Original Article

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The Effect of Hemodialysis Patients' Attitudes Towards Dietary Treatment on Dialysis Symptoms: A Randomized Controlled Clinical Study

Hemodiyaliz Hastalarının Diyet Tedavisine Yönelik Tutumlarının Diyaliz Semptomlarına Etkisi: Randomize Kontrollü Klinik Bir Çalışma

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ABSTRACT

Objective: This study was conducted to determine the effect of hemodialysis patients' attitudes towards diet therapy on dialysis symptoms.

Methods: The data of the randomized controlled study were collected from experimental (n=30) and control groups (n=30) at Gümüşhane Province Kelkit State Hospital between 1 November 2023 and 1 January 2024. Institutional and ethics committee permissions were obtained before the study. The experimental group patients were given training on diet therapy. "Patient information form", "hemodialysis patients' attitude scale towards diet therapy (HDTO)" and "dialysis symptom index (DSI)" were used to collect data. Data collection tools were applied before the study (pre-test), after the training was given (intermediate measurement) and one month later (post-test). The data were analyzed using the chi-square, repeated measures ANOVA test and independent groups t-test in the SPSS 25.0 package program.

Results: It was determined that the post-training measurements (intermediate measurement) of the total HDTO and sub-dimensions score averages of the hemodialysis patients in the experimental group were higher than the pre-training (pre-test) measurements; and the measurements made 1 month after the training (post-test) were lower than the measurements made immediately after the training (intermediate measurement)

ÖZ

Amaç: Bu çalışma, hemodiyaliz hastalarının diyet tedavisine yönelik tutumlarının diyaliz semptomlarına etkisini belirlemek amacıyla gerçekleştirildi.

Yöntemler: Randomize kontrollü olan çalışmanın verileri, Gümüşhane İli Kelkit Devlet Hastanesi'nde 1 Kasım 2023 - 1 Ocak 2024 tarihleri arasında deney (n=30) ve kontrol gruplarındaki (n=30) hastalardan toplandı. Çalışma öncesinde kurum izni ve etik kurul izni alındı. Deney grubu hastalara diyet tedavisine yönelik eğitim verildi. Verilerin toplanmasında "hasta bilgi formu", "hemodiyaliz hastalarının diyet tedavisine yönelik tutum ölçeği (HDTÖ)" ve "diyaliz semptom indeksi (DSİ)" kullanıldı. Veri toplama araçları çalışma öncesi (ön-test), eğitim verildikten sonra (ara ölçüm) ve bir ay sonra (son-test) uygulandı. Veriler, SPSS 25.0 paket programında ki-kare, tekrarlayan ölçümlerde ANOVA testi ve bağımsız gruplar t-testi kullanılarak analiz edildi.

Bulgular: Deney grubu hemodiyaliz hastaların toplam HDTÖ ve alt boyutları puan ortalamalarının eğitim sonrası ölçümlerinin (ara ölçüm), eğitim öncesi (ön-test) ölçümlerden daha yüksek olduğu; eğitimin verilmesinden 1 ay sonra yapılan ölçümlerde ise (son-test) eğitimden hemen sonra yapılan ölçümlerden (ara ölçüm) düşük olduğu belirlendi ($p<0,05$). Yine, deney grubu hastaların DSİ puan ortalamalarının eğitim sonrası ölçümlerinin (ara ölçüm), eğitim öncesi (ön-test) ölçümlerden daha düşük olduğu ($p<0,05$);

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ABSTRACT

(p<0.05). Again, the post-training measurements (intermediate measurement) of the DSI score averages of the experimental group of patients were lower than the pre-training (pre-test) measurements (p<0.05); it was determined that the measurements made 1 month after the training were given (post-test) did not differ from the measurements made immediately after the training (intermediate measurement) (p>0.05).

Conclusion: In line with the findings, it was determined that the diet therapy training provided increased hemodialysis patients' attitudes towards diet therapy and reduced dialysis symptoms.

Keywords: Hemodialysis, diet treatment, symptom management

ÖZ

eğitimin verilmesinden 1 ay sonra yapılan ölçümlerin ise (son-test) eğitimden hemen sonra yapılan ölçümlerden (ara ölçüm) farklılaşmadığı belirlendi (p>0,05).

