

Effects of Peer Education and Nurse Education Methods on Self-efficacy in Patients with Congestive Heart Failure: A Comparative Study

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ABSTRACT

Background and Aim Congestive heart failure is one of the most common cardiovascular disorders and is considered as a chronic, progressive and debilitating disorder. The self-efficacy of these patients may be impaired. This study was performed with the aim of determining effect of peer education and nurse education methods on self-efficacy in patients with Congestive Heart Failure (CHF).

Method: In this semi experimental during 2018-9, 72 patients with CHF were selected and allocated to the intervention and control groups (n = 36 each) using randomly. After preparing the peer group, four peer to peer training sessions were conducted during one month. A translation of Sullivan the self-efficacy questionnaire was used for data collection, which was completed by both groups for evaluating the self-efficacy of the patients before, just and one month after the intervention. SPSS-21 software was used in this study and P values less than 0.05 were considered significant.

Findings: No significant difference was observed between two groups in overall self-efficacy score before the intervention. The mean scores of self-efficacies, immediately after the intervention, were 50.3 ± 7.21 and 24.9 ± 1.7 , in the case and control groups respectively. The mean scores of self-efficacy L, one month after the intervention, were $48/8 \pm 1/2$ and 23.4 ± 4.6 in the case and control groups, after intervention, Paired t - tests showed tests showed that peer education had a significant relationship with self-efficacy of the heart failure patients ($P < 0.001$).

Conclusion: The effect of peer education on the self-efficacy of patients with CHF has been greater than nursing education.

KEYWORDS

Peer Education, Heart Failure Patients, Self-efficacy.

Introduction

Although the management and planning of infectious diseases such as AIDS -Human immunodeficiency virus (HIV) infection is considered pandemic by the World Health Organization (Rabirad et al., 2013, Mohammadnejad et al., 2010), hepatitis B - one of the most prevalent infectious diseases in the world (Mohammadnejad et al., 2011) and emerging diseases such as coronavirus (Abdollahi, 2020) is very important, proper planning for non-communicable and chronic diseases must be done at the same time. Patients suffering from cardiovascular disease (CVD) have hoped for significant and promising advances in treatment over the past two decades, although human beings are still increasingly struggling with the prevalence of heart failure (Kandaswamy and Zuo, 2018). It is also worth mentioning that the prognosis of the disease is still poor so that half of such patients bade farewell to the world within four years after diagnosis, and over half of cases with severe heart failure are sacrificed within the first year after diagnosis (Shojafard et al., 2009). The global prevalence of this disease is estimated to be 0.4 to 2 in the general population and 0.16 to 2.3 in the group over 75 years of age (Heidari-Beni et al., 2017). The syndrome embarrasses 1-2% of affected subjects aged 50-59 years and more than 10% of people over 70 years old and is the most common cause of hospitalization in people over 50 years old; it is the second leading cause of doctor's visits in the United States (Abedian et al., 2011). The disorder sends 6.5 million people to hospitals each year, accounting for 1 to 2 percent of the total treatment budget, which poses a serious challenge for the treatment team (Reilly et al., 2015).

Self-efficacy was first introduced by psychologist Albert Bandura as one of the most important, widely used and effective concepts in cognitive-social theory. The theory narrates the decisive role of cognitive processes in human behavior. Defective cognitive processes are associated with incorrect expectations and misconceptions of people

about their own efficiency, which can lead to anxiety and avoidance of challenging situations (Bandura and Evans, 2006). The self-efficacy comprises a persons' faith and confidence in being able to accomplish their self-care tasks in accordance with what they wish to, thus, win more desirable self-care outcomes (Alizadeh et al., 2014). The patients who believe in their own abilities to control cardiac status are more likely to adhere to adequate physical activity programs and a healthy diet (Barnason et al., 2003).

The self-efficacy in patients with CVD has been introduced as a contributing predictor for the management of cardiac status, social, psychological, and physical functioning (Steca et al., 2013). Valuable documentation is available to demonstrate the central role of self-efficacy in accepting adherence and implementing physical activity among CVD patients (Rojati et al., 2012). This trait has been reportedly found to be an influential factor in improving self-care and a risk modulator of coronary artery disease (CAD), as well (Barnason et al., 2003).

The patients are educated with the aim of achieving behavioral changes through the provision of appropriate knowledge (Arlinghaus and Johnston, 2018). during which learning opportunities are donated for patients and their families regarding disease, treatment, adaptation mechanisms and skill promotion (Sepúlveda et al., 2002). The heart failure patient education is an integral part of self-care behaviors, covering information on the illness signs and symptoms, lifestyle modifications and treatment adherence (Ditewig et al., 2010). Peer education, meanwhile, has promisingly exposed itself to facilitating and advancing health and establishing a warm atmosphere for teach (Varaei et al., 2013).

