy behaviors are only practiced by the patient and his family if they have become as belief in the patient's thought, mind and practice. For implementation of these recommendations by the patient and his family, their participation in the care and preservation of healthy behaviors are needed. Their participation will be realized only if such guidelines have become as their health and hygiene beliefs (13). Given that sufficient studies in connection with the evaluation of the knowledge about coronary arteries diseases, proper exercise activities, perceived severity of illness, perceived benefits and barriers resulting from proper exercising in patients with myocardial infarction have not been conducted, this study was performed aiming at comparison the effects of two methods of training by traditional method and method based on Health Belief Model on functional activities of patients with myocardial infarction.

2. MATERIALS AND METHODS

The study was performed by a quantitative and experimental method. The study population included patients with myocar-

dial infarction hospitalized in Imam Ali (AS) and Imam Reza (AS) health centers affiliated to Kermanshah University of Medical Sciences in 2013. The study samples included 74 patients with inclusion criteria (Literacy level as reading and writing, aged between 18 and 70 years, no underlying disease with 48 hours passed from MI). The purposive-based sampling was done randomly in two experimental and control groups. The sample size was estimated using Moradi's research methodology model as 74 cases (14). Data collection tool included a 61-item questionnaire based on health belief model and a researcher-made checklist. The questionnaire used in this study was developed according to the questionnaire designed in Moradi's research regarding the application of health belief model in adoption of healthy behaviors in patients undergoing coronary artery surgery (14). Based on research subject and in accordance with experts' opinions and the research goals, some changes were made. To acquire dace and content validity of the questionnaire and the checklist, the opinions and considerations of nine faculty members of Kermanshah Nursing and Midwifery School and two cardiologists were collected, and their corrective feedbacks were applied. The questionnaire consisted of 12 demographic questions, 13 questions on knowledge of the disease and how to exercise properly, 11 questions on perceived severity of the disease and 20 questions related to perceived benefits and barriers resulting from doing exercise activities and 5 questions with regard to the practice manuals. The checklist included 21 questions: 6 questions on demographic characteristics of family members of the patient and 15 questions about the patient's performance in regard to the exercise activities. The Cronbach's coefficient alpha method was used to measure the reliability of the questionnaire and the checklist. Thus, 12 participants completed the questionnaire and the checklist in interviews within a 15-day interval. Finally, the reliability was obtained as r = 0.81. Data was analyzed using descriptive and inferential statistical tests related to the study by using SPSS software, version 18.

3. RESULTS AND DISCUSSION

The findings showed that there was no statistically significant difference between the samples of two test and control groups in variables of age, sex, employment status, previous history of stroke and death un the family and the first-degree relatives and knowledge score of each dimension ($p < 0.05$). In both test and control groups, the highest percentage frequency was related to men with 73% of and 65.3%, respectively. The highest frequency percentages in the experimental group and control group were related to the high school degree and guidance school, respectively, that using the K-2 test, no significant difference was seen between the two groups concerning education level ($P = 0.266$). In terms of employment status, the highest percentage frequency in both test and control groups were related the employees with 24.3% and 23.3% values. The paired t-test results for the areas of knowledge aspects are given in Table 1.

Table 1. Average rating of knowledge studied groups before and after intervention

Dimensions of Consciousness		Control M±SD	Case M±SD	P- value
Awareness about CHD	Before	96.1±23.1	2±21.1	0.789
	After	61.4±67.1	90.2±24.1	0.000
Awareness of physical Activity	Before	75.6±98.1±	86.6±77.1	0.236
	After	99.8±47.1	67.6±27.2	0.000
The Total Score	Before	83.10±77.2	82.10±27.3	0.907
	After	41.18±24.4	75.1±24.2	0.000

The findings also showed that training based on the health belief model in the test group has caused statistically significant increase in awareness rate of the disease ($p = 0.002$), perceived severity ($p = 0.003$), perceived benefits resulting from adherence to diet and exercise ($p = 0.001$), perceived barriers due to doing diet and exercise ($p = 0.000$) as well as improved exercise performance of the samples ($p = 0.004$). Although the training increased the patient's nutritional performance, however, this increase was not significant statistically (Table 2).

