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ORIGINAL ARTICLE

Emotional Reactivity and Death Anxiety in Dialysis Patients

Diyaliz Hastalarında Duygusal Tepkisellik ve Ölüm Kaygısı

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ABSTRACT

Aim: This study was conducted as a correlational and comparative pilot study to determine the relationship between emotional reactivity and death anxiety in dialysis patients.
Material and Method: The study was conducted with a total of 140 people, including 70 hemodialysis and 70 peritoneal dialysis patients. A questionnaire form, Turkish Death Anxiety Scale and Emotion Reactivity Scale were used for data collection.
Results: There was no difference between the mean Emotion Reactivity Scale and Turkish Death Anxiety Scale scores of hemodialysis and peritoneal dialysis patients. A moderate positive correlation was found between the mean Emotion Reactivity Scale and Turkish Death Anxiety Scale scores in hemodialysis and peritoneal dialysis groups ($p<0.05$). It was determined that 15.3% of Turkish Death Anxiety Scale scores of hemodialysis patients and 26.2% of Turkish Death Anxiety Scale scores of peritoneal dialysis patients were explained by Emotion Reactivity Scale.
Conclusion: It was observed that death anxiety and emotional reactivity were at a moderate level in hemodialysis and peritoneal dialysis patients and there was a similarity between dialysis modalities.

Keywords: Hemodialysis, peritoneal dialysis, death anxiety, emotional reactivity.

ÖZ

Amaç: Bu araştırma diyaliz hastalarında duygusal tepkisellik ile ölüm kaygısının ve arasındaki ilişkinin belirlenmesi amacı ile ilişkisel ve karşılaştırmalı bir pilot çalışma olarak yapılmıştır. Gereç ve Yöntem: Araştırma bir ilin diyaliz hastanesinde takip edilen araştırmaya dahil edilme kriterlerine uyan, çalışmaya katılmayı kabul eden, 70 hemodiyaliz ve 70 periton diyalizi hastası olmak üzere toplam 140 diyaliz hastası ile gerçekleştirilmiştir. Verilerin toplanmasında anket formu, Türkçe Ölüm Kaygısı Ölçeği ve Duygusal Tepkisellik Ölçeği kullanılmıştır.
Bulgular: Hemodiyaliz ve periton diyalizi hastalarının Duygusal Tepkisellik Ölçeği ve Türkçe Ölüm Kaygısı Ölçeği puan ortalamaları arasında fark bulunmamıştır. hemodiyaliz ve periton diyalizi grubunda Duygusal Tepkisellik Ölçeği puanı ile Türkçe Ölüm Kaygısı Ölçeği puan ortalaması arasında orta düzeyde pozitif bir korelasyon saptanmıştır ($p<0.05$). Hemodiyaliz hastaların Türkçe Ölüm Kaygısı Ölçeği puanlarının %15,3'lük kısmı, periton diyalizi hastalarının ise Türkçe Ölüm Kaygısı Ölçeği puanlarının %26,2'lik kısmı duygusal tepkisellik puanları ile açıklandığı bulunmuştur.
Sonuç: Çalışma sonucunda hemodiyaliz ve periton diyalizi hastalarında ölüm kaygısının ve duygusal tepkiselliğin orta düzeyde olduğu ve diyaliz modaliteleri arasında benzerlik olduğu bulunmuştur.

Anahtar Kelimeler: hemodiyaliz, periton diyalizi, ölüm kaygısı, duygusal tepkisellik.

Introduction

Chronic kidney disease (CKD) is a global health problem affecting the whole world, with an estimated prevalence of 13.4% (11.7-15.1%) (1,2). According to the Turkish Society of Nephrology (TSN) Kidney Registry System data, the prevalence of end-stage renal failure is gradually increasing in Türkiye (3). In the CREDIT (Chronic kidney disease In Türkiye) study conducted by TSN with the participation of 10,748 adults in 23 provinces, it was reported that one in every 6-7 adults in Türkiye had renal disease and 15.7% of the adult population had CKD (4). The fact that the number of CKD patients is increasing every year reveals the seriousness of the disease today.

