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## Prioritization of the hemodialysis patients' preferences in acquisition of health information: A strategy for patient education

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### ABSTRACT

Full training according to the information needs of patients reduces health care costs and increases the quality of care. The present study was conducted aims to prioritize the preferences of hemodialysis patients in acquisition of health information to be able to provide training according to these preferences and their prioritization after achieving them. This study was a descriptive cross-sectional one which was conducted on all hemodialysis patients who visited Kowsar Hospital in Semnan within the year 2014-2015. Data collecting tool was researcher-made questionnaire which assessed physical information needs of patients in four areas of nutrition, energy, pain and discomfort, sleep and rest. Data were analyzed by SPSS software version 16 using the descriptive statistics. 71 hemodialysis patients participated in this study. 68.6%, 50.7%, 42.6% and 46.7% of patients expressed acquisition information regarding hematopoietic foods, how to increase mobility, how to relieve itching during dialysis and mental activities before sleep as their first priorities, respectively. The results of this study showed that hemodialysis patients need to know what kinds of information in the field of physical problems. To facilitate adaptation and self-care of patients, providing information and training based on the real needs of patients will be helpful.

**Keywords:** patient preferences, hemodialysis, health information, training.

### INTRODUCTION

Information has an important role in increasing awareness and knowledge of people. People need information to improve their health and sustainability. Access to information and its dissemination is important and necessary for the planning of health and social cares [1]. The rapid increase in the volume of information and science specialization is difficult user access to the right information [2]. In the past, the primary sources which people search for information in them related to health had been the private communications [3]. People consulted with health care professionals regarding diseases, symptoms and their treatments and received real information. Family members, friends, neighbors or colleagues were the conventional sources of information that most of people had often referred to them for social and emotional supports [2].

In the hierarchy of human needs, information need has a very special place [4]. Information need is defined as an attempt to express a need and find information to meet that need. On the other hand, information needs are a series of hierarchical levels which are affected by information seekers to be able to express its needs and know how to

meet them [5]. Having the required information is necessary to meet the basic and mental needs. Lack of information in this field can lead to a person's incompetence, his failure to reach the target and the crisis [4].

One of the ways to achieve information is receiving it through educational programs developed by the experts. First, the information needs of people should be identified to perform these programs successfully. Training based on information needs of the target group can increase their self-care ability [6, 7]. Educational program for special groups including patients with chronic diseases is very important [8].

Today, chronic renal disease is become a global health threat and problem. The annual cost of a kidney transplant and dialysis of a patient with chronic renal insufficiency is about 50 thousands of dollars in the developed countries and the World Health Organization [WHO] has estimated the staggering cost of 1.1 trillion dollars as the costs of dialysis patients in the recent decade [9]. Despite the considerable progresses in the medical sciences, chronic renal insufficiency associated with its complications due to that and its treatment which means long-term hemodialysis and the high cost of treatment is still one of the main health and treatment problems [10]. The problems resulted from dialysis create significant changes in patients' lives including reduced efficiency and ability to perform activities, weakness, fatigue, muscle contraction, hopelessness about the future, social isolation and reduced self-confidence. In other words, hemodialysis patients face with multiple physical, psychological and social stressors and feel insurance about their future [11]. They often lose their jobs and are in financial troubles and are always depressed and fear of death due to the chronic disease [12].

Controlling problems and improving the quality of hemodialysis patients' lives requires patient participation in care and treatment process and increasing the public awareness is essential for this work [13]. Training is an appropriate tool to increase the awareness level of patients [14]. Also, training patients leads to improve providing health care and reducing costs [15]. Full training according to the information needs of patients reduces care costs and increase care quality [16]. The aim of training is to provide a good health care, but information needs should be determined before training, if they are not determined, desired results of training will not be achieved [17]. In Klang *et al* [1999] study, it was concluded that hemodialysis patients need a persistent notification due to various medications, special diet and also in order to gain physical and mental abilities to cope with the disease [13]. In Sajadi *et al* [2008] study entitled with the evaluating the relationship between self-care and depression in patients with maintenance hemodialysis, it was resulted that training patients is an appropriate way to reduce physical and psychological complications due to treatment with hemodialysis [18]. Also, Baraz *et al* [2006] concluded that performing an educational program for the patients with maintenance hemodialysis is effective in decreasing problems of the patients in terms of laboratory indices and compliance with diet [19].

