



The effect of family training and support on the quality of life and cost of hospital readmissions in congestive heart failure patients in Iran



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ABSTRACT

Background: This study was conducted to investigate the effects of family training and support on quality of life and cost of hospital readmissions in congestive heart failure patients.

Methods: In this single-blinded, randomized, controlled trial, the participants were heart failure patients hospitalized in an Iranian hospital. Data were collected from available hospitalized patients. The participants were enrolled through randomized sampling and were divided randomly into two groups, an intervention group and a control group. The intervention group received extra training package for the disease. Training was provided at discharge and three months after. A standard questionnaire to assess the QoL was filled out by both groups at discharge and six months after.

Results: Mean scores of QoL domains at the beginning of the study decreased in control group and increased in intervention in comparison with six months after ($p < 0.01$).

Conclusion: Nursing care follow-up according to heart failure patients' needs promoted their QoL.

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1. Introduction

Today, cardiac diseases are the most common chronic diseases among the middle-aged (Hasanpour Dehkordi & Khaledi Far, 2015) and the elderly, and the most important reason for the elderly hospitalization. Cardiac patients have to deal with some problems in many aspects of life (Dehkordi & Heydarnejad, 2009; Shepperd et al., 2013) and the most prevalent cardiac disease is congestive heart failure (CHF) (Pelle et al., 2010). With the advent of new medical and surgical treatments and longer life expectancy in cardiac patients, the number of CHF patients has increased (Gasirowski & Dutkiewicz, 2013). About 15 million patients all over the world and more than six million in the United States are affected by heart failure (HF) (Gaddam, Jarreau, & Ventura, 2011). In Iran, the number of CHF patients in 18 provinces was 3.3/100 individuals per year, of whom 2.8 were older than 50 years and 0.5 were 15 to 49 years (Willette, Surrells, Davis, & Bush, 2007). Management of CHF is based on eliminating the underlying factors, pharmacotherapy and modifying lifestyle. Lifestyle modification can alleviate the symptoms of the disease, slow down disease progression, promote quality of life (QoL) and decrease hospital readmissions

(Ditewig, Blok, Havers, & van Veenendaal, 2010). Lifestyle modification in cardiac patients requires care, training, and follow-up by health care professionals especially nurses (Heydarnejad & Hassanpour Dehkordi, 2010). QoL is defined as optimum levels of physical, mental, and social functioning involving occupational and life roles, relationships, and personal perceptions of health, fitness, life satisfaction, and well-being (Dehkordi, Heydarnejad, & Fatehi, 2009; Hassanpour-Dehkordi & Jivad, 2014; Heydarnejad, Hassanpour, & Solati, 2011). QoL is increasingly being used as a primary outcome measure to evaluate the effectiveness of treatment (Hassanpour-Dehkordi & Jivad, 2014). In addition, HF leads to an extremely high rate of readmission after hospitalization, with up to 44% of patients rehospitalized within six months after discharge (Shah, Rahim, & Boxer, 2013). Recent studies have demonstrated that multidisciplinary disease management programs can substantially reduce the risk of readmission, by 56% for readmissions due to HF and 44% for all-cause readmissions (Shah et al., 2013).

2. Background

Studies have shown that follow-up care such as home visit has a significant effect in reducing mortality and new admissions among cardiac patients (Krumholz et al., 2002). There is also growing evidence of potential effectiveness of home visit interventions for patients (Ditewig et al., 2010). Family training interventions increase patients'

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ability to manage symptoms, treatment, physical and psychosocial consequences, and lifestyle changes, and also affect the cognitive, behavioral and emotional responses necessary to maintain a satisfactory QoL, so that a dynamic and continuous process of self-regulation is established (Ditewig et al., 2010; Gaddam et al., 2011). A study of patients with CHF showed the beneficial effects of a post discharge family training for at least 18 months with a significant reduction in unplanned readmissions, total hospital stay, hospital-based costs and mortality (Krumholz et al., 2002). Moreover, the QoL promotion in CHF patients has recently decreased mortality considerably (Flather et al., 2005). The results of clinical trials have shown that the QoL can be considered as an index of health care quality and a part of disease management in cardiac patients; measuring QoL in chronic diseases patients can provide useful information for health care professionals to assess patients' health (Howlett et al., 2010).

2.1. Purpose

Since QoL promotion is one of the main objectives of HF management, health care professionals, especially nurses, can act as effective agents in health promotion and public training to modify health-related behaviors and identify risk factors, educate clients and support them (Howlett et al., 2010; Lawrenson et al., 2013). Family training and QoL promotion are two roles of the nurses (Lawrenson et al., 2013; Lupon et al., 2008). This study was conducted to evaluate the effect of family training and support on the QoL and cost of hospital readmissions among CHF patients.

3. Materials and methods

This study was a single-blinded, randomized, controlled trial that was conducted in Shahrekord, southwest Iran from March 1st, 2012 to September 1st, 2013. Ninety CHF hospitalized patients (aged between 50 and 65 years) were enrolled by randomized sampling and were randomly assigned into two groups, one intervention and one control. Considering $\alpha = 0.05$, confidence interval 95% with variance 10 and $d = 2$, the sample size was estimated to be 90 people.

