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EMPIRICAL RESEARCH QUANTITATIVE

Coping strategies and its relationship with sexual dysfunction in adults receiving haemodialysis and peritoneal dialysis: A cross-sectional study

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Abstract

Aim: To explore relationship coping strategies and sexual dysfunction, and the predictive factors of sexual dysfunction in adults receiving haemodialysis and peritoneal dialysis.

Background: Sexual dysfunction is a common problem in adults receiving haemodialysis and peritoneal dialysis. This problem may be related to psychological and physiological conditions. However, the association between psychological conditions such as coping strategies and sexual dysfunction is not clearly understood.

Design: This study is a cross-sectional study.

Methods: The data were collected from November 2021 to July 2022 using the General Information Form, Arizona Sexual Experiences Scale: Female and Male Versions, and the Ways of Coping Inventory. Correlation and multiple regression analyses were conducted to investigate the relationship between coping strategies and sexual dysfunction.

Reporting Method: STROBE checklist.

Results: A total of 110 adults, 67 on haemodialysis and 43 on peritoneal dialysis, who met the eligibility criteria were included in this study. The optimistic, helpless and submissive approach sub-dimensions of coping strategies had positive correlation with sexual dysfunction in adults receiving haemodialysis. Among the sub-dimensions of the ways of coping inventory, helpless approach was positive predictor and seeking social support was negative predictor of sexual dysfunction in adults receiving haemodialysis. The coping strategies were not predictors of sexual dysfunction for adults receiving peritoneal dialysis.

Conclusions: This study showed that helpless coping strategy increases sexual dysfunction, and seeking social support decreases sexual dysfunction in haemodialysis.

Implications for the profession and/or patient care: According to this study, social support is effective coping strategy for reducing sexual dysfunction. Education and support for effective coping strategies should be provided to dialysis patients by healthcare professionals at the start of dialysis treatment. Effective coping strategies should be integrated into routine care standards and nursing or hospital policies.

Patient or Public Contribution: Adults receiving haemodialysis and peritoneal dialysis were involved in this study.

KEYWORDS
coping strategies, cross-sectional studies, nursing, peritoneal dialysis, renal dialysis, sexual health

1 | INTRODUCTION

Haemodialysis (HD) and peritoneal dialysis (PD) are commonly used renal replacement therapies for end-stage renal disease (ESRD) (Zeighami et al., 2022). Adults receiving HD and PD face several physiological, psychological and social problems (Vélez-Vélez & Bosch, 2016). Sexual dysfunction is one of these problems and is defined as problems that individuals or their partners have during any stage of normal sexual activity, including sexual desire, plateau, ejaculation/orgasm, or resolution (Johansen, 2020). Sexual dysfunction is commonly observed in adults receiving HD and PD, and its prevalence ranges from 67% to 100% in both HD and PD worldwide (Bayram et al., 2021; Pyrgidis et al., 2021; Shakiba et al., 2020).

Sexual dysfunction in adults receiving HD and PD is a complex situation, and multiple factors contribute to sexual dysfunction (Chou et al., 2021). In addition, it is stated in the literature that coping strategies may also be associated with sexual dysfunction in the general population (Crisp et al., 2015). In the literature, the studies explored the relationships between sexual dysfunction and depression, anxiety, and quality of life in adults receiving dialysis or with chronic kidney disease (Cruz et al., 2022; Guven et al., 2018; Jarullah et al., 2020). However, the relationship between coping strategies and sexual dysfunction has not yet been explored in adults receiving HD or PD.

What does this paper contribute to the wider global clinical community?

- This study will contribute to health professionals' awareness of the relationships between coping strategies and sexual dysfunction for adults receiving dialysis, especially haemodialysis.
- This study will raise awareness in health professionals, especially nurses, that they should practice empowerment and social support interventions to help dialysis patients to develop active coping strategies to reduce sexual dysfunction.
- This study will help to integrate effective coping strategies into routine clinical care standards and hospital or nursing policies to reduce sexual dysfunction in adults receiving dialysis.