As it is shown in the studies, training hemodialysis patients has a role in decreasing patients' problems. Today, it is tried that patient be the main axis of treatment process and all treatment cares are done for him. It has caused that desires, needs and patients' desires are respected. On the other hand, treating these patients without their participation and doing some self-care activities cannot be effective enough [13]. Health personnel can also provide the required information of these patients according to their preferences and support them by a better understanding of information needs of hemodialysis people. Therefore, the question is raised that which kind of information is the priority of hemodialysis people. This prioritization of hemodialysis patients' needs can have a more effect in treatment process and improving the quality of patients' lives [knowing the information preferences of hemodialysis patients and educational programing based on that can have a more effect on treatment process and improving the quality of life and ...] and brings the patient's satisfaction from the health care services. So this study aimed to determine the information needs of hemodialysis patients to be able to provide training tailored to these needs and their prioritization after achieving them.

## MATERIALS AND METHODS

This was a cross-sectional study which was performed on all hemodialysis patients who had referred Kowsar Hospital in Semnan within 2014-2015. A questionnaire was designed in this study based on the related scientific texts at first. To evaluate the validity of measuring tool, the questionnaire was checked by experts and it was decided that certain phrases and sentences should be corrected to the statistical population have a true understanding of the concepts and questions. Also, some items were eliminated because of overlap with the other items. After making corrections in the questionnaire, test and re-test methods were used to assess the reliability. Thus, the questionnaire was given to 10 hemodialysis patients twice a week with an interval of a week. The correlation coefficient between two supervisors is obtained 0.836. It is needed to be mentioned that the staff who had worked in pilot were excluded from the statistical population. Inclusion criteria of this study included having at least 18 years of age and a history of dialysis at least for one month. The questionnaire consisted of two parts that the first part was related to demographic information included 10 questions regarding age, sex, marital status, education, occupation, history of

hemodialysis, habitat, using internet and its time. The second part was included 55 questions which assessed information needs of patients in terms of physical, psychological and social issues. Information needs of hemodialysis patients in the field of physical needs were divided into four areas of nutrition (food consumption, different groups of food and hematopoiesis), energy, alleviating pain and discomfort and sleep and rest. The questionnaire had options that patients could prioritize items according to their importance from their viewpoints using the numbers from 1 to 5. In the present study, after getting permission to collect information, moral principles such as informing patients about the objective of the study, explains that patients were empowered to participate in the study and their identity will remain confidential, the questionnaires were distributed among the statistical population in a clinical atmosphere and in the presence of the researchers. Data were analyzed using the descriptive statistical tests and Friedman test at the significance level of 0.05 by SPSS 16 software.

## RESULTS

In total, 71 hemodialysis patients participated in this study. The results showed that 76.1% of patients were over 50 years, 56.3 and 88.7% of them were male and married, respectively. 72.5%, 37.9% and 91.3% of patients were under diploma, house-wives and urban, respectively. 87.3% of patients did not use internet and 29.7% of them had a history of dialysis for more than 48 months (Table 1).

In the field of food consumption, results showed that 34.8% of patients have selected the awareness of the fluid restriction and increasing appetite as their first priorities. In regard to different groups of foods, results showed that 35.4% of patients selected the awareness of vitamins and minerals as their first priority. In the field of hematopoiesis, results showed that 68.6% of patients selected the awareness of hematopoietic foods as their first priority. The results showed that 50.7% of patients selected knowing how to relieve itching during hemodialysis as their first priority in the area of pain and discomfort. Also, 46.7% of patients selected acquisition information regarding mental activities before sleep as their first priority in the area of sleep and rest. There was a significant difference between the average of scores in each areas of information needs ( $P=0.001$ ) (Table 2). The results showed that minimum average score was obtained in the area of sleep and rest (mean: 1.973) (Chart 1).