Sonuç: Elde edilen bulgular doğrultusunda, verilen diyet tedavisi eğitiminin hemodiyaliz hastalarının diyet tedavisine tutumlarını artırdığı ve diyaliz semptomlarını azalttığı tespit edildi.

Anahtar Kelimeler: Hemodiyaliz, diyet tedavisi, semptom yönetimi

Introduction

Chronic kidney disease (CKD) is a progressive and chronic disease in which kidney functions (fluid electrolyte, metabolic, endocrine, etc.) are severely impaired and the glomerular filtration rate decreases as a result (1,2). CKD, the incidence of which is increasing day by day in the world and in Türkiye (3,4), is a fundamental public health problem due to its negative impact on quality of life, high morbidity and mortality rates, poor prognosis and high cost renal replacement therapy (RRT) (5,6). Although drug and medical nutrition therapy are sufficient in the initial stages of CKD treatment, RRT may become mandatory in advanced CKD stages where kidney functions are completely lost. RRTs are divided into three: hemodialysis (HD), peritoneal dialysis (PD) and transplantation (7,8). HD treatment is the most preferred method in patients with advanced end-stage renal disease (9). The main purpose of HD treatment is to correct fluid-electrolyte imbalance, prevent metabolic and extra-renal complications, improve quality of life and prolong life (10,11). HD treatment, in addition to its benefits, can also cause many undesirable symptoms (12,13). These symptoms are; hypotension/hypertension, respiratory distress, head-back-chest pain, muscle cramps, pruritus, nausea-vomiting, fatigue, fever, constipation, diarrhea, pruritus, edema, emotional problems and sexual dysfunction (14,15). The symptoms experienced can cause life-threatening complications and increased health costs in cases where patients do not comply with the treatment, and can negatively affect daily life activities and quality of life (16,17). HD treatment is a complex process, and the patients' compliance with diet, fluid intake, dialysis sessions and medication intake affects the success of the treatment (18). Among the many methods used to increase compliance with treatment in individuals undergoing HD treatment, diet treatment is particularly important in terms of its direct effect on blood values (19). Diet treatment may cause the disease to worsen, but it may also prevent complications that may occur in patients undergoing HD (20). At the same time, it contributes to the appropriate nutrition of patients during the disease process, to the improvement of their quality of life, and can increase survival rates (21). In this sense, patients' individual nutrition patterns should be determined and their food intake should be supported with appropriate dietary recommendations in terms of quality, quantity, and consumability. In addition, in order for the metabolic functions of individuals undergoing HD to be maintained in a healthy manner, the daily energy requirements should be met (17). Therefore, a well-programmed diet treatment prepared in cooperation with a dietician should be created for patients. Again, dialysis training, which constitutes an important part of the treatment, should be given by nurses in order to increase the knowledge level of patients undergoing HD and their compliance with treatment (22).

The education given to patients and the goals of the diet treatment should be appropriate according to the RRT applied and the patient's nutrition should be arranged in line with the goals (23). The aim of diet treatment in patients undergoing HD is to keep the possible symptoms of uremia and biochemical parameters that may cause fluid-electrolyte imbalance at an appropriate level, to protect the quality of life and renal functions and to stop the progression of renal damage (24,25). Again, among the goals of nutrition treatment are to correct anemia in patients, reduce inflammation, prevent the development of cardiovascular diseases, reduce symptoms such as nausea, vomiting, pruritus and pain and prevent malnutrition (26). Therefore, it is important for patients undergoing HD to comply with diet treatment (27).

Adherence to diet treatment in patients undergoing HD reduces complications and increases the effectiveness of the treatment (27). However, one of the most important roles and responsibilities of nurses who care for patients, in addition to their roles as caregivers, therapeutics, guides, coordinators, case managers and consultants, is their educational role (28). It is stated that education given by the nurse in line with a plan and program reduces patients' anxiety, increases their satisfaction, positively affects patients' adaptation to their illness, reduces healthcare costs, reduces morbidity and mortality, shortens the duration of hospital stay and increases patients' awareness levels (29). In addition, struggling with the complications of the disease affects individual and quality of life (30). In line with this information, a randomized controlled trial (RCT) was conducted to investigate the effect of the attitudes of patients undergoing HD who were given education towards diet treatment on dialysis symptoms.

Methods

Purpose of the Study

This study was conducted as a randomized RCT to investigate the effects of HD patients' attitudes towards diet treatment on dialysis symptoms.

