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Study of the effect of partnership care model on the quality of life in patients with heart failure

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Abstract

Aims: Heart failure is one of the most important and prevalent diseases, and still one of the major problemsof health care systems in spite of the medical advances. Today, the promotion of the quality of life in heart failure patients is one of the objectives of the nursing care programs. In this line, the present study was conducted to evaluate the effect of partnership care model on the quality of life in patients with heart failure.

Methods: In the present clinical trial in 2010, 90 patients with heart failure hospitalized in Kerman University of Medical Sciences affiliated coronary care units were selected using accessible-sampling method and were randomly divided into two groups of 45 participants each as the experimental and the control groups. To evaluate the quality of lifeas adependent variable, the standard quality-of-life questionnaire for heart failure patients, including 22 questions on the three major dimensions of the quality of life (physical, mental and socioeconomic), was applied. The intervention was implemented during three months according to the partnership care model in the experimental group. Data were analyzed by$SPSS_{18}$ software using descriptive statistics, independent and paired t-tests and the variance analysis.

Results: There was a significant difference between the two groups in terms of the mean quality of life (from 60.11±10.7 to 35.43±8.6 in the experimental and 45.63±7.3 to 57.42±11.9 in the control group), as well asthe associated dimensions including the physical, psychological, and socioeconomic aspects ($P<0.05$).

Conclusion: The study findings demonstrated a significant improvement in the mean quality of life scores in all the three dimensions in the experimentalcompared to the control group; the application of the mentioned model is, therefore, recommended for the care and treatment of patients with heart failure.

Keywords: Heart failure, Quality of life, Nursing model, partnership care

Introduction

The quality of life is considered asone of the most important outcomes of the health systems; the issue is of moresignificanceespecially in cases of high frequency disorders. Cardiovascular diseases are the main cause of mortality worldwide, killing 17 million people annually (one out of every three deaths). It is estimated that the rate will reach to 24.8 million by 2020 if no special preventive action is taken place [1]. Today, with the advances in the treatment of heart diseases, increased longevity of patients with heart failure have been achieved, and the improvement in their quality of life will, therefore, be important more than ever[2]. Studies on health-related quality of life in chronic disordersare indicative of the adverse effects of the disease on physical, psychological and social functions of patients. Thus, measurement of the quality of life has been emphasized in the evaluation of heart diseases treatment [3]. The goal of heart failure treatmentis not only to prolong life, but also to relieve symptoms and improve function. In this regard, improving the physical aspect of the quality of life is enumerated as one of the major goals of treatment [4, 5]. Health-related quality of life is in adverse condition in patients with heart failure compared to the healthy adults and patients with other chronic disorders, and heart failure, per se, has more impact on the quality of life due to debilitating side effects [6]; hence, further and more comprehensive studies are required interms of the quality of life.

Heart failure is a complex clinical syndrome in which the heart is unable to pump the blood commensurate with the body's metabolic needs due to ventricular dysfunction. Heart failure is often regardedas a consequence of hypertension, heart ischemia, coronary artery disease, deformed valves, and

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cardiomyopathy, and in most cases, several factors are simultaneously involved [7]. Shortness of breath and fatigue are the main symptoms of the disease, leading to activity intolerance. These patients, consequently,lose their independence in the usual activities of life and become dependent on others for self-care. Impaired functional performance and restriction in job, family and social duties are the main outcomes of the mentioned disorderwhich eventually results in a decline in the quality of life, social isolation and depression [6].

In adult population, the prevalence of heart failurehas been reported to be1-2 percent in individuals over 65 years and 10 percent in those over 75 years of age. In total, it is estimated that approximately15 million people are affected worldwide. However, the frequency-related statistics is only associated to symptomatic cases, i.e. those in class III and IV ofAmerican Heart Association, and asymptomatic cases,i.e.those whose body's compensatory mechanismshave prevented the incidence of clinical symptoms due to effectiveness (class I and II), have not been calculated in these figures [7]. About two to three million Americans suffer from heart failure, and four hundred thousand of new cases are identified per year. The disease is slightly more common in women than men; three hundred and nine thousand people die annually from cardiovascular diseases in the United States and 225 million deaths also occur for the associated disorders [8].

