

ORIGINAL ARTICLE

The effects of death anxiety on diet-fluid restriction non-adherence in hemodialysis patients

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Abstract

Introduction: The study was performed to examine the effects of death anxiety on diet-fluid restriction non-adherence in hemodialysis patients.

Methods: This descriptive, cross-sectional, and correlational study was performed with 118 hemodialysis patients who received treatment in the dialysis unit of a university hospital and a state hospital in Elazığ, eastern Turkey. The study data were obtained with the “Descriptive Data Form”, “Death Anxiety Scale”, and “Dietary and Fluid Restriction Non-Adherence Scale”.

Findings: The average Death Anxiety Scale total score of the patients was 10.00 ± 4.75 . The “Duration of non-adherence with diet” mean score was 1.66 ± 1.70 , “Degree of non-adherence with diet” mean score was 1.24 ± 1.19 , “Duration of non-adherence with fluid restriction” mean score was 1.61 ± 1.71 , and “Degree of non-adherence with fluid restriction” mean score was 1.16 ± 1.13 . The independent variable Death Anxiety Scale significantly and negatively affected the dependent variable “Duration of non-adherence with diet”, “Degree of non-adherence with diet”, “Duration of non-adherence with fluid restriction”, and “Degree of non-adherence with fluid restriction”.

Discussion: Hemodialysis patients face serious death anxiety, their degree of non-adherence with diet-fluid restriction was low as death anxiety scores increased, and the degree of non-adherence with diet-fluid restriction decreased.

KEYWORDS

death anxiety, hemodialysis patient, non-adherence with diet-fluid restriction

INTRODUCTION

The rate of patients receiving hemodialysis because of end-stage renal failure is increasing in Turkey and on a global scale.^{1,2} A total of 1.2 million people die annually because of end-stage renal failure, and it is the 12th leading cause of mortality.³ Hemodialysis, which is the most commonly used treatment modality in patients with end-stage renal failure, affects patient’s quality of life negatively, causing significant changes in daily life because of

diet-fluid restriction, the necessity of receiving dialysis, and presence of physical-psychological manifestations.⁴ Adherence to diet-fluid restriction is important for the success of the treatment and failure to do this can lead to electrolyte imbalance, fluid overload, exacerbation of manifestations, poor quality of life, recurrent hospitalizations, high health care costs and mortality.^{3,5} Adherence to diet-fluid restriction is among the most challenging factors for patients during this difficult and long treatment process.⁶ It is reported that hemodialysis patients

experience high rates of non-adherence with dietary (47.3–72.5%) and fluid (50–70.7%) restrictions.³ Clinical outcomes depend on adherence to the treatment modality. Extreme dietary sodium intake in hemodialysis patients causes osmoreceptors to induce thirst and volume intake, increases total body water, and outcomes in interdialytic weight gain. Extreme interdialytic weight gain necessitates more fluid withdrawal during the hemodialysis procedure.⁷ Serum phosphorus levels >5 mg/dL are directly related to elevated risk of mortality in hemodialysis patients.⁸ Elevated potassium levels cause ventricular arrhythmias and mortality.⁹ For this reason, diet-fluid restriction management must be ensured in hemodialysis patients.¹⁰

Recent issues that attract attention in chronic diseases are mortality and anxiety. Death anxiety can be faced at any time in the lives of people. Patients may develop a fear of death in the late stages of chronic diseases because of low survival rates, poor performance, and uncertainty about their future.¹¹ Hemodialysis has significant negative impacts on the physical–mental aspects.¹² Patients who receive hemodialysis have to adapt to and live with the changes in their lives and deal with the manifestations of the disease, maintain a certain diet, adapt to changes in body image, and reconsider their personal, social, and professional goals.¹³ Patients who undergo hemodialysis are more dependent on others because of their chronic disease, which decreases self-confidence, causes a feeling of loneliness, and affects psychosocial functions, increasing the level of death anxiety.^{14,15} Death anxiety is a common psychological reaction in hemodialysis, and previous studies report that more than 63% of hemodialysis patients experience it.^{16,17} Death anxiety may affect the treatment and follow-up of patients negatively.^{11,18} It has been reported in previous studies that the reasons for patients refusing dialysis include fear of pain and suffering, loneliness, and fear of death. Also, patients who refuse dialysis do not comply with their diets, which can be interpreted as a passive suicide method.¹⁹

Nursing deals with the care of individuals, families, and communities to achieve, maintain, or improve optimal health and quality of life from birth to death. Nurses have the role of covering the biological, sociological, psychological, and spiritual needs of patients with important roles in overcoming patients' anxiety about facing death.^{11,20} Hemodialysis imposes important responsibilities on nurses because of its serious complications. Nephrology nurses help patients with end-stage renal failure in the management of the disease and contribute to their adherence to treatment.⁶ Nurses must also provide holistic and personalized care so that hemodialysis patients can express their emotions and overcome death

anxiety.¹⁹ For this reason, the outcomes of the study may help nurses decrease death anxiety and enhance treatment adherence in hemodialysis patients with appropriate planning. The study was performed to examine the effect of death anxiety on diet-fluid restriction non-adherence in hemodialysis patients.