Research Questions:

Question 1: Does the attitudes of patients undergoing HD towards diet treatment have a positive effect on dialysis symptoms?

Question 2: Does the education given on diet treatment have a positive effect on HD patients' attitudes towards diet treatment and dialysis symptoms?

Research Universe and Sample

The data of the study were conducted between November 1, 2023 and January 1, 2024 at Kelkit State Hospital in Gümüşhane Province.

HD is applied to patients with stage 4 and stage 5 CKD in the HD Unit of Kelkit State Hospital in Gümüşhane. In the dialysis unit, 36 patients are treated on outpatient HD for three sessions a week, 6 days a week (monday, wednesday, friday and tuesday, thursday, saturday) in four groups every day (two session groups between 08:00-12:00 and 12:00-16:00 during the day, two session groups between 16:00-20:00 and 20:00-24:00 in the evening) and nine patients in each group. Therefore, HD treatment can be applied to 72 patients in a week. Power analysis was performed after data were collected by taking 30 patients undergoing HD each into the experimental and control groups. As a result of the study obtained; The mean score of "attitude scale for the dietary therapy of hemodialysis patients (ASDTHP)" was determined as 36.16±11.94 in the control group and 57.03±5.50 in the experimental group, and the mean score of the "dialysis symptom index (DSI)" was determined as 91.96±30.64 in the control group and 49.13±23.00 in the experimental group. According to these values, in the power analysis performed with an alpha margin of error of 5%, the power of the study/test was found to be 100% for the ASDTHP result, the effect size was 2.24 (large effect), and the power of the test was found to be 99% for the DSI result, the effect size was 1.58 (large effect) (G*Power 3.1.9.2). The study was terminated by deciding that the sample size was sufficient (experiment=30; control=30). The patients to be included in the study were selected by lottery method and the data were collected by single-blind randomization method.

The inclusion criteria for the study were;

- Being at least 18 years old,
- Agreeing to participate in the study,
- Being able to communicate verbally and in writing,
- Undergoing at least two sessions of HD treatment per-week,
- Not having any mental or intellectual dysfunction,
- Undergoing HD treatment for at least three months (in order to be defined as a chronic HD program),

The exclusion criteria for the study were determined as; not accepting to participate in the study, undergoing PD, being diagnosed as having a psychiatric disorder diagnosed by a psychiatrist, and general condition being unstable (heart rate <100 mm/Hg or diastolic BP <60 mm/Hg). Ethical approval was obtained from the Research Ethics Committee of Gümüşhane University (protocol no: 2023/4, date: 29.08.2023).

Data Collection Tools and Data Collection

Research data were collected by one of the researchers involved in the study based on literature knowledge using the patient information form, ASDTHP and DSI face-to-face interview technique. In order to ensure single-blind randomization and prevent bias, individual training was provided by the other researcher regarding the nutrition and diet treatment of the patients before starting the study. In addition, information about the study was provided before starting the study and written consent was obtained from the individuals and the patient information form was applied. Again, ASDTHP and DSI were applied a total of 3 times before the study (pre-test), immediately after the training (interim measurement) and 4 weeks after the training (post-test).

Patient Information Form

The patient information form was developed by the researcher after reviewing the literature (31,32). The form consisted of a total of 11 questions regarding the gender, marital status, age, education level, family type, employment status, occupation, income perception level, duration of CKD, duration of HD and having an additional chronic disease.

Attitude Scale for the Dietary Therapy of Hemodialysis Patients (ASDTHP)

It was developed by Onbe and Kanda (33) to determine the attitudes of patients towards diet treatment. The Turkish validity and reliability study of the scale consisting of a four-point Likert type and 16 items was conducted by Bahçecioğlu Turan et al. (34). Each item represents the answer "1-strongly agree, 2-agree, 3-disagree, 4-strongly disagree". The scale consists of 3 sub-dimensions: "propensity of behavior that is affected by cognition" (items 1-7), "propensity of behavior that is affected by the food culture" (items 8-13), "negative affect that modifies the diet" (items 14-16). The last three items on the scale are reversed. Higher scores obtained from the scale indicate better attitudes (34).