## DISCUSSION

The results of this study showed that the need to get information in the field of fluid restriction is one of the first information priorities of 34.8% of patients. Welch and Davis [2000] said that lack of respect to water restrictions in hemodialysis patients is common [20]. Bams et al[1993] reported that 11% and 49.5% of patients had not followed the food diet and fluid diet, respectively[21]. Since the daily fluid consumption in hemodialysis patients has a great importance, in case of failure to pay attention to fluid intake they will face with fluid retention and then some problems such as overweight and edema[22]. It seems that lack of awareness and insufficient knowledge of self-care in the field of food diet and fluid intake causes various problems will be followed by different complications. So, patients should be educated regarding implementing a diet with fluid restriction to avoid its consequences.

The results showed that the need to get information regarding vitamins and minerals is the first priority of more than one third of patients. Kalantar-zadeh et al [2002] and Cho et al [2008], also found that receiving the dietary of vitamins and minerals in hemodialysis patients is not enough [22, 23]. Due to inadequate education on diet, the applied dietary restrictions by patients and frequent hospitalization in the hospital lead to change in dietary habits of patients [24], also the successful control of the complications including anemia, anorexia, fatigue and psychological symptoms is not possible without direct attention to nutritional intake of micronutrients [25], thus it seems that increasing information about the status of micronutrients can help to reduce the effects on the people.

The present study showed that more than half of patients prefer to get information regarding the hematopoietic foods. Sharifian and Delavari [2002] have known iron deficiency anemia as one of most fundamental problems of patients with chronic renal failure and estimated its prevalence as 97.6% [26]. Probably malnutrition, number of frequent dialysis and inadequate intake of hematopoietic nutrients can cause anemia, so that Kuo et al[2005] have indicated that inability of kidneys in secretion of erythropoietin and iron deficiency are the first and second causes of anemia in hemodialysis patients, respectively [27, 28]. Since several factors are effective in erythropoietin efficacy and the most important of them is enough iron reserves, so it seems that awareness of patients from food sources of iron and hematopoietic nutrients can help in reducing anemia in these patients, effectively.

Results showed that half of the statistical population needs to get information regarding how to increase mobility as their first priority. Hemodialysis patients have less physical ability and exercise capacity compared to healthy people [29]. The results of Kouidi research also showed that exercises in patients with End Stage Renal Disease [ESRD] is effective in increasing the related activities to work and is an important part of their daily lives and improve physical

performance [30]. During dialysis, muscles of the arms and legs get in troubles in regard to nutrition and blood supply and in addition inactivity for 3-4 hours is factor that causes the muscles become thin and weak, gradually. On the other hand, the lack of blood flow causes the muscles fatigue and weakness[31]. So it seems that awareness of patients from the methods of increasing mobility can reduce patients' problems and dependence on others in the activities and self-care.

Results of the present study showed that the need to get information in the field of how to relieve itching is one of the first information preferences of 42.6% of patients. Itchy skin feeling is one of the biggest problems that hemodialysis patients suffer from [32]. Itching is also reported in most studies among 41.9% to 67% of patients with advanced renal failure under hemodialysis [33-37]. Akhyani *et al*[2005], Naderi *et al*[2006] in Tehran and Yaghoobi *et al*[2002] in Ahwaz have reported the prevalence of itching as 41.9%, 51% and 58.3%, respectively [38-40]. Since the pathogenesis of pruritus in these patients has not been clear [41-43], high levels of calcium, phosphor, PTH, hypervitaminosis A, bile acids, nitric acid and secreted materials from mast cells are involved in [33, 35, 38 and 44], so that Leslie and John [2000] have mentioned electrolyte imbalances [accumulation of calcium and phosphorus in the skin] as one of the important reasons of itching [45]. It sounds that by compliance with proper diet, this problem is largely solved. As the results of this study showed a group of patients liked to have more information regarding using foods which reduce itching and prevent it.

Less than half of patients desired to get more information regarding the mental activities before sleep. Also this study showed that tendency to get information about the sleep and rest was more than the other information needs of patients. The evidences show that patients with renal disease under hemodialysis suffer from several problems such as sleep disorders with a prevalence of 20 to 80% [46, 47]. Since improving the quality of sleep in these patients has an effective role in preventing the risk factors, promoting safety and improving the social family performances [48], so it seems that awareness of patients from the mental activities before sleep can increase the quality of life of these patients.