2 | BACKGROUND

Sexual dysfunction is associated with hormonal, neural, vascular and psychosocial causes in individuals with ESRD (Johansen, 2020). Additionally, medications and other comorbid diseases such as vascular and neurological diseases are common causes of sexual dysfunction in ESRD (Zeighami et al., 2022). Unfortunately, sexual dysfunction causes anxiety, social isolation and poor quality of life in adults receiving dialysis (Chou et al., 2021; Pyrgidis et al., 2021). In addition, individuals with sexual dysfunction face crisis and considerable stress in this process (Shakiba et al., 2020). Therefore, it is important for health professionals, especially nurses, to be aware of sexual dysfunction in adults receiving dialysis, not to see it as an insignificant factor for adults, and to provide individuals with active coping strategies to improve sexual dysfunction (Pyrgidis et al., 2021).

In the literature, the importance of considering coping strategies and other psychological mechanisms is emphasised in coping with sexual dysfunction (Chou et al., 2021; Shakiba et al., 2020). Coping is a process of reacting to a stressful situation or event, and individuals may invoke different levels of effort to improve stress, depending on the type of stress or a personality trait (Biggs et al., 2017). Coping is dynamic and process-oriented rather than trait-based (Folkman et al., 1986). Coping strategies are used when a situation is judged to be stressful and requires effort to control or resolve the event (Biggs et al., 2017). Coping strategies are either problem-focused coping, defined as directly addressing the stressor, or emotion-focused coping, defined as the attempt to control the feelings resulting from the stressful situation (Riley & Park, 2014). According to Lazarus and Folkman (1984), stress and coping strategies are a continuous cycle of interactions between the individual and their environment (Biggs et al., 2017; Lazarus & Folkman, 1984).

In the literature, several studies have focused on the relationships between depression, anxiety, self-care behaviour, adherence to treatment, illness perception, quality of life, anxiety and emotional regulation with coping strategies in adults with chronic kidney disease or receiving dialysis (Barberis et al., 2017; Gilbar et al., 2005; Ibrahim et al., 2013; Knowles et al., 2014; O'Connor et al., 2008; Vélez-Vélez & Bosch, 2016). Additionally, these studies showed that coping strategies were associated with depression, anxiety, self-care behaviour, adherence to treatment, illness perception, quality of life, anxiety and

emotional regulation in adults with chronic kidney disease or receiving dialysis. However, there is lack of evidence on the relationships between sexual dysfunction and coping strategies in adults receiving dialysis. Therefore, we aimed to explore relationships between sexual dysfunction and coping strategies in adults receiving HD and PD. Thus, this study will help to the awareness of the relationships between coping strategies and sexual dysfunction for adults receiving dialysis by health professionals, especially nurses. In addition, this study will contribute to education and support effective coping strategies by health professionals at the beginning of dialysis treatment for adults receiving dialysis treatment to reduce sexual dysfunction. This study will also help to integrate effective coping strategies to reduce sexual dysfunction in adults receiving dialysis into routine clinical standards of care and hospital or nursing policies.

3 | THE STUDY

This study aimed to explore the relationship between coping strategies and sexual dysfunction, and the predictive values of coping strategies for sexual dysfunction in adults receiving HD and PD. We also aimed to determine coping strategies and sexual dysfunction in adults receiving HD and PD, and the differences between the two groups.

4 | METHODS

4.1 | Design

This study is a cross-sectional design. It was reported by following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies (von Elm et al., 2014) (File S1).

4.2 | Study setting and sampling

This study used a convenience sampling method of adults receiving HD and PD during the period spanning November 2021–July 2022 in the dialysis unit of a publicly funded hospital in one of Turkey's provinces. The sample size was calculated with the G* Power software (Faul et al., 2009). A power analysis was calculated by using F tests and linear multiple regression: fixed model, R^2 deviation from zero as the statistical test, and 'A priori: calculating the required sample size—given α, power, and effect size' as the type of power analysis. Cohen's $f^2=0.15$ with medium effect size, $\alpha=0.05$, power $(1-\beta)=0.80$, and number of predictors = 5 were taken as input parameters. The result of the analysis showed that the minimum sample size required was 92 adults. Finally, the required sample size was determined to be 101 adults, with the probability that the non-response rate might be 10%.

4.3 | Inclusion and exclusion criteria

The participants were included in this study according to inclusion and exclusion criteria. The inclusion criteria were as follows: (1) age 18 years or older; (2) receiving HD or PD for at least 3 months; (3) being sexually active; (4) having no communication problem; (5) being willing to participate in the study. Exclusion criteria were as follows: (1) having cognitive disorders; (2) being diagnosed with a psychiatric disease or a malignancy.

