ORIGINAL ARTICLE

Bali Medical Journal (*Bali Med J*) 2017, Volume 6, Number 3: 684-689
P-ISSN.2089-1180, E-ISSN.2302-2914

Published by DiscoverSys

The effect of self-care on patients undergoing Hemodialysis in the Sanandaj Hospitals affiliated to Kurdistan University of Medical Sciences in 2016

Foad Rahimi,[1] Fatemeh Oskouie,[2] Omid Naser,[3] Mashalla Etemadi Sanandji,[4] Alireza Gharib[5]

ABSTRACT

Introduction: Self-care program makes it easy to cope with chronic conditions such as advanced renal diseases. So this study has done in order to evaluate effect of self care on patients undergoing hemodialysis .

Methods: This research is a Quasi experimental study conducted in the Sanandaj Hospitals affiliated to Kurdistan University of Medical Sciences in 2016. 60 patients were selected based on inclusion criteria and non-random purposive sampling in two intervention and control groups (each group 30 people). The 3-part questionnaire was used to collect data. The first part included demographic data , second part consisted of questions about training needs, and the third section consists of questions to assess the self-care of the studied samples. Data analyzed using SPSS version 16, descriptive and inferential statistics.

Results: Results showed that Patient's age ranges were between 25 to 70 years. Mean duration of hemodialysis in the intervention and control groups was 6.14 and 6.59 years respectively. in terms of training needs before the experiment, both groups are the same (P= 63.2). the results show that self-care score before intervention (P=0.618) is the same in both groups. After the intervention, there is the difference in self-care between the two groups, but this difference was not statistically significant (P=0.312).

Conclusion: Assessment of Self-care needs in patients undergoing hemodialysis needs education programs. These patients dependence brings about some compatibility issues which could be addressed rightfully leading to improvement of their self-care activities.

Keywords: self-care, Hemodialysis, patient

Cite This Article: Rahimi, F., Oskouie, F., Naser, O., Sanandji, M.E., Gharib, A. 2017. The effect of self-care on patients undergoing Hemodialysis in the Sanandaj Hospitals affiliated to Kurdistan University of Medical Sciences in 2016. *Bali Medical Journal* 6(3): 684-689. DOI:10.15562/bmj.v6i3.707

[1]Ph.D. Student, School of Nursing and Midwifery, International Campus, Iran University of Medical Sciences, Tehran, Iran. E-mail: foadrahimi63@yahoo.com
[2]Center for Nursing Care Research and School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran
[3]School of Nursing and Midwifery, Iran University of Medical Sciences, Sanandaj, Iran
[4]School of Nursing and Midwifery, Iran University of Medical Sciences, Sanandaj, Iran
[5]Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran

*Correspondence to: Foad Rahimi, School of Nursing and Midwifery ,International Campus, Iran University of Medical Sciences, Tehran, Iran.
foadrahimi63@yahoo.com

Received: 2017-06-26
Accepted: 2017-08-28
Published: 2017-09-1

INTRODUCTION

Today, chronic diseases create a great challenge for public health. As a chronic disease, kidney failure occurs when 90% of kidney function is lost.[1] Treatment methods include long-term dialysis or kidney transplantation.[2] Prevalence of chronic renal failure worldwide is 253 cases per one million populations with an approximate 9% annual increase.[3,4] Currently, the most common treatment is hemodialysis which performs worldwide.[5] Almost a million people in the world are undergoing hemodialysis,[6] including more than 250,000 patients in the United State of America.[7] According to statistics in 2009, 17,400 patients were under treatment in 422 dialysis units in Iran.[8]

Hemodialysis patients experience multiple problems. Their major problems include sleep disorder, peripheral neuropathy, infection, stress, depression, anxiety, renal osteodystrophy, cognitive changes, anemia, acute pulmonary edema, pallor, scratches, discoloration, and loss of strength and fragility of the skin.[9] thus self-care and self-efficacy are the basic concepts which require attention in these groups of patients.[9,10] This means confidence in one's ability to perform self-care behaviors in certain situations[11] and refers to perceptions of skills and abilities in the successful completion of an appropriate function.[12] People who have strong self-care, believe that they can effectively handle and control events in their lives. This understanding and belief give a different perspective from those who are poor in self-care since this feeling has a direct impact on their behavior. Efficacy may be a crucial factor in success and failure throughout life.[13] People with higher levels of self-care are better able to control their condition.[14] Self-care is closely related to the concept of self-efficacy and is a process that requires the individual progress towards independence and ability to perform activities of daily life as much as possible.[15] People with chronic illness including hemodialysis may not be able to fulfill their treatment regimens as required; they may forget their appointment with the doctor and not be able to perform activities of daily living.[14] Hemodialysis patients should practice health care based on their needs.[16] Given the critical role of nurses in the rehabilitation of patients with physical and mental disabilities, they can improve patients' ability to perform daily activities and decrease

