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Original Article

Relationship Between Stressors and Comfort Level in Hemodialysis Patients

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ABSTRACT

Objective: This study aimed to determine the relationship between stressors and comfort level in patients receiving hemodialysis treatment.

Methods: A descriptive and correlational study was conducted with 107 patients in the outpatient hemodialysis units of 2 state hospitals between January and March 2019. Personal Information Form, Hemodialysis Stressor Scale, and Hemodialysis Comfort Scale were used in the study.

Results: The mean age of the patients receiving hemodialysis treatment was 60.08 ± 13.05 years and the mean duration of dialysis treatment was 7.03 ± 5.06 years. The mean score of the Hemodialysis Comfort Scale was 30.20 ± 7.36 and the mean score of the hemodialysis stressor was 65.91 ± 16.44. A negative correlation was found between hemodialysis stressors and hemodialysis comfort levels.

Conclusion: In the study, it was found that the stressor perception of the hemodialysis patients was moderate and the comfort levels were above the average. The top 5 stressors that affected the patients were fatigue, fluid intake restriction, dependence on others, food restriction, and muscle cramps. As the hemodialysis stressor scores of the patients increased, the comfort levels of hemodialysis decreased. It is recommended that nurses identify stressors that adversely affect patient comfort and apply effective nursing interventions to increase comfort.

Keywords: Hemodialysis, patients, stressors, comfort

Introduction

Kidney (renal) failure, a common health problem in which the kidneys fail to function, includes acute and chronic renal failure which causes end-stage renal disease.[1] Survival of end-stage renal disease patients whose prevalence is rapidly increasing in the world is achieved by replacement therapies such as dialysis and transplantation.[1-3] According to the Turkish Ministry of Health and Nephrology Association report in 2020, the prevalence of the end-stage renal disease is 996.8 people per million in Turkey, but a total of 83 350 patients are being treated with replacement therapy. About 72.66% of these patients were hemodialysis patients, 23.28% were transplantation patients, and 4.06% were peritoneal dialysis patients.[4] A progressive process of renal failure without a clear clinical diagnosis leads to an increase in the number of patients in replacement therapy.[1] Hemodialysis is the most common treatment for end-stage renal disease.[3] Hemodialysis treatment is a form of treatment that lasts up to 3 sessions per week, each of which takes 3-5 hours.[2] However, hemodialysis treatment is a life-long stressful process that affects patients physically and psychosocially, if there exists no renal transplantation.[1,5] While hemodialysis treatment is life-saving for patients, they may intensely experience fatigue, fluid and diet controls, painful fistula interventions, pruritus, depression, anxiety, dialysis dependence, financial burdens, and accompanying illnesses.[3,5] The stress experienced by the patients may negatively influence comfort.[6]

The concept of comfort, which has been used by many theorists since Nightingale, was first examined and developed by Kolcaba as a nursing theory. Kolcaba examined the concept of comfort and revealed that the conditions that disturb comfort affect the whole organism. Therefore, it is important to provide comfort through nursing interventions. Kolcaba stated that nurses should first determine the comfort needs of patients in order to provide patient comfort.[7] In the literature, it is stated that studies have been carried out to determine the comfort needs of hemodialysis patients and as a result of these studies, the comfort of the patients is at a moderate level.[8-10]

Both renal failure and hemodialysis treatment are important sources of stress for patients. Comfort, which is an important part of nursing care, allows to reveal the comfort levels of the patient and increases it with appropriate interventions. Diagnosis of stressors in hemodialysis patients will help them to cope effectively with these stressors and thus increase comfort levels. In this context, nurses who care for hemodialysis

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patients have important duties in determining stressors and comfort status. There are limited studies in the literature examining stressors and comfort in hemodialysis patients. In these studies, it is reported that patients undergoing hemodialysis are exposed to many different stressors and this situation negatively affects their comfort level.[10,11] In these studies, it is reported that the comfort level of the patients is increased by applying interventions such as education, massage, and music therapy.[12-14] This study aimed to determine the effect of physical and psychosocial stressors on the comfort levels of the patients receiving hemodialysis treatment.

Methods

Aim

This descriptive and correlational study was planned to determine the effect of physical and psychosocial stressors on the comfort levels of the patients receiving hemodialysis treatment. In this study, the following questions were tried to be answered:

1. What are the hemodialysis stressor levels in hemodialysis patients?
2. What are the comfort levels of hemodialysis patients?
3. Is there a relationship between comfort levels and stressors most frequently encountered by the patients?

