

ORIGINAL ARTICLE

Effect of Self Care Education with and without Telephone Follow-Up on the Level of Hope in Renal Dialysis Patients: A Single-Blind Randomized Controlled Clinical Trial

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ABSTRACT

Background: Various strategies such as teaching self care to hemodialysis patients have been employed to increase the level of their hope. This study aimed at examining the effects of a telephone follow-up program on the level of hope in a self care education program.

Methods: In this single-blind randomized controlled clinical trial, 75 hemodialysis patients, selected by convenient sampling, were randomly assigned to 3 groups (n=25 each) including a control, a self care education, or a self care education with telephone follow-up. The control group received the routine care. The self care education group received 5 instruction sessions. The telephone follow-up group had similar instructional sessions followed by telephone calls during the subsequent 2 months. Data, collected using demographic information list and Miller's hope questionnaire, were analyzed using Chi-Square, t-test, and one-way ANOVA followed by Scheffee test.

Results: There was no significant difference among the scores of hope in the three groups before the intervention (P=0.40). However, after the intervention, the level of hope in the self care education group and self care education plus telephone follow-up groups were significantly higher than that of the control group (P=0.001). Moreover, the level of hope in the group with self care education plus telephone follow-up was significantly (P=0.001) more than that of the self care education group.

Conclusion: Our findings indicated that teaching followed by telephone follow-up was associated with higher levels of hope. Therefore, such a strategy may be employed to improve the quality of life of patients with renal dialysis.

Trial Registration Number: IRCT2014042617440N1

KEYWORDS: Follow-up studies; Hope; Renal dialysis; Self care; Telephone

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INTRODUCTION

Hope, as an internal source, has a relationship with the future expectations and purposes, and affects a person's behaviors. It is one of the psychological aspects related to issues such as self care, compatibility with the disease, and health positive behaviors.¹ According to Miller's theory concerning the compatibility with the chronic disease, there is a relationship between hope, health and recovery.^{2,3} Miller also argues that there is a relationship among immobility and weakness, loss of self-esteem, and frustration. Such a relationship leads to disregarding the signs of improvement, and despair and disappointment.² The promotion of personal control and understanding of the disease can increase hope and self care in patients.^{2,4} Moreover, it has been shown that teaching, nursing, counseling, joking with patients, helping patients to achieve maximum activity, encouraging the use of socialization and relaxation techniques, improving the patients' spirituality and relationships with their family, friends and relatives, and inculcating a feeling of connectedness to a greater source are effective in increasing the patients' hope.^{2,3}

It has been shown that patients discharged from hospitals suffered from several problems, including daily activity problems, uncertainty, anxiety, emotional problems, and lack of knowledge about their medicines and diet.⁵ Various strategies including teaching and telephone follow-up have been employed to alleviate uncertainty, anxiety, emotional problems, and lack of knowledge about their medicines and diet, and increase hope in patients. It has been shown that teaching alone^{1,6-9} or teaching with telephone follow-up¹⁰ were associated with increased hope in patients with chronic diseases such as heart failure.¹¹

Chronic renal failure is an untreatable disease, and due to reduced physical abilities and changes in social roles and functions, the patients feel frustrated.^{7,8} Although different from one country to another, the global prevalence of chronic kidney failure

is 242 in a million with an annual increase of 8%.^{12,13} Such patients are largely managed using kidney transplantation, peritoneal dialysis, or hemodialysis.^{10,12,14} According to Iran's Specific Disease Center Society for the Protection of Renal Patients, more than 24000 chronic renal failure patients existed in Iran by the end of 2008.^{15,16} The same center^{15,16} cites an annual increase of 15% for the disease in the country. Moreover, the report indicates that 48.3% of the patients with chronic renal failure are managed using hemodialysis. In addition to physical inabilities, patients undergoing hemodialysis face various mental stresses including anxiety, depression, isolation, denial of disease, delusions, and hallucinations.^{16,17}

To the best of our knowledge, there is no published study comparing the effectiveness of teaching alone and teaching with telephone follow-up of the level of hope in patients undergoing hemodialysis. Therefore, the present study was designed to compare these two strategies on the level of hope in hemodialysis patients referring to Hemodialysis Ward, Motahari Hospital, Jahrom University of Medical Sciences, Jahrom, Iran.