Since heart failure affects all the aspects of life, including physical, psychological and social conditions of patients [9], and is also one of the most common factors leading to hospital readmission within 60 days after discharge,of which up to thirty percent may be preventable [10], any attempt to improve the quality of life in these patients can be worthwhile. Considering the fact that nursing models could be an appropriate guide to promote the quality of care, the application of models has been suggested in patients care. The issue is more recommendedin the models emerging from culture and native conditions of the society; nonetheless, as far as a complete model is introduced to thenursing community, a need to test and obtain sufficient evidence for the effectiveness is felt. Hence, partnership care model was used in the present study as a native model for care of patients with heart failure,and its efficacy was evaluated in thepromotion of life quality among these patients.

The partnership care model was first designedin 2001 and was implemented and evaluated to control high blood pressure in the city of Babol. Later in 2004, it was implemented and evaluated in Tehran for patients with coronary artery disease; however, it has not still been assessed in patients with heart failure. In this model, partnership theory has been processed for the first time in the process of care. One of the fundamental objectives of the model is to improve thepatients' quality of life. To achieve the model purposes, the following steps have been presented in the form of regular structure, acting as an interconnected and dynamic set if observingan evolutionary and logical sequence and relationship, for which specified practical applications are expected: 1. Motivation, 2. Preparation, 3. Involvement,and 4. Evaluation [11].

Given the above description, this study was designed toinvestigate the effect of partnership care modelon the quality of life in patients with heart failure. Regarding the fact that partnership care model is not limited to certain diseases, and no study has so far been reported indicating the model application in the improvement ofthe life quality in these patients, the present research seeks to answer the question that how the quality of life is affectedby partnership care model in patients with chronic heart failure.

Methods and Materials

The present clinical trial was conducted on patients with heart failure hospitalized in CCU, PCCU, and coronary internalward of the two hospitals affiliated withKerman University of Medical Sciences in 2010. The study samples included ninety patients calculated using the sample size determination formula andsampled through

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the accessible-sampling method; thus, each patient hospitalized with definite diagnosis of heart failure would be participated in the study. After the initial assessment and obtaining theinformed consent, demographic-information and quality-of-life questionnaire for heart failure patients were completed by the participants, and by the researcher in cases of patients'inability.

The questionnaire applied was first designed in 1984 in the University of Minnesota, United States of America, by Thomas S. Rector, so that the effect of heart failure and the treatments could be investigated on patient's quality of life in a last month. This proprietary instrument has been specified based on the Likert rating scale (never =0, verylow = 1, low =2, moderate = 3, high = 4, and very high = 5),and consists of 22 questions to measure the quality of life in three basic dimensions including physical (thirteen questions), psychological (five questions) and socioeconomic (four questions).Zero and 110 as the minimum and maximum scores are respectively indicative of no effect and too much effect of the disease on different dimensions of the patient's quality of life; therefore, the higher score of the questionnaire means a greater impact of the disease on the quality of life, showing a decline in the life quality. The original version of the questionnaire was developedin Englishand it has been translated to Persian, with permission from the relevant institute, using the scientific process of determining the quality of instrument translationand forward and back translation by Hekmatpour [11]. Content validity index was used to determine the scientific validity of the questionnaire; for this purpose, after being designed and prepared, the questionnaire was provided to ten professors of the Faculty of Medical Sciences tocollect corrective and suggestive feedback. To assess the questionnaire's reliability,it was given to fourteen patients with heart failure, and the final questionnaire was ultimately prepared regarding their mode of answers and the Cronbach's Alpha calculation, and it was above 0.9 in both cases (reliability = 0.91, validity = 0.93).All ethical considerations such as data confidentiality, knowledge on all steps of the research and its duration, and patient'spermissibility to withdraw atany stage of the study were observed.Patients were then randomly dividedinto two groups of 45 participants each as the experimental and control groups through selecting the cards prepared based on the table of random numbers.

In this study, the following criteria were considered as the inclusion indicators: 1. Definite diagnosis of heart failure according to clinical and laboratory evidence by the specialist, 2. The age range of over forty years, 3. No known mental disorder, 4. Normal hearing, vision and mental strength that enables the person to communicate, and 5. No other major chronic diseases such as cancer.

