Research Article

Türk Fen ve Sağlık Dergisi
Turkish Journal of Science and Health

Volume 3
Number 1
Year 2022
Pages 11-19

e-ISSN: 2717-7173 https://dergipark.org.tr/tr/pub/tfsd

Received: 30.07.2021 *Accepted:* 26.11.2021 https://doi.org/10.51972/tfsd.976364

The Relationship Between Dialysis Symptoms and Psychiatric Symptoms in Individuals Receiving Hemodialysis Treatment

Sabri Toğluk *, Zekeriya Akın

Vocational School of Health Services, Dialysis Program, Siirt University, Siirt, Turkey

ABSTRACT:
Purpose: This study was carried out descriptively in order to determine the effect of hemodialysis symptoms on psychiatric symptoms in individuals with hemodialysis (HD) treatment.
Material and Methods: The research was conducted with 104 patients who were scanned in the dialysis service of a public hospital. Personal Information Form, Dialysis Symptom Index (DSI), Brief Symptom Inventory (BSI) were used for data acquisition. The data were analyzed via IBM SPSS 22 software.
Results: Patients mean DSI score (63.086±22.65), BSI total score (57.115±27.67), BSI subscale scores Anxiety (10.903±7.84), Depression (19.452±9.86), Negative self (8.990±6.40), Somatization (10.144±5.44) was found as hostility (7.625±4.32).A positive and significant correlation was determined between the patients DSI score and BSI total score and their subscales Anxiety, Depression, Negative Self, Somatization and Hostility ($p<0.05$).
Conclusion: As a result of the study, it was determined that as the dialysis symptoms of individuals receiving HD treatment increased, their psychiatric symptoms increased. The nurse can contribute to the development of the patient's coping skills by evaluating the physiological and psychiatric symptoms of the disease and making plans accordingly.
Keywords: *Hemodialysis, Dialysis Symptoms, Psychiatric Symptoms*

**Corresponding author: Sabri Toğluk, email: stogluk@hotmail.com*

INTRODUCTION

Chronic renal failure (CRF) is the loss of kidney function that is gradual and irreversible (Baykan and Yargic, 2012; Ozcan et al., 2000). It is estimated that there are currently more than two million chronic renal patients are on dialysis or have undergone kidney transplantation throughout the world, and roughly 10% of adults have kidney damage (Agarwal, 2015). The prevalence of CRF was shown to be as high as 15.7% in the population-based CREDIT (Chronic Renal Disease in Turkey) screening investigation, which included 10,872 people in Turkey (Suleymanlar et al., 2011). Renal replacement therapy (RRT), hemodialysis (HD) at home or a dialysis clinic, peritoneal dialysis (PD), and transplantation therapy are all options for patients who have reached the stage of CRF (Rimes Stigare et al., 2015). Hemodialysis is one of the most preferred treatment methods in the treatment of CRF (Rahimipour et al., 2015). Hemodialysis is a valuable therapeutic option for keeping patients healthy, improving their quality of life, and lowering mortality and morbidity rates (Davison and Jhangri, 2005; Park and Yoo, 2016). HD treatment can cause some physical, psychological, social, and economic negative effects such as dependence on treatment programs and devices lasting 4-6 hours on certain days of the week, fear and anxiety caused by machine alarms, sexual dysfunctions, loss of time, and workforce, loss of role and function, and

disruption of family order (Aksoy and Ogur, 2015; Melo et al., 2016).Moreover, patients getting hemodialysis therapy have various symptoms, including fatigue, pain, nausea, vomiting, loss of appetite, muscular cramps, sleep disorders, dry skin, itching, restlessness, and anxiety (Akgoz and Arslan, 2017; Moledina and Perry Wilson, 2015; Zamanian and Kharameh, 2015). These symptoms can have a detrimental impact on people's everyday activities and self-care abilities, and often induce a variety of mental problems, including depression and anxiety (Ozçurumez et al., 2003;Ceyhun and Kırpınar, 2019;Yavuz et al., 2012). Depression was found to be present in 25% of hemodialysis patients, while anxiety was found to be present in 28.8% (Topbas and Bingol, 2017). Another study discovered that 91.5 % of HD patients experienced sexual dysfunction (Taylan and Ozkan, 2020). In a study of dialysis patients in Japan, the rate of mental health hospitalization within a year was found to be 10.6% (Fukunishi et al., 2002).When studies with dialysis patients using different scales and diagnostic methods are examined, psychiatric problems have been reported with a frequency of 5-50% (Ozçetin et al., 2009; Hedayati et al., 2009; Balaban et al., 2017). Dialysis-dependent CRF is a serious illness with high disease burden, morbidity, and mortality (Mandel et al., 2017). A comprehensive assessment of the symptoms of patients with CRF provides information about the impact and treatment of the disease. A multidimensional assessment of symptoms also provides information that may be utilized to improve patient care through education and counseling to help patients maintain their physical and psychological well-being (Weisbord et al., 2004). In this context, it is thought that determining the severity of symptoms in hemodialysis patients, and the relationship between symptom control and psychiatric symptoms, will be critical in terms of planning new and beneficial treatment and care applications for both patients and healthcare professionals. Symptom management requires a multidisciplinary approach, especially nurses, who spend the most time with hemodialysis patients, should be aware of this situation. Being aware of the physiological and/or psychiatric symptoms is the first and most important step in appropriate treatment and care.