MATERIALS AND METHODS

Ethical Considerations

The protocol of the study (CT-9370-7040) was reviewed and approved by the Ethics Committee, Shiraz University of Medical Sciences. The study objectives and protocols were explained for the participants. They were assured of the confidentiality of the collected information, and freedom to withdraw from the study at any time during the study. Informed consents were obtained from all participants.

Participants

This is a single-blind randomized controlled clinical trial recruiting 75 hemodialysis patients who referred to Dialysis Ward, Motahhari Hospital, Jahrom University

of Medical Sciences, Jahrom, Iran. The study was conducted from October 2013 to March 2014. The study sample size was determined based on a previous study (18), using type one error of 0.05 ($\alpha=0.05$), type two error of 0.01 ($\beta=0.01$), and a power of %99.

Eligible patients were selected through convenient sampling using inclusion and exclusion criteria. Inclusion criteria were the age range of 18 to 65 years, primary education (at least) with acceptable understanding of Persian language, final stage renal disease, undergoing hemodialysis for 2-3 times a week for three to four hours during previous 6 months, no renal transplantation or immigration during the study, no formal training related to hemodialysis, and no cognitive and psychological disorders. Exclusion criteria included a history of serious or adverse experiences in the last six months, treatment with antidepressant medications, hospitalization due to acute disease, and

unwillingness to participate or to continue with the study. The study was divided into 25 blocks, each one consisting of one patient from the control, one from the self care education, and one self care education plus telephone follow-up group. The patients were randomly assigned to each block. While maintaining random allocation, this type of block randomization assured the equality of sample size in each group (Figure 1).

Inventories

Three inventories including a demographic questionnaire, a questionnaire on the hemodialysis patients' needs assessment, and Miller's questionnaire of hope were used. The demographic questionnaires were costume-designed, and included questions regarding the age, sex, marital status, education level, employment as well as the duration of treatment with hemodialysis and frequency of weekly hemodialysis. Two needs assessment