Dialysis Symptom Index (DSI)

The scale was developed by Weisbord et al. (35) and adapted into Turkish by Önsöz and Usta Yeşilbalkan (36). It consists of a total of 30 items that evaluate the emotional and physical symptoms of dialysis patients and the severity of these symptoms. After patients answer questions about the symptoms they have experienced in the last week as "yes-no", their symptoms to which the answer is

yes are re-evaluated on a five-point Likert type ("5 points: Very much", "4 points: Quite a bit", "3 points: Somewhat", "2 points: A little bit", "1 point: Not at all"). The total score to be obtained from the scale varies between 0-150. A score of zero indicates that the patient has no symptoms.

Statistical Analysis

Statistical analysis was performed using the IBM SPSS 25 package program. The skewness and kurtosis coefficients of the scores obtained from the scales being within the range of ±1.5 were considered evidence of the existence of a normal distribution (37). When Table 1 was examined, since the skewness and kurtosis coefficients for pre-test, interim and post-test scores in each scale were within the range of ±1.5, repeated measures analysis was performed using the ANOVA test, which was a parametric test for repeated measures. When comparing the experimental and control groups in terms of scale scores, the independent groups t-test was used if the scale scores showed a normal distribution (Table 1).

Results

The introductory information of HD patients is examined in Table 2. The mean age of the experimental group was 64.00±12.08 years. It was determined that 56.7% of the participants in the experimental group were female, 83.3% were married, 33.3% had primary school or lower education, 76.7% lived in a nuclear family or alone, 93.3% were unemployed, 63.3% were housewives, 76.7% had income equal to their expenses, 40% had CKD for more than 11 years, 33.3% had undergone HD for 1-5 years or 6-10 years, and 66.7% did not have an additional chronic disease (Table 2). The mean age of the control group was determined as 58.77±13.81 years. It was determined that 56.7% of the participants in the control group were male, 56.7% were married, 73.3% had secondary education or higher, 80% lived in a nuclear family or alone, 86.7% were unemployed, 50% were retired, 53.3% had income equal to their expenses, 26.7% had CKD for less than 1 year and 6-10 years, 36.7% had undergone HD for less than 1 year, and 76.7% had an additional chronic disease (Table 2). As a result of the statistical analyses conducted on whether the introductory information differed according to the experimental and control groups, it was determined that marital status, occupation, income status, HD duration, and having an additional chronic disease differed significantly according to the groups ($p<0.05$). However, it was found that gender, education level, family type, employment status and CKD duration did not differ according to the groups ($p>0.05$) (Table 2). When the repeated measures ANOVA test results were examined regarding whether the pre-test, mid-test and post-test "ASDTHP" and "DSI" mean scores of the experimental and control groups showed significant differences; it was found that the mean scores of the "ASDTHP" propensity of behavior that is affected by cognition sub-dimension ($F=139.04$, $p=0.000$), the propensity of behavior that is affected by the food culture sub-dimension ($F=136.44$, $p=0.000$), the negative affect that modifies the diet sub-dimension ($F=105.48$, $p=0.000$), the total ASDTHP ($F=142.91$, $p=0.000$) and DSI ($F=19.55$, $p=0.000$) differed significantly according to the education process of the experimental group ($p<0.001$). According to the multiple comparison test results conducted to determine which group caused the difference in the experimental group; it was determined that the post-training measurements (interim measurement) of the ASDTHP propensity of behavior that is affected by cognition sub-dimension, propensity of behavior that is affected by the food culture sub-dimension, negative affect that modifies the diet sub-dimension and total ASDTHP mean scores were higher than the pre-training (pre-test) measurements; and the measurements taken 1 month after the training (post-test) were lower than the measurements taken immediately after the training (interim measurement) ($p<0.05$). Again, it was determined that the post-training measurements (interim measurement) of the DSI mean scores of the experimental group patients were lower than the pre-training (pre-test) measurements ($p<0.05$); and the measurements taken 1 month after the training (post-test) did not differ from the measurements taken immediately

Table 1. Skewness and kurtosis coefficients of the scores obtained from the scales

