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Effect of Empowerment on Self-Efficacy of Patients with Ischemic Heart Disease (A Clinical Trial Study)

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Abstract

Background: Improving the self-efficacy of cardiac patients is one of the pressing necessities that must be considered in the health-care system. Meeting this urgent need requires comprehensive educational programs.
Objectives: Therefore, the present study aimed at exploring the impact of empowerment on the self-efficacy of patients with ischemic heart disease who had been hospitalized in Imam Khomeini Hospital affiliated to Lorestan University of Medical Sciences.
Methods: This clinical trial was carried out in 2018 on patients with ischemic heart disease who had referred to Imam Khomeini Hospital in Pol-e Dokhtar, Lorestan province, Iran. A total of 56 patients were randomly chosen and assigned to the control and experimental groups. The standard chronic disease self-efficacy scale (CDSES) was used for data collection. The empowerment program was presented in three 45-minute sessions, and the data were analyzed by SPSS version 23 using covariance, independent *t* test, and descriptive statistical tests.
Results: The results of the independent *t* test revealed no significant difference in the mean scores of self-efficacy between the two groups before the intervention. However, after the intervention and at the first and second phases of control, the mean score of self-efficacy was higher in the experimental group than in the control group. Moreover, the results of covariance analysis established that while self-efficacy promoted in the experimental group, it did not change in the control group.
Conclusions: Empowerment training can promote self-efficacy in patients with ischemic heart disease, which, in turn, can facilitate their treatment process and ultimately enhance the health system efficacy.

Keywords: Empowerment, Self-Efficacy, Ischemic Heart Disease

1. Background

Today's world of medicine is faced with the growth of chronic illnesses, including coronary artery disease, alternatively known as ischemic heart disease (IHD) (1). It is projected that these diseases will be the main cause of mortality and disability in the world by 2030 (2). In the United States, 1500000 people annually develop IHD with more than 400000 deaths (3). In Iran, the first and most common cause of death in both genders is associated with cardiovascular illnesses, especially IHD (4). In the country, of the total 700 - 800 deaths per day, 317 are due to cardiovascular illnesses, of which 166 (around 25% of total) are caused by IHD that occurs in people over 35 years of age (4, 5). In addition to its high mortality rate, IHD imposes huge costs on national health systems. In 2008, direct and indirect costs of cardiovascular diseases in the United States skyrocketed to around 4753 billion dollars. In Iran, 15 billion Rials are annually spent on medical treatment and 50 million Dollars are spent to purchase medical equipment (5). In addition, developing a training program which is tailored to the needs, experiences, and interests of patients remains a challenge for the healthcare system, in general, and for nursing care staff, in particular (6).

Traditional care programs that are provided for IHD patients need to be reconsidered. Indeed, despite recent advances in the treatment of this illness and investigation into the use of modern educational methods (7), the costs of such diseases are still staggering to patients and the healthcare system alike (8). In traditional educational programs, instructors act as experienced people whose most essential role is to provide patients with counseling and advise to take care of themselves. Empirical studies suggest that it is imperative to modify the role of these educators so that it could evolve from a controller to an assistant. Self-efficacy-based education is one of the strategies for realizing this goal (9).

Given the high mortality rate and the grave consequences of [chronic] diseases, patients extremely need

care and empowerment programs that enhance their self-efficacy. This is because fostering self-efficacy behaviors can help patients maintain their health and well-being, adapt to their condition, and enhance their self-care (10).

Self-efficacy refers to beliefs that emerged as a result of the social learning theory (11). In his social cognitive approach, Bandura (1987) defines 'self' as a set of cognitive processes and behavioral structures that pass judgment on one's skills and abilities in relation to performing various tasks (12, 13). Self-efficacy is an invaluable tool for nurses in healthcare centers, and evaluating patients' self-efficacy and its promotion can increase patients' motivation to care for themselves (14). Some studies have assessed self-efficacy as an effective factor in improving self-care and moderating risk factors for coronary artery disease. Individuals who believe in their capacity to control cardiac conditions are more likely to adhere to their physical activity and diet regimens. Consequently, their risky behaviors alleviate and even the need for coronary artery bypass graft surgery becomes less urgent (15). Self-efficacy enables the patients to acquire the necessary knowledge and skills about their illnesses and make informed decisions about self-care.