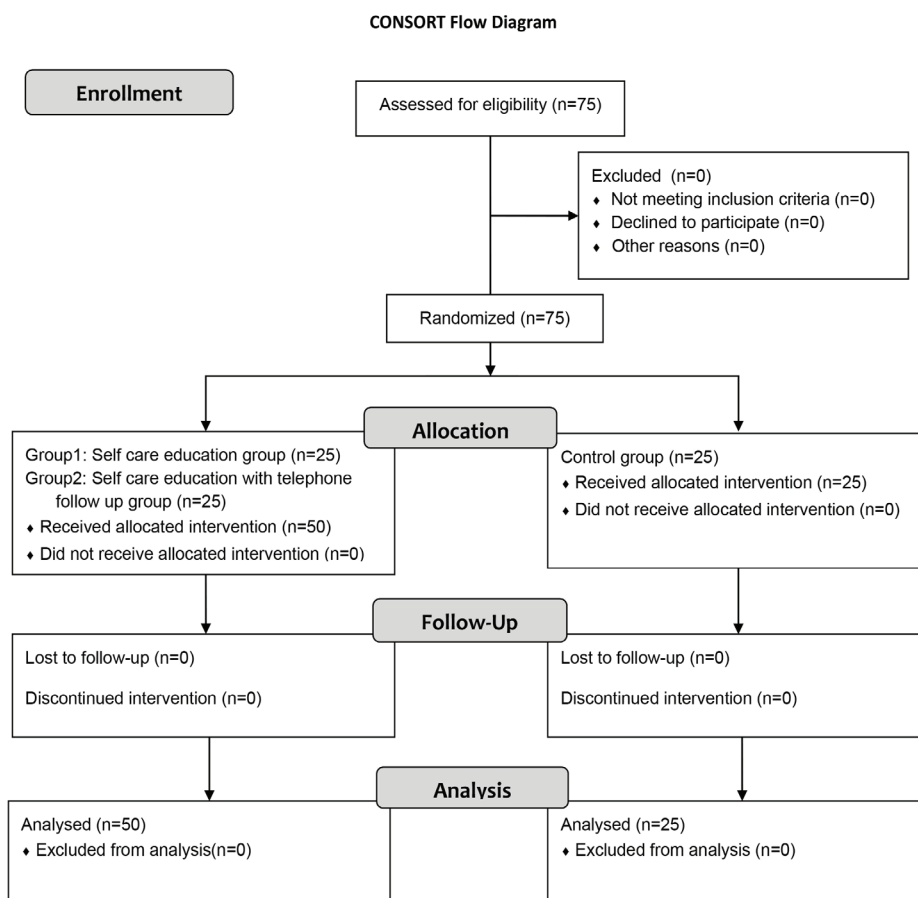


Figure 1: Design and protocol of the study

forms, one for those who were treated with hemodialysis for 3 months to less than a year, and one for those treated with hemodialysis for more than a year, were used. The forms were downloaded from www.lifeoptions.org and used to identify the areas of patients' problem for self care instruction materials, and highlight their educational needs in ten different areas including medical condition, relationship with family and friends, problems associated with work, school and insurance, eating, future, feelings, responsibilities, lifestyle, daily activities, and relationship with the staff. Miller questionnaire consists of 48 statements; the respondent answers them based on Likert Scale, which varies from strongly disagree=1, disagree=2, undecided=3, agree=4 to strongly agree=5. The range of the scores achieved by the questionnaire varies from 48 to 240. Therefore, based on the score achieved, the participant is considered as really distressed and maximal hopeless if he/she gets the score 48, and is considered as maximal hopeful if he/she get the score 240.¹⁸ Validity and reliability of the questionnaire had been examined in a study to assess hope in an Iranian population. The face validity of the questionnaire was assured by forward translation of English version of the questionnaire, backward translation and expert discussion. The questionnaire was then administered to 10 healthy individuals, and their opinions were solicited. The study reported a Cronbach's alpha of 0.81, which indicates a relatively high validity of the questionnaire.¹⁹

Study Protocol

Prior to the study, a number of patients were asked to fill in the above-mentioned needs assessment forms. Moreover, nephrologists and nursing staff at the Hemodialysis Ward as well as the hospital nutrition experts and relatives of hemodialysis patients were interviewed with regards to the patients' needs. The information collected from these sources was used to design a single general educational package for all patients participating in the study.

Prior to the intervention, the participants were asked to fill in Miller's and demographic questionnaires in the hemodialysis ward. Afterwards, the patients in the control group received only routine care offered in the hospital. In the self care education and self care education plus telephone follow up groups, the patients received 5 consecutive one-hour instructions about the disease process and its symptoms as well as the importance of hemodialysis, diet, fluid restriction, daily body weight control, physical activity, smoking cessation, stress management, muscular relaxation, and monitoring the vital signs. Each patient in these groups was given a copy of an instruction booklet comprising a summary of material taught in the 5 instructional sessions. Each patient in self care education plus telephone follow-up group received 3 telephone calls per week¹¹ for the next two months following the instructions. Telephone call schedule was given in writing to each patient after the fifth session of instruction. The duration of each call was 20 minutes, which could also vary according to the patients' needs. The content of telephone conversations included issues, which had been taught in the five instructional sessions and had been mentioned in the booklet as well as answers to the patients' questions. In addition, the patients were told that they could call the investigator any time for their ad hoc questions. All the follow-up calls were made by the investigator or his assistant. On day 56 after the study, the participants were asked to complete the Miller's questionnaire of hope in the hemodialysis ward.

Statistical Analysis

The data collected in the demographic questionnaire and Miller's questionnaire of hope were analyzed using SPSS software, version 16. Frequency data were analyzed using Chi-square. Hope scores were first examined for the normality of distribution using one-sample Kolmogorov-Smirnov test, and as normality of their distribution was assured, they were analyzed by paired t, and

one-way Analysis of Variance (ANOVA) tests. In case a significant difference was found through ANOVA, post hoc comparisons were performed using Scheffee test. A P value of ≤ 0.05 was considered statistically significant.