Sample

The population of the study consisted of outpatient hemodialysis patients (N = 136) in the hemodialysis units of 2 state hospitals between January and March 2019 in Eskişehir. Without sample selection, all of the patients were tried to be reached. One hundred seven patients who received hemodialysis treatment in the time frame when the study was conducted and who accepted to participate in the study and filled out the forms completely were included in the study (78.6% of the universe). The patients were informed of the aim of the study by the researcher and gave consent before filling out the forms. The forms were filled by the researcher using the face-to-face interview technique.

Data Collection Tools

The data of the study were collected by using the Personal Information Form, Hemodialysis Stressor Scale, and Hemodialysis Comfort Scale.

Personal Information Form: The demographic questions such as age, gender, marital status, educational status, and questions about hemodialysis were prepared by the researcher.

Hemodialysis Stressor Scale (HSS): The Turkish validity and reliability of the scale developed by Baldree et al.[15] were made by Kara[16]. The scale lists the perceived physiological and psychosocial stressors, arising from treatment, by the hemodialysis patients. The total score of the 29 items and the 5-point Likert scale ranged between 29 and 145. As the score obtained from the scale increases, the perceived stress levels of the patients increase. In the study of Kara, the Cronbach's alpha coefficient of the scale was found to be 0.77.[17] Cronbach's alpha coefficient was 0.85 in this study.

Hemodialysis Comfort Scale (HCS): It was developed by Orak et al[8] to determine the comfort of hemodialysis patients. The scale is a 5-point Likert type, consisting of 9 items and 2 sub-dimensions: transcendence (1, 2, 3, 4, 5, and 6) and ease (7, 8, and 9). The items except item 4 of the scale are scored on the contrary. In the evaluation of the scale, the average score is calculated and the lowest score is 1 and the highest score is 5. The higher the scale score is, the higher the comfort level. In the study of Orak et al[8], the Cronbach's alpha coefficient of the scale was found to be 0.87. Cronbach's alpha coefficient was 0.86 in this study.

Data Collection

The patients receiving treatment in the unit where the study was conducted were informed about the purpose, scope, duration, and method of the study. After the necessary explanation was made, the patients were interviewed face-to-face by the researchers and the related forms and scales were completed.

Ethical Considerations

Ethical approval was obtained from the ethics committee of the Faculty of Medicine (TÜTF-BAEK 2018/252/12/13) and written permission was obtained from the institutions where the study was conducted. Besides, each patient who participated in the study was informed about the purpose of the study, what was expected of them, their legal rights, and the confidentiality of the information obtained, and their consent was obtained from those who agreed to participate in the study.

Statistical Analysis

Statistical analysis of the data was evaluated by using Statistical Package for the Social Sciences (IBM SPSS Corp., Armonk, NY, USA) 22.0 package program by using the Pearson's correlation analysis in determining the relationship between descriptive tests (number, percentage, arithmetic mean, and standard deviation) and the significance level was $P < .05$.

Results

The mean age of the patients receiving hemodialysis treatment was 60.08 ± 13.05 years and the mean duration of dialysis treatment was 7.03 ± 5.06 years. Of the patients, 51.4% were male, 58.9% were married, 76.6% were primary school graduates, 88.8% were on hemodialysis treatment 3 times a week, and 68.2% did not comply with fluid restriction (Table 1).

The mean HCS total scale score of the patients was 30.20 ± 7.36, and the mean transcendence and ease subscale scores were 12.49 ± 3.11 and 17.71 ± 5.77, respectively. The mean score of the Hemodialysis Stressor Scale was 65.91 ± 16.44, and the mean scores of the physical

Table 1. Individual Variables (n = 107)

Variables	**X**	**SD**
Age (min-max = 25-85)	60.08	13.05
Duration of hemodialysis (year)	7.03	5.06
	n	**%**
Gender		
Female	52	48.6
Male	55	51.4
Marital status		
Married	63	58.9
Single	44	41.1
Level of education		
Primary school	82	76.6
Middle School	13	12.1
High school	12	11.2
Number of weekly dialysis		
2 times	12	11.2
3 times	95	88.8
Comply with fluid restriction		
Yes	34	31.8
No	73	68.2

Table 2. Mean of the Patients HSS and HCS scores (n = 107)

	X	SD
HSS total score	65.91	16.44
Physiological stressors	16.31	4.75
Psychosocial stressors	49.60	13.67
HCS total score	30.20	7.36
Ease	12.49	3.11
Transcendence	17.71	5.77

HSS, Hemodialysis Stressor Scale; HCS, Hemodialysis Comfort Scale.

stress and psychosocial stress subscale scores were 16.31 ± 4.75 and 49.60 ± 13.67, respectively (Table 2).