MATERIALS AND METHODS

Purpose and Type of the Study

This study was carried out descriptively in order to determine the effect of hemodialysis symptoms on psychiatric symptoms in individuals with HD treatment.

Sampling and Participant

The population of the study comprises 128 patients who were followed up with a diagnosis of Chronic Kidney Failure at Batman Regional State Hospital Dialysis Service between November 11 and December 9, 2020. The sample of the study is made up of 104 patients who were selected from this population at the time of the study and met the criteria. A total of 24 patients, 5 of whom did not want to participate in the study, 16 who were illiterate, 3 who were under the age of 18, were excluded from the sample.

Inclusion Criteria:

1. Volunteering to participate in the study
2. Receiving hemodialysis treatment with a diagnosis of CRF
3. Being over 18 years old
4. Being able to read and write

Exclusion Criteria:

1. Being cognitively and communicative at a level that interferes with continuing the interview and completing the questionnaires
2. Refusal to participate in the study

Data Collection Tools

The data were collected in the Dialysis Service of the Batman Regional State Hospital between 11 November and 9 December 2020 by the researcher, after interviewing the patients face to face, informing them about the purpose of the study, and obtaining their consent. “Personal Information Form”, “Dialysis Symptom Index”, and “Short Symptom Inventory” prepared by the researchers were used as data collection tools. Data collection tools were read by the researcher to the patients and filled in line with the answers received. Interviews

were conducted during the hemodialysis procedure. The interview with each patient lasted an average of 20 minutes.

Personal Information Form

There are 13 items on this form, which was prepared by the researcher scanning the literature, to determine the demographic (age, gender, marital status, etc.) and disease (length of disease, family history, etc.) information of the participants.

Dialysis Symptom Index

DSIwas developed by Weisbord et al. in 2004 and its Turkish validity and reliability study was conducted by Onsoz and Usta Yesilbalkan (2013). This scale, which was developed for hemodialysis patients to measure the level of distress associated with physical and emotional symptoms, consists of 30 items. Responses are obtained with a 5-point Likert Scale. The symptoms experienced in the last seven days are answered as yes-no, and if yes, the effect of this symptom is evaluated by 5-point Likert as “1=none, 2=slightly, 3=moderately, 4=very, 5=extremely”. The obtained scores are tallied, and the total scale score is calculated. This value varies between ”0-150”. A value of “0” indicates there are no symptoms. The fact that the overall score ascribed to the answers increased to 150 points implies that the symptoms' severity grew. DSI cap values were determined to be between 0.10 and 0.93, and Cronbach's alpha coefficient was 0.83 (Onsoz and Usta Yesilbakan, 2013). In our study, the Cronbach's alpha value of the scale was determined as 0.87.

Brief Symptom Inventory

The adaptation of the Brief Symptom Inventory (BSI) developed by Derogatis in 1992 to Turkish was made by Sahin and Durak in 1994. From a total of 90 items dispersed among the 9 factors of the SCL-90-R, 53 items with the highest load in each factor were chosen, and an equivalent 5-point Likert-type scale, which can be administered in 5-10 minutes, was created (Derogatis 1992). The individual responding to the scale marks one of the options (0) “None”; (1) “Slightly”; (2) “Moderately”; (3) “Very”; (4) “Extremely” for each question. The minimum and maximum score range that can be obtained from the BSI scale is between 0-212. Higher scores in BSI indicate that psychiatric symptoms are more common in individuals. As a result of the factor analysis, it was stated that the BSI scale consisted of 5 subscales: "Anxiety (12, 13, 28, 31, 32, 36, 38, 42, 43, 45, 46, 47, 49)", "Depression (9, 14, 16, 17, 18, 19, 20, 25, 27, 35, 37, 39)", "Negative self (15, 21, 22, 24, 26, 34, 44, 48, 50, 51, 52, 53)", "Somatization (2, 5, 7, 8, 11, 23, 29, 30, 33)", and "Hostility (1, 3, 4, 6, 10, 40, 41)" (Sahin and Durak, 1994). The minimum and maximum score ranges that can be obtained from the BSI subscales are respectively Anxiety subscale: 0-52, Depression subscale: 0-48, Negative self subscale: 0-48, Somatization subscale: 0-36, Hostility subscale: 0- is 28. In three different studies conducted using the scale developed by Derogatis (1992) on 719 psychiatric, 626 male hypertension patients, and 25 non-patients receiving outpatient treatment, it was stated that the Cronbach Alpha internal consistency coefficients of 9 subscales varied between 0.71 and 0.85 (Derogatis, 1992). The scale, which was adapted into Turkish by Sahin and Durak, was used in three different studies and the Cronbach Alpha internal consistency coefficients obtained from the total scores were found to be between 0.96 and 0.95. In addition, the Cronbach Alpha coefficients obtained for the subscales vary between 0.55 and 0.86 (Sahin and Durak, 1994). In our study, the Cronbach's alpha value of the BSI scale was 0.92, and the Cronbach's Alpha coefficients obtained for the subscales ranged from 0.62 to 0.82.

