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A STUDY OF THE EFFECT OF SELF -CARE PROGRAM BASED ON OREM'S MODEL ON THE QUALITY OF LIFE IN PATIENTS WITH HEART FAILURE

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ABSTRACT

Background & Aims: Heart failure is one of the most common cardiovascular disorders and raised as a chronic, progressive and debilitating disorder causing deterioration of physical ability, disruption of personal and social relations, decreased ability to perform job responsibilities, economic and livelihood problems and finally, compromising quality of life of patients with heart failure. In order to solve these problems, nursing interventions, including new teaching methods are needed. This study aimed to investigate the effect of self-care program based on Orem's model on the quality of life in patients with heart failure.
Materials & Methods: In present clinical trial on 60 patients with heart failure admitted to Seyyed al-Shohada Hospital in Urmia, the samples were selected by using convenience sampling method and randomly divided into two 30-patient experimental and control groups. Data collection tools were Orem's self-care model-based needs assessment forms and MacNew quality-of-life questionnaire. The data was collected before and three months after implementing the self-care program. Data was analyzed using chi-square test, independent t-test, Man-Witney U test and variance analysis.
Results: after intervention, in experimental and control groups, the total mean of quality of life was reached from 92.83±5.35 to 101.13±7.89 and from89.73±8.48 to 89.72±5.69, respectively. There was a significant difference between the two groups after intervention in all aspects of quality of life including the physical, psychological and social dimensions and this result demonstrated the increased quality of life in the experimental groups (p=0.000).
Discussion and Conclusion: given the positive effect of implementation of Orem's self-care model on improving the quality of life of patients with heart failure, it is recommended that nurses and other healthcare providers implement self-care program in patients with heart failure based on nursing theories and health care programs to improve their quality of life.

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Introduction

Heart failure is one of the most common cardiovascular disorders and raised as a chronic, progressive and debilitating disorder. The prevalence and incidence of the disease rises with aging so that in the US, approximately one percent of people over 50 years and about ten percent of the elderly over 80 years suffer from heart failure. In other hand, advances in medical and surgical procedures have caused heart failure in patients who have been saved from death after heart attack [1]. According to the last statistics, nearly 6 million patients suffer from heart failure in the United States and more than 550 thousands new cases are annually diagnosed. This disease is the most common reason for hospitalization of individuals over 65 years and the

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second most common reason for admitting to doctors' offices [2]. The frequency of patients who admit to emergency department and repeated hospitalizations at hospital are also high [2]. About 24 percent of patients with heart failure discharged after treatment, were hospitalized again after 30 days [3]. It was estimated that the economic burden of treating heart failure is more than 39 billion dollars per year, including direct and indirect costs and increase in it is expected [4]. In Iran, the number of heart failure patients is estimated about 3500 per 100 thousand people and annual cost of hospitalization of these patients in Iran is estimated at 400 billion Rials that must be considered [5]. Heart failure causes deterioration of physical ability, disruption of personal and social relations, decreased ability to perform job responsibilities, economic and livelihood problems. Additionally, patients will face with increased costs of treatment and all of these factors affect the quality of life [6]. Patients with heart failure have a lower quality of life are [1, 7, 8]. Quality of life is a concept related to nursing and Nurses have always tried to promote it so that they always provide medical services and participate in nursing research to try to improve patients' quality of life [9]. There are many options to control heart failure that self-care is one of these options [10].Self-care, including activities that humans specifically do to survive and have convenient performance, continuous improvement and well-being [11]. Orem's self-care model is one of the most complete self-care theories that provide a proper clinical guide to plan and implement self-care principles [12]. Orem knows man as self-care factor and he does required cares for his health and thereby he save his life and health and permanently has the feeling of well-being [13]. Inadequate care leads to poor health outcomes and frequent hospitalizations [14, 15]. It was found that at least 50 percent of patients with heart failure do not follow medical advices and this will be led to their readmission [16] and in contrast, effective self-care is a significant factor in improving positive health outcomes and preventing frequent hospitalizations [17]. Self-care in heart failure implies on some items such as diet and medication management, sodium and fluid restriction, daily weighing, regular exercise, monitoring signs and symptoms of disease exacerbation, search and decision-making for appropriate medical measures [18]. Promotion of self-care helps patients to have more control over their daily lives and they can handle their social performance and thereby, they can improve their quality of life [19]. Given that the high prevalence and consequences of this disease as a chronic, progressive and debilitating disorder cause deterioration of physical ability, disruption of personal and social relations, decreased ability to perform job responsibilities, economic and livelihood problems and finally, reduced quality of life of patients with heart failure, nursing interventions, including new teaching methods will be needed. This study aimed to investigate the effect of self-care program based on Orem's model on the quality of life in patients with heart failure.