According to the hemodialysis stress scale, the top 5 stressors were fatigue, fluid intake restriction, dependence on others, food restriction, and muscle cramps, respectively. When the relationship between these stressors and the hemodialysis comfort scale was examined, it was found that all of the stressors except fluid intake restriction adversely affected the comfort of the patient (Table 3).

When the hemodialysis stressor levels and the hemodialysis comfort levels of the patients were compared, a significant negative correlation was found between the subscales and total scores of the scale, except for physical stressors and the ease subscale of the comfort scale (Table 4).

Discussion

With the increasing incidence of chronic renal failure all over the world and in our country, the number of patients receiving hemodialysis treatment is increasing day by day.[1] With the increasing incidence, patients face many negative physical and mental stressors that can affect their lives.[18] Patients undergoing hemodialysis have to deal with many stressors that negatively affect their daily lifestyles and well-being due to both the effects of renal failure and treatment.[19] Patients' responses to stressors and coping styles may be different. If patients are unable to cope effectively with stressors, they may face many undesirable conditions, starting from reduced comfort to death.[20] In the present study, the total stress score of the patients was 65.91 ± 16.44, suggesting that the patients' perception of stress was moderate. Mafi et al[20] found that the majority of hemodialysis patients experienced moderate physiological and psychological stress. Similarly, in studies conducted by Ahmad and Nazly[19] on hemodialysis stressors and coping behaviors, patients experienced moderate stress. Furthermore, some studies find high stress perceptions in hemodialysis patients.[5,17,21]

In this study, the most common hemodialysis stressors were fatigue, fluid intake restriction, dependence on others, food restriction, and muscle cramps. Fatigue in hemodialysis patients stems from such many factors as nutritional deficiencies, physiological changes, hemoglobin and urea levels, and sleep problems.[22] Fatigue is one of the problems that affect the quality of life negatively by decreasing physical abilities and preventing work and social life.[23] In studies, it has been determined that hemodialysis patients have a high level of fatigue experience.[18,24] In this study, it was determined that the most important stressor experienced in patients undergoing hemodialysis was fatigue and there was a negative significant relationship between fatigue and comfort. This result is important in terms of showing that fatigue is one of the important factors that may impair comfort.

Table 3. The 5 Most Frequently Encountered Stressors and Comfort Relationships According to the HSS (n = 107)

	HSS	HCS	
Stressors	**X ± SD**	***r***	***P****
Fatigue (P)	3.81 ± 1.20	−.273	.004
Fluid intake restriction (PS)	3.52 ± 1.27	−.076	.438
Dependence on others (PS)	3.08 ± 1.41	−.511	.000
Food restriction (PS)	3.04 ± 1.23	−.277	.004
Muscle cramps (P)	3.01 ± 1.32	−.222	.022

HSS, Hemodialysis Stressor Scale; HCS, Hemodialysis Comfort Scale; P, physiological stressors; PS, psychosocial stressors; *Pearson's correlation.

Table 4. Correlation Between the Scores of the Patients

		Ease	Transcendence	HCS Total Score
Physiological stressors	**r**	−0.086	−0.677	−0.463
	*P**	0.377	**0.000**	**0.000**
Psychosocial stressors	**r**	−0.327	−0.967	−0.654
	*P**	**0.001**	**0.000**	**0.000**
HSS total score	**r**	−0.297	−0.706	−0.678
	*P**	**0.002**	**0.000**	**0.000**

HSS, Hemodialysis Stressor Scale; HCS, Hemodialysis Comfort Scale; *Pearson's correlation; Statistically significant values ($P < .05$) are shown is bold.

In the study, one of the stressors that frequently affect patients is restriction in fluid consumption. Because of dialysis treatment, patients are faced with a small amount of fluid consumption, which may cause stress for patients.[19] Ensuring compliance with fluid restriction is important in terms of reducing the risk of complications and improving the quality of life of the patients.[25] Karabulutlu et al[26] (2019) found that the patients did not comply with fluid restriction. In the literature, it was found that patients stated fluid restriction as a serious source of stress.[19] In the current study, it was determined that although the patients perceived fluid restriction as a source of stress, 68.2% of them did not comply with fluid restriction and there was no relationship between fluid restriction and comfort.

Hemodialysis patients have to adapt to a restrictive lifestyle due to treatment, which may make patients dependent on other individuals. The majority of patients reported that they felt dependent on others due to hemodialysis.[20,21] In the study by Mollaoğlu[27], it was determined that patients had difficulty in performing life activities such as bathing, dressing, movement, nutrition, transportation, and using their medicines. In the study by Özkan Tuncay and Kars Fertelli[28], it was stated that the patients experienced moderate addiction and their activities were negatively affected due to hemodialysis while in the study of Akpınar et al[29], the care needs of the patients increased. In this study, it was determined that patients felt dependent on others due to hemodialysis treatment and perceived this as a factor that reduced their comfort.