The peer education has been proposed as a new educational model based on empathetic principles with a beneficial effect on patients (Secomb, 2008). Through a continuous approach, it establishes a space for a longer friendly and physical peer-to-patient communication, enabling information sharing. The peer education may improve not only medical problems but also the socio-psychological assets of patients; indeed, the peer serves as a patient-medical staff mediator (Heidari-Beni et al., 2017). In this approach, the informed and involved peer group provides the necessary training and knowledge about the disease, care and management, reviews members' similar characteristics, and accordingly creates a safe, secure, and relaxed learning environment so that they can individually share their experiences of illness (Ghadiri et al., 2016). Successful peers can share their strengths, weaknesses, and experiences with patients at the lowest cost using healthcare services, create practical, emotional and informational readiness, and insist follow-ups, motivation and discussion about the stress mediated by their chronic illness to encourage the selection of appropriate health behaviors (Pfeiffer et al., 2011).

The reasons for the great importance of education can be attributed to the facts that CHF as a chronic debilitating disease in the early stages of the disease influences various aspects of self-efficacy, and that the affected patients are mostly unaware of the therapeutic regimen, early diagnosis and control of symptoms. On the other hand, nurses as the largest member of the treatment team of national hospitals (Cheraghi et al., 2011, Ehsani et al., 2012) face difficulties in educating these patients due to manpower shortage. In order to address some of these problems, the present study was conducted to investigate the effects effect of peer education and nurse education methods on self-efficacy in patients with Congestive Heart Failure.

Materials and Methods

This ongoing semi experimental was conducted to investigate the effects of peer education on quality of life in patients with congestive heart failure. The statistical population of this study consisted of 72 patients (36 patients in each case and control groups) with CHF admitted to the cardiac ward of the hospital, which were selected by random sampling method using medical records. Inclusion criteria were no history of participation in training programs in the field of heart failure during the past six months, literacy, ability to speak Persian, no cognitive problems, physical disability and medical or related education and the possibility of making phone calls directly with patients.

Data collection tool consisted of two questionnaires, including demographic profile (age, gender, marital status, educational level, occupational status, duration of illness, history of comorbidities such as diabetes and hypertension, and educational history) and Cardiac Self-Efficacy Questionnaire developed by Sullivan in 1998 (Sullivan et al., 1998). This questionnaire consists of 16 statements that are rated on a five-point Likert scale from 0 (not at all) to 4 (completely confident), indicating the mean scores of 33-64 as high self-efficacy, the mean scores of 23-32 as moderate self-efficacy and the mean scores of 0-22 as low self-efficacy. Vareei et al. in 2012 determined the content

validity of this questionnaire for relevance, clarity and fluency of sentences with the help of 10 faculty members of Tehran University of Medical Sciences, Iran, the results of which showed the coefficients of 93.4% for the relevance, 98.8 for the clarity and 90.8% for the fluency, respectively; Overall content validity of this questionnaire was estimated at 91.3%. Internal consistency method was used to measure the reliability of the cardiac self-efficacy questionnaire (Varaei et al., 2017) and its reliability calculated with Cronbach's alpha coefficient was computed to be 0.97.

At the peer selection stage, 8 patients with heart failure entered the classroom to select three peers. In order to ensure peer readiness and homogenize the training method, the researcher used the researcher-made checklist to review the training process, including introduction and familiarity, content behaviors, evaluation, counseling and training behaviors after training. In the initial stage, the peers were introduced to the patients, followed by explaining the session objectives and rules. The educational content discussed the heart failure symptoms. The educational behaviors were examined using appropriate audio-visual means, discussion and exchange of views of learners. The evaluation stage summarized in-group question-answer content. The checklist scale (15 questions) was yes, no and to some extent, with a point assigned to each item. The individuals with the highest scores were selected as peers to ensure peer readiness and to homogenize the training method. In the end, all materials discussed in the class were compiled in the form of a booklet with the content of the concepts and benefits of peer education and educational needs of heart failure patients, including the definition of heart failure, mechanisms and causes of symptoms in heart failure, risk factors, general principles of heart failure treatment, pharmacological therapy, non-pharmacological management, how to control daily weight, and diet, and given to peers. During the intervention process, the case group (36 people) was divided into four groups of 6-8 for ease of training. The patients were introduced to a peer educator for specific training. The peer held three one-hour training sessions for all patients with heart failure in the case group, with homogeneous educational content on all patients. For the second group- control group-, routine training for heart failure patients was performed by nurses. Attained data were analyzed by SPSS version 21 software using descriptive statistics and Chi-square and independent t-tests at a significance level of $P\text{-value} < 0.05$.