4.4 | Variables

The variables of this study were as follows:

- Predictor variables: The sub-dimensions of coping strategies are self-confidence, optimistic, helpless and submissive approaches, and seeking social support.
- Outcome variables: Coping strategies and sexual dysfunction

4.5 | Instrument with validity and reliability

4.5.1 | General information form

This general information form was designed based on relevant literature and it was prepared by the researchers. The form included questions related to socio-demographics and dialysis treatment. Socio-demographic questions included age, gender, marital status, educational status, income level, employment status and living status. Dialysis treatment questions comprise of type, duration, and frequency of dialysis treatment, and comorbid diseases.

4.5.2 | Arizona sexual experiences scale

This scale was used to assess the sexual function of adults receiving HD and PD treatment. It was developed by McGahuey et al. in 2000 and the Turkish version of the scale was assessed by Soykan in 2004 (McGahuey et al., 2000; Soykan, 2004). The scale includes five items assessing sexual functioning in five areas for females and males: sexual drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm and satisfaction with orgasm. The female and male versions of this scale were used in this study. Each item is rated on a six-point Likert type scale. The total score ranges from 5 to 30, and a high score indicates a high sexual dysfunction (McGahuey et al., 2000). In the Turkish validity and reliability assessment, the Cronbach's alpha reliability coefficient of the scale was 0.89 and 0.90 for the male and female versions respectively (Soykan, 2004). In this study, the Cronbach's alpha reliability coefficient was 0.87 for males and 0.90 for females.

4.5.3 | The ways of coping inventory

This inventory was used to assess coping with stress and to determine coping strategies in specific contexts of the adults receiving HD or PD treatment. It was developed by Folkman and Lazarus in 1986, and the Turkish version of the scale was assessed by Sahin and Durak in 1995 (Folkman et al., 1986; Şahin & Durak, 1995). It consists of 30 items on a Likert-type inventory of 0 (not suitable at all) to 3 (very suitable) and five sub-dimensions: self-confidence, optimistic, helpless and submissive approaches, and seeking social support. Additionally, this inventory has two elements: effective and ineffective coping strategies. The sub-dimensions of self-confidence, optimistic approaches, and seeking social support are effective coping strategies, and the helpless and submissive approaches are ineffective coping strategies (Şahin & Durak, 1995). The total score is not obtained and each sub-dimension is calculated separately: the self-confident approach score ranges from 0 to 21, the optimistic approach score from 0 to 15, the helpless approach score from 0 to 24, the submissive approach score from 0 to 18, and the seeking social support score from 0 to 12. High scores in the sub-dimensions indicate that the individual uses this coping approach more. In the Turkish validity and reliability study, the Cronbach's alpha reliability coefficients of the five sub-dimensions ranged from 0.47 to 0.80 (Şahin & Durak, 1995). In this study, the Cronbach's alpha reliability coefficients of the five sub-dimensions ranged from 0.32 to 0.58.

4.6 | Data collection

The data was collected in the dialysis unit of a publicly funded hospital in one of Turkey's provinces between November 2021 and July 2022. The General Information Form, the Arizona Sexual Experiences Scale: Female and Male Versions, and the Stress-Coping Style Scale were used in the data collection. The data were collected by the researcher using the face-to-face interview method and the process was completed in approximately 30 min. The aim of the study was explained to the participants and their written and verbal consent was obtained before starting the study.

4.7 | Data analysis

Data analysis was performed using IBM SPSS v23.0 (IBM Corp., Armonk, NY, USA). The normality test was evaluated with the skewness and kurtosis test and graphical methods. Mean and standard deviation for continuous variables and frequency and percentage for categorical variables were used. The independent sample *t*-test and the chi-squared test were conducted to compare between groups for socio-demographic and clinical variables. Pearson's correlation analysis was performed to evaluate the correlations between coping strategies and sexual dysfunction. In addition, multivariate linear regression analysis was performed separately to explore the predictors of the sub-dimensions of coping strategies of adults receiving HD or PD on sexual dysfunction. Multicollinearity was tested using variance inflation factor (VIF) to determine the correlation between predictor variables. If VIF value was less than 10, there was no multicollinearity in the regression model. If the variables had a high VIF value of 10 or more than 10, these variables were removed from the regression analysis. The p values $<.05$ were considered statistically significant in all analyses.

