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ORIGINAL PAPER

A RANDOMIZED CONTROLLED STUDY ON THE EFFECTIVENESS OF DISCHARGE TRAINING IN PATIENTS FOLLOWING CARDIAC SURGERY

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Abstract

Aim: The aim of the current study was to determine the effectiveness of discharge training on self-efficacy and post-discharge problems after cardiac surgery. *Design:* A randomized controlled trial. *Methods:* Patients undergoing cardiac surgery (n = 66) were randomly assigned to either control or discharge training groups. Patients received training from the first day they hospitalized until discharge. The self-efficacy scores and post-discharge problems were assessed, at 10 days and 30 days post-discharge. *Results:* Concerning self-efficacy scores, no statistically significant difference was noted between the two groups (group: $F = 1.856$; $p = 0.178$). A statistically significant difference was found between the two groups in terms of kinetophobia, fatigue, and edema in the legs at 10 days and 30 days of post-discharge ($p < 0.05$). *Conclusion:* These study findings have shown that both groups experience at least one post-discharge problem and these problems gradually decrease at 30 days of post-discharge. It is recommended to set up units in hospitals that can systematically give discharge training and home care services to patients and their families.

Keywords: cardiac patients, discharge training, nurse, post-discharge problems, self-efficacy.

Introduction

Despite the increase in average life span and quality, efforts to prevent disease, and improvements in medical-surgical diagnosis and treatment methods, coronary artery disease (CAD) is the most common life-threatening disease in the world (Sipido & Van de Werf, 2012; Vermond et al., 2015). Studies for preventing CAD are performed, but meanwhile the developments towards treatment also continue. Coronary artery bypass grafting (CABG) is a widely used treatment modality in managing CAD (Alburikan & Nazer, 2017).

CABG surgery is one of the effective treatment modalities that can reduce the symptoms of the disease, decrease the mortality, increase the quality of life, and prolong the life span by decreasing ischemia (Alburikan & Nazer, 2017; Beresnevaitė et al., 2016). Even though current developments increase the success rate in CABG surgeries, individuals may encounter physical and psychosocial problems in the post-operative period, and unexpected deaths can occur (Hawkes et al., 2006; Skodova et al., 2009). Researchers have shown that patients who have undergone cardiac surgery experience gastrointestinal problems (e.g., nutrition, loss of appetite, nausea / vomiting, and changes in bowel habits), sleep disorders, fatigue and activity intolerance, chest pain, respiratory distress, palpitation, loss of weight, edema in the chest, and leg incision during the first six months after discharge (Bonaros et al., 2009; Direk & Çelik, 2012; Gallagher et al., 2004). From three months to one year after the surgery, patients can also have psychosocial problems such as unhappiness, lack of coping with stressors, family complexity, changes in lifestyle, changes in social and physical activities, changes in marriage-family-friend relationships and sexual life, anxiety, depression, postcardiotomy psychosis, irritability, and mood changes (Steinke et al., 2015; Škodová et al., 2011).

A successful CABG surgery is not the only criterion of quality of life. Surgical procedures affect the patient in many ways, such as physically, psychologically, socially, and economically (Bergvik et al., 2008). The problems that occur after cardiac surgery usually appear within the first six weeks (Özcan et al., 2010). The most common problem encountered during the first week following discharge is activity intolerance due to discomfort

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in the chest and the leg incision site, fatigue, and weakness. These problems can last up to the sixth week in more than 50% of patients (Hinkle & Cheever, 2017). Direk and Çelik (2012) reported that cardiac patients experienced fatigue, dyspnea, pain at the incision area, weakness, insomnia, anorexia, fear, pessimism, edema in the legs, wound dehiscence, palpitation, and constipation after discharge. Several studies also reported that patients who have undergone cardiac surgery experience physical and psychological problems including anorexia, nausea and vomiting, changes in bowel habits, insomnia, fatigue and activity intolerance, pain, anxiety, and depression within six months after discharge (Cebeci & Çelik, 2008; Gallagher et al., 2004)