In traditional educational programs, self-efficacy is often discussed in relation to the patient's perception of his/her ability to control and follow dietary and behavioral regimens. Nowadays, however, it has been demonstrated that IHD patients have to strengthen their psychosocial skills alongside following their common regimens (16). Psychosocial self-efficacy is measurable and can be enhanced via empowerment programs in the form of supportive education, thereby helping IHD patients to make informed decisions to control the disease successfully (17). Therefore, cultivating IHD patients' perceived self-efficacy is one of the primary goals of patient care and health education (17).

The self-efficacy training program introduced by Anderson et al. (2000) includes procedures that boost patients' belief in their ability to control those events which are associated with the disease. The main difference between this program and conventional educational approaches is that, rather than being a mere technique or strategy, it plays the role of a director in helping patients become more self-efficacious. Thus, for patients, this role is associated with their active participation in assuming new responsibilities, working towards self-efficacy, and making informed decisions. Anderson's purpose of implementing such a program is to bolster patients' confidence in their capability to arrive at informed decisions about self-efficacy (18). A study on the educational needs of IHD patients showed that the highest priority was devoted to knowing how to control the symptoms (67.4%); other factors in order of importance were medical information, lifestyle, anatomy, and physiological dimensions (19).

In another study in Iran, it was suggested that patients' awareness needs to be raised with respect to the nature of the disease (85%), dietary regimen (92.5%), medicinal diet (95%), rest and sexual activity (82.5%), and follow-up care (85%). Meanwhile, none of the patients in that study knew how to control their pulse properly (17). Therefore, it is vital to provide conditions for these patients to take care of themselves since, based on the results of a prior study, implementing self-care plans helps decrease hospitalization frequency and the rate of one-year survival, lower the cost of treatment, and enhance the quality of life (20).

Insofar as nurses are expected to deploy different strategies to improve self-efficacy in patients, and that the bulk of post-treatment care in IHD patients depends on individual adherence to regimens, it is crucial to examine patient training methods along with how affected people could apply the received instructions. Hence, identifying and adopting appropriate measures such as empowerment training programs to stimulate self-efficacy in IHD patients are of paramount significance. In fact, educating patients in this regard could serve as an appropriate means to empowering them to attain self-efficacy.

2. Objectives

Accordingly, the purpose of this study was to determine the effect of empowerment on the self-efficacy of IHD patients admitted to a healthcare center in Lorestan province, Iran.

3. Methods

First, an ethical code (IR.IAU.TMU.REC.1397.163) and approval of the Ethics Committee of the University were acquired. Then, a letter of introduction was received from the Research Department of the Islamic Azad University of Tehran Medical Sciences. Finally, after obtaining the agreement of the Research Department of Lorestan University of Medical Sciences, the authors referred to Imam Khomeini Hospital in Pol-e Dokhtar. A total of 56 patients with ischemic heart disease were chosen through simple random sampling according to the table introduced by Krejcie and Morgan. Rand list software was used to classify patients into the experimental and control groups.

The inclusion criteria were the lack of formal training in empowerment programs, lack of perceptual problems (e.g., attention deficit disorder) according to the patient's profile, no history of mental illness (depression, neuroticism, violence, obsessive-compulsive disorder, etc.) according to the patient's profile, lack of employment in healthcare areas, and lack of prior hospitalization for treating and controlling ischemic heart disease. Alternatively, the exclusion criteria were the lack of phone call access

to the patient and his/her family during the research process, the occurrence of a stressful event for the patient during the intervention (stress, pain, depression, etc.), and patient's death due to the illness. The data collection tool consisted of, first, a questionnaire covering the patients' demographic and clinical information and, second, the career decision self-efficacy scale (CDSES) designed and validated by Lorig (1996).

CDSES contains 33 questions to examine patients' self-efficacy in 10 areas. The first three questions address regular exercise, question 4 is related to disease information, questions 5 to 8 deal with assistance by the community, family, and friends, questions 9 to 11 are related to the relationship with the physician, questions 12 to 16 cover disease management, questions 17 to 19 cover habitual activities, questions 20 and 21 cover social and recreational activities, questions 22 to 26 cover symptom management, question 27 is related to managing shortness of breath, and the last six questions address depression management. Each item is scored on a 10-point Likert scale. If the score of the questionnaire is between 1 and 33, the degree of the variable is low; if it is between 33 and 165, the degree of the variable is moderate; and if it is above 165, the degree of the variable is very high. Hatef et al. (21) obtained the content validity of this scale and established its validity (0.93) based on Cronbach's alpha. The reliability of the questionnaire was 0.84 based on Cronbach's alpha.

