Short Communication

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# The Effect of Telephone Follow-up Programs after Hospital Discharge on Hope and the Quality of Life in Patients Admitted to the Coronary Care Unit (CCU)

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## ABSTRACT

**BACKGROUND AND OBJECTIVE:** Training the patients and their follow-up after discharge from coronary care units (CCU) play a significant role in their rehabilitation. This study aims to evaluate the effect of telephone follow-up programs after hospital discharge on hope and the quality of life in patients admitted to the coronary care unit (CCU) in Social Security Hospitals in Mazandaran Province, North of Iran.

**METHODS:** In this case-control study, 60 patients (30 patients in control group and 30 patients in case group) were randomly selected among patients admitted to the coronary care unit (CCU) in Social Security Hospitals in Mazandaran. Data collection was done using Hope Miller questionnaire containing 48 questions and World Health Organization Quality of Life questionnaire containing 26 questions. All patients were provided with the required training before discharge while the case group received an additional one-month telephone follow-up. Finally, the two groups were compared in terms of hope and quality of life, one month after discharge.

**FINDINGS:** At the time of discharge, the two groups were almost identical in terms of hope and quality of life. However, after one month, hope (155±33 in case group and 138±25 in control group) and quality of life (87±15 in case group and 75±11 in control group) improved significantly in case group (p=0.025 and p=0.001, respectively).

**CONCLUSION:** Results of the study demonstrated that telephone follow-up for patients discharged from CCU significantly improves their hope and quality of life. Therefore, telephone follow-up needs to be considered as an accessible and low-cost method to improve the quality of life and hope in patients with heart disease.

**KEY WORDS:** *Telephone follow-up, Hope, Quality of life, Patients with heart disease, Discharge*.

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## Introduction

Cardiovascular disease is one of the most common and most important cause of death in the world (1). 50% of cases of death are caused by cardiovascular diseases in developed countries (2). In Iran, this disease includes around 25% of all cases of death and it is considered the most common of death in Iran (3). In the present condition, improvements have been observed in the treatment of these diseases in recent years when patients and doctors cooperated. Some of these improvements were associated with disease process management and self-care (4).

Due to the negative effects of this disease on typical activities of life, patients are faced with loss of quality of life and depression and as the disease advances, they gradually refrain from following the doctor's orders and further treatment, which exacerbates the disease. Some of these behaviors are due to lack of awareness of medical recommendations or lack of proper self-care. Lack of self-care or inappropriate self-care behaviors lead to disease exacerbation, the need for re-hospitalization and increased costs (5).

Some of the most important problems of cardiovascular patients after discharge from the hospital include lack of self-care awareness, physical activity, nutrition and how to take the medicines prescribed by the doctor. Lack of awareness causes anxiety, uncertainty and emotional problems. In recent years, several studies and plans have been conducted to reduce complications and psychological problems after discharge in addition to treating patients (6). Follow-up after discharge from hospital is one of the most effective measures in this area. Educating patients and their follow-up after discharge play a key role in their rehabilitation.

The most important measures in these cases include informing the patients on disease status, causes and exacerbations, factors that cause disease recurrence, emphasis on proper and timely use of prescribed medicines after discharge, emphasis on self-care aspects, knowledge and awareness of the risk factors and timely visits for follow-up treatment (7). Training programs and telephone follow-up after discharge have been investigated in several studies. In a study by Fallah Yekkeh et al., remote nursing showed significant effects on the quality of life in patients with Atrial Fibrillation admitted to Qazvin educational and therapeutic centers (8).

Results of the study by Karbaschi et al. indicated that Dorothea Orem's Self-Care Theory has positive effects on the quality of life in patients undergoing chemotherapy (9).

Other studies also indicated the positive effects of counseling and telephone follow up in improving the quality of life in patients (10-16). The study of Chobdari et al. demonstrated that self-care education has significant effects on the quality of life in patients with acute coronary syndrome (ACS). In this study, significant increase was observed in all the three aspects of life expectancy; that is time-cognitive, emotional-behavioral and relational-underlying (17). Positive results of educating patients and telephone follow-up after discharge by the nurse significantly increased hope in patients with heart failure (6,18). Telephone follow-up is known as a proper method for information exchange, providing health training, early detection of complications, management of signs and providing quality aftercare services.

This low-cost method can be used to follow the condition of disease or the associated psychological factors after discharge. Although remote care provided by telephone follow-up is highly accessible and low-cost, it is not very common in Iran and the positive effects of telephone follow-up among patients with coronary heart disease have not been seriously investigated. Nevertheless, this method can reduce complications and enhance the patients' psychological and social condition.

Therefore, the present study aims to investigate the effect of telephone follow-up on hope and quality of life in patients admitted to the coronary care unit. These patients were admitted to the coronary care unit (CCU) in Social Security Hospitals in Mazandaran Province.

## Methods

This case-control study was conducted among 60 patients (30 patients in control group and 30 patients in case group) admitted to the coronary care unit (CCU) in Social Security Hospitals in Mazandaran (Hekmat Hospital in Sari, Valiasr Hospital in Qaemshahr, Bouali Hospital in Neka, Razi Hospital in Chaloos and

Shafa Hospital in Babolsar). Samples were selected using simple random sampling method in spring 2016. The inclusion criteria includes patient's awareness of the location and time, no history of acute or chronic mental disorder, having the ability to read (or with a companion who can read), speak and answer the phone calls. This study consists of two groups (control group and experimental group), each of which were assessed twice. For this purpose, a training booklet was handed to both groups before discharge, which included information such as date of visiting the doctor, necessary recommendations about medications and symptoms of the disease, the way and frequency of doing daily activities and diet.