The results showed that hemodialysis patients have prioritized different information needs. On the other hand, the results of this study show that patients are concerned about what issues from one side and are unaware of what issues from the other side.

Also results showed that most of patients were on the level of high school graduates or diploma, awareness of this fact indicates the importance of provided information on the level of education of these patients. So that information support of hemodialysis patients cause that they pass this disease with less complications and improve the quality of their lives. Also, providing information for this group of people in the community leads to feel that they are supported.

The results of this study can be useful for designers of information systems. So that in time of designing information systems for this category of the community, notifies them about the content of information system which can give relevant and useful information to the hemodialysis patients. Providing useful information by health care providers, the media and clinical information systems lead to hemodialysis patients receive social support.

#### **Limitations and the future studies**

Results of the present study should be interpreted with caution due to lack of generalizability of the study results on one hand because it has been conducted in a city. However, results were in line with other studies in this field. On the other hand, the quantitative nature of this study has limited the capacity of this study so that we could not discover the experiences of hemodialysis patients compared to their information needs. Also, more studies should be conducted to determine if unsatisfied information needs can increase stress and anxiety of these patients. Also, what the most effective methods to provide information to them is and how these patients can be supported for their information needs.

**Table1. Distribution of demographic characteristics of hemodialysis patients referred to Kowsar hospital in 2015**

Group	Characteristic	Number	Percent
Age	< 30 years	3	4.2
	30-50 years	14	19.7
	> 50 year	54	76.1
Sex	Male	40	56.3
	Female	31	43.7
Marital status	Married	63	88.7
	Single	8	11.3
Education	Under diploma	50	72.5
	Diploma	18	26.1
	Bachelor	0	0
	Higher degree	1	1.4
Occupational status	Employee	3	4.5
	Student	0	0
	Housekeeper	25	37.9
	Self-employed	9	13.6
	Disable	9	13.6
	Retired	19	28.8
	Other	1	1.5
History of Hemodialysis	< 2 month	9	14.1
	2-12 month	11	17.2
	12-24 month	13	20.3
	24-26 month	8	12.5
	36-48 month	4	6.2
Habitat	> 48 month	19	29.7
	City	63	91.3
Use of Internet	Village	6	8.7
	Yes	9	12.7
	No	62	87.3

**Table2. Prioritize information needs of hemodialysis patients in physical issues**

Domain	Questions	First	Second	Third	Fourth	Mean ± SD	Mean Rank	P-Value	
		Priority	Priority	Priority	Priority				
		N (%)	N (%)	N (%)	N (%)				
Food consumption	Fluid restriction	24 (34.8)	28 (40.6)	17 (24.6)	0	1.89 ± 0.76	4.89	<0.001	
	Increased appetite	24 (34.8)	16 (23.2)	29 (42)	0	2.07 ± 0.87	5.25		
	Weight control	21 (30.4)	25 (36.2)	23 (33.3)	0	2.02 ± 0.80	5.05		
Nutrition	Lipid	12 (19.4)	14 (22.6)	21 (33.9)	15 (24.2)	2.6 ± 1.05	6.54		
	Protein	22 (34.4)	21 (32.8)	14 (21.9)	7 (10.9)	2.09 ± 1	5.24		
	Carbohydrate	10 (15.6)	14 (21.9)	14 (21.9)	26 (40.6)	2.87 ± 1.11	7.20		
	Vitamins and minerals	23 (35.4)	14 (21.5)	13 (20)	15 (23.1)	2.30 ± 1.18	6.02		
Hematopoiesis	Hematopoietic foods	48 (68.6)	13 (18.6)	9 (12.9)	0	1.44 ± 0.71	3.12		
	Hematopoietic food supplements	18 (26.1)	40 (58)	11 (15.9)	0	1.89 ± 0.64	4.95		
	Hematopoietic barriers	4 (5.8)	16 (23.2)	49 (71)	0	2.65 ± 0.58	6.93		
Energy gain	Increase capacity	11 (15.5)	21 (29.6)	38 (53.5)	0	2.40 ± 0.76	2.39		<0.001
	Doing activity alone	23 (32.4)	28 (39.4)	20 (28.2)	0	1.95 ± 0.78	1.94		
	Increase mobility	36 (50.7)	22 (31)	13 (18.3)	0	1.67 ± 0.77	1.66		
Relieving pain & discomfort	Relieves itching	23 (42.6)	4 (7.4)	11 (20.4)	16 (29.6)	2.37 ± 1.30	2.45	<0.001	
	Prevention of Nausea & vomiting	3 (5.8)	8 (15.4)	14 (26.9)	27 (51.9)	3.25 ± 0.92	3.24		
	Infection prevention	20 (34.5)	26 (44.8)	11 (19)	1 (1.7)	1.87 ± 0.77	1.92		
	Symptoms of infection	16 (27.1)	20 (33.9)	15 (25.4)	8 (13.6)	2.25 ± 1.01	2.39		
Sleep and rest	Foods affect on sleep	17 (29.8)	8 (14)	32 (56.1)	0	2.26 ± 0.89	2.26	0.046	
	Actions prior to sleep	17 (28.2)	32 (54.2)	10 (16.9)	0	1.88 ± 0.67	1.91		
	Mental activity before bedtime	28 (46.7)	17 (28.3)	15 (25)	0	1.78 ± 0.82	1.82		