Scale	SD	Intervention group (n=30)						Control group (n=30)					
		Pre-test		Mid-test		Post-test		Pre-test		Mid-test		Post-test	
		SC	KC	SC	KC	SC	KC	SC	KC	SC	KC	SC	KC
ASDTHP	Propensity of behavior that is affected by cognition SD	0.650	0.096	-0.457	-0.767	-0.358	-0.337	0.064	-0.718	0.086	-0.731	0.291	-0.022
	Propensity of behavior that is affected by the food culture SD	0.454	-0.292	-0.631	0.004	-0.107	-0.796	-0.019	-0.863	0.093	-0.780	0.247	-0.118
	Negative affect that modifies the diet SD	0.843	-0.029	-0.539	-1.021	-0.392	-0.172	0.211	-0.642	0.277	-0.494	0.510	-0.232
	Total	0.717	0.155	-0.535	-0.427	-0.269	-0.454	0.058	-0.751	0.117	-0.690	0.309	-0.091
DSI		0.026	-1.205	0.591	-1.067	1.098	1.488	0.355	-1.336	-0.425	0.277	-0.580	0.483

SD: Sub-dimension, ASDTHP: Attitude scale for the dietary therapy of hemodialysis patients, DSI: Dialysis symptom index, SC: Skewness coefficient, KC: Kurtosis coefficient

Table 2. Descriptive information on hemodialysis patients (n=60)

Descriptive information		$\bar{X}$ ± SD	$\bar{X}$ ± SD	t	p*
Age		64.00±12.08	58.77±13.81	1.562	0.124
		Intervention group (n=30)	Control group (n=30)	Statistical analysis	
		n (%)**	n (%)**	x^2	p
Gender	Male	13 (43.3)	17 (56.7)	0.600	0.439
	Female	17 (56.7)	13 (43.3)		
Marital status	Married	25 (83.3)	17 (56.7)	3.889	**0.049*** **
	Single (widow/divorced)	5 (16.7)	13 (43.3)		
Education level	Primary school and below	10 (33.3)	8 (26.7)	0.079	0.778
	Secondary school and above	20 (66.7)	22 (73.3)		
Family type	Nuclear	23 (76.7)	24 (80.0)	0.000	1.000
	Extended	7 (23.3)	6 (20.0)		
Employment status	Employed	2 (6.7)	4 (13.3)	0.671	0.335
	Not employed	28 (93.3)	26 (86.7)		
Occupation	Retired	6 (20.0)	15 (50.0)	6.134	**0.041****
	Housewife	19 (63.3)	13 (43.3)		
	Self-employed	5 (16.7)	2 (6.7)		
Income status	Income less than expenses	3 (10.0)	12 (40.0)	7.288	**0.030****
	Income equal to expenses	23 (76.7)	16 (53.3)		
	Income more than expenses	4 (13.3)	2 (6.7)		
Duration of CKD	>1 year	2 (6.7)	8 (26.7)	5.124	0.163
	1-5 years	6 (20.0)	7 (23.3)		
	6-10 years	10 (33.3)	8 (26.7)		
	<11 years	12 (40.0)	7 (23.3)		
Duration of HD	>1 year	2 (6.7)	11 (36.7)	11.870	**0.007****
	1-5 years	10 (33.3)	9 (30.0)		
	6-10 years	10 (33.3)	9 (30.0)		
	<11 years	8 (26.7)	1 (3.3)		
Additional chronic disease	Yes	10 (33.3)	23 (76.7)	9.697	**0.002*** **
	No	20 (66.7)	7 (23.3)		

*: Independent groups t-test, **: Column percentage**; ***: Pearson chi-square and continuity correction, ****: Chi-square test and Fisher-Freeman-Halton test, CKD: Chronic kidney disease, HD: Hemodialysis, SD: Standard deviation

Table 3. Intra- and inter-group analysis of the time-dependent changes in the mean scores of ASDTHP and DSI of the experimental and control groups (n=60)

	Test	Intervention group (n=30)			Control group (n=30)			F;P	Intergroup analysis	
		$\bar{x}$	SD		$\bar{x}$	SD			t	p
Propensity of behavior that is affected by cognition sub-dimension	1. Pre-test	14.66	4.58		16.06	5.31			-1.093[d]	0.279
	2. Mid-test	24.90	2.48		15.90	5.26		73.80; 0.000[b]	8.474[d]	0.000
	3. Post-test	22.90	3.63		14.20	4.58			8.141[d]	0.000
	Intragroup F;P	139.04; 0.000[a]			4.05; 0.049[b]					
	Significant difference[c]	1-2	1-3	2-3	1-2	1-3	2-3			