Inclusion criteria consisted of the presence of echocardiography in medical records and ejection fraction less than 45%, diagnosis of HF by cardiologist of the research team, consent to participate in family training to provide follow-up care and necessary training by research team, literacy (ability to read and write), and accessibility for research team during the study. Exclusion criteria comprised leaving the province of study or prolonged traveling after discharge up to six months later, undergoing surgery, suffering from chronic and progressive diseases alongside cardiac disease, diagnosis of mental disorder(s) and being a member of health care team. The response rate was 90%.

The researchers provided training materials about drugs, diet, signs, symptoms, complications of disease, behavior and lifestyle modification. The required training was identified using the focus group interview; i.e., a form of interview for data collection in which a group of people are asked about their perception, opinions, beliefs and attitudes towards a product, service, concept, advertisement, idea or packaging in order to reveal detailed information and deep insight as well as to create an accepting environment that puts participants at ease (Kitzinger, 2007). A checklist of home care in cardiac patients, recurrence of disease and referring to physician was used. The checklist was a modified version of a needs assessment tool, *Checklist of Successful Health Plan Approaches to Heart Disease and Stroke Prevention* (Pearson et al., 2002). The checklist was completed during hospitalization and also in family training sessions. The section related to patients was filled within about 40–50 min. Also, a training booklet about all the relevant matters was provided for the intervention group. Family training program was arranged in three turns: one month after discharge, two months after the first family training session, and three months after the first family training session. In family training sessions, necessary trainings were provided, lifestyle modifications were confirmed and the questions of the patients and their family were

answered. If necessary, the patient was taken to specialized health care centers and the physician of research team.

The study participants were firstly contacted by the main researcher. He explained the level of their involvement to them and answered their questions. In addition, the risks and benefits of the study, the confidentiality of data, the voluntary nature of participation and withdrawal from the study without penalty were discussed before they were asked to provide informed consent. Moreover, the study was approved by the Ethics Committee of the Shahrekord University of Medical Sciences and the code IRCT2013012512279N1 was issued by the *Iranian Registry of Clinical Trials* for this study. The participants also filled out a written consent letter.

The data collection tool was a two-part questionnaire: The first part was concerned with the demographic characteristics, the clinical condition of the patient, prescribed treatments and cost of hospital readmissions filled out with reference to the data collected through interview with the patient and his/her medical record. The second part was the standard questionnaire of the QoL SF-36 (second edition). It is a standard questionnaire frequently used in similar studies. This questionnaire has already been adapted to the Iranian context and its reliability and validity have been established. According to Cronbach's alpha, its reliability has been estimated to be 0.73 to 0.887 and by test-retest (internal consistency coefficient) within a two-week interval, higher than 0.90 in all domains (Rejeh, Heravi, Montazeri, & Taheri, 2015; Taghipour et al., 2011). This standard questionnaire has 36 items in eight domains, including physical performance, limitation in activity following emotional (psychological) problem, limitation in activity following physical problem, energy and fatigue, mental health, social performance and public health, with the score of each domain ranging from 0 to 100 (Flather et al., 2005). The questionnaire was completed in two turns in each group: during discharge and after family training sessions in the intervention group, and during discharge and six months after discharge in the control group.

The HF patients education is aimed to help patients and their caregiver(s) to acquire the necessary knowledge, skills, strategies, problem solving abilities and motivation for adherence to the treatment plan and effective participation in self-care. After discharge, patients and caregiver(s) should be informed about and supported in self-care follow-up plans, management of self-care follow-up plans and perception of the importance of adherence to the health-related QoL. At least 60 min of patient education (which could be divided into multiple sessions by the educator) was assigned to ensure that the patients and/or their caregiver(s) understand what actions must be taken in the post-discharge period. Teaching sessions were delivered by an expert (RN) educator of HF management at discharge and at home for patients with HF. In addition, the RN educator provided the bulk of education and counseling, supplemented by physician and, if possible and necessary, by dietitians, pharmacists and other health care providers. Furthermore, the 60-min patient education included discussions on any of the following domains: recognition of escalating symptoms and making plans to respond to particular symptoms. Thus, the patient/caregiver(s) should be able to identify specific signs and symptoms of HF, and explain measures to take when symptoms occur. Measures may include a flexible diuretic regimen or fluid restriction for volume overload. Examples of signs and symptoms include: shortness of breath (dyspnea), persistent coughing or wheezing, buildup of excess fluid in body tissues (edema), tiredness, fatigue, decrease in exercise and activity, lack of appetite, nausea and increased heart rate.

The data were analyzed by SPSS (version 19) using descriptive statistics (such as frequency, mean, and standard deviation) and independent and paired t-test.

4. Results

The mean age of participants in the intervention and control groups was 60.78 and 59.13 years, respectively. 58% of the participants in the

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