RESULTS

Chi-Square test showed that there was no significant difference between the participants of the control, self care education, and self care education with telephone follow-up in terms of gender, marital status, employment, education, weekly hemodialysis frequency, or income (Table 1).

One-way Analysis of Variance showed that there was no significant difference ($P=0.319$) between the age of the control (49.40 ± 6.04 years), self care education (50.92 ± 6.46 years), and self care education plus telephone follow-up (47.84 ± 8.65 years) groups. Moreover, there was no significant difference ($P=0.857$) between the family population of the control (6.32 ± 1.51 people), self care education (6.48 ± 1.47 people), and self care education plus telephone follow-up (6.24 ± 1.66 people) groups. Also, there was no significant difference ($P=0.604$) between the hemodylisis duration (in month) of the

control (20.48 ± 10.37), self care education (22.88 ± 11.54), and self care education plus telephone follow-up (19.76 ± 12.37) groups.

Paired t-test showed that there was no significant difference between the hope scores before and after the intervention in the control group (Table 2). However, the hope scores after the intervention in the self care education and self care education with telephone follow-up groups were significantly higher than those before the intervention (Table 2).

Between-group comparison using One-way Analysis of Variance followed by Scheffee test showed that there was no significant ($P=0.80$) difference between the hope score before the intervention in the control, self care education and self care with telephone follow-up groups ($P=0.80$) (Table 2). The hope scores after the intervention in the self care education and self care education with telephone follow-up groups were significantly higher than those of the control group. Moreover, the score after intervention in the self care education with telephone follow-up group was significantly higher than that of the self care education group (Table 2).

DISCUSSION

Our findings showed that 5 self care education

Table 1: Demographic characteristics of renal hemodialysis patients from control, self care education, and self care education with telephone follow-up groups

Variables	Characteriscs	Control	Self care education	Self care education with telephone follow-up	P value
Sex	Female	10 (40%)	14 (56%)	10 (40%)	0.42
	Male	15 (60%)	11 (44%)	15 (60%)	
Marital status	Single	4 (16%)	7 (28%)	9 (36%)	0.27
	Married	21 (84%)	18 (72%)	16 (64%)	
Employment	Yes	14 (56%)	10 (40%)	14 (56%)	0.42
	No	11 (44%)	15 (60%)	11 (44%)	
Education level	Primary	1 (4%)	1 (4%)	3 (12%)	0.63
	Junior high school	9 (36%)	9 (36%)	5 (20%)	
	High school diploma	12 (48%)	14 (56%)	15 (60%)	
	Academic	3 (12%)	1 (4%)	2 (8%)	
Weekly hemodialysis frequency	Twice	7 (28%)	11 (44%)	5 (20%)	0.17
	Three times	18 (72%)	14 (56%)	20 (80%)	
Income level	Low	5 (20%)	9 (36%)	9 (36%)	0.32
	Average	18 (72%)	11 (44%)	13 (52%)	
	Good	2 (8%)	5 (20%)	3 (12%)	

Table 2: The hope scores before and after the intervention (mean±SD) in the control, self care education and self care education with telephone follow-up groups

	Control	Self care education	Self care with telephone follow-up
Before intervention	95.92±12.63	97.24±11.16	98.16±11.85
After intervention	91.16±11.06	170.96±7.99*.**	187.0±11.46*.**.***

* Indicates a significant difference from the control group after the intervention; ** Indicates a significant difference from the self care education group after the intervention; ***Indicates a significant difference before the intervention in the same group