Dialysis or kidney transplantation should be performed for patients with end-stage renal disease to survive (3). Although renal transplantation is a preferred method for patients with appropriate CKD, the rate of dialysis treatment is higher in most countries (5).

According to 2016 data from the Turkish Society of Nephrology and the Ministry of Health, 74,475 patients received renal replacement therapy in Türkiye as of the end of 2018. Furthermore, hemodialysis (HD)(76.1%) is the most commonly used treatment method, followed by transplantation (19.2%) and peritoneal dialysis (PD) (4.7%) (3). Dialysis treatment, which is one of the most commonly used treatment methods in the treatment of these patients, saves patients from death and allows them to continue living, but it causes limitation of individuals' lives and decreased quality of life (6).

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CKD is a life-threatening disease that leads to significant loss of labor force and various complications, affects almost every age group, mostly adults, has a poor prognosis and poses a death threat. In addition to having to adapt to a restrictive lifestyle, patients are confronted with addiction and death (7). Although there are studies on death anxiety in dialysis patients in the literature (8-12), no studies comparing death anxiety between dialysis modalities were found. Besides, during the COVID-19 pandemic process, the fact that HD patients received treatment at the dialysis center while PD patients were almost completely dialyzed at home may have affected their death anxiety levels. On the other hand, the symptoms experienced due to chronic disease and dialysis and the fact that they were in a vulnerable group during the COVID-19 pandemic process may have affected patients emotionally in many ways and may also have affected emotional reactivity level. Emotional reactivity refers to the emotions felt by the individual in his/her relationships with his/her social environment in daily life according to personality characteristics and the reactions given depending on these emotions (13). In relation to the subject, there are studies investigating the relationship between emotional reactivity and surgical anxiety (14), easy anger (15) and self-harming behavior (16). In the literature, there are studies on emotional problems in dialysis patients (6,17), but there is no study showing the effect of emotional reactivity on death anxiety.

It is thought that investigating the levels of emotional reactivity and death anxiety in PD and HD patients and determining the effect of emotional reactivity on death anxiety will contribute to holistic nursing care.

This study was conducted as a correlational and comparative pilot experiment to determine the relationship between emotional reactivity and death anxiety in dialysis patients.

Research Questions

1. Is there a difference between the scale mean scores of HD and PD patients according to some descriptive characteristics?

2. What are the emotional reactivity and death anxiety levels of PD and HD dialysis patients?

3. Is there a difference between emotional reactivity and death anxiety in PD and HD dialysis patients?

4. Is there an effect of emotional reactivity on death anxiety scores in PD and HD dialysis patients?

Material and Methods

Study population and sample

This study was conducted as descriptive and correlational comparative. The population of the study consisted of patients admitted to the Nephrology Outpatient Clinics of a Dialysis Hospital in a province located in the Central Anatolia Region of Türkiye. The emotional Reactivity Scale and Death Anxiety Scale have been studied in different groups, and in these studies, comparisons were made on the basis of gender, not group. Since these previous studies do not have data on death anxiety and emotional reactivity in HD and PD patients, the sample could not be determined. A pilot study was needed for this. Teare et al. (2014) suggested a pilot test sample of 70 people to reduce the uncertainty around the standard deviation estimate (18). Accordingly, 70 HD and 70 PD patients were included in our study. Power analysis was calculated with the data obtained and the power of the study was found as 90%.

Participants

The study included individuals who were literate, aged 18 years or older, had a dialysis treatment duration of 6 months or more, had no history of psychiatric illness, did not have aphasia, did not have any problems that would prevent communication, and volunteered to participate in the study. The data of the study were collected face-to-face between June 15, 2021 and July 1, 2022.

Measures

Patient information form

This form includes some socio-demographic characteristics such as marital status, age, education level, gender,occupation, income status and questions about the disease (9,17).