Statistical Analysis

The IBM SPSS (Statistical Package for Social Sciences 22) for Windows program was utilized for statistical analysis when examining the data acquired from the study. In the analysis of the data, percentile, arithmetic mean, and standard deviation were used to examine the descriptive characteristics of individuals. Analysis of variance was used to compare the mean scores of DSI and BSI according to their socio-demographic characteristics, Kruskal Wallis test and independent samples t-test were used in cases that did not show normal distribution, and Pearson correlation analysis was used to determine the relationship between the Dialysis

Symptom Index and Brief Symptom Inventory mean scores. The value of p<0.05 was taken as the level of significance.

Ethical Approval

Before the research was conducted, the thesis proposal was submitted to the Mardin Artuklu a University Clinical Research Ethics Committee and approval decision dated 09.11.2020 and numbered 2020/8-13 was taken. Written permission was obtained from the management of Batman Regional State Hospital in Turkey, where the research would be conducted, and from the patients.

RESULTS

When the sociodemographic and occupational characteristics of the participants were examined, it was determined that 39.4% (n=41) of the patients were over 65 years old, 55.8% (n=58) were female, 63.5% (n=66) of the patients were married, 76.0% (n=79) lived in the city center, 59.6% (n=62) of the patients were literate and did not graduate from a school, 97.1% (n=101) were not working, 33.7% (n=35) of the patients quit their job due to illness, 38.5% (n=40) had CRF for more than 5 years, 16.3% (n=17) of the patients had a family history of CRF, 13.5% (n=14) lost a relative in the family due to CRF, the disease of 88.5% (n=92) prevented their activities of daily living, 99.0% (n=103) had someone who supported them during the disease, and all of them received their treatment regularly. When the distribution of the symptoms experienced by the patients was examined, it was determined that more than 50% of them experienced nausea (n=53), decreased appetite (n=66), muscle cramps (n=90), shortness of reath (n=56), lightheadedness/dizziness (n=76), numbness and tingling in the feet (n=97), feeling tired or decreased energy (n=98), dry mouth (n=79), bone or joint pain (n=70), headache (n=71), muscle pain (n=86), difficulty in concentrating (n=73), dry skin (n=87), itching (n=66), worry (n=90), feeling nervous (n=87), and difficulty in falling asleep (n=73), difficulty in maintaining sleep (n=86), feeling uncomfortable (n=94), feeling sad (n=97), anxiety (n=94), decreased interest in sexuality (n=56), and difficulty in sexual arousal (n=56). Feeling tired or low energy (n=98) was found to be the most prevalent complaint, while diarrhea (n=12) was shown to be the least common.

The comparison of the Dialysis Symptom Index and Brief Symptom Inventory Subscale averages according to the sociodemographic characteristics of CRF patients are presented in Table 1. Accordingly, in our study, the mean DSI score was found to be significantly higher in those over 65 years of age (68.03±21.83), women (69.59 ±21.25), spouses (71.00±20.71), literate (68.89±21.07) (p<0.05). However, there was no significant difference observed between living place, working status, quitting work due to illness, working status, duration of CRF, presence of CRF in the family, loss of a family member due to CRF, the fact that the disease interfered with daily life activities, having supporters during the disease, and receiving treatment regularly (p>0.05). BSI mean scores were found to be significantly higher in women (65.29±28.67) and literates (63.02±28.88) (p<0.05). However, no significant difference was found between other parameters (p>0.05). When the DSI scale and BSI subscales and mean scores from the BSI were examined according to the age groups of the patients, it was found that there was a significant relationship between the age groups and the dialysis symptom scale (p=0.010), and between the somatization subscale and the age groups (p=0.035) (p<0.05). It was determined that there was no significant relationship between age groups and anxiety, depression, negative self, hostility subscales, and BSI total mean (p>0.05). When the DSI scale and BSI subscales and mean BSI scores were analyzed according to the gender of the patients, it was determined that there was a significant relationship between gender and dialysis symptom scale (p=0.001), between gender and anxiety subscale (p=0.002), between gender and depression subscale (p=0.000), between gender and somatization subscale (p=0.006), and between gender and BSI scale (p=0.001) (p<0.05). When the mean scores of the patients between the DSI scale and BSI subscales and the BSI scale were examined according to their marital status, it was seen that there was a significant relationship between marital status only with the DSI scale (p=0.041) (p<0.05), and it had no significant relationship with the BSI scale