Method

This study was clinical trial. 60 patients eligible for the study were selected by convenience sampling method. Then, the patients were randomly assigned into two 30-person experimental and control groups. Researcher, after introduction of himself, explained the research goals to the patients. In this study, the participants suffered from heart disease class II and III according to the New York Heart Association classification and they were of both genders (male and female). Inclusion criteria were as follows: 1. Diagnosis of heart failure class II and III according to the view of consultant physician, 2. Not having a history of mental illness and physical disabilities based on patient's records, 3. Not having a history of heart surgery in the last 6 months based on patient's records, 4. Residence in Urmia City, 5. Not having cognitive, hearing, and vision impairments, 6. lack of education in medical sciences, 7. Not having formal training on heart failure disease, 8. Having the ability and willingness to participate in the study and 9.Possibility of making a phone call. Exclusion criteria were as follows: 1. Not having access to the patient and his family during the study through telephone (several times in a few days), 2. Patient's unwillingness to continue participation in the study and 3.Death of patient due to the disease or occurrence of any accident and deterioration of the patient's status.There were three research tools, the first one was demographic characteristics questionnaire, the second tool was Orem's self-care model-based needs assessment forms, consisting of 30 questions about the needs of patients with heart failure based on Orem's self-care model. This questionnaire was designed based on 5-option Likert scale and scored from 1 to 5 (score 1 for the option of never and score 5 for the option of always). It was provided based on the needs of patients with heart failure by the research team and included three classes of needs (high or dependent needs, medium or semi-dependent needs and low or independent needs). The scores 30-70, 70-110 and 110-150 were contractually considered as high or dependent needs, medium or semi-dependent needs and low or independent needs, respectively. The lowest score was 30 and the highest score was 150 and the higher score indicates having the low self-care needs. The third tool was MacNew quality-of-life questionnaire that its reliability and validity were confirmed in previous studies [20-23]. This questionnaire consists of 27 questions in three psychological, physical and social dimensions. In this questionnaire, 12 questions are related ti psychological performance, 10 questions are related to physical performance and 5 questions are related to social performance. It is designed based on 7-option Likert scale (from always to never) that in negative questions, the scores 1 and 7 were assigned to the options of always and never, respectively and it must be noted that in the positive questions, this order is in reverse. The lowest score was 27 and indicates the lowest quality of life and the highest one is 189 and represents the highest quality of life. Before intervention, pre-test was performed on participants to assess the quality of life and the participants filled out the Orem's self-care model-based needs assessment forms. Self-care program was designed based on needs assessment and it consisted of partly compensatory nursing system (participation in some patient's activities) and supportive educative nursing system (consulting and facilitating measures). Then, according to the participants' needs

extracted from Orem's model-based needs assessment questionnaire, the participants received a program of 4 to 6 30-45 min sessions [24] of individual training and nursing care measures related to each of him/her needs according to needs assessment. For the patients who were discharged from the hospital and for whatever reason, they were not able to commute to the hospital, the researcher went to their homes and the sessions of individual training were held and related nursing care measures were performed at their homes. In these sessions, self-care training and nursing care measures were performed based on nursing measures written in comprehensive nursing books. During this program, control group was received usual nursing care. This program lasted three months and the participants were asked to do the care at home and if they wanted to be guided, they would call the researcher and fix their problems. Three months after implementing self-care program, quality of life questionnaire was completed for both experimental and control groups and the data was analyzed using chi-square test, independent t-test, Man-Witney U test and variance analysis.

Results

The results showed that the majority of patients of experimental group (56.67%) and control group (53.33%) were male. Majority of experimental group (40%) and control group (46.67%) were in the 61 to 70 age group. Chi-square test showed that there were not statistically significant differences between the two experimental and control groups in the variables of age, gender, marital status, education, income, severity of disease, family history of the disease, insurance status and employment status (Table 1).

Table 4-1. The frequency of demographic variables of patients with heart failure admitted to Seyyed al-Shohada Hospital in Urmia Town in 2016

variable		Experimental group		Control group	Chi-square test	
		No	Percent	No	Percent	
age	50-60	9	30.00	7	23.33	P=0.66
	61-70	12	40.00	14	46.67	
	Older than 71	9	30.00	9	30.00	
Gender	Male	17	56.67	16	53.33	P=0.96
	Female	13	43.33	14	46.67	
Marital status	Married	17	56.67	19	63.33	P=0.34
	Single-Widow	13	43.33	11	36.67	
education	Illiterate	10	33.33	12	40.00	P=0.14
	Diploma and lower	13	43.33	12	40.00	
	Academic degree	7	23.33	6	20.00	
Income	Weak	9	30.00	10	33.33	P=0.97
	Medium	13	43.33	13	43.33	
	Good	8	26.67	7	23.33	
Severity of disease	Class II	14	46.67	13	43.33	P=0.43
	Class III	16	53.33	17	56.67	
Family history of disease	No	13	43.33	12	40.00	P=0.88
	Yes	17	56.67	18	60.00	
Insurance	Health	11	36.67	9	30.00	P=0.57
	Social security	8	26.67	10	33.33	
	Armed Forces	3	10.00	4	13.33	
	Rural	8	26.67	7	23.33	