Emotion reactivity scale (ERS)

The scale, which was developed by Nock, Wedig, Holmberg and Hooley (2008), measures the emotional reactivity levels of individuals (19). The Turkish validity and reliability study was conducted by Seçer et al. The emotional reactivity scale, which originally had 21 items, is a scale with 3 sub-dimensions consisting of 17 items in its Turkish version. The scale shows a three-factor structure and has sensitivity, reactivity and psychological durability subdimensions. The scale evaluates sensitivity with 5 items, emotional reactivity with 7 items, and psychological durability with 5 items as sub-dimensions. Responses given in 4-point Likert type have the options of "strongly disagree", "disagree", "agree" and "strongly agree". These options are scored between 1 and 4. A total of 17-68 points are obtained from the scale. High scores obtained from the scale are evaluated as high emotional reactivity. In the study of Seçer et al. Cronbach's Alpha coefficient of the scale was .82 (20), while it was .90 in the study.

Turkish death anxiety scale (TDAS)

The scale was developed by Sarıkaya and Baloğlu and consists of 20 items and three sub-dimensions. (21). The scale was prepared in a 5-point Likert form ranging from 0 (never) to 4 (always). A score between 0-80 is obtained from the scale, and it is stated that the higher the score, the higher the death anxiety. According to the total score range, death anxiety levels are evaluated as very low (0-7), low (8-25), medium (26-44), high (45-63) and very high (64-80). The total Cronbach's Alpha coefficient of the scale was .95 (21), while it was .97 in this study.

Data collection

The data collection tools were applied to the patients in a room in the outpatient clinic of the hospital using the face-to-face interview technique. The purpose of this study was explained to the patients, and verbal and written consent was obtained from those who accepted, and they were asked to fill in the questionnaires. Patients filled out the forms by reading them themselves. The researcher stayed with the patients while they filled out the questionnaires and answered questions when they had questions. The patients filled the questionnaire in approximately 15 minutes.

Data analysis

The data were evaluated in the IBM SPSS Statistics Standard Concurrent User V 21 (IBM Corp., Armonk, New York, USA) statistical software. The descriptive characteristics of the patients were shown in the tables as unit number (n), percentage (%), mean ± standard deviation. Kolmogorov-Smirnov test was used to determine the compliance with normal distribution and it was found that the data were normally distributed. The relationship between the categorical descriptive variables of the patients in the HD and PD groups was analyzed using the Pearson Chi-square Test in 2x2 and rxc tables. In table 2, independent sample t-test for binary variables and one-way ANOVA analysis of variance were applied for three or more variables in the descriptive characteristics of the patients. Independent sample t-test was used to compare the two groups (HD and PD). Pearson rank correlation coefficient was used for the correlations of the groups according to the scale mean scores. Cronbach's alpha coefficients were calculated for TDAS and ERS internal consistency. The relationship between TDAS and ERS according to the groups was tested with simple linear regression analysis and $p<0.05$ was considered statistically significant in comparisons.

Ethical approval

Approval from X University Clinical Research Ethics Committee (2021/386-26.05.2021) and institutional permission from Dialysis Hospital were obtained for the study. Written and verbal consent was obtained from the participants before data collection.

Results

A comparison of the groups according to descriptive characteristics is given in Table 1. According to Table 1, the groups were similar in terms of age, duration of disease and dialysis, gender, marital status, educational status, occupation, income, family structure, smoking status, additional chronic disease status and health perception status. In the HD group, 52.9% of the patients were female, 81.4% were married, 55.7% were primary school graduates, 54.3% were not working, 61.4% had income equal to expenses, 84.3% had a nuclear family, 62.9% never smoked, 84.3% had an additional chronic disease and 38.6% perceived their health at a moderate level. In the PD group, 52.9% were male, 85.7% were married,

Table 1: Comparison of Patients in HD and PD Groups According to Descriptive Characteristics