An individual who has undergone cardiac surgery should be well prepared for the postoperative period and receive appropriate and sufficient training related to health requirements to cope with problems and fulfil his / her responsibilities during the healthcare process (Cebeci & Çelik, 2008; Fredericks & Yau, 2017; Yaman & Bulut, 2010). Discharge training increases the level of self-efficacy of individuals and allows them to cope more easily with the problems that may arise after the surgery, and with the necessary changes in lifestyle and with the symptoms (Theobald & McMurray, 2004). In particular, the discharge of the patient from the hospital in a short period causes the patient to spend most of the recovery time at home. In this case, the patient and his / her family should meet their own healthcare needs (Fagermoen & Hamilton, 2006). This situation necessitates nurses to provide a discharge training that is clear, comprehensible, effective, and focused on the educational goals and that satisfies the patient's needs adequately (Özcan et al., 2010; Yaman & Bulut, 2010). Researchers found that the cardiac surgery patients in the discharge training or cardiac rehabilitation group had fewer hospital readmissions during the first six weeks after discharge compared to the control group patients (Fredericks & Yau, 2017; Eun et al., 2015). Yaman and Bulut (2010) also stated that discharge training was effective because patients had higher knowledge and skills to take care of themselves, and they encountered fewer problems after discharge.

Nurses play an important role in adapting to changing lifestyle and health behaviours after surgery, such as CABG. The importance of the discharge training given by nurses in solving the problems that the patient and his / her family may experience after discharge cannot be neglected (Özcan et al., 2010). Moreover, giving information about postoperative healthcare allows patients to perform their own healthcare, and it may increase the level of self-efficacy and reduce problems after discharge and the number of hospital readmissions. As a result, discharge training increases the knowledge and skills of the patients and their families and ensures that patients assume responsibility for their health and cope more easily with the problems brought by the disease (Cebeci & Çelik, 2008; Fredericks & Yau, 2013; Gonçalves-Bradley et al., 2016).

Aim

The aim of the current study was to determine the effectiveness of discharge training on self-efficacy and post-discharge problems after cardiac surgery.

Methods

Design

A randomized-controlled trial.

Sample

The study was conducted in the Cardiovascular Surgery Unit of a private hospital in Ordu. The sample included 66 patients (33 control group and 33 discharge training group) in the study. The sample size was calculated using the G POWER 3.1 (Heinrich-Heine University of Dusseldorf, Germany) computer program. A sample size of 33 patients per group was determined with a two-sided 5% significance level ($\alpha = 0.05$) and a power of 90%. The inclusion criteria were as follows: had first and elective CABG surgery, being literate, having no visual-hearing-comprehension problem, and agreeing to participate in the study. Exclusion criteria were as follows: having psychological and mental disorders and having experienced postoperative complications and been readmitted to the intensive care unit (ICU).

After the research was explained to them, the patients were invited to participate in the research. Written consents were obtained from all of the participants. Then, baseline characteristics (e.g., demographic variables, self-efficacy scores) were evaluated. After the baseline assessment, participants were randomly assigned to groups by following simple randomization procedures. In order to achieve this, a computer-generated list of random numbers was used (Research Randomizer, 2015). The first 33 participants were recruited as the control group and the subsequent 33 participants were included in the discharge training group. By doing this, possible contamination between the two groups was minimized. There was no blinding of participants because it was obvious who had received discharge training and who had not. However, one researcher in the study was blinded after assignment to

interventions. The same researcher evaluated outcome measures to minimize interprovider differences and facilitate consistency.

Data collection

The primary outcome was self-efficacy, which was determined by using the "Barnason Efficacy Expectation Scales (BEES): Cardiac Surgical Version". This scale was developed to determine the risk factors after CABG surgery and self-efficacy in the lifestyle adjustment process. The Chronbach's alpha value of the scale was found as 0.93 (Barnason et al., 2002). The reliability and validity of the scale for the Turkish population were carried out by Avcı and Karahan (2013). The scale was composed of 15 items and one factor. Each item was scored by a 1–4 point Likert scale (1 – strongly disagree, 4 – strongly agree) based on a sense of confidence that the patient can perform the indicated behaviour. The score of each response received from the scale was summed and the total score was calculated. The total score ranged from 15–60 for the entire scale. The high score indicated that the expectation of efficacy was high for determining the healing and rehabilitation behaviours after CABG surgery (Avcı & Karahan, 2013).

The post-discharge problems were used as a secondary outcome, which was assessed using a follow-up form developed by the researchers. The post-discharge follow-up form includes questions about the status of discharge training and control group patients who are readmitted to the hospital and about their problems experienced after the discharge.