Results

Most patients (86.7% in the case group and 93.3% in the control group) were married and the majority (80% in the case group and 83.3% in the control group) were male, with a mean age of 51.65 ± 8.3 years in the case group and 49.23 ± 6.04 years in the control group; the duration of illness was 2.1 ± 3.1 years in the case group and 2.9 ± 2.8 years in the control group. The studied variables might affect the self-efficacy level of patients. However, the results indicate that the two groups were homogeneous for the demographic characteristics.

The mean self-efficacy score at the baseline was 22.8 ± 2.7 in the control group and 23.6 ± 0.58 in the case group (Table 1). High efficiency score was observed in 6.6% at the baseline, 63.3% immediately after the intervention and 56.6% one month later in the case group.

Table 1. Mean and standard deviation of self-efficacy score at the baseline in the case and control groups of patients with heart failure

Self-efficacy level	Groups	
	Case, No. (percentage)	Control, No. (percentage)
High	2 (6.6)	1 (3.3)
Moderate	12 (40)	10 (33.3)
Low	16 (53.3)	19 (63.3)
Mean $\pm$ standard deviation	23.6 $\pm$ 0.58	22.8 $\pm$ 2.7

The results of comparing the self-efficacy score immediately and one month after the implementation of the training program in both case and control groups are shown in Table 2.

Table 2. Mean and standard deviation of self-efficacy score immediately and one month after the intervention in the case and control groups of patients with heart failure

Self-efficacy level	Groups		Statistical test results
	Case, No. (percentage)	Control, No. (percentage)	
Immediately after the intervention			
High	19 (63.3)	3 (3.3)	t-test t=1.08 p=0.001
Moderate	9 (30)	10 (33.3)	
Low	2 (6.7)	17 (63.3)	
Mean ± standard deviation	50.3±7.21	24.9±1.7	
One month after the intervention			
High	17 (56.6)	1 (3.3)	t-test t=3.23 p=0.001
Moderate	10 (33.3)	11 (36.6)	
Low	3 (10)	19 (60)	
Mean ± standard deviation	48.8±1.2	23.4±4.6	

Discussion

The present study aimed at evaluating the influence of peer education on the self-efficacy of heart failure patients, the results of which revealed that the mean total score of self-efficacy before, immediately and after the intervention was significantly different and the statistical test indicated the effect of peer education on the self-efficacy of heart failure patients. A study in Iran, introduced self-efficacy as the most important effective factor for regular exercise and physical activity in the heart failure patients (Rajati et al., 2014). The self-efficacy not only serves as a predictor, but also plays a central role in patient adherence to physical activity. (Borzou et al., 2014). The results of these authors displayed a significant difference in the post-intervention self-efficacy level of the experimental group. They suggested that the healthcare providers could complement their own performance by using peer support in the community as an influential and cost-effective supportive-educational approach to improving patients' self-efficacy and self-management behaviors (Varaei et al., 2017). Self-efficacy can modulate the health behaviors of a CVD patient and attenuate the incidence of CAD-caused adverse effects and subsequently reduce the frequency of hospitalizations and even delay the coronary artery bypass graft surgery (Borzou et al., 2018).

Our results showed a significant relationship between the effects of training programs on promoting self-efficacy in the stages before, during and one month after the intervention. Similarly, Another study in Iran, reported a significant difference in increasing the overall self-efficacy score in the experimental group before, immediately and one month after the intervention (Omidi et al., 2015). There is a significant difference in the self-efficacy levels of the experimental group after the intervention, and therefore suggested peer support as an effective and inexpensive supportive-educational strategy in the community to complement the performance of healthcare providers for improving the level of patient self-efficacy and self-management behaviors. The peer education is a continuous approach in which the peers establish a longer friendly relationship with the patient and share their information. In addition to therapeutic problems, this training can address issues such as socio-psychological behaviors in patients, because the peer is considered as a mediator between the patient and the medical staff (Jahanshahi et al., 2016). Relying on previous study, the peer education may improve patients' performance and self-care behaviors (Varei et al., 2013). The general self-efficacy level of patients can be achieved only through the identification of contributing factors, so the factors affecting the general self-efficacy in heart failure patients can help patients to better care of themselves and ultimately prevention of the adverse effects (Aalto et al., 2005). Therefore, exploiting the experiences of peers is recommended as an educational method to reinforce the self-efficacy behaviors.

Some of the limitations of this study are the adaptation of information from other educational sources, the neglect of homogeneous education by peers, and the mood of research units when holding educational classes in accepting educational content.

Conclusion

The effect of peer education on the self-efficacy of patients with CHF has been greater than nursing education. Peer education method leads to an improvement in the mean self-efficacy score immediately and one month after the intervention in the heart failure patients, emphasizing the employment of this education method in medical centers for the management of heart failure.

Acknowledgments

The utmost gratitude and appreciation is extended to all CHF patients participating in this study.

Conflicts of Interest

The authors declare no conflict of interest.

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