Table 2. Comparative study of concepts and components of the health belief model studied groups before and after intervention

Dimension		Control	Case	P- value
		M±SD	M±SD	
Awareness	Before	43.71±67.9	86.86±46.14	0.907
	After	91.4±18.13	44.13±11.18	00.000
Perceived Severity	Before	78.25±55.9	79.25±37.10	0.862
	After	49.36±9.7	60.27±41.10	0.000
Perceived Benefits	Before	77.43±38.3	70.44±15.7	0.734
	After	61.47±36.4	49.43±44.3	0.000
Perceived Barriers	Before	37.85±89.4	86.01±52.18	0.804
	After	53.1±35.16	85.16±5.01	0.000
Function	Before	31.8±57.8	46.09±76.12	0.047
	After	50.04±91.1	45.01±48.17	0.000

The results showed that training in the framework of health belief model leads to increased knowledge and understanding rate of heart stroke disease and increased perceived benefits in patients with heart failure, improves the activities functionality of the patients as the impact of such education. The study results confirmed the results of Zigheymat studies concerning the application of the health belief model in patients undergoing coronary surgery and the results of Ali and Haddad studies (2010) on application of this model in sports participation rates in patients with MI in Jordan (2, 15). However, in a study conducted by Abedi et alas "the effect of lifestyle changes using health belief model on cardiac risk factors in postmenopausal women in Ahwaz", it was found that all the components of Health Belief Model, except for the knowledge about cardiovascular diseases, were improved in the intervention group compared to the control group. The researcher stated that to increase awareness, training based on age and education level of the patients is required. The results of this research study were not consistent with the results of the conducted study regarding increased knowledge of the patients about the disease (16). Sanaei et al conducted a study entitled as "Effects of family-oriented training on the level of adherence to the exercise program in patients undergoing coronary artery bypass surgery. It was found that after educational intervention based on health belief model in the experimental group, the quality of their adherence to the exercise program improved. One of the most important barriers in achieving compliance with treatment programs is based on the absence of the patient's relatives. One can also say that one of the most important factors in being influenced by the surgery guidelines model is the presence or absence of the relatives that the results of the present study are consistent with Sanaei et al. study. Also, the results of this study were consistent with Gucci study, in which by use of health belief model, the role of exercise in American women was evaluated. In his study, after the intervention, a significant difference in the exercise performance of two test and control groups was observed (16). The research findings showed a significant relationship between age and physical performance; however, there was no significant difference between gender and level of knowledge in the two groups. This finding was not consistent with the study of Motamedi et alon examining the impact of education based on health belief model on the prevention of cutaneous leishmaniasis. The reason for this difference seems caused by the age range difference of the studied patients in the two studies (13). No significant differences were found between the samples gender and the patients performance in both test and control groups, while the study of women's knowledge and performance regarding nutrition and exercise and its relation with cardiovascular diseases indicated the failure of women to realize the trainings (17, 18).

4. CONCLUSION

Given the positive results and impact of using Health Belief Model in educating patients with myocardial infarction and the impact of the model on patients' lifestyle changes, it is recommended to use the model in rehabilitation programs in patients with MI. Community vulnerability to heart diseases and enormous cost of treating the disease, lack of consistent and systematic plan for training the people at risk , lack of emphasis on prevention prior to treatment policy in practice by the Ministry of Health and other involved organizations, lack of full belief of the society members about the role of nutrition and exercise pattern in the prevention of disease due to local justifications and promoting of some superstitious miraculous medicines through illegal networks advertizing are only a part of the problems facing the healthy society in Iran. Lack of practi-

cal plans in this regard will bring a serious threat in the next decade to the community health.

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AUTHORS CONTRIBUTION

This work was carried out in collaboration between all authors.

CONFLICT OF INTEREST

Authors have declared that no conflict interests exist.

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