In addition, patients received typical practical trainings. A pre-test (hope and quality of life questionnaire) was done for both groups before discharge. Data collection was done using Hope Miller questionnaire containing 48 questions and World Health Organization Quality of Life questionnaire containing 26 questions and 4 dimensions (physical health, mental health, social relationships and environment). Validity and reliability of these tools was achieved using Cronbach's alpha coefficient for the hope questionnaire $\alpha$=0.89 and quality of life questionnaire $\alpha$=0.78.

These figures were statistically significant. Both questionnaires were completed for all patients at the time of discharge. However, this process was repeated one month after discharge for patients in the experimental group and they were followed by phone calls by an informed nurse for one month and once a week.

Each phone call lasted about 10 minutes and some information was obtained regarding medications, disease symptoms and type of food consumed and nutrition. Patients in control group were not followed by phone calls. In statistical test, the two groups were compared at the end of the study. In addition, the ratings regarding condition of patients at discharge time and at the end of the study were compared for both groups. Patients in both groups were asked to complete a post-test (hope and quality of life questionnaire).

For data analysis, mean and standard deviation were used for descriptive statistics, and for inferential statistics, to test the research hypotheses, multivariate regression analysis (MANCOVA) and univariate analysis of covariance (ANCOVA) were used. $p<0.05$ was considered significant.

## Results

The demographic results demonstrated that most of the participants were men (51.7%). 40% were illiterate, 60% were over 65 years old, 93.3% were married and 45% were unemployed. Regarding economic status, most of them were average (56.7%). At the time of discharge, there wasn't a significant difference between the two groups in terms of hope and quality of life. At the end of the study, the rating for hope increased from 139±17 to 155±31 (p=0.022) in treatment group and reached 138±25 (p=0.025) in control group.

Quality of life reached 87±15 in treatment group and stayed fixed at 75±11 in control group (p=0.001). These results indicate that telephone follow-up increased hope and quality of life by 11.05% and 17.05%, respectively in treatment group, whereas no such change was observed in control group (table 1).

**Table 1. Comparing hope and quality of life in patients with heart disease at the time of discharge and one month after that**

| Group | | With telephone follow-up (30 patients) Mean±SD | Without telephone follow-up (30 patients) Mean±SD | P-values |
|---|---|---|---|---|
| Hope* | Time of discharge | 139±17 | 138±21 | 0.84 |
| | One month after discharge | 155±31 | 138±25 | 0.025 |
| Quality of life# | Time of discharge | 74±11 | 75±13 | 0.82 |
| | One month after discharge | 87±15 | 75±11 | 0.001 |

***Base on Miller questionnaire. #Based on quality of life questionnaire.**

## Discussion

Results of this study demonstrated that telephone follow-up after discharge enhanced hope and quality of life in patients admitted to the coronary care unit. In interpretation of these results, we can claim that telephone follow-up and self-care in cardiac patients can be used for controlling diet and nutritional or medicinal recommendations.

This will reduce dependency and the need for other people and even doctors and creates a feeling of health in them. By increasing self-esteem in patients, we can increase hope in them. Results of this study are in line with several previous studies (6, 17 and 18). Choobdari et al. demonstrated that self-care education increased hope in patients with acute coronary syndrome admitted to Valiasr hospital in Birjand (17). In a study by Zare et al., it was shown that training by cellphone increases hope in patients (18). Shojaei et al. also showed that training patients along with telephone follow-up after discharge significantly increased hope in patients with heart failure (6).

The present study also demonstrated that telephone follow-up after discharge enhances patients' quality of life. Conducting self-care programs can reinforce motivation and confidence in cardiac patients. By accepting the responsibility to take care of themselves, these patients can improve impairments and disabilities resulted from disease and use self-care abilities to fix these problems, ultimately leading to improved quality of life in these patients. Telephone follow-up is a low-cost method that can also be helpful for early diagnosis of complications and inform patients of the probable complications for appropriate treatment. Several studies have demonstrated the effect of telephone follow-up on patients' quality of life (4, 7, and 16). The results of this study have several limitations. Although the sample size is relatively small in this study, the results are highly acceptable. Nonetheless, this subject requires more studies with bigger sample sizes. In this study, no information on clinical status was collected. Therefore, we cannot claim that cardiac function has also improved along with improved quality of life and hope.

However, one can to detect early signs of heart failure using questionnaires and refer patients to hospital for cardiac evaluation. In addition, one can differentiate cardiac pain from noncardiac pain with high confidence by asking appropriate questions during phone calls. We should note that the first few months after discharge are highly sensitive for patients with coronary artery disease, since heart muscle repair and renovation of necrotic tissue occurs in this period. Patients have to start their physical activity in a way that any disruption in the blood supply of the heart muscle in avoided. Therefore, the nurse in charge has to be continuously in contact with the doctor. Although preventive treatments such as aspirin have serious gastrointestinal complications, particularly for the elderly, these medications as well as lipid-lowering drugs need to be administered, and in case of serious side effects, the doctor has to be informed. The nurse in charge should know if patients continue taking these medications and should be informed if there are complications. Overall, the results of this study showed that training and telephone follow-up for patients discharged from CCU significantly improves their hope and quality of life.

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