their socioeconomic and psychological problems.[17] Nurses have compensatory roles in providing these needs,[18] therefore Orem's theory of self-care is one of the most comprehensive theories[19] which could be used for care providers to assess the ability of self-care in patients.[20] Many health care organizations consider self-care promotion as a strategy to reduce high costs of medical services.[21] By working for someone else, nurses provide physical, psychological, and educational support and play an important role in the implementation of a care plan.[18] Patient education and support increase self-efficacy, improve outcomes and reduce inappropriate hospitalizations.[22] Ability to self-motivate patients undergoing hemodialysis and planning based on this potential is of utmost importance. Given that patients undergoing hemodialysis should be tied to specific devices or techniques to protect their life and have many concerns about their care and have doubts about the ability to perform daily activities in leading their normal lives, the researcher decided to conduct a study aimed at the effect of self-care on patients undergoing hemodialysis.

METHODS

This study was a quasi-experimental study to determine the influence of self-care on patients undergoing hemodialysis. 60 patients were selected based on inclusion criteria and non-random purposive sampling and divided into two groups, i.e., intervention and control groups (each group 30 people). In this study, we considered 30 samples in each group with a total of 60 samples (with a test power of 85% and confidence of 94%).

A 3-part questionnaire was used to collect data. The first part included demographic data (age, sex, marital status, religion, duration of chronic kidney disease, duration of hemodialysis, a family history of kidney disease, average cost of treatment per month, types of insurance, presence of other diseases, education, occupation before the disease, current employment status, and monthly income). The second part consisted of 20 questions about training needs. This section of the questionnaire was completed by the researcher based on the problems of patients undergoing hemodialysis. In this section, the subjects were asked to answer "YES" or "NO" in the case of the presence or absence of the problem. The question was about patients' need for education and support for controlling the problem. Grading was based on Likert scale (high, average, low, and never) which was divided out between 4 to 1. The highest score was 85, and the lowest score was zero. Educational dependency scored as follows; 0-36 independent, 37-54 semi independent, 64-85 dependent. The third section consists of 15 questions to assess the self care of the studied samples such as care of the fistula, movement, clothing, bathing, individual health, nutrition, diet, fluids, medication regimen, sleep and rest, compatibility with problems after dialysis, anxiety management, and hopeful for the future, communication with medical and nursing staff of hemodialysis ward, family relationships, and social activities. This part of the questionnaire was self-made questionnaire made by the researcher and approved by professors in the faculty of nursing and midwifery. The answer to each question was based on Likert scale scored from one to four. Each person would be able to gain a level of self-care from a minimum of 15 and a maximum of 60 points. The class was divided into three levels of self-care (15-30 was scored as dependent, 31-45: was half-dependent and 46-60 was independent).

To obtain scientific validity and reliability of the questionnaire, content validity and Cronbach's alpha coefficient was used. The reliability of the training needs assessment and self-care were 0.85% and 0.87%, respectively. Informed consent was obtained from the samples.

The questionnaires were completed by the patient and under the strict supervision of the researcher through the interview. After completing the questionnaire, educational needs of patients and their problems were determined. After pre-testing, Orem's self-care program based on the model was conducted in three phases for the intervention group; (1) Self-care needs assessment in the study subjects, (2) Intervention in the areas of physical, psychological and social of the self-care needs, (3) Patients follow up for 40 days after the intervention.

Data were analyzed using the SPSS software for windows (version 16). Comparisons between categorical variables were made using the Fisher's exact or Chi-square tests. Student's *t*-test and Mann–Whitney tests were used for comparison of parametric and nonparametric data, respectively. Statistical significance was defined at the 95% level ($P < 0.05$).