All participants in the control group received usual care during the discharge training. This training was given orally by the doctors and nurses at the discharge. The demographic variables and self-efficacy scores of the participants in the control group were obtained on the first or second day following hospital admission. Changes in the self-efficacy scores and post-discharge problems of patients were assessed by telephone interviews at 10 days and by home visits at 30 days following discharge.

The demographic variables and self-efficacy scores of the participants who received the discharge training were obtained on the first or second day following hospital admission. Patients received training from hospital admission until discharge. Detailed information about discharge training is given in Table 1.

Discharge training was applied in patient room. Researchers were in the cardiovascular surgery unit between 4:00 p.m. and 6:00 p.m. to conduct the training program. Discharge training was initiated on the first day of hospital admission and it continued until patients were discharged from the hospital. Since patients had early symptoms (e.g., pain, drowsiness, weakness), training after the surgery was started on the third day of after the surgery. A contact number was given in the booklet in order to provide further help after the discharge in case it was required. Changes in the self-efficacy scores and post-discharge problems of patients were assessed by telephone interviews at 10 days and by home visits at 30 days following discharge.

Data analysis

The data were analysed by using the Statistical Package for Social Sciences (SPSS, Chicago, IL) for Windows, version 21. The descriptive statistics were used in the analysis of the demographic and clinical characteristics of participants. Comparisons of self-efficacy scores for the groups were carried out using the analysis of variance for repeated measures (RM-ANOVA). The post-discharge problems were compared between the two groups by using chi-squared test. A p-value of less than 0.05 was considered statistically significant.

Table 1 The features of standard care and discharge training

	Control group	Discharge training group
Definition	only verbal information	information booklet together with verbal counselling, explanation, demonstration methods, question-answer technique, discussion and feedback
Content	knowledge about the surgery and interventions following discharge	Structured information included five parts: 1) CAD and CABG surgery, 2) the preparation process prior to surgery, 3) the critical care process following surgery, 4) post-operative interventions following surgery, 5) home-care program.
Use of written materials	none	the information booklet
Mode of delivery	different nursing staff	a researcher specializing in cardiovascular surgery nursing
Time	at discharge	one session prior to surgery and at least three sessions before discharge

CABG – coronary artery bypasses graft; CAD – coronary artery disease

Results

The sample included a total of 66 patients (33 in the discharge training group, 33 in the control group) in the current study. Finally, 66 participants were analysed for the primary outcome (Figure 1). As shown in Table 2, the mean ages of participants were 63.0 ± 8.7 and 65.3 ± 11.1 years in the discharge training and control groups, respectively. No significant differences were determined between patients of two groups in terms of demographic and clinical characteristics ($p > 0.05$).

Concerning self-efficacy scores, no statistically significant difference was noted between the two groups (group: $F = 1.856$; $p = 0.178$). There was also no significant difference in significant interaction effect between the groups and time (group x time: $F = 1.080$; $p = 0.335$). However, significant overall differences were found in the self-efficacy scores over time (time: $F = 132.66$; $p = 0.000$) (Table 3).