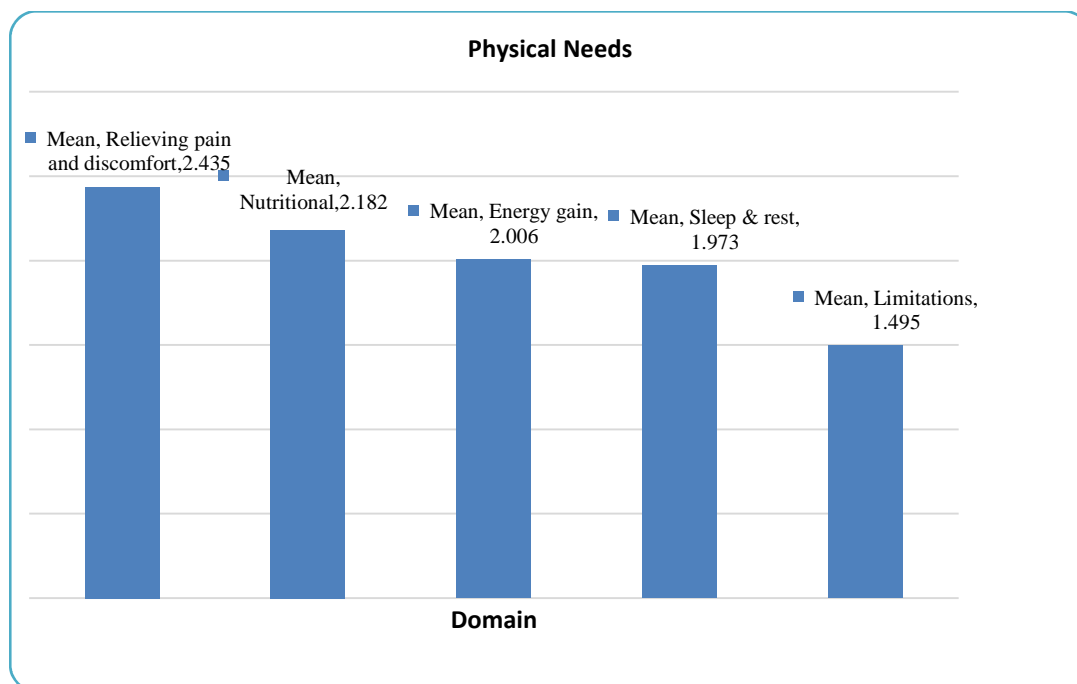


Figure1. Mean scores of physical needs

## CONCLUSION

The results of this study showed that hemodialysis patients felt the lack of what kind of information in the field of physical issues. On the other hand, results of this study represent unsatisfying learning needs and the perceived importance of this information for them. Providing complete, correct and timely information for this group of patients based on their real needs helps health care providers to facilitate coping and self-care of hemodialysis patients.

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