and other subscales (p>0.05). When the mean scores of the patients between the DSI scale and BSI subscales and the BSI scale were examined according to their education level, it was observed that there was a significant relationship between education levels and DSI scale (p=0.001), anxiety subscale (p=0.029), depression (p=0.004) and BSI scale (p=0.027) (p<0.05), while there was no significant relationship between education levels and other subscales (p>0.05). When the mean scores of the DSI scale and BSI subscales and BSI scale were analyzed according to the patients' place of residence, it was seen that there was no significant relationship between the place of residence and the DSI scale and BSI subscales (p>0.05).

Table 1. Comparison of Dialysis Symptom Index (DSI) and Brief Symptom Inventory (BSI) Subscale Means by Socio-Demographic Characteristics of CRF Patients

		Brief Symptom Inventory Subscales					
Features	**Dialysis Symptom Scale X±SD**	**Anxiety X±SD**	**Depression X±SD**	**Negative Self X±SD**	**Somatization X±SD**	**Hostility X±SD**	**Total BSI X±SD**
Age							
18-33 (10)	48.90±23.76	6.70±4.27	17.10±5.89	6.90±2.42	7.20±2.86	7.10±3.81	45.00±12.06
34-49 (22)	51.13±20.22	10.23±8.86	17.36±11.71	11.05±9.81	8.82±5.57	7.68±5.24	55.14±34.87
50-65 (31)	68.03±20.54	12.00±7.47	20.65±9.35	8.74±6.45	10.35±5.89	8.58±4.47	60.32±27.35
Over 65 years old (41)	68.03±21.83	11.46±8.07	20.24±9.97	8.59±4.35	11.41±5.23	7.00±3.76	58.71±26.26
	F=11.296	F=4.316	F=2.504	F=0.896	F=8.590	F=1.980	F=2.738
	p=0.010	p=0.229	p=0.475	p=0.826	**p=0.035**	p=0.577	p=0.434
Gender							
Woman(58)	69.59±21.25	12.95±8.60	22.88±9.71	10.05±6.41	11.45±5.74	7.97±4.39	65.29±28.67
Man (46)	54.89±21.90	8.33±5.88	15.13±8.30	7.65±6.20	8.50±4.59	7.20±4.23	46.80±22.73
	t=3.455	t=3.109	t=4.304	t=1.922	t=2.834	t=0.902	t=3.572
	p=0.001	**p=0.002**	**p=0.000**	p=0.057	**p=0.006**	p=0.367	**p=0.001**
Marital Status							
Single (12)	49.92±21.05	7.92±5.61	19.17±9.29	9.83±7.56	7.42±4.75	8.42±4.90	52.75±26.92
Married (66)	63.64±21.87	11.45±7.65	19.29±9.90	8.86±6.05	10.80±5.55	7.61±4.09	58.02±26.46
Divorced (4)	50.00±35.14	10.00±12.98	12.75±16.50	11.50±15.86	8.50±6.19	10.25±8.22	53.00±58.55
Wife dead (22)	71.00±20.71	11.05±8.54	21.32±8.78	8.45±4.46	9.95±5.15	6.77±3.85	57.55±26.50
	F=2.850	F=0.703	F=0.884	F=0.327	F=1.476	F=0.910	F=0.150
	p=0.041	p=0.552	p=0.452	p=0.806	p=0.223	p=0.439	p=0.929
Educational Status	68.89±21.07	12.48±8.27	22.03±9.76	9.68±6.17	11.48±5.73	7.34±4.10	63.02±28.88
Literate (62)	58.57±22.78	7.82±5.17	16.25±8.68	8.36±5.80	9.00±3.79	8.00±4.42	49.43±20.20
Primary School (28)	46.43±20.03	10.07±8.76	14.43±9.25	7.21±8.34	6.50±5.00	8.14±5.20	46.36±29.81
Medium to high (14)	F=7.131	F=3.685	F=5.929	F=1.032	F=6.196	F=0.338	F=3.736
	p=0.001	**p=0.029**	**p=0.004**	p=0.360	p=0.003	p=0.714	**p=0.027**
Living place							
Province (79)	63.06±22.94	11.04±8.01	19.78±10.12	9.00±6.76	10.24±5.44	7.75±4.43	57.81±28.52
District (7)	67.71±15.75	15.00±10.98	23.57±10.78	11.71±7.56	10.57±7.11	9.29±4.03	70.14±33.60
Village (18)	61.39±24.38	8.72±4.77	16.39±7.81	7.89±3.75	7.89±3.75	6.44±3.79	49.00±19.11
	F=0.194	F=1.686	F=1.539	F=0.897	F=0.137	F=1.226	F=1.593
	p=0.824	p=0.190	p=0.220	p=0.411	p=0.872	p=0.298	p=0.208