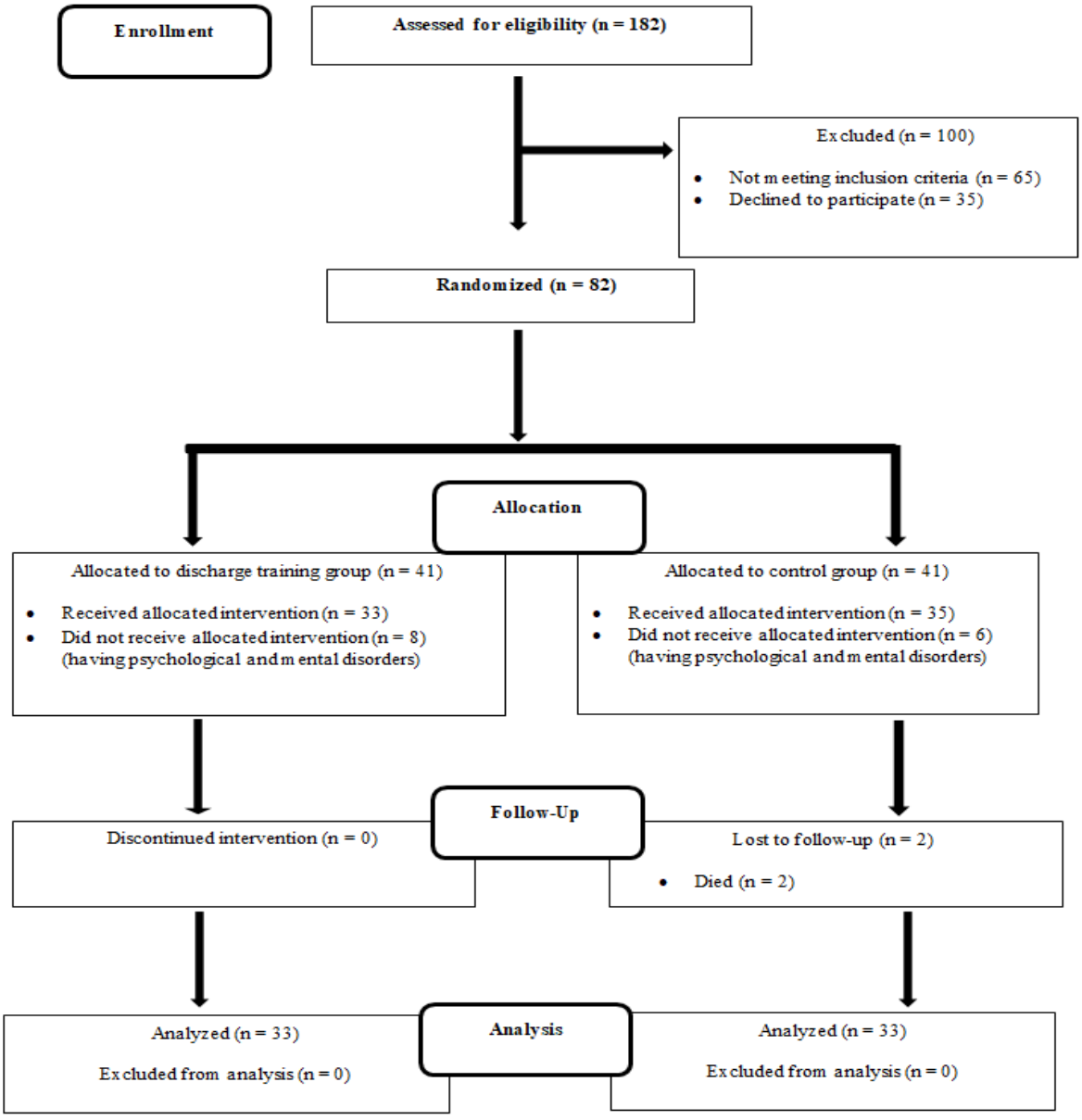

Figure 1 Participant flow chart

Table 2 Demographic and clinical characteristics of the sample (33 cases per group)

		Discharge training group n (%)	Control group n (%)	Test	p-value*
Demographic characteristics					
Age (years) [mean (SD)]		63.03 (8.72)	65.36 (11.19)	t = 0.945	0.348
Gender	female	11 (33.3)	12 (36.4)	$\chi^2 = 0.067$	1.000
	male	22 (66.7)	21 (63.6)		
Education	literate	8 (24.2)	11 (33.3)		
	primary school	14 (42.4)	15 (45.5)		
	secondary school	5 (15.2)	1 (3.0)	$\chi^2 = 5.575$	0.233
	high school	4 (12.1)	6 (18.2)		
	university	2 (6.1)	0 (0.0)		
Marital status	married	30 (90.9)	28 (84.8)	$\chi^2 = 0.569$	0.708
	widowed / divorced	3 (9.1)	5 (15.2)		
Area of residence	urban	5 (15.2)	9 (27.3)		
	county	21 (63.6)	18 (54.5)	$\chi^2 = 1.451$	0.484
	rural	7 (21.2)	6 (18.2)		
Body mass index	normal	3 (9.1)	6 (18.2)		
	mild obesity	21 (63.6)	13 (39.4)	$\chi^2 = 5.311$	0.150
	severe obesity	0 (0.0)	2 (6.1)		
Clinical characteristics					
EF (%) [mean (SD)]		56.18 (10.11)	60.21 (9.53)	t = 1.667	0.100
Number of grafted vessels	1	3 (9.1)	7 (21.2)		
	2	7 (21.2)	11 (33.3)		
	3	18 (54.5)	9 (27.3)	$\chi^2 = 6.889$	0.142
	4	4 (12.1)	6 (18.2)		
	5	1 (3.0)	0 (0.0)		
History of chronic diseases		22 (66.7)	25 (75.8)	$\chi^2 = 0.665$	0.587
History of previous surgeries		16 (48.5)	16 (48.5)	$\chi^2 = 1.030$	0.597
Family history of CAD / MI		10 (30.3)	10 (30.3)	$\chi^2 = 0.000$	1.000
Current smoker		9 (27.3)	7 (21.2)	$\chi^2 = 0.330$	0.775
History of high cholesterol (> 200 mg/dl)		15 (45.5)	17 (51.5)	$\chi^2 = 0.243$	0.806
History of high LDL (> 130 mg/dl)		11 (33.3)	17 (51.5)	$\chi^2 = 2.233$	0.213
History of low HDL (< 40 mg/dl in male; < 50 mg in female)		20 (60.6)	24 (72.7)	$\chi^2 = 1.091$	0.434
Receiving lipid-lowering therapy		14 (42.4)	10 (30.3)	$\chi^2 = 1.048$	0.443