RESULTS

From the 60 studied patients, 30 were in the intervention group, and 30 were in the control group. Patient's age ranges were between 25 to 70 years, and the average age at intervention and control groups were 39.46 and 44.65 years, respectively. Six patients (0.60% of the samples) in both intervention and control groups were women. In both groups, 23 patients (76.7%) were married, and seven patients (23.3%) were single. Mean

Table 1 Absolute and relative frequency distribution of demographic characteristics in both intervention and control groups

Parameter Mean		Intervention		Control		
		Standard Deviation	Mean	Mean	Standard Deviation	T-test results
Age		39.46	8.78	44.65	9.56	p = 0.517
Duration of chronic kidney disease		8.49	4.69	8.86	4.48	p = 0.6
Duration of hemodialysis		6.14	5.64	6.59	5.65	p = 0.645
Variable		**Frequency**	**%**	**Frequency**	**%**	**Chi-square test**
Sex	Male	25	75	29	88	P=515
	Female	5	25	1	12	
Marital Status	Married	23	76.7	23	76.7	P=591
	Single	7	23.3	7	23.3	
Family history of kidney failure	Yes	8	26.7	6	20	p = 0.617
	No	22	73.3	24	80	

Table 2 Absolute and relative frequency of participants in terms of training needs in both intervention and control groups before and after intervention

Training Needs Assessment before and after intervention	Intervention		Control	
	Before	After	Before	After
Independent, %	64	97	62	83
Semi dependent, %	36	3	38	17
Total, %	100	100	100	100

P.Value = 0.05

duration of chronic kidney disease in the intervention and control group were 8.49 and 8.86 years, respectively. Mean duration of hemodialysis in the intervention and control groups was 6.14 and 6.59 years, respectively. In both groups, the majority of people were without a family history of kidney failure. The rate in the intervention group was 22 patients (73.3%), and in the control group, it was 24 patients (0.80%). Lack of underlying disease was the most frequent distribution based on the distribution of the underlying diseases. In the intervention group it was 0.48%, and for the control group, it was 75.3%. In both intervention and control groups, it was related to the primary and secondary education. These amounts in the intervention and control groups were 15 (0.50%) and 14 patients (46.7%) respectively. The average monthly incomes in the intervention and control groups were 471.5 and 442.2 thousand Tomans (Iranian currency), (Table 1). No significant differences were found between the two groups in terms of the above-mentioned variables.

Findings related to the educational needs of patients treated with hemodialysis before and after intervention in both groups are shown in (Table 2). As can be seen, in terms of training needs before the experiment both groups are the same (p = 53.3). As can be seen in this table after intervention 97% in the intervention group had independent status and 83% in the control group had the same situation, showing a statistically significant difference (p = 0.05). Findings related to the self-care of hemodialysis patients before and after the intervention and their difference between the two groups is shown. The results show that self-care score before intervention (p = 0.548) is the same in both groups. After the intervention, there is the difference in self-care between the two groups, but this difference was not statistically significant.

DISCUSSION

Today, chronic diseases are the biggest challenge facing health of the community. They are responsible for over 75% of the deaths.[23] One of these chronic diseases is a chronic renal failure. Due to numerous and complex drug therapies, hemodialysis patients have various problems and radical changes in their lifestyle which could have an impact on their social and psychological performance. Where as hemodialysis is a long-term trend, these patients require the use of some strategies to cope better with the disease. Treatment without the patient's participation and doing some self-care activities cannot be effective enough in achieving the desired results.[24] Given the critical role of nurses in the promotion

Published by DiscoverSys | *Bali Med J* 2017; 6(3): 684-689 | doi: 10.15562/bmj.v6i3.707

of self-care of the patients with physical and mental disabilities, they are able to enhance the ability of the patients to perform their daily activities and reduce their psychosocial and mental problems.[25]

The aim of this study was to determine the effect of self-care on patients undergoing hemodialysis. In the current study, 64% of patients in the intervention group and 62% in the control group were independent before the intervention. After the intervention, 97 % and 83% were independent in the intervention and control groups, respectively. In this study, there was a significant difference in the scores of self-care of hemodialysis patients ($p < 0.05$).[17] In the current study, self-care score of patients in both groups before the intervention was equal (P = 0.77). In a study done by Jaarsma (1999) to determine the effect of education and support on the ability to care for patients with chronic diseases results showed that at baseline, there was no significant difference in the ability to care for patients ($p = 0.2$).[26] In a study done by Unsar et al. (2005) to evaluate and determine factors affecting self-care in patients undergoing hemodialysis and peritoneal dialysis, mean score for patient care was 43.112 ± 35.18, and there was no significant difference in the groups ($p < 0.05$).[27] In this study, the results of Mann-Whitney test showed that after training, there was a significant difference between self-care of both groups (P =0.05). The reason for this significant difference could be the implementation of Orem self-care model on patients undergoing hemodialysis. Therefore it can be concluded that after the implementation of the model of care the situation improves. Thus the patient education has been successful.