4.8 | Ethical considerations

Ethical approval was obtained from the University's Clinical Research Ethics Committee. (Approval No: 70904504/196). The participants were informed about the purpose and procedure of the research before starting the study. Additionally, they were informed that they could leave the research at any time without any negative repercussions. All participants provided verbal and written informed consent.

5 | RESULTS

5.1 | Sociodemographic and clinical characteristics of the participants

A total of 230 individuals were screened for eligibility, of whom 160 were receiving HD and 70 were receiving PD. Among the 160 individuals receiving HD, 20 were younger than 18 years old, 32 were not sexually active, 25 had been receiving HD treatment for less than 3 months, and 16 refused to participate in the study. Among the 70 individuals receiving PD, 20 were not sexually active and seven refused to participate in the study. Finally, a total of 110 adults, 67 on HD and 43 on PD, accepted to participate in the study. In our study, the response rate was 80.72% for the HD group and 86.0% for the PD group. The overall response rate for HD and PD groups was 82.70%.

The participants' characteristics are presented in Table 1. The mean age for HD was 40.76 years, and it was 48.8 years for PD. For HD, 50.7% of the participants were female and for PD, 53.5% were male. Also, 70.1% of HD patients and 69.8% of PD patients were married. Regarding the clinical characteristics of the HD group, 56.7% had been receiving HD treatment for from 3 months to 3 years, and 49.3% were receiving HD treatment three times a week for 3 h. Regarding the clinical characteristics of the PD group, 62.8% were receiving automated PD and 69.8% had been receiving PD for 4–6 years. With regard to comorbidities, 9.0% of the participants for HD and 4.7% of those for PD were diabetic, 1.5% and 4.7% of the participants for HD and PD respectively had hypertension, and 4.5% and 4.7% of the participants for HD and PD respectively had cardiac disease. There was no statistically significant difference between the two groups by participant characteristics other than age and income level (Table 1).

TABLE 1 Sociodemographic and clinical characteristics of the adults receiving haemodialysis and peritoneal dialysis.

Variables	Haemodialysis group ($n=67$)		Peritoneal dialysis group ($n=43$)		Total ($n=110$)		Statistical analysis	
							χ^2/t	p
Age (years) $\bar{x} \pm SD$	40.76 ± 11.94		48.8 ± 12.48		43.91 ± 12.73		−3.36	.001
	n	%	*n*	%	*n*	%		
Gender							.188	.665
Female	34	50.7	20	46.5	54	49.1		
Male	33	49.3	23	53.5	56	50.9		
Marital status							.002	.966
Married	47	70.1	30	69.8	77	70		
Single	20	29.9	13	30.2	33	30		
Educational status							4.752	.191
Literated	9	13.4	2	4.7	11	10.0		
Primary	9	13.4	8	18.6	17	15.5		
Secondary	23	34.3	21	48.8	44	40.0		
University/postgraduate	26	38.8	12	27.9	38	34.5		
Income level							7.039	.030
Low	11	16.4	15	34.9	26	23.6		
Middle	48	71.6	27	62.8	75	68.2		
High	8	11.9	1	2.3	9	8.2		
Employment status							.404	.525
Employed	46	68.7	27	62.8	73	66.4		
Unemployed	21	31.3	16	37.2	37	33.6		
Living status							1.884	.390
Alone	5	7.5	2	4.7	7	6.4		
Spouse/relatives	62	92.5	40	93.0	102	92.7		
Caregiver	0	0.0	1	2.3	1	.9		
Haemodialysis duration								
3 months–3 years	38	56.7						
4–6 years	27	40.3						
7 years and over	2	3.0						
Haemodialysis session								
Once weekly	4	6.0						
Twice weekly	30	44.8						
Thrice weekly	33	49.3						
Duration of haemodialysis session								
2 h	21	31.3						
3 h	33	49.3						
3.5 h	6	9.0						
4 h	7	10.4						
Type of peritoneal dialysis								
Continuous ambulatory peritoneal dialysis			16	37.2				
Automated peritoneal dialysis			27	62.8				
Peritoneal dialysis duration								
3 months–3 years			11	25.6				
4–6 years			30	69.8				

(Continues)

TABLE 1 (Continued)

Variables	Haemodialysis group (n = 67)		Peritoneal dialysis group (n = 43)		Total (n = 110)		Statistical analysis	
							χ^2/t	p
7 years and over			2	4.7				
Comorbidity								
No other disease	55	82.0	37	86.0	92	83.7	.300	.584
Diabetes	6	9.0	2	4.7	8	7.3	.719	.396
Hypertension	1	1.5	2	4.7	3	2.7	.985	.321
Cardiac disease	3	4.5	2	4.7	5	4.5	.002	.966
Others	2	3.0	0	0.0	2	1.8	1.307	.253

Abbreviations: x̄, Mean; χ^2, Chi-squared test; *t*, independent sample *t*-test; SD, standard deviation.