Table 3. Continued

	Test	Intervention group (n=30)			Control group (n=30)			F;P	Intergroup analysis	
		$\bar{x}$	SD		$\bar{x}$	SD			t	p
Propensity of behavior that is affected by the food culture sub-dimension	1. Pre-test	12.63	3.70		13.80	4.45			-1.103[d]	0.275
	2. Mid-test	21.26	2.16		13.46	4.44		75.15; 0.000[b]	8.638[d]	0.000
	3. Post-test	19.50	2.95		12.20	4.05			7.968[d]	0.000
	Intragroup F;P	136.44; 0.000[a]			3.84; 0.055[b]					
	Significant difference[c]	1-2	1-3	2-3	-	-	-			
Negative affect that modifies the diet sub-dimension	1. Pre-test	5.76	2.41		6.93	2.40			-1.874[d]	0.066
	2. Mid-test	10.86	1.10		6.80	2.32		73.91; 0.000[b]	8.651[d]	0.000
	3. Post-test	9.86	1.71		5.86	2.20			7.832[d]	0.000
	Intragroup F;P	105.48; 0.000[a]			6.40; 0.014[b]					
	Significant difference[c]	1-2	1-3	2-3	1-2	1-3	2-3			
Total ASDTHP	1. Pre-test	33.06	10.35		36.80	12.08			-1.285[d]	0.204
	2. Mid-test	57.03	5.50		36.16	11.94		79.08; 0.000[b]	8.688[d]	0.000
	3. Post-test	52.26	8.1		32.26	10.65			8.176[d]	0.000
	Intragroup F;P	142.91; 0.000[a]			4.50; 0.039[b]					
	Significant difference[c]	1-2	1-3	2-3	1-2	1-3	2-3			
DSI	1. Pre-test	81.66	35.92		81.36	43.61			0.029[d]	0.977
	2. Mid-test	49.13	23.00		91.96	30.64		23.87; 0.000[b]	-6.122[d]	0.000
	3. Post-test	48.33	20.30		96.03	19.62			-7.312[d]	0.000
	Intragroup F;P	19.55; 0.000[a]			6.46; 0.008[b]					
	Significant difference[c]	1-2	1-3	2-3	1-2	1-3	2-3			

[a]: The assumption of sphericity was met, [b]: Greenhouse-Geisser, [c]: Bonferroni test was used for multiple comparisons, [d]: Independent samples t-test, ASDTHP: Attitude scale for the dietary therapy of hemodialysis patients, DSI: Dialysis symptom index, SD: Standard deviation

after the training (interim measurement) (p>0.05) (Table 3). When the repeated measures ANOVA test results were examined regarding whether the pre-test, interim measurement and post-test ASDTHP and DSI score averages of the experimental and control group HD patients showed significant differences; it was found that the control group's mean scores for behavioral tendency affected by cognition subdimension of ASDTHP (F=4.05, p=0.049), negative affect that modifies the diet subdimension (F=6.40, p=0.014), total ASDTHP (F=4.50, p=0.039) and DSI (F=6.46, p=0.008) scores differed significantly according to time (p<0.05). However, it was determined that the mean scores of propensity of behavior that is affected by the food culture subdimension of ASDTHP did not differ according to time (p>0.05). According to the result of the multiple comparison test performed to determine which group the difference originated from in the control group; it was found that the mean scores of the negative affect that modifies the diet subdimension of the ASDTHP were not different from the pre-test measurements (p>0.05); and the mean scores of the post-test were lower than the mean scores of the interim measurements (p<0.05). There was no difference between the total ASDTHP interim measurement and the pre-test measurement, and between the post-test and interim measurements (p>0.05); and the mean scores of the post-test were lower than the mean scores of the pre-test (p<0.05). Again, it was found that the mean scores of the DSI interim measurement of the control group patients were higher than the mean scores of the pre-test (p<0.05); and there was no difference between the mean scores of the post-test and interim measurements (p>0.05) (Table 3).

In Table 3, as a result of the independent groups t-test conducted to determine whether the pre-test, mid-term and post-test ASDTHP and DSI mean scores of the patients undergoing HD differed according to the groups; it was found that the total ASDTHP and all its sub-dimensions and the DSI mid-term and post-test measurement scores differed significantly according to the groups (p<0.001). However, there was no difference between the pre-test total ASDTHP and all its sub-dimensions and the DSI measurement scores (p>0.05) (Table 3).

Discussion

This study examined the effects of education given to patients undergoing HD on their attitudes towards diet treatment and dialysis symptoms.