Characteristics	Groups					
	HD (n=70)		PD (n=70)		t	p
Age (Mean ± SD)	58.03 ± 13.84		54.34 ± 13.94		1.570**	0.119
Duration of Diagnosis (Mean ± SD)	8.71 ± 7.29		9.74 ± 5.43		-0.947**	0.346
Dialysis Duration (Mean ± SD)	5.57 ± 5.15		6.77 ± 3.84		-1.562**	0.121
	n	(%)	n	(%)	Test	p
Gender						
Female	37	52.9	33	47.1	0.457*	0.499
Male	33	47.1	37	52.9		
Marital status						
Single	57	81.4	60	85.7	0.208*	0.648
Married	13	18.6	10	14.3		
Educational status						
Literate	8	11.4	9	12.9		
Primary school	39	55.7	42	60.0	1.724*	0.636
High school	19	27.1	13	18.6		
Bachelor's degree	4	5.7	6	8.6		
Working status						
Not working	38	54.3	36	51.4		
Retired	26	37.1	28	40.0		
Public sector	4	5.7	4	5.7	0.325*	0.988
Private sector	2	2.9	2	2.9		
Income status						
Income Less than Expenses	15	21.4	21	30.0		
Income Equals Expenses	43	61.4	40	57.1	1.543*	0.462
Income Exceeds Expenses	12	17.1	9	12.9		
Family structure						
Nuclear family	59	84.3	61	87.1	0.058*	0.809
Extended family	11	15.7	9	12.9		
Smoking status						
No, I have never used it.	44	62.9	38	54.3		
I have used it before; now I don't use it.	21	30.0	24	34.3	1.338*	0.512
Yes, I am still using it.	5	7.1	8	11.4		
Additional chronic disease status						
Yes	59	84.3	53	75.7	1.116*	0.291
No	11	15.7	17	24.3		
Perceived health status						
Poor	26	37.1	21	30.0		
Fair	27	38.6	27	38.6	1.176*	0.556
Good	17	24.3	22	31.4		

* Chi-square test, ** Independent-samples t-test.

Table 2: Comparison of TDAS and ERS Mean Scores of HD and PD Patients According to Descriptive Characteristics

	Groups			
Characteristics	HD (n=70)		PD (n=70)	
Gender	ERS	TDAS	ERS	TDAS
Female	34.05 ± 7.56	42.03 ± 17.94	33.12 ± 8.52	41.27 ± 18.81
Male	36.64 ± 9.52	35.33 ± 20.26	37.03 ± 8.24	32.27 ± 15.86
Test statistics	1.263*	-1.466*	1.948*	-2.172*
p	0.211	0.147	0.056	0.033
Marital status				
Single	35.26 ± 7.85	37.09 ± 18.66	34.37 ± 8.13	38.18 ± 17.39
Married	35.31 ± 11.62	46.69 ± 20.47	40.10 ± 9.72	26.50 ± 17.6
Test statistics	0.013*	1.646*	2.007*	-1.964*
p	0.990	0.104	0.049	0.054
Educational status				
Literate	30.63 ± 9.9	44.25 ± 23.6	31.22 ± 9.24	48.78 ± 14.68
Primary school	34.59 ± 8.37	39.36 ± 18.9	34.62 ± 7.65	36.14 ± 17.05
High school	37.74 ± 7.11	37.11 ± 18.84	38.08 ± 10.35	30.46 ± 20.39
Bachelor's degree	39.50 ± 12.12	31.75 ± 19.53	38.83 ± 8.04	33.83 ± 15.98
Test statistics	1.769**	0.443**	1.610**	2.076**
p	0.162	0.723	0.196	0.112
Working status				
Not working	34.39 ± 8.27	41.5 ± 19.25	33.25 ± 8.59	40.28 ± 19.49
Retired	34.88 ± 8.41	36.38 ± 19.28	41.00 ± 8.49	32.18 ± 14.38
Public sector	38.50 ± 7.14	40.25 ± 19.6	37.18 ± 8.63	43.50 ± 15.61
Private sector	50.50 ± 9.19	18.50 ± 9.19	35.75 ± 4.35	15.50 ± 7.78
Test statistics	2.612**	1.144**	1.468**	2.365**
p	0.059	0.338	0.231	0.079
Income status				
Income Less than Expenses	32.20 ± 8.55	46.20 ± 18.71	32.95 ± 9.67	39.38 ± 20.58
Income Equals Expenses	36.02 ± 8.56	37.37 ± 19.47	36.80 ± 8.20	32.75 ± 15.75
Income Exceeds Expenses	36.42 ± 8.49	35.08 ± 18.11	33.22 ± 6.14	46.56 ± 15.80
Test statistics	1.243**	1.474**	1.703**	2.739**
p	0.295	0.236	0.190	0.072
Family structure				
Nuclear family	35.69 ± 8.59	38.78 ± 18.94	35.51 ± 8.59	36.77 ± 18.25
Extended family	33.00 ± 8.56	39.36 ± 21.64	33.00 ± 8.37	34.78 ± 14.91
Test statistics	0.956*	-0.092*	0.820*	0.312*
p	0.342	0.927	0.415	0.756
Smoking status				
No, I have never used it.	33.36 ± 7.96^{a}	43.02 ± 18.32	34.97 ± 8.82	35.87 ± 19.44
I have used it before; now I don't use it.	39.00 ± 9.03^{b}	32.52 ± 17.10	34.83 ± 8.88	38.13 ± 15.00
Yes, I am still using it.	36.40 ± 8.05^{ab}	29.00 ± 27.96	37.25 ± 6.58	34.75 ± 18.99
Test statistics	3.326**	2.993**	0.260**	0.159**
p	0.042	0.057	0.772	0.853
Additional chronic disease status				
Yes	33.97 ± 7.89	39.76 ± 18.71	34.79 ± 8.25	39.02 ± 17.27
No	42.27 ± 9.10	34.09 ± 22.13	36.41 ± 9.57	28.71 ± 17.52
Test statistics	-3.131*	0.897*	-0.677*	2.135*
p	0.003	0.373	0.501	0.036
Perceived health status				
Poor	31.81 ± 8.28^{a}	48.85 ± 18.46^{a}	32.48 ± 8.81^{a}	42.00 ± 17.65
Fair	35.44 ± 7.87^{ab}	31.78 ± 16.43^{b}	33.93 ± 7.24^{ab}	33.96 ± 16.38
Good	40.29 ± 7.95^{b}	34.88 ± 18.95^{b}	39.32 ± 8.59^{a}	34.41 ± 19.12
Test statistics	5.732**	6.636**	4.298**	1.452**
p	0.005	0.002	0.018	0.241