METHODS

Type of the study

The study was performed in a descriptive, cross-sectional, and correlational design.

Population-sample of study

The population comprised 172 patients registered to the dialysis unit of a university and state hospital in Elazığ, eastern Turkey (January and May 2023). After the inclusion criteria were applied, the sample comprised 118 patients (68% participation) between the specified dates (18 years of age or older, having no impairments (e.g., vision-speech-hearing) that might prevent communication, having no psychiatric problems) and being a volunteer. The study continued with a total of 118 patients because 41 of 172 patients did not meet the inclusion criteria and 13 did not accept to participate in the study. The effect size was 0.31 at 95% power and 0.05 significance level in the post hoc power analysis made with G-Power 3.1.9.4.

Data collection tools

Data were collected with interviews made with patients in 10–15 minutes. The “Descriptive Data Form”, “Death Anxiety Scale”, and “Dietary and Fluid Restriction Non-Adherence Scale” were used to collect the data.

Descriptive data form

The form, which was created by the researchers, consisted of a total of 19 questions on individuals' age, marriage, gender, number of children, education, income, employment and social security status, satisfaction with life, health and diagnosis status, year of diagnosis, duration of dialysis, route of hemodialysis, number of hemodialysis sessions per week, the status of having had a kidney transplant before, the status of having another chronic disease, the duration of receiving hemodialysis,

the status of thinking that fluid restriction is important, and the status of monitoring the content of the meals eaten every day.

Death Anxiety Scale

Death Anxiety Scale was developed by Templer²¹ to examine the concerns and fears of individuals about death and death risk. The Turkish validity-reliability of the scale was performed by Akça and Köse in 2008.²² The scale had a 15-item design and the answers are in the form of “True/False”. Sum of the scores shows death anxiety level. The highest score is 15 (0–4 points are considered as “mild”, 5–9 points as “moderate”, 10–14 points as “serious”, and 15 points as “panicking” death anxiety). The KR-20 value was 0.75 in the original scale and was 0.91 in our study.

Dietary and fluid restriction non-adherence

The scale was developed by Vlaminc et al.²³ Turkish validity-reliability of it was performed by Kara.²⁴ Dietary and Fluid Restriction Non-Adherence Scale is a self-report tool with four items used to evaluate non-adherence behavior with diet-fluid intake restriction. Two items question non-adherence with diet (1st and 2nd items), and the other two question non-adherence with fluid restriction (3rd and 4th items). The frequency of non-adherence with diet-fluid restriction is based on the behavior of the patients in the previous 14 days. Non-adherence degree with diet-fluid restriction has a Likert-type structure between 0 and 4 (No non-adherence = 0, Mild = 1, Moderate = 2, Severe = 3, Very serious = 4). Cronbach's alpha value of original scale was determined as 0.70.²⁴ Cronbach's alpha was 0.77 in our study.

Evaluation of data

The SPSS (22.00) was used in the data analysis. From the descriptive statistics, percentages, mean values, and standard deviation values were used. Kurtosis-Skewness was used to examine normality. Simple linear regression analysis was used for the analysis of data and $p < 0.05$ was accepted as the significance level.

Ethical aspect of study

Non-Interventional Ethics Committee approved the study (date 7.04.2022 and number 2022/05-33) and

permission was obtained from the institution where the study was performed. Verbal consent was obtained after necessary explanations were made regarding the study and the application method to the patients. The study was performed following the ethical principles of Helsinki Declaration.

RESULTS

The average age of the patients was 57 ± 14.96 , average year of diagnosis was 6.86 ± 6.00 , the average year of hemodialysis was 5.38 ± 5.31 , 66.1% of patients were male, 70.3% were married, 38.1% were secondary school graduates, 78% had children, 50.8% had income equal to expenditures, 89.8% were not working, 78.8% had a social security, 55.1% were generally satisfied with their lives, 47.5% perceived their health status as moderate, 66.1% had another chronic disease, 86.4% had hemodialysis through fistula, 87.3% underwent hemodialysis 3 days a week, 94.4% of them had not had a kidney transplant before, 89% of them had hemodialysis as 4 days, 39% thought that fluid restriction was important, and 40.7% thought that it was important to examine the contents of the meals eaten every day (Table 1).

The mean Death Anxiety Scale total score was 10.00 ± 4.75 . The mean score of patients in “Duration of non-adherence with diet” was 1.66 ± 1.70 , 1.24 ± 1.19 in “Degree of non-adherence with diet”, 1.61 ± 1.71 in “Duration of non-adherence with fluid restriction”, and 1.16 ± 1.13 in “Degree of non-adherence with fluid restriction” (Table 2).