The total mean scores of DSI and BSI subscales in our study are given in Table 2. Accordingly, the mean DSI score of the patients was found to be (63.086±22.65), the total BSI score was (57.115±27.67), and BSI subscale scores were; Anxiety (10.903±7.84), Depression (19.452±9.86), Negative Self (8.990±6.40), Somatization (10.144±5.44), Hostility (7.625±4.32).

Table 3 shows the correlation table of the DSI scale with the BSI scale and BSI subscales of the participants. According to this, a positive and significant correlation was found between patients' DSI score and BSI total score and its subscales Anxiety, Depression, Negative Self, Somatization, and Hostility (p<0.05).

Table 2. Table of Mean Scores of Dialysis Symptom Index Scale, Brief Symptom Inventory Scale and Sub-Dimensions

Scales	Alpha Value	Mean±SD
Dialysis Symptom Index	0,873	63.086±22.65
Brief Symptom Inventory	0,926	57.115±27.67
Anxiety Subscale	0,805	10.903±7.84
Depression Subscale	0,824	19.452±9.86
Negative Self Subscale	0,823	8.990±6.40
Somatization Subscale	0,683	10.144±5.44
Hostility Subscale	0,627	7.625±4.32

Table 3. Correlation Table Between Dialysis Symptom Index Scale and Brief Symptom Inventory Scale and Subscales

		Brief Symptom Inventory						
Scales		**DSI**	**Anxiety**	**Depression**	**Negative Self**	**Somatization**	**Hostility**	**BSI**
DSI	Correlation	1	0.502**	0.670**	0.395**	0.660**	0.314**	0.652**
	Significant		0.000	0.000	0.000	0.000	0.001	0.000
Anxiety	Correlation		1	0.753**	0,734**	0.542**	0.518**	0.909**
	Significant			**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Depression	Correlation			1	0.694**	0.532**	0.428**	0.902**
	Significant				**0.000**	**0.000**	**0.000**	**0.000**
Negative Self	Correlation				1	0.448**	0.454**	0.846**
	Significant					**0.000**	**0.000**	**0.000**
Somatization	Correlation					1	0.182	0.672**
	Significant						0.065	**0.000**
Hostility	Correlation						1	0.596**
	Significant							**0.000**
BSI	Correlation							1
	Significant							

**p<0.01 significant

DISCUSSION

Many physical and mental symptoms are seen in patients undergoing hemodialysis. It is important to determine the physical and psychiatric symptoms seen in hemodialysis patients for effective symptom management. In the study, dialysis symptoms and psychiatric symptoms seen in hemodialysis patients were determined and the relationship between these symptoms was evaluated. The first three symptoms most commonly reported by patients in our study were found to be fatigue or low energy (94.2%), numbness and tingling in the feet (93.3%), and sadness (93.3%), with diarrhea (11.1%) being the least prevalent. Akgoz and Arslan's (2017) study found that the most common symptoms were fatigue or low energy, headache 62.9%, bone or joint pain 61% (Akgoz and Arslan, 2017). In the study of Hintistan and Deniz (2018), the most common symptom was found to be fatigue or low energy 83.5% (Hintistan and Deniz, 2018). In the study of Gorıs et al. (2016), the most common symptoms were reported as 85.5% fatigue and low energy, 59.6% muscle cramps, 52.8%, and difficulty in falling asleep (Gorıs et al., 2016). Durmaz Akyol's (2016) study found that the most common symptoms were fatigue, anxiety, and depression and that the majority of patients in the same study group stated that they were tired (Durmaz Akyol, 2016). In the study of Weisbord et al. (2005), it was reported that 72% of the patients had dry skin, 69% had fatigue or low energy and 54% had itching (Weisbord et al., 2005).In the study conducted by Abdelkader et al. (2009), the symptom-experiencing status of those with end-stage renal disease and those with chronic kidney disease were compared, and it was stated that in both groups the highest rate of fatigue was observed (Abdelkader et al., 2009). As a result of the study conducted by Zamanian and Kharameh (2015), it was reported that the most reported physical symptom was fatigue (85.3%), the most common