In the first session, the goals of the study were described and informed consent forms were obtained from the patients. Then, both questionnaires were completed by the researcher for experimental and control groups. Some of the educational materials were presented to the patients in this session. In the following days, based on the suggested time, two other educational sessions were held for patients in the experimental group. After the end of the training sessions, the post-test was performed in both groups. Then, four weeks (first phase of control) and eight weeks (second phase of control) post-intervention when the patients had been discharged, both groups were called to the heart clinic to complete CDSES. In cases where patients did not return for the follow-up, the researcher referred to their house.

The content of the intervention was presented according to the program's instructions from the second day of hospitalization. The training sessions were held between 11 and 12 A.M. so as not to interfere with visiting hours or physician rounds of the ward. All the three sessions (each lasting 45 minutes) were organized by the researcher in groups of three to five people in the patient room over six weeks on Mondays, Tuesdays, and Wednesdays. Participants were separated based on gender before attending the sessions.

The aim of the empowerment intervention in this study was to provide an integrated training program in the form of a booklet. The educational content in the booklet encompassed the recognition of the nature of the disease, different causative and predisposing factors of ischemia and myocardial infarction, signs and symptoms of the disease, exacerbating and relieving factors, diagnostic procedures, warning and discernable symptoms, general and medical treatment methods, disease control agents, medications (including nitrates, antihyperlipidemic agents, beta blockers, calcium blockers, and antiplatelet drugs), diet, relevance of weight control and obesity prevention, exercise benefits, avoiding substance abuse, stress control, specific self-care instructions, allowable and restricted activities, and different measures for stress reduction.

In the second session, the topics taught in the previous session were reviewed and patients' questions were answered. Moreover, a new subject was discussed. Similarly, the third sessions focused on teaching and responding to patients' questions about the instructions provided in the previous sessions and the booklet. In the end, the materials were recapitulated and more significant topics were highlighted. It must be added that after the second control stage and data collection, the control group was also exposed to the empowerment training program for three sessions as the experimental group.

SPSS version 23 was used to analyze the obtained data. At the level of descriptive statistics, measures such as mean and standard deviation, skewness, and kurtosis were used to analyze descriptive indices. Moreover, the Kolmogorov-Smirnov test was used to check the normality of data. As for inferential statistics, covariance analysis and independent *t* test were used to compare the means of experimental and control groups.

4. Results

Demographic clinical information of the sample is presented in Table 1.

The results of statistical analysis showed that the mean score of self-efficacy in the experimental group differed significantly from that of the control group in the post-test, as well as in the first and second phases of control (Tables 2 and 3).

The results of covariance analysis showed a significant difference in the mean score of self-efficacy of the experimental and control groups between the pretest and the posttest. Similarly, the results of this test showed a significant difference in the self-efficacy score of the two groups between the pretest and the first phase of control (Eta coefficient: 0.57; $P \leq 0.0001$; F (1 and 53): 71.26). In the same vein, covariance analysis of self-efficacy of the two groups revealed a significant difference between the pretest and the second phase of control (Eta coefficient: 0.61; $P \leq 0.0001$; F (1 and 53): 85.13). Overall, the findings established

that the intervention positively affected the patients' self-efficacy.

Table 1. Demographic and Clinical Data of Study Subjects[a]

Group	Experimental	Control
Age	52.68 ± 7.95	52.78 ± 8.11
Occupation		
Unemployed	5 (17.8)	1 (3.6)
Laborer	4 (14.3)	2 (7.1)
Employed	10 (35.8)	14 (50.0)
Retired/housewife	9 (32.1)	11 (39.3)
Disease duration		
1 - 24 months	8 (28.6)	9 (32.1)
2 - 4 years	10 (35.8)	9 (32.1)
4 - 6 years	5 (17.8)	6 (21.4)
More than 6 years	5 (17.8)	4 (14.3)
Gender		
Male	18 (64.2)	17 (60.7)
Female	10 (35.8)	11 (39.3)
Education		
Below high school diploma	9 (32.1)	5 (17.8)
High school diploma	10 (35.8)	10 (35.8)
Academic education	9 (32.1)	13 (46.4)
Total	28 (100)	28 (100)

[a] Values are expressed as mean ± SD or frequency (%).