The experimental group wasinformedabout data analysis for motivationfrom the beginning, and all the team members, i.e. doctors, nurses and patients, were actively involved. At this point,patients' care problems were defined as care diagnosis. The next steps, preparation and involvement, were also performed based on the model. At these two stages, ongoingtraining partnership visits were conducted as follows according to the care diagnosis. All the team members were actively participated in this stage as well.

A) Trainingpartnership visits (three times)

The first visit objectives: Creating motivationin patient through familiarizationwith care problems, current conditions, disease threats and complications, and empoweringthe patient so that he/she can define heart failure and explain the associated causes and consequences.

The content of this session: An overview on heart anatomy, causes of heart failure, predisposing factors, and its complications.

Implementation: The contents were provided to patients in the form of films and lectures presented by physicians and nurses, and patients were divided into three groups of 15 subjects each based on clinical symptoms. Interventions were performed in the form of visits and lectures for all the three groups

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independently,taking 60 to 90 minutes on average.

Second visit: The visit was carried out at two-week interval in line with conducting the second phase, i.e. patient preparation for participating in the process of care and treatment (time of meetings for each group was based on their own agreement).

The second visit objectives: The patient can explain the importance of a good diet for the sufferers of heart failure, explain low-fat and low-salt diet pattern with examples, understand and explain the importance of a regular exercise program, know and classify the beneficial and harmful exercise for the disease.

Implementation: The contents needed in this session were presented viafilm and lecture by a nurse, and each group was visited one more time by the team doctor.

The third visit: The relative objectiveswere as follows; the patientcan understand the importance of taking prescribed medications as well as their side effects, and cancorrectly calculate his/her heart rate per minute alone.

Implementation: Information required in this session was provided through showing and distributing educational pamphlets by the nurse, and all the three groups were re-visited. At the end of the third visits, the patients reached to an acceptable level of knowledge, attitude and performance in the process of care and treatment.

B) Ongoingpartnership visits (two times)

These visits aimed at continuation of care programs and patients' involvements. Final evaluation of the program, giving feedback to patients' behavior, and being informed on patients' participation rate were considered as the contents of these visits, held attwo-weekinterval, two times for each patient. The final stage of the model, i.e. evaluation, was in fact carried out during these visits.

In the end, the standardized quality-of-life questionnaire for heart failure patients, for which the evaluation mode of the validity and reliability has been assessed by the researcher, was filled out by the experimental group, and by the researcher in cases of patient's inability. Data were analyzed by $SPSS_{18}$ statistical software using independent and paired t-tests and the variance analysis.

Results

The study participants included 90 patients divided into two groups of 45 subjects each as the experimental and the control with the mean age of 61.96 and 63.67 years respectively. Independent t-test showed no difference between the two groups in terms of age, weight, level of income, parental history of obesity, educational level, and the history of drug abuse. Relative frequency distribution of gender showed 38.5% male and 61.5% female among the study participants. In terms of relative frequency of educational level, the highest level of education was related to the elementary and guidance school, and the lowest level to university education in both groups, between which the difference was not statistically significant.

According to the study objectives, initial assessment of the quality of life was performed before the intervention in the control and the experimental group. The mean pre-intervention quality of life score was 60.11 in the experimental and 45.63 inthe control group. Independent t-test displayed no statistical difference between the two groups in terms of the quality of life ($p> 0.001$). Following the intervention, the mean quality of life score reached to 35.43 in the experimental and 57.42 in the control group. A significant difference has been found between the two groups by paired t-test after the intervention, indicating improvement in the quality of life ($p<0.001$). It should be noted that the questionnaire applied has been designed based on the Likert scale (zero to five),and score reduction indicates the qualityoflife improvement.

In the evaluation of the life quality in form of the quality-of-life questionnaire for heart failure patients, three major dimensions,physical, psychological and socioeconomic, were measured. The mean score of the three mentioned dimensions was respectively 2.78, 2.75, and 2.80 before and 1.53, 1.40, and 2.10 after the intervention (Table 1).Paired t-test displayed a significant

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difference in the three dimensions of the quality of life (separately for each dimension) compared to before the intervention, showing signs of improvement in all the three dimensions of the life quality ($p<0.001$). Along with the model implementation in the experimental group, the mean quality of life score in physical, psychological, sand socioeconomic aspectschanged from 2.00, 2.34, and 2.05 to 2.60, 2.75, and 2.71 in the control group (Table 1).Paired t-test demonstrated a remarkable difference in this group in the three dimensions, indicating a decline in the life quality in the control group (in all the three aspects) ($p<0.001$). The greatest improvement has been observed in psychological dimension in the experimental group, and the most significantdecrementhas been found in socioeconomic aspect in the control group.