psychological symptom was uneasiness (77.9%) (Zamanian and Kharameh, 2015). In a study conducted by Yurtsever and Beduk (2003) to evaluate fatigue in 120 HD patients, it was stated that the majority of patients (92.50%) experienced fatigue (Yurtsever and Beduk, 2003). The results of all these studies and our study showed that fatigue or low energy is the most important symptom experienced in dialysis patients, and it was thought that fatigue could be due to physiological processes such as inability to adjust the fluid-electrolyte balance, failure to fulfill endocrine functions, anemia, malnutrition, and inflammation. Fatigue leads to decreased motivation and mental activity, increasing intolerance, depressive and uncomfortable feeling.It was determined that the mean DSI score of the patients in our study was 63,086±22.65, this score was 45.88±26.36 in Akgoz and Arslan's (2017) study, 98.85 ±23.77 in Zamanian and Kharameh's (2015) study, and 38.1±22.8 in Gorıs et al.'s (2016) study (Akgoz and Arslan 2017; Zamanian and Kharameh 2015; Gorıs et al., 2016). In our study, when DSI was examined based on the age groups, the mean symptom score over 65 years old was found to be significantly higher than other age groups ($p<0.05$). Similar to our study results, in the study of Gorıs et al. (2016), it was reported that the incidence of symptoms increases with age (Gorıs et al., 2016). The increase in the incidence of chronic diseases with increasing age, deterioration of fluid and electrolyte balance, weakening of the immune system, and psychological stability were thought to be the reasons for the more common dialysis symptoms. When the DSI was examined by gender, it was observed that the mean symptom score was significantly higher in females than in males ($p<0.05$). Similar to our study results, in the study of Hintistan and Deniz (2018) and the study of Weisbord et al. (2005), it was found that females who received HD treatment had higher overall symptom burden and symptom severity than males (Hintistan and Deniz 2018; Weisbord et al., 2005). The fact that women's socially prescribed duties and obligations remain, and the variables that affect the utilization of health services, such as education level and occupation, are limited, can explain the increased symptom burden and severity in women receiving HD treatment.

When DSI was analyzed according to marital status, the mean symptom score was found to be significantly higher in those whose spouses passed away compared to those who were single, married, and separated ($p<0.05$).In the study of Hintistan and Deniz (2018), the symptom severity of single HD patients was found to be higher than the married ones (Hintistan and Deniz, 2018). By enhancing social support, marital status has an effect on patients' well-being and, as a result, the severity of symptom perception. When DSI is analyzed according to education level, the mean symptom score was found to be significantly higher in literates than primary and secondary school graduates ($p<0.05$). In the studies of Hintistan and Deniz (2018) and Gorıs et al. (2016), it was determined that patients with low education levels experienced more symptoms than dialysis-related symptoms, as in our study (Hintistan and Deniz 2018; Gorıs et al., 2016). In the study conducted by Unal and Bilge (2005) with HD patients, the physical health, social relations, and environmental quality of life scores of patients with high education levels were found to be higher than those with low education levels (Unal and Bilge, 2005). In addition, Theofilu (2011) found that CRF patients with high economic status and education levels had lower anxiety and depression scores than others (Theofilu, 2011).

According to our study results, the total BSI score was found to be 57.115±27.67, and when studies conducted with hemodialysis patients using different scales and diagnostic methods were examined, psychiatric problems were reported with a frequency of 5-50% (Ozçetin et al., 2009, Hedayati et al., 2009; Balaban et al., 2017). When the BSI total score and BSI subscale mean scores were analyzed according to the age groups of the patients, it was determined that there was a significant relationship between the age groups only with the somatization subscale ($p<0.05$). Accordingly, somatic complaints increase significantly as age increases in patients with CRF. When the BSI total score and BSI subscale mean scores were analyzed based on the gender of the patients, total psychiatric symptoms, anxiety, depression, and somatic symptoms were found to be significantly higher in females than in males ($p<0.05$). Another study found that depression, anxiety,

somatization, and interpersonal sensitivity subscales were higher in women than in men, similar to our study (Kose Genc, 2018). Accordingly, it can be said that the position of women in society is a factor that increases the psychological symptom score in general. When the BSI total score and BSI subscale mean scores were analyzed according to the education level of the patients, it was observed that the total psychiatric symptoms, anxiety, and depression symptoms increased significantly as the education level decreased in CRF patients ($p<0.05$). It is thought that the inability of individuals with low educational level to express themselves adequately increases psychiatric problems. A positive and significant correlation was found between patients' DSI score and BSI total score and its subscales (Anxiety, Depression, Negative Self, Somatization, and Hostility) ($p<0.05$). Therefore, as dialysis symptoms increase in individuals with CRF, total psychiatric symptoms, anxiety, depression, negative self, somatization, and hostility symptoms increase significantly ($p<0.05$). According to our study results, many physical symptoms are seen in individuals undergoing hemodialysis, and psychiatric symptoms increase as physical symptoms increase.In individuals undergoing hemodialysis, nurses should evaluate patients biopsychosocioculturally and create a care plan in line with their symptoms, and should help support patients and their families with interventions such as education, counseling and guidance.