Employment status	Unemployment	5	16.67	6	20.00	P=0.08
	Housewife	5	16.67	4	13.33	
	Employee	3	10.00	4	13.33	
	Disabled	3	10.00	4	13.33	
	Retired	4	13.33	3	10.00	
	Self-employment	10	33.33	9	30.00	

The results showed that before intervention, 70% of experimental group and 73.3% of control group and after intervention, 93.4% of experimental group and 76.66% of control group were independent in terms of self-care. These results showed that after intervention, the experimental group's need decreased. According to the research goal, initial assessment of the quality of life was conducted in two groups before intervention. Before intervention, the average quality of life in experimental and control groups were 92.83±5.35 and 89.73±8.48, respectively and the results of t-test showed that there was no significant difference between the two experimental and control groups before intervention (p=0.095). After intervention, the mean quality of life of experimental and control groups reached 101.13±7.89 and 89.72±5.69, respectively. This showed significant difference between the two experimental and control groups in terms of quality of life after intervention (p=0.000). According to the assessment of quality of life in terms of three dimensions, significant differences were observed between the two experimental and control groups in psychological (p=0.000), social (p=0.01) and physical (p=0.009) dimensions. According to the significant difference in mean physical aspect before and after intervention, the results of two-way analysis of variance showed that p-value was 0.034 and this significant difference showed the effect of intervention (Table 2).

Table 2. Comparison of total mean of quality of life and the means of its dimensions before and after intervention

Dimensions of quality of life		Experimental group		Control group		Result	
		Mean	Standard deviation	Mean	Standard deviation		
Physical dimension	Before	35.70	4.37	32.23	4.14	**P=0.006	***P=0.034
	After	36.26	3.95	33.53	3.90	*P=0.009	
Psychological dimension	Before	40.53	3.73	41.14	4.35	*P=0.56	
	After	46.16	5.58	39.15	5.34	*P=0.000	
Social dimension	Before	16.60	2.62	16.26	2.50	*P=0.61	
	After	18.70	2.62	17.03	1.97	**P=0.01	
Total	Before	92.83	5.35	89.73	8.48	*P=0.095	
	After	101.13	7.89	89.72	5.69	*P=0.000	

* T-test **Man-Whitney U test *** two-way analysis of variance

Discussion and conclusion

The results of present study showed that implementing Orem's self-care program has effect on the three dimensions (psychological, physical and social) of quality of life of patients with heart failure and on the other hand, since all the factors affecting quality of life (diet and medication management, sodium and fluid restriction, daily weighing, regular exercise, monitoring signs and symptoms of disease exacerbation, search and decision-making for appropriate medical measures) have been emphasized in this model and they lead to involvement of individual in self-care, the quality of life has enhanced in all dimensions. Training the patients by nurses is effective in improving the quality of life in patients with heart failure and this method improves the role of patients in managing symptoms and self-control. The studies showed that self-care program, including education on heart failure, introducing the drugs, planning for discharge and follow-up through in-home visit and calling, are nurses' duties [25]. The results of present study are consistent with the results of a study by Scott et al. Their study was experimental and entitled "the effect of nursing intervention on the improvement of quality of life and mental health of heart failure patients". In this study, in addition to training common areas, the areas such as public consultation, diagnosis, treatment regimen, nutrition and how to follow-up were considered for experimental group. The results showed that the patients of experimental group achieved better improvement of self-care and increased quality of life due to their participation in treatment program and determination of goals based on their expectation and values and also participation in decision-making

[26]. Stewart et al. showed that if the treatment of heart failure is performed by heart failure specialist nurses, it will improve the quality of life of patients so that the patients act according to their therapeutic regimen and their readmission rates will decrease [27]. The study entitled "the effect of comprehensive rehabilitation programs on the quality of life in patients with heart failure" by Mir et al. is consistent with present study. In their study, 51 male and female patients were treated within 12 weeks. Interventions were medication, exercise and physical activity, counseling and education. Statistical results showed significant improvement of quality of life and increased activity capacity within 12 weeks of comprehensive rehabilitation [28]. These studies confirm the results of present study.

Conclusion

The results of present study showed that application of this model, apart from the patients' individual differences in terms of studied variables, can be effective in improving the quality of life of all the patients. On the other hand, regarding the frequency of cardiovascular disease and the development of heart failure and its devastating effects on quality of life, it is important that nurses seek to find new ways to improve the quality of life in patients with heart failure. Accordingly, Orem's Self-Care Model can be a useful tool for achieving the goal of improving the quality of life of patients.

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