Effect of family-oriented empowerment model on the life style of myocardial infarction patients

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Abstract
Aims: Nowadays, noncontiguous diseases have been extended due to the renovation of societies, technology advances and density of population in urban areas, life and style changes and tendency of population to inappropriate habits. Cardiovascular diseases are from these disorders and are the most widespread death cause in most countries of the world and also Iran and the most important cause of disability. The aim of this study was to evaluate the effect of family-oriented empowerment model on the life style of the myocardial infarction patients.

Methods: This clinical trial study was performed from August to December 2007 on all myocardial infarction patients hospitalized in Shariati Hospital coronary care unit. After sampling by randomized clustering, subjects (70 patients) were randomly assigned to experimental and control group. For experimental group, family-oriented empowerment model was implemented with four dimensions of perceived threat (severity and sensitivity), self-efficacy, educational partnership and evaluation; and usual care was done for control group members. The research tools were demographic, lifestyle and four empowerment dimensional questionnaires.

Results: There were no significant difference between two groups in demographic data (p>0.05). In lifestyle dimension, tests revealed no significant difference between two groups before the intervention (p>0.05); but after the intervention, all dimensions had significant differences (p<0.001) except physical health (p>0.05).

Conclusion: Performing family-oriented empowerment model for patients with myocardial infarction is practically feasible and associated with improvement or modification of patients and his or her families’ lifestyle.

Keywords: Family-oriented Empowerment Model, Myocardial Infarction, Lifestyle

Introduction

Today, non-contagious diseases have been widely spread due to the societies’ renewal phenomenon, technology advances and the density of urban areas’ population, and changing of life style and tendency of people to inappropriate habits [1]. Cardiovascular diseases are the most common cause of death in most countries of the world and also Iran; and are the most important cause of disability [1]. Cardiovascular diseases affect nearly five million people each year in the United States and cause 285 thousand deaths [2]. In the USA, every thirty seconds, one person experiences heart attack and every minute one person dies due to heart attack and following a heart attack, more than 50% of patients need rehabilitation measures, etc. [1]. In fact, cardiovascular diseases are non-infectious disorders, and are appeared through a large number of factors, the most important of which is unhealthy life style [3]. With regard to abundance of evidence indicating the relation between life style of individuals and heart disease, the necessity of emphasizing the lifestyle modification as an important factor in determining the prognosis and complications of the disease is clearly prominent and reasonable. For example, giving up smoking after myocardial infarction reduces the risk of heart attack to half and cholesterol reduction after a heart attack, decrease its risk to 35% [4]. The results of a study by Haskell in the United States on prevention of cardiovascular diseases and efficiency of interventions which affect the lifestyle show that not only smoking but also a consecutive physical activity, nutrition with the healthy diet, maintaining a balanced weight and avoiding stress are among the important components of the prevention program for the cardiovascular diseases. Those who are at high risk of heart disease (people with hypertension, hyperlipidemia and high glucose levels), should also change their lifestyle along with use of medication [5]. Considering the fact that heart disease can be with individuals all over the life and affect not only the patients but also their family members and even society, it is necessary for patients to be empowered in order to control their disease better and enjoy a better lifestyle. Empowerment concept has been used since 2004 in chronic patient care [6] and the first time has been defined in diabetes in process of discovering and
developing the inherent capacity of individual for accepting the responsibility of life through having the sufficient knowledge and resources to obtain and perform the logical decisions and enough experience to evaluate the effectiveness of made decisions [7]. Many authorities believe that empowerment is a positive, dynamic [8, 9], social and interactive [10, 11] process. The process which has been shaped in connection with the others [10] and leads to improve in quality of life of people with a chronic disease, responsibility accepting, better interaction with health authorities, satisfaction [12], better response to therapy [13, 14], prevention from complications [15], reduction of the treatment costs [16] and a positive view on disease [17]. Therefore, in recent years the concept of patient empowerment has had a special importance in nursing and medical research and is mentioned as a necessity of nursing profession [18].