a-b: No difference between groups with the same letter for each measurement; mean ± sd; *Independent-samples t-test; **One-Way ANOVA; TDAS: Turkish Death Anxiety Scale; ERS: Emotion Reactivity Scale.

60% were primary school graduates, 51.4% were not working, 57.1% had income equal to expenses, 87.1% had a nuclear family, 54.3% never smoked, 75.7% had an additional chronic disease and 38.6% perceived their health at a moderate level.

The mean age of the patients in the HD group was 58.03 ± 13.84 years, the disease duration was 8.71 ± 7.29 (years), and the HD application duration was 5.57 ± 5.15 (years). Furthermore, the mean age of the patients in the PD group was 58.03 ± 13.84 years, the disease duration was 9.74 ± 5.43 (years), and the PD application duration was 6.77 ± 3.84 (years).

The comparison of the mean scores of the Turkish death anxiety and emotional reactivity scale of the groups according to their descriptive characteristics is presented in Table 2. A statistically significant difference was obtained between the smoking status, having additional chronic diseases and health perception status of the patients in the HD group ($p<0.05$). It was determined that these significant differences were caused by non-smokers, patients with additional chronic diseases and patients with poor health perception, respectively. The mean TDAS score of the patients in the HD group was higher in those who perceived their health poorly, and this difference was statistically significant ($p<0.05$). Statistically significant differences were found in the mean ERS score of the patients in the PD group between singles and those who practiced good and poor health ($p<0.05$). The mean TDAS score of the patients in the HD group was higher in women and in those with an additional chronic disease, and these differences were statistically significant ($p<0.05$).

Table 3 shows the comparison of TDAS and ERS mean scores according to the groups. There is no statistically significant relationship between the mean scores of the ERS and TDAS scores of the patients according to the groups ($p>0.05$).