Discussion

Today,attention to the quality of life in heart failure patients has led to reduction in the mortality among these patients [12].The results obtained from clinical trialshave shown that the quality of lifecan be considered as a sign of healthcare quality and a part of treatment program in these patients,measurement of which provides more information on patients' health statusin chronic diseases for the healthcare team [13].Studies evaluating the patients' quality of life and the measures improving the life quality are becoming more valuable in nursing every day; hence, the quality of life is a nursing-associated concept, and any attempt to improve it is a goal of nursing. It seems that care provision based on improving the quality of life and participation in the related researches provide a way to improve the lives of this group of patients [14].

Findings of the present study demonstratedsignificant impact of partnership care model application on improving the quality of life among heart failure patients in the experimental compared to the control group;partnership care model can, therefore, be recommended to improve the quality of life in the mentioned group of patients. Despite the adverse effects of heart failure on patients' quality of life, any action to improve the life quality in these patients isworthwhile. Based on a research by Rahnavardet al.on the quality of life in patients with heart failure, negative effect of the disease has been reported on the quality of life, and unfavorable conditions in physical, psychological and socioeconomic aspects have been observed in most cases [15]. In studies by Shojaeion the quality of life in heart failure sufferers [16], and Hatamipour on the life quality and its determinants in these patients [17], the same decline in the quality of life has been reported. Although the three main aspects of the life quality have been affected in this study in the intervention group, the data showed thatthe greatest improvement has been related to psychological dimension. On the explanation of this finding, it can be stated that since developing the disease at different ages may be negativelyinfluential on psychological, and

Table 1: Comparison of the mean quality-of-life improvement score among the study participants before and after the intervention with separation into the quality of life dimensions

Group	Dimensions	The mean pre-intervention quality of life score	Standard deviation	The mean post-intervention quality of life score	Standard deviation	t	p
Experimental	Physical	2.789	0.52	1.539	0.63	12.99	0.00
	Psychological	2.752	0.67	1.400	0.60	12.23	0.00
	Socioeconomic	2.809	0.33	2.108	0.59	7.20	0.00
Control	Physical	2.003	0.89	2.608	0.41	-5.60	0.00
	Psychological	2.342	0.70	2.755	0.66	-3.39	0.001
	Socioeconomic	2.056	0.39	2.714	0.54	-6.60	0.00

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economic,state of patients such as occupation, social status, and life expectancy, the quality of life is likely to be more affected in this dimension [18]. In an investigation by Abbasi et al. on the relationship between functional ability and quality of life in patients with heart failure, the same results have been brought about [6]. Ahmadi, 2001, revealed that the quality of life has been significantly improved in patients with coronary artery disease after the implementation ofcontinuing care model [19]. Similar results by Azadi, 2006, showed that implementation of partnership care model can contribute to remarkable improvement inthe quality of life in patients with coronary artery disease [11]. In addition, the overall results suggest that the positive effect of the model implementation on three dimensions of the life quality is significantly associated to demographic information (age, weight, level of income, educational level, etc).

Conclusion

On the interpretation of the study results, it can be stated that, apart from patients' individual differences in terms of the variables studied, the model applied can be effective in improving the quality of life inalmost all patients. The application of this model is,thus,recommended for all patients.

Finally, regarding the frequency of heart diseases and development of heart failure and its devastating effects on the quality of life,it is appropriate that nurses seek to find ways to improve the quality of life in patients with heart failure. The study findings recommendthe partnership care model to nurses as a perfect tool to achieve the goal of improving the patients' quality of life. The present research provides evidence on the effectiveness of partnership care model onthe promotion of life quality in patients; hence, it can be concluded that the model can be applicable to improvethe quality of life in patients with heart failure. Moreover, as the present investigation is the third arena of testing and evaluation in the clinical environment, the model can be used in studies related to other acute and chronic disease in field of quality-of-life improvement and/or other outcomes of the model.

Number of patients and follow-up duration were the constraints of this study; therefore, more sample size with longer follow-up duration is required to obtain further evidence on the effectiveness of partnership care model on patients' quality of life.

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