Table 2. Comparison of the Mean Score of Self-Efficacy in the Experimental and Control Groups

Stage	Mean ± SD	P Value[a]
Pretest		0.90
Experimental	4.25 ± 1.10	
Control	4.21 ± 0.99	
Posttest		< 0.001
Experimental	6.64 ± 1.49	
Control	4.17 ± 1.21	
First control		< 0.001
Experimental	6.75 ± 0.96	
Control	4.39 ± 1.10	
Second control		< 0.001
Experimental	6.82 ± 0.98	
Control	3.89 ± 1.34	

[a] Independent *t* test.

5. Discussion

The results indicated that empowerment training has a significant positive effect on the self-efficacy of IHD patients. This is consistent with the findings of previous studies proposing that empowerment education significantly enhances the self-efficacy of patients with heart diseases, respiration problems, diabetes, and cancer (9, 14, 20, 22-24). Meanwhile, in contrast to the present survey, another study observed that training for self-management of chronic diseases did not significantly influence patients undergoing coronary artery bypass graft surgery (25). It seems that cultivating self-efficacy helps patients to increase their ability to manage events and resolve their disease-related problems. This is because people who are highly self-efficient believe that they can successfully handle important life events inasmuch as such a disposition gives them an empowering perspective in a way different from those who display a poor self-efficacy. In short, people with higher levels of self-efficacy are better able to control their diseases. This can be further developed through empowerment training. Such training entails increased awareness and empathy in cardiac patients and encourages them to manage their diseases by promoting self-efficacy.

As the present study is limited to a specific location of Iran, it is evident that the self-efficacy rate of cardiac patients admitted to Imam Khomeini Hospital in Pole-Dokhtar, Lorestan province, Iran, cannot be argued to represent the rate at the national scale; it, hence, restricts the study in terms of spatial generalization. Therefore, it is desirable to carry out a similar study at a wider scope. One way of achieving this objective is to use cluster sampling to consider all hospitals and medical centers in the country as a statistical population. Another limitation of this study was its low sample size.

5.1. Conclusions

Based on the findings of this study, it may be concluded that empowerment programs are effective in promoting the self-efficacy of patients; this effect is due to both the nature of the intervention and patients' belief in their capability and efficiency. Consequently, it is suggested that this education be integrated into the treatment procedure of patients with ischemic heart disease. It is also proposed that future studies explore other potential factors affecting self-efficacy of patients admitted to special hospital wards. Moreover, it is promising to investigate the relationship between self-efficacy and history of smoking, diabetes, and blood pressure in patients with cardiovascular disease. These attempts will enrich the literature in this field.

Table 3. Comparison of Self-Efficacy in the Experimental and Control Groups

Index Source of Change	Sum of Squares	Degree of Freedom	Mean of Squares	F Coefficient	P Value[a]	Eta Squared	F	P Value[b]
Self-efficacy (posttest)	7.65	1	7.65	4.37	0.04	0.07	1.13	0.29
Group	84.11	1	84.11	14.99	> 0.001	0.47		
Error	92.87	53	1.75					
Total	1825.000	56						
Self-efficacy (first control)	0.19	1	0.19	0.17	0.67	0.003	0.19	0.66
Group	77.62	1	77.62	71.26	> 0.001	0.57		
Error	57.73	53	1.08					
Total	1874.000	56						
Self-efficacy (second control)	0.02	1	0.02	0.01	0.090	0.000	1.58	0.21
Group	120.09	1	120.09	85.13	> 0.001	0.61		
Error	74.76	53	1.41					
Total	1802.000	56						

[a] Analysis of covariance.
[b] Levene's test.

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Footnotes

Authors' Contribution: Sa'diyeh Aslani: study design, data collection, manuscript preparation, data analysis. Sepideh Nasrollah: study design and manuscript preparation. Tahereh Nasrabadi: study design and manuscript preparation.

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