CONCLUSION

In our study, the first three symptoms most experienced by individuals undergoing hemodialysis were feeling tired or decreased energy, numbness and tingling in the feet, and feeling sad; The least common symptom was found to be diarrhea. According to our research results, advanced age, low education level and losing a spouse are risk factors for dialysis symptoms in individuals undergoing hemodialysis. According to our research results, low education level and female gender are risk factors for psychiatric symptoms in individuals undergoing hemodialysis. In our study, it was found that psychiatric symptoms, anxiety, depression, negative self, somatization and hostility symptoms increased as dialysis symptoms increased in individuals undergoing hemodialysis.In the light of the research results, it is recommended that individuals with CRF, especially the elderly, women, and those with a low education level, should be evaluated in terms of the causes, degree, and effects of dialysis complications and psychiatric symptoms and supported for their solution. In addition, it is thought that initiating physiological and psychiatric evaluations together with the diagnosis of CRF may enable the early detection of possible problems and the taking of necessary precautions. Finally, psychosocial evaluation of the patient innon-psychiatry clinics by Consultation-Liaison Psychiatry (CLP) nurses, informing and supporting the nurses and other health personnel who will care and treat this patient, and multidisciplinary teamwork are recommend.

Conflict of Interest

The authors declare that they have no conflict of interest.

REFERENCES

Abdelkader, K., Unruh, M. L., Weisbord, S.D. et al. (2009). Symptom burden, depression and quality of life in cronic end-stage renal disease. Cilnical Journal of American Society of Nefrology, 4,1057-1064.

Agarwal, A. K. (2015). Systemic effects of hemodialysis access. Adv Chronic Kidney Disease, Nov, 22(6), 459-465.

Akgoz, N., Arslan, S. (2017). Examination of symptoms experienced in patients receiving hemodialysis treatment.Journal of Nephrology Nursing,1,20–8. https://dergipark.org.tr/tr/download/article-file/360008

Aksoy, A., Ogur, S. (2015). Determining the distress of dialysis patients who are routinely connected to the dialysis unit in Bitlis, Bitlis Eren University Journal of Science; 4(2):112-121.

Balaban, O.D., Aydin, E., Keyvan, A. et al. (2017). Psychiatric patients undergoing hemodialysis comorbidity, Sexual Dysfunction and Quality of Life: A Case Control Study. Arshieve Noropsychiatry, 54(2),137- 142.

Baykan, H., Yargic, I. (2012). Depression, anxiety disorders, quality of life and stres coping strategies in hemodialysis and continuous ambulatory peritoneal dialysis patients. Bulletin of Clinical Psychopharmacology, 22(2), 167-76.

Ceyhun, H. A., Kırpınar, I. (2019). Psychiatric diagnosis in patients undergoing kidney transplantation or undergoing dialysis due to end-stage renal failure.

Anatolian Journal of Psychiatry, 20(4), 426-434. Doi: 10.5455/apd.12474.

Davison, S. N., Jhangri, G. S. (2005). Impact of pain and symptom burden on the health-related quality of life of hemodialysis patients. J Pain Symptom Manage, 39, 477–85.

Derogatis, L. R. (1992). The brief symptom ınventory, administration, scoring and procedures manuel-II, New York: Clinical Pyschometric Research Inc.

Durmaz Akyol, A. (2016). Investigation of factors affecting quality of life in hemodialysis patients. Journal of Nephrology Nursing, 1: 21.

Fukunishi, I., Kitaoka, T., Shirai,T. et al. (2002). Psychiatric disorders among patients undergoing hemodialysis therapy. Nephron, 91 (2), 344.PMID: 12053079

Gorıs, S., Ceyhan, O., Tascı, S., Dogan, N. et al. (2016).Do symptoms related to hemodialysis affect marital adjustment? Sexuality and Disability,34,63–73.

Hedayati, S.S., Minhajuddin, A. T., Toto, R. D. et al. (2009). Prevalence of major depressive episode in CKD. American Journal of Kidney Diseases, 54(3),424-432. https://doi.org/10.1053/j.ajkd.2009.03.017

Hintistan, S., Deniz, A. (2018). Symptom evaluation in patients receiving hemodialysis treatment. Bezmialem Science, 6, 112-8 DOI: 10.14235/bs.2018.1530.