**p < 0.05; CAD – coronary artery disease; EF – ejection fraction; HDL – high-density lipoprotein; LDL – low-density lipoprotein; MI – myocardial infarction*

In this study, 9.1% and 6.1% of the patients in the discharge training group were readmitted to the hospital at 10 days and 30 days following discharge, respectively. However, 30.3% and 12.1% of the patients in the control group were readmitted to the hospital at 10 days and 30 days following discharge, respectively. It was found to be a significant difference between two groups in terms of the hospital readmissions at 10 days of post-discharge ($\chi^2 = 4.694$; $p < 0.05$).

A statistically significant difference was found between the groups in terms of kinetophobia at 10 days following discharge ($p < 0.05$). The control group patients reported that they had a higher kinetophobia compared to discharge training group patients. There was a significant difference between the two groups in terms of fatigue and edema in the legs at 30 days following discharge ($p < 0.05$). The control group patients experienced problems such as fatigue and edema in the legs, whereas discharge training group patients did not. However, no significant differences were found between the two groups in terms of the other post-discharge problems ($p > 0.05$) (Table 4).

Table 3 Self-efficacy scores for discharge training and control groups (33 cases per group)

Self-efficacy	Discharge training mean (SD)	Control group mean (SD)	RM-ANOVA, F	p-value	Effect size
At-baseline	38.12 (5.08)	36.41 (5.47)	group (1.856)	0.178	0.029
10 days post-discharge	43.93 (4.24)	43.83 (4.39)	time (132.66)	0.000	0.682
30 days post-discharge	51.72 (6.76)	49.29 (7.00)	group x time (1.080)	0.335	0.017

SD – standard deviation

Table 4 Comparison of post-discharge problems (33 cases per group)