Family-oriented empowerment pattern has been designed emphasizing on the effectiveness of the individual’s role and the other family members’ role in three motivational, psychological (self-esteem, self-control and self-efficacy) and self-problem characteristics (knowledge, attitude and perceived threat) [19]. This pattern is the result of a qualitative research of “fundamental theoretical” kind that has passed the stages of making an application pattern after passing the stages of concept formation, concept development, specifying the psychological-social process of the issue and central variable inference (family-oriented empowerment), and has been implemented for improving the quality of life of chronic patients (iron deficiency anemia, thalassemia, hemophilia, diabetes, asthma and epilepsy). The main purpose of family-oriented empowerment pattern is empowering the family system (patient and other family members) in order to promote health level. Considering the widespread prevalence of cardiovascular diseases, prevention is essential and vital; the purpose of this study was to investigate the effect of utilizing the family-oriented empowerment pattern on lifestyle modification in patients with myocardial infarction.

Methods
This clinical trial was conducted in two experimental and control groups in three stages of before, while and after intervention. The study population included all hospitalized patients with myocardial infarction and with records in CCU of Shariati Hospital in Tehran from September to December 2008. The inclusion criteria were being within the age range of 25 to 85 years old, having the minimum read and write literacy, being admitted due to myocardial infarction for the first time, confirming of infarction by clinical symptoms, serum enzyme tests and ECG changes, the interest of patient and one of his family members to participate in research, not having any specific mental illness, the ability to complete the questionnaire and participate in the programs of empowerment and exclusion criteria were impossibility or unwillingness of patient for returning to the hospital for the next stage of intervention after discharge, patients’ lack of ability to learn due to aging, participation in the training course concerning heart disease in the studied period, unwillingness of patient or his family member to continue cooperation in empowerment program, lack of interest for continuing the completion of research tools, lack of participation in problem-solving meetings and educational partnership programs. A written consent was obtained from all participants. Using the Pocock formula, Gigi table and the results of the pilot study, the required number of participants, 35 patients (with 95% confidence; test power of 80% and counting 10% loss) were selected as an experimental group and the same number as the control group.

The tools applied in this study included two parts: general part (a questionnaire of demographic information for patient and his active member of family and a lifestyle questionnaire) and specific part (eight-dimension tools of empowerment). Data collection tools were prepared by reading various books, recent articles, different researches, researcher’s experiences and valuable comments of faculty supervisor and advisor. Its face and content validity were confirmed by ten members of the faculty of Tarbiat-Modarres and Medical Sciences universities in Mashhad. It should be mentioned that regarding the validity of data collection tools, the useful comments of ten patients and their families’ active members with above diploma degree and three cardiologists of Shariati hospital and a dietitian doctor also were used. The reliability of the questionnaires was confirmed using test retest method (lifestyle=0.82; Empowerment=0.89).

Taking the introduction letter from the research department of Tarbiat-Modarres University, and randomly selection of one of the educational hospitals in Tehran, cluster sampling was used for the selection of subjects and throwing coin was used for dividing individuals into two groups. At this stage, the first three weeks were randomly assigned to the control group; during this period, test retest was conducted for 23 patients who had the study criteria. After passing
these stages, a pre-test was conducted in both groups, first in control then for the experimental group though completing some questionnaires.

A) Questionnaire of demographic information consisted of three parts (Part I, 18 questions; part II that was related to women, 4 questions; and Part III, 2 questions). It should be mentioned that the demographic information questionnaire was related to the patient's active family member and included 7 questions.

B) questionnaire of lifestyle assessment for patient, including 6 dimensions of eating, 11 questions (52 points); sleep, 10 questions (38 points); physical activity, five questions (11 points); physical health, eight questions (6 points); smoking, 3 questions (6 points) and stress, 14 questions (70 points) and for an active member of the family included five dimensions of (eating, 11 questions; sleep, 10 questions; physical activity, 5 questions; smoking, 3 questions, and stress, 14 questions). The total sextet dimensions of the patient's lifestyle, had 183 points which were divided into four categories: weak (less than 45), medium (46-90), good (91-135) and excellent (136-183). Patients who scored below 100 from the sextet dimensions of lifestyle were placed in the control and experimental groups equally.

