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The effect on patient outcomes of a nursing care and follow-up program for patients with heart failure: A randomized controlled trial

Dilek Sezgin[a,*], Hatice Mert[a], Ebru Özpelit[b], Bahri Akdeniz[b]

[a] Department of Internal Medicine Nursing, Dokuz Eylül University Faculty of Nursing, Inciralti, Izmir, Turkey
[b] Department of Cardiology, Faculty of Medicine, Dokuz Eylül University, İnciraltı, İzmir, Turkey

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ABSTRACT

Background: Heart failure is associated with exacerbated symptoms such as dyspnea and edema and results in frequent hospitalization and a poor quality of life. With the adoption of a comprehensive nursing care and follow-up program, patients with heart failure may exhibit improvements in their self-care capabilities and their hospitalizations may be reduced.
Objective: The purpose of this study was to examine the effect of a nursing care and follow-up program for patients with heart failure on self-care, quality of life, and rehospitalization.
Design and setting: This research was conducted as a single-center, single-blind, randomized controlled study at the heart failure outpatient clinic of a university hospital in Turkey.
Participants: A total of 90 patients with heart failure were randomly assigned into either the specialized nursing care group (n = 45) or the control group (n = 45).
Methods: The nursing care and follow-up program applied in the intervention group was based on the Theory of Heart Failure Self-care. Data were collected at the beginning of the trial, and at three and six months after the study commenced. Self-care of the patients was assessed by the Self-Care of Heart Failure Index. Quality of life was assessed with the "Left Ventricular Dysfunction Scale". Rehospitalization was evaluated based on information provided by the patients or by hospital records.
Results: A statistically significant difference was found between the intervention and control group with respect to the self-care and quality of life scores at both three and six months. While the intervention group experienced fewer rehospitalizations at three months, no significant differences were found at six months.
Conclusion: The results obtained in this study show that the nursing care and follow-up program implemented for patients with heart failure improved self-care and quality of life. Although there were no significant differences between the groups at six months, fewer rehospitalizations in the intervention group was considered to be an important result.

What is already known about the topic?

- Patients with heart failure are often unsuccessful at adequately performing self-care.
- Rehospitalization in patients with heart failure are high due to worsening of symptoms.
- It has been reported that education initiatives increase the level of patient knowledge, but are not effective in promoting self-care, improving quality of life, or reducing rehospitalization.

What does this paper add

- Nursing care and the follow-up program improves the self-care of patients.
- Nursing care and the follow-up program have improved the quality of life of patients.
- Nursing care and the follow-up program have reduced the rehospitalization of patients by the third month.
- The present study demonstrates that the Theory of Heart Failure Self-Care could be implemented in Turkey.

1. Introduction

Heart failure is an important health problem that is common in Turkey and the world. According to the statistics reported by the

* Corresponding author at: Dokuz Eylül University Faculty of Nursing, Department of Internal Medicine Nursing, 35340, Inciraltı, Izmir, Turkey.
E-mail addresses: dileksezginn@hotmail.com (D. Sezgin), mertbuldan@gmail.com (H. Mert), ebru.ozpelit@gmail.com (E. Özpelit), bahri.akdeniz@deu.edu.tr (B. Akdeniz).

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American Heart Association in 2015, there are about 5.7 million patients with heart failure in the US, and 870.000 new patients diagnosed annually. There are reportedly 15 million and 2.4 million patients with heart failure in the Europe and Turkey, respectively (Mozaffarian et al., 2015; Stromberg and Dickstein, 2008; Değertekin et al., 2012).

Patients suffering from heart failure frequently experience symptoms that have an impact on their functional capacities and quality of life, leading to hospitalization (Dickstein et al., 2008; Rodriquez-Artalejo et al., 2006; Tuppin et al., 2014; Zaya et al., 2012; Karaca and Mert, 2011). It was determined that 30%–56.6% of patients with heart failure are rehospitalized within the first three months (Proctor et al., 2000; Esquivel and Dracup, 2007; Schwarz and Elman, 2003; Polanczyk, et al., 2001; Babayan et al., 2003). It is therefore important to develop self-care behavior in individuals suffering from heart failure to ensure positive health outcomes and prevent incidents of rehospitalization (Artinian et al., 2002).