Food restriction, like fluid restriction, is an important stressor for hemodialysis patients. Patients undergoing hemodialysis treatment have to make changes in their diet and this change may affect them negatively.[30] Studies have shown that dialysis patients experience stress due to food restriction affecting their quality of life negatively.[31,32] In the study by Alataş et al[33], it was stated that hemodialysis patients experienced malnutrition due to insufficient energy and nutrient intake. In this study, it was determined that food restriction is an important stressor for patients and also negatively affects their comfort. This result is important in terms of monitoring the nutritional status of the patients and demonstrating the necessity of increasing their comfort status by providing training on nutrition.

Muscle cramps are another symptom, whose cause is not fully understood and which is encountered in 46%-62% of hemodialysis patients, affecting the quality of life negatively.[34] Yang and Lu[35] reported that muscle cramps were among the most common stressors in

hemodialysis patients, whereas Hintistan and Deniz[36] cited that 77.4% of the patients experienced muscle cramps. In the present study, it was determined that patients experienced a high rate of muscle cramps. At the same time, it was determined that the muscle cramps they experienced negatively affected their comfort status. This result reveals the importance of determining the patients' muscle cramps and increasing the comfort with the nursing interventions to be applied.

The concept of comfort, which is based on the thoughts and ideas of individuals, is subjective, indeterminate, and variable for every hemodialysis patient.[2] One of the important roles of nurses is to increase patient's well-being by providing comfort with different characteristics for each individual.[1] In the qualitative study on patients' perceptions of comfort by Borzou et al[2], it was emphasized that professionally qualified nurses were important in providing patient comfort in hemodialysis. In the study by Orak et al[8], they found that the average comfort score of hemodialysis patients was moderate. In the study by Caliskan and Cinar Pakyüz[37], on the effect of pruritus on comfort levels in uremic patients who received and did not receive hemodialysis treatment, the patients' comfort levels were found to be higher than the average and this result was thought to be the result of the patients' acceptance of the treatment because of the high mean age and year of treatment. In other studies, the comfort level of hemodialysis patients was determined as moderate.[9,10] In the present study, it was found that the comfort levels of hemodialysis patients were above the average (30.20 ± 7.36) and this result was found to be similar to the literature.

In the study, a negative correlation was found between the Hemodialysis Stress Scale and Hemodialysis Comfort Scale. This result shows that the stress factors and stress levels experienced by the patients reduce comfort. In the study of Demir and Özer[10], it was determined that the patients had a low level of symptom severity and a moderate level of comfort, and that the symptoms they experienced negatively affected their comfort levels. Similarly, in the study of Dikmen and Aslan[11], it was determined that the stressors experienced by hemodialysis patients negatively affect comfort.[11] In hemodialysis patients, many stressors can negatively affect comfort.[3,5,12] In this context, there are studies in the literature aimed at increasing the comfort of patients by reducing the effect of the stressors they experience. Tabiee et al[12] determined the comfort needs of hemodialysis patients in their study. Back massage was applied to these patients and training on symptom management was given, and it was determined that the comfort level of the patients increased. In the study of Kacaroğlu Vicdan[13], it was reported that hemodialysis treatment affects patients negatively, whereas the training provided increases the comfort level of patients. In another study, it was reported that music therapy applied to patients increased the comfort level of patients.[14]

Study Limitations

The results of this study cannot be generalized because the study was carried out in a single center and the study was based on patients' self-reporting.

Conclusion

In the study, it was determined that the stress levels of the hemodialysis patients were moderate and the comfort levels were above the average, and there was a negative significant relationship between stress and comfort. Moreover, the most common hemodialysis stressors were fatigue, fluid intake restriction, dependence on others, food restriction, and muscle cramps. Significant relationships were found between stressors, excluding fluid intake limitation, and comfort levels. In line with these results, it was determined that the patients undergoing hemodialysis were exposed to many stressors related to not only the disease but also treatment and thus these stressors could negatively affect the comfort status of the patients. Nurses need to identify stressors that adversely affect the patient's comfort and increase it by implementing effective nursing interventions so as to minimize such stressors.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Trakya University (TÜTF-BAEK, Date: July 2, 2018, 2018/252/12/13).

Informed Consent: Written informed consent was obtained from all participants patients who participated in this study.

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