Kose Genc, B. (2018). Psychiatric symptoms and affecting factors in hemodialysis patients. Recep Tayyip Erdogan Universtiy Journal of Social Sciences, 7, 207-222.

Melo, G. A. A., Silva, R. A., Silva, M. F. C. et al. (2016). Religiosity and hope in patients with chronic renal failure: Coping Strategies. Int Arch Med;9:1–9. [CrossRef]

Moledina DG, Perry Wilson F. (2015). Pharmacologic treatment of common symptoms in dialysis patients: A narrative review. Semin Dialysis; 28: 377-83

Mandel, E. I., Bernacki, R. E., Block S. D. (2017). Serious Illness conversations in ESRD. Clin J Am Soc Nephrol, 12(5):854-863. Doi: 10.2215/CJN.05760516.

Onsöz, H. B., Usta Yesilbalkan, O. (2013). Reliability and validity of the turkish version of the dialysis symptom index in chronic hemodialysis patients: Turkish Nephrology. Dialysis and Transplantation Journal, 22(1), 60-67.

Ozcan, Y., Basturk, M., Aslan, S. S. et al. (2000). Psychiatric morbidity and quality of life in patients undergoing hemodialysis and continuous ambulatory peritoneal dialysis. Journal of Turgut Ozal Medical Center,7(4),332-337.

Ozçetin, A., Bicik Bahcebaşı, Z., Bahçebası, T. et al. (2009). Quality of life in patients undergoing dialysis and psychiatric symptom distribution. Anatolian Journal of Psychiatry, 10,142-150.

Ozçurumez G, Tanriverdi N, Zileli L. (2003). Psychiatric and psychosocial aspects of chronic renal failure. Turkish Journal of Psychiatry; 14(1):72-80.

Park, G. Y., Yoo, E. K. (2016).A study on hope in hemodialysis patients. Adv Sci Technol Lett (Healthcare and Nursing), 128, 244–6.

Rahimipour, M., Shahgholian, N., Yazdani, M. et al. (2015). Effect of hope therapy on depression, anxiety, and stress among the patients undergoing hemodialysis. Iranian Journal Nursing Midwifery Resh, 20, 694–99.

Rimes Stigare, C., Frumento, P., Bottai, M. et al. (2015). Long-term mortality and risk factors for development of end-stage renal disease in critically ill patients with and without chronic kidney disease. Critical Care, 19. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4630837/

Suleymanlar, G., Utas, C., Arinsoy, T. et al. (2011). A population based survey of chronic renal disease ın Turkey the chredıt study: Nephrology Dialysis Transplantation, 6(6), 1862-71.

Sahin, N. H., Durak A. (1994). Brief symptom inventory (BSI): Adaptation for Turkish youth. Turkish Journal of Psychology, 9 (31), 44-56.

Taylan, S., Ozkan, I. (2020). The Relationship of Symptom Clusters in Hemodialysis Patients with Sexual Function. Journal of Nephrology Nursing, 15(2), 79-88.

Theofilou, P. (2011). Depression and anxiety in patients with chronic renal failure: the effect of sociodemographic characteristics. International Journal of Nephrology, Article ID 514070, 6 pages.

Topbas, E., Bingol, G. (2017). Nursing Interventions for Dialysis Treatment and Adaptation Process with its Psychosocial Dimension. Journal of Nephrology Nursing, 1, 36-42.

Unal, G., Bilge, A. (2005)Evaluation of the mental status and quality of life of patients with end-stage renal disease in hemodialysis treatment. Aegean Medical Journal, 44, 35-8.

Weisbord, S. D., Fried, L. F., Arnold, R. M. et al. (2004). Development of a symptom assessment instrument for chronic hemodialysis patients: The Dialysis Symptom Index. Jounal of Pain Symptom Manage, 27 (3), 226-240.

Weisbord, S. D., Fried, L. F., Arnold, R. M. et al. (2005). Prevalence, severity, and ımportance of physical and emotional symptoms in chronic hemodialysis patients. Journal of the American Society of Nephrology, 16,2487- 2494.

Yavuz, D., Yavuz, R., Altunoğlu, A. (2012). Psychiatric diseases in hemodialysis patients. Turkish Medical Journal; 6(1):33-37.

Yurtsever, S., Beduk, T. (2003). Evaluation of fatigue in hemodialysis patients. HEMAR-GE, 2, 3-12.

Zamanian, H., Kharameh, Z. T. (2015). Translation and psychometric properties of the persian version of the dialysis symptom index in hemodialysis patients. Nephrourol Mon., 7,e23152.