C) Questionnaire of empowerment dimensions' assessment for patients included eight dimensions: control axis (6 points), perceived intensity (90 points), perceived sensitivity (126 points), sense of self-efficacy (91 points), self-efficacy as self-reporting (57 points), researcher's observing of patient's efficacy (18 points), self-esteem (140 points) and self-control (8 points). Octal dimensions of the family-oriented empowerment pattern questionnaire were designed by researcher and with guidance of faculty supervisor and advisors. The total octal dimensions of the empowerment pattern family-oriented questionnaire had 536 points which were divided into five categories: too weak (less than 110), weak (111-220), medium (221-330), good (331-440) and excellent (441-536). Patients who scored below 260 from the octal dimensions of the empowerment family-oriented pattern were placed in the in the control and experimental groups equally.

At this stage, the researcher gave the research tools to subjects over periodic sessions according to their mental conditions and their preparedness. During the completion of the questionnaires if having problem with questions of the questionnaire, the participants were directed. After completion of the questionnaires by participants, data were collected and analyzed; and the anticipated program of empowerment was reviewed for implementation based on it.

After analysis of pre-invention data which led to the identification of resources, limitations, the needs and the strong and weak points of the patient in different fields, changes were made in the empowerment program which was already designed for these patients. Authors tried to design the empowerment family-oriented pattern proportionate to the needs and preferences of participants. After conducting the pretest, the intervention stage was carried out just for the experimental group, and control group did not receive any intervention. In experimental group, the intervention means the implementation of the empowerment family-oriented pattern based on the pattern steps with following order:

The first step (perceiving the threat): The first step in family-oriented empowerment pattern is the raising of perceived threat (perceived severity and sensibility) in patients through group discussion sessions in order to increase the perceived severity and sensibility. Thus, treatment via promoting the level of knowledge and awareness about nature and probability of the complications resulting from the disease was done in the group discussion sessions.

Step Two (self-efficacy): problem-solving was performed by group method and led to increase in efficacy, self-esteem and thus self-control in the participants of the study. For this purpose, problem-solving sessions were carried out by group method in the groups of 3 to 5 for patients, and patients practically faced with their problems and the process of problem-solving and discussed with each other under the researcher surveillance with concrete examples about their condition and measures that others have taken for improving the same problems; thus practically participated in choosing the solutions.

The third step (self-esteem): the topics discussed in previous sessions based on educational partnership, were transferred to his active family member by instruction cards. On the back of the cards and pamphlets, three open questions were written about the patient from his family active member and both of them from researcher in the cases that were not able to answer them alone.

The fourth step (evaluation): Evaluation of the process was carried out all over the steps of the intervention stage. Thus with empowerment assessment special tools the patient’s empowerment rate was investigated about one week after performing of the program. After the researcher ensured that the patient is empowered, the patient was allowed a month and a half for implementing of the family-oriented empowerment pattern. During the intervention, self-control, self-
estee and the rate of preventive behaviors taken by the researcher in each session were evaluated. In the experimental group, a month and a half after the intervention and in control group a month and a half after the pre-test, the post-intervention stage began, and in fact the fourth step was carried out at this stage and lifestyle tools were completed by participants for post-test conduction. The data obtained from the questionnaire was collected and analyzed and the effect of family-oriented empowerment pattern on the promotion of patients’ lifestyle was calculated and was compared in both groups.

Data were analyzed using SPSS 15 software and statistical Chi-square test, Fisher, independent t-test and Mann-Whitney U.

Results

The mean and standard deviation of age in the experimental and control group were 62.00± 14.17 and 60.80 ± 11.50 respectively and BMI was 24.00 ± 3.00 and 25.00 ± 4.00. Independent t-test did not show any significant relationship between these variables (p>0.05).

Chi-square Statistical test in field of residence, sex and sedative use and the Fisher’s Statistical test in the field of tobacco use and mood condition did not show any significant relationship between the experimental and control groups (p>0.05). The results of comparing experimental and control groups in the dimensions of eating, sleep, stress, physical activity, physical health and smoking are listed in tables 1 and 2.