In the study conducted by Jaarsma, the patients in both intervention and control groups had higher rates of self-care behaviors compared with the beginning of the study ($p < 0.001$).[26] Education is a useful tool in raising awareness of the patients. Studies have shown that lack of awareness and inadequate knowledge about their care in terms of diet, fluid intake and vascular care cause various problems and ultimately lead to various complications and mortality.[28] There are several models of patient education, due to problems in these patients. Patient education should involve the active and informed participation of patients. Hence face to face education and family education can bring patients to independence and help them achieve ongoing care.

The results of a study done by Nagy et al (2010) regarding the evaluation of the application of Orem self-care model to evaluate the impact of patients with heart failure showed that there was a significant difference compared with the control group in the ability to care for patients in the intervention group ($p < 0.001$). In addition, recovery of the patients in the intervention group was better than the control group ($p < 0.001$).[29] In the present study after the self-care educational program, mean levels of self-care were enhanced but this increase.

Better effects require a multifaceted training program. Physical activity and social support are essential to next overall changes in the lifestyle.[25] Since the arrival of the patient to hemodialysis, patients should be under the supervision of a team of nurses, psychologist, social worker, and dietitians. In this study, other variables that directly or indirectly affect the level of efficacy in patients undergoing hemodialysis were not evaluated. Among these variables are laboratory parameters such as urea, creatinine, potassium, phosphorus, and calcium which are among important indicators of patient care principles and are a result of the factors affecting the level of self-care.

The results of this study showed that there is the difference between self-care scores of subjects after training but this difference was not statistically significant. This issue can be justified in this way that in the study population, patients were dialyzed 10 hours a week at most, whereas in other countries they were dialyzed for 18-20 hours a week. Inadequate dialysis has a great effect on anxiety, stress, fatigue, and absence of significant changes in the patient's level of self-care. The results of the study done by Song et al. (1999) to determine the relationship between self-efficacy and self-care in patients under hemodialysis the mean score of self-efficacy in these patients was 2.722. There is a positive correlation between self-efficacy and self-care ($p = 0.000$).[24]

In this study, the results of the independent t-test and chi-square test showed that there is no statistically significant difference in both intervention and control groups in terms of age, sex, education, and the need for self-care education. In other words, both groups were matched. Age, gender, and education affect on the need for self-care education. In terms of gender, a different social status, having a decisive role in the family and the need to teach self-management and leadership can influence the scores. Self-care decreases with increasing age of the individual. With increasing education learning would be easier and individual interest is greater in the preservation and promotion of health. Another study to determine knowledge, attitude and practice of hemodialysis patients showed that there was a significant correlation between variables of knowledge and attitude of participants on self-care ($p < 0.01$).[30] Besides, there was a significant correlation between age, the number of children,

the number of dialysis per week, education and monthly income of patients. There was a significant relationship between patient education and their self-care performance. Findings of the study of Baraz et al (2012) to determine the effect of education on the quality of life and physical problems in patients undergoing hemodialysis showed a significant decrease in the several indices, i.e. high levels of urea, uric acid, creatinine, phosphorus, potassium, weight gain between dialysis sessions, systolic and diastolic blood pressure, edema, itching, local vascular complications and improving quality of life.[31] Studies of Narimani et al (2009) to determine the effect of education on the quality of life of hemodialysis patients in Maragheh Hemodialysis center showed significant improvement in general level of care (p = 0.04), physical function (p < 0.001), energy level (p = 0.01), mental health (p = 0.002) and general perception of health (p < 0.001).[32] The results of the study of Tsay et al. (2003) aimed to evaluate the efficacy of the fluid adherence in hemodialysis patients showed that 33-50% of patients do not follow a diet fluid restriction. After intervention and education to increase self-care by increasing adherence to the medication, it showed an improvement in health and reduction in mental and physical symptoms associated behaviors.[33]

Limitations of this study include different individual and physiological responses in the answer sheet and reduced accuracy of responding due to the high number of inquiries in the questionnaire. Based on the findings of this study we recommend investigation on the other fields related to chronic diseases such as diabetes, heart failure, and respiratory diseases, as well as checking self-care program design and its effect on the self-efficacy of patients.

CONCLUSIONS

Assessment of self-care needs in patients undergoing hemodialysis needs education programs. These patients dependence brings about some compatibility issues which could be addressed rightfully leading to improvement of their self-care activities.

ACKNOWLEDGMENTS

Authors would like to thank and appreciate all those who assisted in this research.

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