TABLE 2 The comparison of coping strategies and sexual dysfunction scores in adults receiving haemodialysis and peritoneal dialysis.

Variables	Haemodialysis group (n = 67)	Peritoneal dialysis group (n = 43)		
	x̄ ± SD	x̄ ± SD	*t*	*p*
Sexual dysfunction	17.64 ± 4.89	18.62 ± 4.97	−1.024	.308
Stress-coping styles				
Self-confidence approach	10.37 ± 2.26	10.53 ± 2.97	−.323	.747
Optimistic approach	7.37 ± 2.42	6.97 ± 2.07	.883	.379
Helpless approach	11.82 ± 2.43	12.11 ± 3.13	−.554	.581
Submissive approach	9.19 ± 2.52	9.20 ± 2.99	−.029	.977
Seeking social support	8.26 ± 1.59	8.27 ± 2.17	−.029	.977

Abbreviations: x̄, Mean; SD, standard deviation; *t*, independent sample t test.

5.2 | The score and comparison of sexual dysfunction and coping strategies

The scores and comparison of sexual dysfunction and coping strategies of the adults receiving HD or PD are presented in Table 2. The mean of sexual dysfunction was 17.64 ± 4.89 in the HD group and 18.62 ± 4.97 in the PD group. There were no significant differences between the two groups ($p = .308$). The highest mean in both the HD and PD groups was the helpless approach sub-dimension of coping strategies (11.82 ± 2.43 and 12.11 ± 3.13, respectively). There were no differences in the sub-dimension of coping strategies between the two groups (Table 2).

5.3 | Correlation of coping strategies sub-dimensions and sexual dysfunction

The correlation between coping strategies sub-dimensions and sexual dysfunction is shown in Table 3. The HD participants' sexual dysfunction scores were positively correlated with optimistic ($r = .364$, $p = .002$), helpless ($r = .313$, $p = .010$), and submissive approaches ($r = .395$, $p < .001$) of the sub-dimension of coping strategies. There was no relationship between sexual dysfunction and the self-confidence approach and seeking social support ($p > .05$). The

TABLE 3 The relationships between coping strategies and sexual dysfunction.

Stress-coping styles	Sexual dysfunction			
	Haemodialysis group (n = 67)		Peritoneal dialysis group (n = 43)	
	r	*p*	*r*	*p*
Self-confidence approach	.174	.158	−.030	.850
Optimistic approach	.364	.002	.112	.474
Helpless approach	.313	.010	.069	.662
Submissive approach	.395	<.001	.228	.142
Seeking social support	−.230	.061	−.131	.402

Abbreviation: *r*, Pearson's correlation coefficient.

PD participants' sexual dysfunction scores were not correlated with coping strategies ($p > .05$) (Table 3).

5.4 | Predictors of sexual dysfunction

The results of regression analysis for predicting sexual dysfunction of sub-dimensions of coping strategies are presented in Table 4. The

TABLE 4 Results of regression analysis for predicting sexual dysfunction of sub-dimensions of coping strategies.

	Sexual dysfunction											
	Haemodialysis group ($n=67$)						Peritoneal dialysis group ($n=43$)					
Stress-coping styles	*B*	Standard error	β	*t*	*p*	VIF	B	Standard error	β	*t*	*p*	VIF
Constant	10.707	4.044		2.647	.010		18.443	6.217		2.966	.005	
Self-confidence approach	.262	.280	.121	.937	.353	1.457	−.275	.324	−.164	−.848	.402	1.502
Optimistic approach	.270	.295	.134	.913	.365	1.861	.072	.492	.030	.147	.884	1.694
Helpless approach	.461	.226	.229	2.043	.045	1.091	−.059	.288	−.037	−.206	.838	1.317
Submissive approach	.435	.267	.224	1.632	.108	1.636	.469	.345	.283	1.362	.182	1.731
Seeking social support	−.874	.357	−.284	−2.448	.017	1.165	−.125	.417	−.054	−.299	.767	1.332
Model summary	$R=.544$, $R^2=.296$, $F=5.125$, $p=.001$						$R=.278$, $R^2=0.77$, $F=.619$, $p=.686$					

Abbreviations: *B*, unstandardised beta coefficients; β, standardised beta coefficients, VIF, variance inflation factor.