Problems	10 days post-discharge			30 days post-discharge		
	Discharge training group n (%)	Control group n (%)	Test p-value	Discharge training group n (%)	Control group n (%)	Test p-value
Respiratory distress	13 (39.4)	8 (24.2)	$\chi^2 = 1.746$ p = 0.290	1 (3.0)	1 (3.0)	$\chi^2 = 0.000$ p = 1.000
Fatigue	14 (42.4)	17 (51.5)	$\chi^2 = 0.547$ p = 0.622	0 (0.0)	8 (24.2)	$\chi^2 = 9.103$ p = 0.005*
Shoulder and back pain	1 (3.0)	4 (12.1)	$\chi^2 = 1.948$ p = 0.355	1 (3.0)	3 (9.1)	$\chi^2 = 1.065$ p = 0.613
Palpitation	5 (15.2)	4 (12.1)	$\chi^2 = 0.129$ p = 1.065	1 (3.0)	3 (9.1)	$\chi^2 = 1.000$ p = 0.613
Edema in the legs	1 (3.0)	7 (21.2)	$\chi^2 = 5.121$ p = 0.054	0 (0.0)	6 (18.2)	$\chi^2 = 6.600$ p = 0.024*
Loss of appetite	3 (9.1)	10 (30.3)	$\chi^2 = 4.694$ p = 0.061	1 (3.0)	4 (12.1)	$\chi^2 = 1.948$ p = 0.355
Constipation	2 (6.1)	5 (15.2)	$\chi^2 = 1.438$ p = 0.427	1 (3.0)	1 (3.0)	$\chi^2 = 0.000$ p = 1.000
Pain around chest incision	8 (24.2)	3 (9.1)	$\chi^2 = 2.727$ p = 0.185	2 (6.1)	2 (6.1)	$\chi^2 = 0.000$ p = 1.000
Kinetophobia	0 (0.0)	7 (21.2)	$\chi^2 = 7.831$ p = 0.011*	0 (0.0)	3 (9.1)	$\chi^2 = 3.143$ p = 0.238
Decrease of attention and concentration	0 (0.0)	1 (3.0)	$\chi^2 = 1.015$ p = 1.000	0 (0.0)	1 (3.0)	$\chi^2 = 1.015$ p = 1.000
Cry	1 (3.0)	2 (6.1)	$\chi^2 = 0.349$ p = 1.000	1 (3.0)	2 (6.1)	$\chi^2 = 0.349$ p = 1.000
Difficulty in falling asleep	6 (18.2)	11 (33.3)	$\chi^2 = 1.481$ p = 0.260	1 (3.0)	5 (15.2)	$\chi^2 = 2.933$ p = 0.197
Insomnia	10 (30.3)	14 (42.4)	$\chi^2 = 1.048$ p = 0.443	3 (9.1)	8 (24.2)	$\chi^2 = 2.727$ p = 0.185
Loss of weight	1 (3.0)	2 (6.1)	$\chi^2 = 0.349$ p = 1.000	1 (3.0)	0 (0.0)	$\chi^2 = 1.015$ p = 1.000

**p < 0.05*

Discussion

Determining the needs of cardiac surgery patients and their families and providing training in this endeavour is one of the important functions of nurses. Because nurses have important roles and functions in preventing post-operative complications, reducing unplanned readmissions to the hospital, promoting the health of individuals, and changing the attitudes and behaviours of individuals by providing education and counselling to patients and their families regarding post-operative care and risk factors (Fredericks & Yau, 2013, 2017; Lindsay et al., 2001).

The current study findings demonstrated that the control group patients were admitted to the hospital more than the discharge training group patients. This finding may indicate that discharge training is effective in low numbers of hospital admissions of the discharge training group patients. The lack of information leads to repeated hospitalizations and more frequent use of healthcare facilities (Anderson et al., 2006; Fagermoen & Hamilton, 2006). Several studies have shown that well-planned discharge training is important in helping patients to perform self-care, and reduces recurrent admissions to the hospital (Koelling et al., 2005; Eun et al., 2015).

Discharge training is an important responsibility of nurses, and it enhances self-care by accelerating the recovery of patients (Fredericks & Yau, 2017). Self-efficacy assists the fight against the disease by contributing to a strong self-care and by encouraging the individual to perform self-care (Avcı & Karahan, 2013). The current study revealed that self-efficacy scores were not significantly different between the two groups. Similar to this study finding, several studies reported that there was a significant increase in self-care behaviours of patients with heart failure and cardiac surgery, whereas there was no significant difference between the patient's education and self-efficacy (Jaarsma et al., 2000; Parry et al., 2009; Utriyaprasit et al., 2010). Complications and limitations occurring after the cardiac surgery have been experienced more intensely in the first three months, which might be effective in the absence of a significant difference in the level of self-efficacy between the two groups.

In this study, when the problems experienced by the patients at 10 days of post-discharge were examined, it was found that even though patients in the control group experienced kinetophobia, discharge training group patients did not. Similarly, several studies found that patients in the control group have more kinetophobia and less physical activity than the patients in the experimental group (Cebeci & Çelik, 2008; Utriyaprasit et al., 2010). Patients may experience fear because the effect of the physical activity on the healing process is not known and patients are worried about the worsening of the wound. However, kinetophobia can lead to post-operative complications by preventing the mobilization of patients (Madsen et al., 2017).