Table 4 shows the correlation between the scales and disease duration in the HD and PD groups. In the HD and PD groups, a moderate positive correlation was found between the ERS score and the mean TDAS score ($r=0.407$; $p<0.05$; $r=0.522$; $p<0.05$). In the HD group, there was a weak positive correlation between disease duration and mean TDAS score ($r=0.240$; $p<0.05$).

The effect of the emotional reactivity scale on the death anxiety scale according to the groups is shown in Table 5. ERS had a statistically significant effect on TDAS in HD patients ($p<0.001$). When there is a one-unit increase in ERS, there is an increase of 0.912 in TDAS. ERS explains 15.3% of the TDAS scores of the patients. ERS had a statistically significant effect on TDAS in PD patients ($p<0.001$). When there is an increase of one unit in ERS, there is an increase of 1.085 in TDAS. ERS explains 26.2% of the TDAS scores of the patients.

Table 3: Comparison of Mean Scores of TDAS and ERS According to Groups

	Groups		Test Statistics	
	HD (n=70)	PD (n=70)	t	p
TDAS	38.87 ± 19.22	36.51 ± 17.77	0.059*	0.953
ERS	35.27 ± 8.58	35.19 ± 8.54	0.753*	0.453

*Independent-samples t-test; TDAS: Turkish Death Anxiety Scale; ERS: Emotion Reactivity Scale.

Table 4: Correlation of Scales and Disease Duration in HD and PD Groups

	HD (n=70)		PD (n=70)	
	ERS	TDAS	ERS	TDAS
ERS				
r		0.407**		0.522**
p		<0.001		<0.001
Disease Duration				
r	-0.141	0.240*	-0.127	0.093
p	0.245	0.045	0.296	0.442

Pearson correlation coefficient was used; TDAS: Turkish Death Anxiety Scale; ERS: Emotion Reactivity Scale; *p<0.05, **p<0.01

Discussion

Life-threatening CKD, which has a poor prognosis, leads to significant loss of labor force and various complications, affects individuals in many ways and can lead to cognitive disorders and emotional changes (8,22). In addition to the physiological and psychological problems associated with the symptoms of renal failure, patients with CKD also face intense psychosocial problems associated with dialysis treatment (23). Patients who have to adapt to a restrictive lifestyle increase their dependency levels and face a disease that may cause death (7). One of the problems that negatively affect both the quality of life and disease acceptance in patients receiving dialysis treatment and are related to mental health is death anxiety (24,25).

In the present study, the mean death anxiety scale score was 38.87 ± 19.22 in patients receiving HD treatment and 36.51 ± 17.77 in patients receiving PD treatment, and both groups had moderate death

Table 5: The effect of the ERS on the TDAS by groups

		β^1 (95% CI)	β^2	t	p*	F	R^2	SE of Estimate	Durbin-Watson
HD	Constant	71.028 (53.049- 89.006)		7.883	**<0.001**	13.481	0.153	17.691	1.875
	ERS	0.912 (0.416- 1.407)	0.407	3.672	**<0.001**			15.270	2.125
PD	Constant	74.705 (59.165- 90.245)		9.593	**<0.001**	25.446	0.262	17.691	1.875
	ERS	1.085 (0.456- 1.515)	0.522	5.044	**<0.001**			15.270	2.125

β^0: Standardized Coefficient; β^1 : Non-standardized Coefficient; SE: Standard Error; R2 : Explained variance; TDAS: Turkish Death Anxiety Scale; ERS: Emotion Reactivity Scale; *p<0.01.

anxiety. In the study, death anxiety levels were similar in patients with CKD according to the type of dialysis treatment. Our results suggest that the dialysis method does not affect the emotional state differently. García-Llana et al. (2013) also stated that dialysis modalities did not affect depression, anxiety and perceived stress levels (26).