VIF values of all variables were less than 10, indicating no multicollinearity. The results of multiple linear regression analysis showed that the helpless approach ($\beta=.229$, $p=.045$) was a significant positive influencing factor, and seeking social support ($\beta=-.284$, $p=.017$) was a significant negative influencing factor of sexual dysfunction for adults receiving HD. In addition, this study found that self-confidence, optimistic and submissive approaches were not significant predictors of sexual dysfunction for adults receiving HD. Furthermore, given that no significant correlation was observed between coping strategies and sexual dysfunction, this study showed that coping strategies are not predictors of sexual dysfunction for adults with PD (Table 4).

6 | DISCUSSION

To the best of our knowledge, this is the first study to explore the relationship between coping strategies and sexual dysfunction in adults receiving HD and PD. This study showed that sexual dysfunction increased in adults with HD as they used optimistic, helpless and submissive coping approaches. Additionally, the helpless coping approach was a positive predictive factor, and the seeking social support coping approach was a negative predictive factor affecting sexual dysfunction in adults receiving HD. However, there was no relationship between coping strategies and sexual dysfunction in adults receiving PD. The results of this study will contribute to understanding the effect of coping strategies on sexual dysfunction in adults receiving HD and PD for future research and practice.

In our study, it was found that there were no significant differences in sexual dysfunction and coping strategies in adults receiving HD or PD. Although there was no statistical difference, it was determined that the sexual dysfunction scores were higher in adults receiving PD. In the literature, few studies have compared sexual dysfunction or sexual health between HD and PD groups. Among these studies, one study conducted by Zeighami et al. (2022) showed that female adults receiving HD had better sexual function than the PD group, and that the male adults receiving PD had better sexual function than the HD group (Zeighami et al., 2022). In other studies, some reported adults receiving HD had more sexual problems than PD, while others reported adults receiving PD had more sexual problems than HD (Almutary et al., 2016; Basok et al., 2009; Toorians et al., 1997). The pathophysiology of sexual dysfunction in adults receiving dialysis is complex (Johansen, 2020). It is stated that many factors, such as age, duration of dialysis treatment, comorbid diseases, depression, anxiety and sleep problems, may affect sexual dysfunction in dialysis patients (Cruz et al., 2022; Guven et al., 2018; Pyrgidis et al., 2021). It is also reported that long-term chronic kidney disease, comorbid diseases and medication use may increase sexual dysfunction (Chou et al., 2021). These factors may have been effective in the high sexual dysfunction score of the PD group in our study. In our study, the majority of participants in the PD group received dialysis treatment for a longer time than in the HD group, which may also have effected on the increase in sexual dysfunction. Thus, we recommend that health professionals regularly assess sexual function in both HD and PD groups. Sexual function can be difficultly expressed, regardless of the individuals' cultural background. Therefore, we recommend that health professionals use a standardised assessment method to assess sexual function, and they regularly assess patients to help them freely express their views on sensitive issues.

The pathophysiology of sexual dysfunction in adults receiving dialysis is complex (Johansen, 2020). It is stated that many factors such as age, duration of dialysis treatment, comorbid diseases, depression, anxiety and sleep problems may affect sexual dysfunction in dialysis patients (Cruz et al., 2022; Guven et al., 2018; Pyrgidis et al., 2021). It is also reported that long-term chronic kidney disease, comorbid diseases and medication use may increase sexual dysfunction (Chou et al., 2021). These factors may have been effective in the

high sexual dysfunction score of the PD group in our study. In our study, the majority of participants in the PD group received dialysis treatment for a longer time than in the HD group, which may also have affected the increase in sexual dysfunction. Thus, we recommend that health professionals regularly assess sexual function in both HD and PD groups. Sexual function can be a difficult parameter to express, regardless of the cultural background of the individual. Therefore, we recommend that health professionals use a standardised assessment method to assess sexual function and that patients are regularly assessed to help them freely express their views on sensitive issues.