Although the patients in the control group reported that they had fatigue and edema in the legs, these complaints were not observed in the discharge training group at 30 days following discharge in this study. The presence of the post-operative fatigue for several weeks may be associated with the loss of muscle tone and function, preoperative fatigue levels of patients, and decreased cortisol levels (Barnason et al., 2008). Similarly, Direk and Çelik (2012) found that 43.4% of patients with cardiac surgery experience fatigue and weakness after discharge. Another study by Cebeci and Çelik (2008) reported that the second important set of problems expressed by the experimental and control group patients were fatigue, weakness, and exhaustion after cardiac surgery. Patients in the discharge training group were less likely to experience these problems because they were trained during hospital and home visits about mobilization, deep breathing, and coughing exercises, the effects of adequate and balanced nutrition on healing, and how to cope with problems.

In this study, the patients in the discharge training group did not experienced edema in the legs because they used the varicose bandage correctly during home visits at 30 days following discharge, whereas 18.2% of patients in the control group did. Tuna and Çelik (2014) reported that edemas develop more in the legs in older patients in the control group after CABG surgery compared to the experimental group. The reason for this could be that control group patients have limited movements and physical activity due to kinetophobia, and that they do not give the proper position to their legs during the rest.

Although not statistically significant, it was found that patients experienced more insomnia, difficulty in falling asleep, and respiratory distress problems after discharge. While insomnia was more common in the control group, respiratory distress was more common in the discharge training group. One of these problems in the discharge training was resolved at the fourth week, except for one case of respiratory distress and three cases of insomnia. Several studies in the literature determined that the most common problems of patients after cardiac surgery were insomnia and respiratory distress (Direk & Çelik, 2012; Tuna & Çelik, 2014; Yaman & Bulut, 2010). It is thought that the frequent experience of insomnia may be attributed to the presence of severe pain and the necessity of lying on the back for one month after the surgery. Sleep disturbances seen in the postoperative period can also be associated with reasons such as surgical stress response and / or narcotic drug management, nocturia due to diuretic use, anorexia, and hypoxemia (Iskesen et al., 2009). Similar to our study, Gallagher et al. (2004) found that women who underwent CABG surgery experienced more insomnia problems after discharge. In the current study, respiratory distress was experienced more in the discharge training group patients at 10 days post-discharge. These post-operative problems may develop due to pain, wound healing problems, palpitations, immobilization, prolongation of the normal surgery, or constipation (Direk & Çelik, 2012). Lindsay et al. (2001) reported that patients experienced respiratory distress after the surgery. Furthermore, the authors recommended providing training about deep breathing and coughing exercises. The current study finding may indicate that patients were still smoking cigarette and that they felt more pain in the chest even though they

received deep breathing and coughing exercises and spirometer usage training.

Limitation of study

The present study has several limitations. Any standardized cognitive test was not applied to the participants before the intervention. Further research is needed to identify the long-term effectiveness of discharge training. Additionally, the results of this study may not be generalizable to cardiac patients in other institutions.

Conclusion

The current study findings have shown that both groups with CABG surgery experience at least one post-discharge problem and these problems gradually decrease at 30 days of post-discharge. There was a significant difference between groups in terms of kinetophobia, fatigue, and edema in legs. Although the self-efficacy scores of the discharge training group patients were higher at 30 days of post-discharge, the difference was not statistically significant.

Discharge training is a significant part of regular nursing care and is an essential nursing standard practice that significantly impacts a patient's health and quality of life. Providing discharge training to patients and their families increases their knowledge and skills. In this way, they can take responsibility for their own health and cope with the problems of the disease. In line with these findings, it is recommended to set up units in hospitals that can systematically give the discharge trainings and home care services to patients and their families. Furthermore, the study can be repeated in different institutions by increasing the patient number and follow-up duration in order to have more reliable and valid results.

Ethical aspects and conflict of interest

This study was produced from the project. The authors reported no potential conflict of interest. In order to conduct the study, legal permission was obtained from a relevant institution and ethical committee approval was also obtained from the Ordu University Clinical Research Ethical Committee. The aim of the study was explained to the participants, and their oral and written consents were obtained. Confidentiality was ensured and it was explained to patients that their information will not be used anywhere. Furthermore, it was also explained that patients can withdraw from the study whenever they want. The discharge training was not provided to usual care group patients. However, in line with the "equality principle", the training booklet was also provided to control group patients after the post-test.

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Author contributions

The concept and study design (YYA, HGU, OSO), data analysis and interpretations (YYA, HGU), processing the draft of the manuscript (YYA), critical revision of the manuscript (YYA, HGU), article finalization (YYA, HGU, OSO).

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