It is reported in the literature that the prognosis of patients undergoing HD worsens and CKD-related mortality rates increase as a result of their failure to comply with diet treatment or recommended diet models (38). It is known that individuals who comply with treatment have better HD adequacy (31). In this study, it was determined that diet treatment education given to individuals undergoing HD positively increased patients' attitudes towards diet treatment, but its effect began to decrease 1 month after the education was given. In the literature studies reviewed, it was determined that diet treatment education given to individuals undergoing HD increased patients' attitudes towards diet treatment, similar to the findings in our study (32,39-43). In another study reviewed, it was determined that diet treatment applied to patients undergoing HD increased individuals' compliance with treatment (44). Another study showed that education given to patients on nutrition improved their health behaviors and outcomes and increased their participation in individualized interventions for patients (45). It has been reported that propensity of behavior that is affected by cognition, propensity of behavior that is affected by the food culture, and negative affect that modifies the diet affect diet treatment in individuals undergoing HD. In some studies examining the effects of cognitive behaviors on diet, it has been determined that there are improvements in cognition levels with diet education programs for patients (33,46). In other studies examining the effects of food cultures on diet, it has been determined that eating habits and food cultures affect the sodium, potassium, calcium and fluid consumption of patients (47,48). Again, in another study where education aimed to create behavioral change, it was reported that with the education given for diet treatment, diseases were prevented or treated and health was protected by determining the nutritional status of patients (49). In a study examining the effects of behaviors that negatively affected patients' diets, it was determined that poor nutritional management of patients and lack of knowledge about nutrition were behaviors that negatively affected the diet (22). In another study examined, it was concluded that nurses' understanding of cognition and affect that affect patients' attitudes in diet treatment education for HD patients could lead to effective behavioral changes in patients (50). In this study, it was found that education increased the propensity of behavior that is affected by cognition, propensity of behavior that is affected by the food culture, and decreased negative affect that modifies the diet.

It is reported in the literature that patients undergoing HD who comply with dietary instructions have a higher chance of reaching their health goals, while patients who do not comply with the diet experience a series of health complications and symptoms (8). In addition, it is known that the symptoms experienced by individuals undergoing HD are also affected by the diet treatment they receive (43,51). In a reviewed study, it was reported that education given during the treatment and care process positively affected the diet and the quality of life of the patients, and that patients were able to effectively manage the symptoms they experienced (52). In another study, it was found that face-to-face education increased the diet knowledge of the patients and improved clinical and laboratory parameters (19,39). In an RCT, it was found that repeated education increased the compliance of the patients in the experimental group to diet treatment and fluid restriction and improved their clinical parameters (43). In a study conducted by Taşkın Duman (53), it was reported that video-assisted education provided to patients undergoing HD reduced the symptom burden of the patients. In a study conducted by Tutur (54), it was determined that education and counseling provided to patients undergoing HD via tele-nursing increased the level of dietary knowledge and reduced the symptoms experienced. In this study, in parallel with the studies examined, it was determined that the symptoms seen in patients undergoing HD decreased after the education given. In addition, it was determined that the effect of the education continued even 1 month after the education was given.

Conclusion

In this study, it was found that education on diet therapy given to patients undergoing HD increased their attitudes towards diet therapy and reduced dialysis symptoms. According to the findings obtained from the study, it is recommended that individuals undergoing HD receive regular diet education. In addition, it is recommended that nurses working in HD units should be informed about dialysis and that diet therapy education should be provided in cooperation with dietitians, and that patients should be included in the patient care process by considering their socio-demographic and socio-cultural levels. In addition, due to the limited number of studies conducted in the field of HD, it is thought that there is a need for high-sample follow-up studies and randomized controlled experimental studies.

Ethics

Ethics Committee Approval: Ethical approval was obtained from the Research Ethics Committee of Gümüşhane University (protocol no: 2023/4, date: 29.08.2023). In addition, necessary permissions were obtained from the Gümüşhane Provincial Health Directorate (dated 18.10.2023 and numbered E. 227139421) for the hospital where the data would be collected.

Informed Consent: In addition, information about the study was provided before starting the study and written consent was obtained from the individuals and the patient information form was applied.

Footnotes

Authorship Contributions

Surgical and Medical Practices: D.A.C., H.D., Concept: D.A.C., Design: H.D., Data Collection or Processing: D.A.C., Analysis or Interpretation: H.D., Literature Search: D.A.C., Writing: D.A.C., H.D.

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