This is the first study in which death anxiety was examined comparatively in dialysis modalities and it is thought that the results will provide important data in the care of dialysis patients. When the studies investigating death anxiety in patients receiving HD treatment were examined in the literature, it was reported that HD patients had moderate death anxiety, similar to our study results (11). Unlike our results, Ghiasi et al. (2021) observed that 60.4% of patients had a high level of death anxiety (10). Dewina et al. (2018) indicated that approximately half of the patients had moderate death anxiety, 27.4% had low death anxiety, and 24.7% had high death anxiety (9). It is thought that the differences in the study results may be due to the perception of illness and the meanings attributed to death in different cultures. In addition, the fact that the data of this study were collected during the pandemic is a point that should be emphasized. It is known that patients with end-stage renal failure were in a vulnerable group during the pandemic process, and hospitalization and mortality rates due to COVID-19 were reported higher than in the normal population (27). In studies conducted in relation to the subject, it was found that COVID-19 affected the general and psychological health and social relations of dialysis patients (25,28). As a matter of fact, in a study, it was determined that HD patients experienced mild death anxiety in the pre-pandemic period despite having comorbid chronic diseases such as diabetes mellitus, hypertension, depression and hepatitis, but during the COVID-19 pandemic, the death anxiety level of HD patients varied between mild and severe (29). In a study conducted with HD patients during the pandemic in Türkiye, it was stated that patients had high levels of psychopathological symptoms and approximately one-third of the patients had high to very high levels of death anxiety (12). Additionally, it has been reported that patients with CKD are in a risk group in terms of cognitive and emotional changes,because physiological factors such as uremic toxins, inflammation, vascular changes may lead to cognitive disorders, and factors such as hormonal changes, prolonged hospitalization, economic difficulties and low quality of life may also lead to emotional changes (22).

It is thought that the presence of multiple symptoms and problems experienced by PD and HD dialysis patients and the fact that they constitute a riskier group in the pandemic affecting the entire population may increase their daily life stressors. At this point, the concept of emotional reactivity, which expresses the levels of sensitivity and psychological durability to these stressors in dialysis patients, is important.

Emotional reactivity is formed depending on the relationships that the individual establishes around him/her. In the literature, it was found that emotional reactivity could predict mortality (30) and a significant relationship was found between anxiety and emotion regulation in HD patients (31). In this study, the mean score of the emotional reactivity scale was 35.27 ± 8.58 for HD patients and 35.19 ± 8.54 for PD patients. Emotional reactivity in PD and HD dialysis patients was similar and at a moderate level.

As another important finding in the study, it was observed that death anxiety increased as emotional reactivity increased, and 15.3% of TDAS scores of HD patients and 26.2% of TDAS scores of PD patients are explained by ERS. The findings of the study show that emotional reactivity is effective in increasing death anxiety and draw attention to the importance of emotional reactivity in dialysis patients.

In the literature, there is no study showing the effect of emotional reactivity on death anxiety. In studies related to this subject, it has been shown that a decrease in emotional reactivity level contributes to a decrease in the negative effects of anxiety and thus contributes to the improvement of mean blood pressure (32). Moreover, emotional reactivity is positively associated with low and moderate surgical anxiety (14), and especially in women, emotional reactivity may be associated with depression and self-harm behavior (16). It has also been found that there is a negative relationship between happiness and emotional reactivity and those who feel unhappy have more emotional reactivity (33). Considering that emotional reactivity brings sensitivity, it is necessary to evaluate the emotional reactivity level of patients in reducing death anxiety in dialysis patients. With the evaluation of emotional reactivity, it will become important to reveal the emotions in the interpersonal relationships of the patients and to determine the reactions that occur. It will also contribute to holistic health care.

Limitations

The study of the sample in a single hospital was seen as a limitation. The collection of data during the COVID-19 pandemic may have affected the level of death anxiety and emotional reactivity of dialysis patients, who were in a risky group. Moreover, the self-reported responses of the individuals participating in the study are other limitations of the study.

Conclusion

In this study, it was found that emotional reactivity and death anxiety were moderate in PD and HD dialysis patients and did not vary between dialysis modalities. Death anxiety increased as emotional reactivity increased and emotional reactivity had a significant effect on death anxiety. In conclusion, we think that it is important to determine emotional reactions, to improve expression skills and to consider death anxiety as a part of care in patients receiving treatment in both dialysis modalities.

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