Our study showed that adults with HD and PD use ineffective coping strategies, which are categorised as emotion-focused coping, such as helpless coping. Additionally, our study also revealed that helpless coping was a negative predictor of sexual dysfunction in adults receiving HD. Previous studies indicated that adults receiving HD and PD used ineffective coping strategies such as the helpless approach, similar to our result (Baykan & Yargic, 2012; Cinar et al., 2009; Gurkan et al., 2015; Hicdurmaz & Oz, 2009; Parvan et al., 2015). These studies showed that adults receiving HD and PD commonly used turning to religion as a helpless coping strategies. Helpless coping is an emotion-focused coping strategy, and emotion-focused strategies help to reduce emotional reactions to the stressor (Reed, 2016). However, emotion-focused coping strategies do not remove the stressors from the environment (Knowles et al., 2014). Problem-focused strategies help to remove the stressors from the environment (Riley & Park, 2014). Therefore, it is recommended that health professionals be aware of inactive coping strategies, such as emotion-focused for adults receiving dialysis. Healthcare professionals should teach and support adults receiving dialysis on problem-focused coping strategies such as restrictive coping, more active coping, and seeking social support at the beginning of dialysis treatment. Furthermore, adults receiving dialysis should support regularly to develop or maintain problem-focused coping strategies, such as support groups, social support activities, or other effective interventions.

Our study revealed that the levels of sexual dysfunction increased in adults receiving HD as they used optimistic, helpless, and submissive coping strategies. There is no evidence in the literature on the relationship between these coping strategies and sexual dysfunction in adults receiving HD or PD. However, previous studies in different populations, such as adults with Sjögren's syndrome and women with sexual concerns, showed that ineffective coping strategies such as introversion, behavioural disengagement, self-blame, rumination, catastrophizing and self-distraction increased sexual dysfunction (Crisp et al., 2013, 2015; McCready et al., 2023). Therefore, further studies are required to explore the relationships between coping strategies and sexual dysfunction in adults receiving HD or PD. Furthermore, helpless and submissive coping are ineffective coping strategies. Therefore, health professionals should carefully and regularly assess ineffective coping strategies such as religious aspect, self-blame, rumination, catastrophizing, self-distraction, introversion and behavioural disengagement in adults receiving dialysis.

Optimistic coping is a problem-focused coping style, and it has a positive effect on physical well-being (Biggs et al., 2017; Conversano et al., 2010; Reed, 2016). However, our study showed that an optimistic coping strategy negatively affected sexual dysfunction for HD. There is also evidence in the literature that optimism emerges as a result of cognitive underestimation of risk, which is referred to as unrealistic optimism (Shepperd et al., 2015). In unrealistic optimism, individuals form unrealistic positive expectations and these expectations are temporary (Jefferson et al., 2017; Shepperd et al., 2015). This optimism is not beneficial to individuals (Jefferson et al., 2017). It is difficult to identify the unrealistic optimism of individuals. Nevertheless, when individuals update their optimistic beliefs in a biased manner, distort their beliefs by emphasising the desirable news, perpetuate the desirable news, and acquire unrealistic positive beliefs in the face of disconfirming evidence, such behaviour is referred to as unrealistic optimism (Jefferson et al., 2017; Shepperd et al., 2015). In our study, HD patients may have had a negative effect on sexual dysfunction because they used unrealistic optimism. Therefore, health professionals should be aware of unrealistic optimistic behaviours in dialysis patients.

Our study revealed that seeking social support is a positive predictor of sexual dysfunction in adults receiving HD. In the literature, there is no evidence of predictive factors such as seeking social support for sexual dysfunction in adults receiving HD. However, previous studies in other populations, such as postmenopausal women and adults with multiple sclerosis, have reported that seeking social support has a positive effect on sexual dysfunction, similar to our findings (McCabe, 2002; Nateri et al., 2017). Social support is a type of social connection, that helps people get through contact with other people, groups, and communities, and can be given face-to-face, online, verbal, or non-verbal (Gilmour et al., 2020). In addition, seeking support also helps people to receive supportive behaviour from others by intentionally communicating (Biggs et al., 2017). This approach can improve the individual's sense of competence and self-confidence, increase social contacts, and enable in-depth contact with others (Gilmour et al., 2020). Thus, it can provide positive psychological outcomes and improve the physical health and well-being of the individual (Parvan et al., 2015). Therefore, health professionals should provide social support programs with individuals, groups, or larger communities face-to-face or online to manage and improve sexual dysfunction in adults receiving dialysis, especially in the HD group. We can also recommend that hospital or nursing policies develop services for social support programs for adults receiving dialysis.