Table 2-Dimensions of physical activity, smoking and physical health in experimental and control groups

<table>
<thead>
<tr>
<th>Dimensions and Groups ↓</th>
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<th>After</th>
<th>Paired t-test</th>
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<tr>
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</table>

Discussion

Among other demographic variables, age (r=0.25) is more highly correlated with overall health promotion involved in lifestyle (r=0.27), self-prosperity (r=0.21), accepting the responsibility of one’s own health (r=0.31), stress control (r=0.22) and eating behaviors (r=0.27) [20]. In the study by Roijer et al., the age mean and standard deviation of individuals have been reported 63.2 ± 8.1 years and the mean and standard deviation of body mass index 27.8 ± 4.4 kg/m² (p=0.98) [21]. According to the findings of this study, majority of patients with heart diseases have an old age and the change and modification of lifestyle of older subjects is more difficult due to their physical problems and the other reasons discussed in the elderly. Researchers believe that when the community health system are accurate and pay attention to the correct behavior involved in lifestyle and behavioral pattern from childhood or even in adolescence, health costs, and even many of the problems and inconveniences of old age can be modified or reduced. For example, in conducting of this study, in the empowerment process of subjects, researchers repeatedly faced the problem of old age and their inability in learning of instructed skills.

According to the results of this study, gender is
of patients have a wrong notion about the fact that they should follow the taught issues just until the recovery of the disease symptoms. On the other hand, 85% of control group’s subjects had a positive history of heart disease in the first degree relatives and other relatives, which can be a very strong factor for the observance of the warned issues. Especially in some cases patients stated that because a complication has occurred for their family member, they try to observe all of the taught issues so that a complication would not happen for them.

Physical health dimension consists of two subsets of diabetes and hypertension. Since both of these factors are great threats to heart disease patients, both during the hospitalization and discharge of the patient were greatly emphasized by medical team. This importance and other mentioned cases can be a reason for results' non-significance in experimental and control groups before and after intervention. On the other hand the mean and standard deviation of two groups had not any significant relationship in terms of two mentioned variables and the individuals in both groups had been under the same therapy for hypertension, diabetes or both at the time of intervention.

Researchers like Koertge considers physical activity the most important lifestyle dimension of patients with cardiovascular disease. He defines and figures out the ability to exercise in men (12.2 ± 2.8) and women (9.4 ± 3.0), hours of exercise per week for men (3.7 ± 2.2) and women (3.0 ± 1.6), physical function in men (87.8 ± 15.6) and women (78.1 ± 18.3) and the physical role (limitation in common activities of individual because of physical health problems) in men (81.4 ± 3.7) and women (77.7 ± 34.3).

Except for the numbers of exercise per week (p=0.62), the difference of other values in women and men is statistically significant (p<0.05) [23].

Adana et al. studied the effect of nutrition dimension as a single effective lifestyle on heart disease. The difference of carbohydrate use percentage (59.83±12.54), the rate of using the fiber existing in fruits and vegetables (13.37±6.62), vegetable use (4.95±4.74), fruits use (2.56±2.93) and meat use (1.59±1.39) is significant in the control group compared to experimental group (p<0.05).

In Santos study, sleep dimension was analyzed based on hours per day. Patients with metabolic syndrome have lower sleep hours per day compared to healthy people (p<0.05). Increasing of the sleep hours per day is significantly correlated with the existence of metabolic syndrome. Santos believes that sleeping induced problems such as obstructive sleep apnea (OSA) can considerably lead to increase in risk of cardiovascular factors and shock [25].
In stress dimension, statistics near to significance level were observed ($p=0.08$) in the control group at post-test stage. In this regard it should be noticed that all research subjects in each group were experiencing their first stage of hospitalization in cardiac care unit. Not having the history of hospitalization due to separation from family, heavy load of treatment costs, and disability of working at the time of disease and after it until removing of the problem and other factors which differ from a person to another, cause stress in patients. Separation of patient from the family and hospitalization in an unfamiliar environment can cause the separation stress and the patient may show behavioral, cognitive, emotional and mental symptoms of it. Despite all mentioned issues, intensive unit puts additional stress on patient, such as limitation for visit, disability in coming down the bed (complete bed rest with regard to physician's diagnosis), witnessing unpleasant events such as other patients cardiopulmonary resuscitation and in some cases their death. All of the above mentioned issues can be the reason of an approximate significant level in the control group.

**Conclusion**

Implementation of family-oriented empowerment pattern for patients with myocardial infarction is practically feasible and accompanies with improvement or modification of the lifestyle of themselves and their families. Moreover, implementation of lifestyle has various dimensions in various studies. The most important component of lifestyle is nutrition and exercise and other dimensions can be covered by complete and wide implementation of these two aspects.

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**References**