sessions improved the mean scores of hope compared to the control group. The findings of the present study are in agreement with the those of Tsai and colleagues indicating that a training program reduced depression in the experimental group.²⁰ In the study of Kargar Jahromi and co-workers, self care training was effective in reducing depression scores, and there was a significant difference between the experimental and control groups.¹⁶ Bandora's self-efficacy theory is based on the assumption that individuals' judgments about their ability make them use self care behaviors in order to achieve the desired results. Such a judgment is a real bridge between knowledge and self care behavior. Increasing self care knowledge leads to increased acceptance of self care behaviors as well as reduced physical and psychological symptoms in the patients.¹⁹ Moreover, Tsai reported that there was a positive relationship between the responsibility for self care and quality of life, and there was a direct relationship between responsibility in self care and emotional as well as psychological states in hemodialysis patients.²⁰ Wang and colleagues conducted a study on patients waiting for heart transplantation and showed that there was a significant relationship between hope and self care. That is, individuals with higher levels of hope had better and more effective self care abilities and vice versa.²¹ In the present study, individuals with higher mean scores of hope were those who received self care education. It has been shown that hopelessness in patients leads to decreased appetite, loss of weight, reduction of adaptability of positive behaviors such as refusal of dietary medicine, learning reduction, anxiety, and inabilities.²² Thus, hope and self care are important factors influencing the outcomes of self care in chronic diseases.

In a study conducted by Poorgholami and colleagues,²³ the intensity of depression was more in the group that had received less training.

The findings show that the mean score of hope in self care education with telephone follow-up was better than that of the control and self care education groups. Such findings indicate that self care education and telephone follow-up promote knowledge and awareness. By applying self care behavior and more adaptability, the patients' physical and psychological problems are reduced. This, in turn, leads to an increase in the mean scores of hope in the patients of the trained group. Consistent with the study conducted by Shojaee and colleagues,¹¹ the present study showed that the mean scores of hope in all three groups had no significant differences before the educational intervention. They showed that there was a significant relationship between the control group and telephone follow-up, self care education with telephone follow-up, and self care education groups,¹¹ while in the present study, there was a significant difference between self care education and control groups, self care education with telephone follow-up and control groups, and self care education, and self care education with telephone follow-up groups. The reason for this difference may be the longer duration of self care education in our study. In Shojaee and colleagues' study, the patients underwent a one-hour session of training, while in our study the patients received 5 one-hour sessions of training. Moreover, in Shojaee and co-workers' study, the training and telephone follow-up focused solely on the patients' physical and cardiac problems, and less attention was given to psychological training. However, in the present

study, muscular relaxation techniques, stress management, focus on physical problems, and reduction of patients' psychological problems were taken into account. The study of Gallagher and colleagues showed that telephone training had no effect on the socio-psychological adaptability scores, anxiety, and depression.²⁴ The ineffectiveness of interventions was attributed to the random choice of the samples only among the females, withdrawal from the counseling following the referral for the complications of cardiac disease, early measurement of intervention results, and low intensity and short duration of telephone consultations.²⁴

Since hemodialysis patients faced frequent complications of hemodialysis such as limitation of fluid intake, change in lifestyle, hopelessness, and depression, we attempted to reduce disappointment by telephone follow-up. The findings of our study are consistent with those of Welch and colleagues' study, which examined the use of cell telephone to control and manage the liquid intake and diet in patients undergoing hemodialysis in Indianapolis, US.²⁵ The study showed that cell telephone and other electronic devices to train and follow-up hemodialysis patients had positive effects.²⁵ Chow and colleagues conducted a study to determine the effects of management plan through telephone follow-up by the nurses on improvement of quality of life in hemodialysis patients in Hong Kong.²⁶ The results indicated the usefulness of telephone follow-up program on the quality of life in patients with chronic renal failure. In line with our study, they showed that telephone follow-up had a positive effect on the quality of life, and patients with better quality of life enjoyed higher levels of hope.

Our findings have to be interpreted in the light of a number of limitations. First, the motivation to learn and apply instructional self care materials by individual patients was affected by their previous awareness and experience necessitating more attention to those with less previous knowledge and information about the disease. Moreover, the

chronic and debilitating nature of the disease had a very negative impact on the patients' motivation to learn. This required serious attention and follow-up on the part of the investigators to maintain the good mood of the patients to seriously learn and apply the discussed materials.

CONCLUSION

The findings of the present study indicated that structured telephone follow-up increases hope in patients undergoing renal dialysis. It was also shown that supports and follow-ups after discharge are the main factors in promoting hope. Our findings may suggest that telephone follow-up may be used in routine care for dialysis patients to increase their hope and quality of life.

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