Our study showed that coping strategies were not correlated with sexual dysfunction and coping strategies were not predictive factors of sexual dysfunction in adults receiving PD. In the literature, there has been no evidence of the relationships between coping strategies and sexual dysfunction and predictor factors such as coping strategies for sexual dysfunction in adults receiving PD. Both coping strategies and sexual function or dysfunction can influenced

by an individual's age, gender, culture, long-term illness, comorbidities and other factors (Chou et al., 2021; Reed, 2016). These factors could explain the lack of a significant association between coping strategies and sexual dysfunction in the PD group in our study. Additionally, further studies are needed to explore relationships between coping strategies and sexual dysfunction in adults receiving PD.

6.1 | Strength and limitations

The strength of this study is that, to the best of our knowledge, this study was the first to investigate the relationship between coping strategies and sexual dysfunction in adults receiving HD and PD. This study has some limitations. First, the study was conducted in a single centre due to limitations in available manpower, working time and funding. This may limit the generalizability of the study results to all adults receiving HD and PD. Therefore, we recommend that further cross-sectional studies with multicentre and larger sample sizes be conducted to increase the generalizability of the results. Secondly, Cronbach's alpha values of sub-dimensions of the ways of coping inventory were low in this study. For this reason, the low level of the Cronbach's alpha values should be taken into account in the interpretation of the results of the study.

7 | CONCLUSION

This study showed that there was no significant difference in sexual dysfunction and the sub-dimension of coping strategies between adults receiving HD and PD. Additionally, this study presented that adult receiving HD or PD highly used helpless approach among the sub-dimension of coping strategies. In the adults receiving HD, this study explored that sexual dysfunction increased when the optimistic, helpless and submissive approaches were used. Furthermore, this study revealed that the helpless approach was a significant positive influencing factor, and seeking social support was a significant negative influencing factor of sexual dysfunction in adults receiving HD. However, this study showed that coping strategies were not correlated with sexual dysfunction and were not predictors of sexual dysfunction in adults with PD.

8 | RELEVANCE TO CLINICAL PRACTICE

Sexual dysfunction is complex process and it is affected by several factors such as psychological, physiological, and social factors (Johansen, 2020). In addition, sexual health is important in adults receiving dialysis for a better quality of life, well-being, and a better relationship with partners (Shakiba et al., 2020). Therefore, we recommend that health professionals evaluate all aspects of sexual health in adults receiving HD and PD. In addition, in the assessment of sexual function, health professionals should use a standardised assessment method, which helps patients freely express their views on sensitive issues. Furthermore, our study showed that the helpless coping approach increased sexual dysfunction, and the seeking social support coping approach decreased sexual dysfunction, in adults receiving HD. Therefore, health professionals should be aware of the relationships between coping strategies and sexual dysfunction for adults receiving dialysis, especially HD. Additionally, health professionals, especially nurses, should practice empowerment and implement social support interventions to help dialysis patients to develop active coping strategies. Furthermore, health professionals should train on coping strategies at the beginning of dialysis treatment to adults receiving dialysis treatment to reduce sexual dysfunction. Education on problem-focused coping strategies, such as support groups, social support activities, or other effective interventions, should provide for HD and PD. Furthermore, education and support for coping strategies should be integrated into routine clinical care standards, and hospital or nursing policies should develop services for this integration.

AUTHOR CONTRIBUTIONS

Hatice Ceylan, Şefika Tuğba Yangöz and Zeynep Özer were involved in conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualisation, writing—original draft and writing—review & editing. Zeynep Özer contributed to project administration and supervision.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the authors.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

This study was conducted according to the Declaration of Helsinki. The ethical approval was obtained from the Akdeniz University's Clinical Research Ethics Committee (Decision No: 70904504/196). The participants were informed about the purpose and procedure of the study before starting the study. Additionally, they were informed that they could leave the research at any time without any negative repercussions. All participants were provided with verbal and written informed consent.

STATISTICAL ANALYSIS

The authors have checked to make sure that our submission conforms as applicable to the Journal's statistical guidelines described here. Additionally, the author(s) affirm that the methods used in the data analyses are suitably applied to their data within their study design and context, and the statistical findings have been implemented and interpreted correctly. The author(s) agrees to take responsibility for ensuring that the choice of statistical approach is appropriate and is conducted and interpreted correctly as a condition to submit to the Journal.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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