Self-care involves a process of maintaining physiological stability by monitoring symptoms, adhering to the treatment regimen (self-care maintenance), as well as promptly identifying and responding to symptoms (self-care management) (Riegel and Dickson, 2008). However, patients with heart failure experience great difficulty with self-care (Dickstein et al., 2008). Dickson et al. (2008) reported that patients with heart failure do not have a sufficient capability for self-care; 61% of them are capable of maintaining adequate self-care, and 44% are capable of maintaining sufficient self-care management. Lee et al. (2015) claimed that self-care management could be enhanced if patients with heart failure were able to monitor their symptoms on a regular basis, and that their rehospitalization rates could be reduced as the management of their self-care improved. Sahebi et al. (2015) reported that patients with low scores from self-care maintenance and self-confidence have a higher rate of rehospitalization. Buck et al. (2015) addressed the difficulties experienced by patients with heart failure at maintaining their self-care as their quality of life decreases and their rate of rehospitalization increases. To maintain self-care at an adequate level, patients require specialized knowledge, skills, and nursing care (Jaarsma et al., 1998).

Studies of heart failure report that educational and follow-up programs conducted under the supervision of nurses improve self-care behavior in patients (Brandon et al., 2009; Evangelista et al., 2015; Jaarsma et al., 2000; Smith et al., 2015), their ability to perform their own follow-up and adapt to treatment (Boren et al., 2009; Sisk et al., 2006), their quality of life (Brandon et al., 2009; Evangelista et al., 2015), their knowledge of their disease (Boren et al., 2009; Smith et al., 2015), and reduce the incidence of rehospitalization (Agrinier et al., 2013; Jaarsma et al., 2008).

Similar studies from Turkey reported that patient quality of life was low (Demir and Ünsar, 2011; Efe and Olgun, 2011), and that patient rehospitalization was high. Additionally, Karaca and Mert (2011) reported that almost half of the patients were rehospitalized within the first three months. To our knowledge, there are no studies concerning the self-care of patients with heart failure in Turkey. Therefore, Sezgin and Mert (2015) conducted a qualitative study to evaluate the self-care management status of patients with heart failure, which constitutes the first stage of the project. In the qualitative study, it was determined that patients with heart failure were not knowledgeable about disease management, awareness of symptoms and significance of disease, and they did not demonstrate self-confidence regarding disease management.

In developed countries, specialized clinics and outpatient clinics have been established to treat heart failure, and specialized nurses have been trained to work in this area. Patients are followed-up after discharge, and individuals are provided with education and consulting services (Chriss et al., 2004; Sisk et al., 2006). In Turkey, however, there is a limited number of specialized clinics and outpatient clinics for heart failure, and there are few nurses and health experts for this condition. For this reason, there is a need to develop programs to provide patients diagnosed with heart failure with education and consulting services at clinics and outpatient clinics and to ensure that such programs are made widely accessible.

2. Objective

The purpose of this study was to examine the effect of a nursing care and follow-up program for patients with heart failure on self-care, quality of life, and rehospitalization.

2.1. Conceptual framework of the research

This study benefited from the Theory of Heart Failure Self-Care. The Theory of Heart Failure Self-Care is categorized as a situation-specific theory. Key concepts in the conceptual model are self-care maintenance and self-care management. (Riegel and Dickson, 2008).

Self-care maintenance is described as a behavior used to maintain a physiological status, such as the monitoring of symptoms and adherence to treatment (Riegel and Dickson, 2008).

Self-care management indicates the decision-making responsibility of patients when symptoms arise. Self-care management is an active and planned process in taking the health status of heart failure patients under control during symptomatic heart failure. Self-confidence is not a basic component of self-care and it is an assistant or mediator of maintenance of self-care and self-care results (Riegel and Dickson, 2008).

To ensure the maintenance of self-care of patients with heart failure successfully, the nursing care and follow-up program was organized to ensure that it covers the stages of theory of heart failure self-care in this study. The implementation of the Theory of Heart Failure Self-Care was performed as seen in Fig. 1.

3. Methods

3.1. Design

The research was conducted as a single-center, single-blind, randomized controlled study from August 2012 to February 2014 at the heart failure outpatient clinic of a university hospital in Turkey.

3.2. Study participants

The study sample comprised of individuals: 18 years of age and older; functionally classified as NYHA II or NYHA III; literate; able to speak and understand Turkish; person, place, time, and situation oriented; and willing to participate in the study. Individuals who had undergone by-pass surgery in the past six months, those with severe kidney failure that necessitated dialysis, cancer patients receiving chemotherapy or radiotherapy, COPD patients needing ventilation, persons with cerebrovascular or rheumatoid arthritis severe enough to affect self-care, and patients with impaired vision or hearing were excluded from the study. The sample size was calculated on the NCSS-PASS software program based on the self-care scale's third- and sixth-month data (10.3 ± 2.8) and (11.2 ± 3.1), respectively; a power of 80%; and a 95% confidence interval with a margin of error of 0.05, as revealed in the article by Jaarsma et al. (2000). The estimated sample needed was 82, with 41 each in the intervention and control groups. To account for an anticipated 10% attrition rates, eight additional participants (four in each group) were recruited. The ninety patients (45 in the intervention group and 45 in the control group) were recruited and