In the regression analysis, the independent variable Death Anxiety Scale total score affected the dependent variable Duration of non-adherence with diet total score at significant levels ($F = 239.400$, $p = 0.000$). The variable explained 67% of the Duration of non-adherence with diet total score. The Death Anxiety Scale independent variable negatively affected the Duration of non-adherence with diet total score (Table 3). The Death Anxiety Scale independent variable in the second model significantly affected the dependent variable, the Degree of non-adherence with diet total score ($F = 246.008$, $p = 0.000$). The variable included in the analysis explained 68% of the Degree of non-adherence with diet total score and affected it negatively (Table 3). The Death Anxiety Scale independent variable in the 3rd model significantly affected the Duration of non-adherence with fluid restriction total score, which is the dependent variable ($F = 250.030$, $p = 0.000$). The variable explained 68% of the Duration of non-adherence with fluid restriction total score and affected it negatively (Table 3). The Death Anxiety Scale independent variable significantly

TABLE 1 Descriptive characteristics of the patients.

Characteristics	Number (n = 118)	%
<i>Gender</i>		
Female	40	33.9
Male	78	66.1
<i>Marital status</i>		
Married	83	70.3
Single	35	29.7
<i>Educational background</i>		
Illiterate	22	18.6
Literate	7	5.9
Primary school	32	27.1
Middle school	45	38.1
College and above	12	10.2
<i>Status of having children</i>		
Yes	92	78
No	26	22
<i>Income status</i>		
Income less than expenses	43	36.4
Equal income-expenses	60	50.8
More income than expenses	15	12.7
<i>Working status</i>		
Working	12	10.2
Not working	106	89.8
<i>Social security status</i>		
Yes	93	78.8
No	25	21.2
<i>General satisfaction with life</i>		
I am not satisfied	53	44.9
I am satisfied	65	55.1
<i>Describe your health status</i>		
Poor	55	46.6
Moderate	56	47.5
Good	4	3.4
Very good	3	2.5
<i>Other chronic disease conditions</i>		
Yes	78	66.1
No	40	33.9
<i>Mode of entry into hemodialysis</i>		
Catheter	6	13.6
Fistula	102	86.4
<i>How many days per week do you undergo hemodialysis?</i>		
1 Day	4	3.4
2 Days	11th	9.3
3 Days	103	87.3

(Continues)

TABLE 1 (Continued)

Characteristics	Number (n = 118)	%
<i>Previous kidney transplantation</i>		
Yes	6	5.1
No	112	94.9
<i>Hemodialysis duration</i>		
3 h	6	5.1
3.5 h	6	5.1
4 h	105	89
4.5 h	1	0.8
<i>Thinking that fluid restriction is important</i>		
Important	38	32.2
Important	46	39
Moderately important	32	27.1
Somewhat important	2	1.7
<i>Monitoring the content of meals eaten every day</i>		
Important	37	31.4
Important	48	40.7
Moderately important	31	26.3
Somewhat important	2	1.7
	Mean ± SD; Min – Max	
Age (years)	57 ± 14.96; 20–85	
Year of diagnosis	6.86 ± 6.00; 1–22	
Year of hemodialysis	5.38 ± 5.31; 1–21	

TABLE 2 DAS and DFRNA of patients' score averages.

	Mean ± SD	Min.	Max.
DAS total	10.00 ± 4.75	0.00	15.00
<i>DFRNA</i>			
Duration of non-adherence with diet	1.66 ± 1.70	0.00	6.00
Degree of non-adherence with diet	1.24 ± 1.19	0.00	4.00
Duration of non-adherence with fluid restriction	1.61 ± 1.71	0.00	5.00
Degree of non-adherence with fluid restriction	1.16 ± 1.13	0.00	4.00

Abbreviations: DAS, Death Anxiety Scale; DFRNA, Dialysis Diet-fluid Restriction Non-Adherence Scale.

affected the dependent variable, the Duration of non-adherence with fluid restriction total score in the 4th model ($F = 222.386$, $p = 0.000$). The variable explained 65% of the Degree of non-adherence with fluid restriction total score and affected it negatively (Table 3).

DISCUSSION

Hemodialysis is important for patients who have chronic renal failure, which has high mortality and morbidity.²⁵

Although patients try to extend their lives with hemodialysis, they also have to cope with the difficulties of this process.²⁶ Patients may also experience death anxiety and have difficulty adapting to fluid diet treatment in this process.^{10,20} The effects of death anxiety on diet-fluid restriction non-adherence in hemodialysis patients were examined in our study.

The sum of the scores gives the death anxiety level in the evaluation of the Death Anxiety Scale (0–4 points were considered “mild”, 5–9 points “moderate”, 10–14 points “serious”, and 15 points “panic level” death

TABLE 3 Regression analysis outcomes.

Dependent variables	Model	Variables	B.	S. error	β	t	p	95% confidence interval		
								Lower	Upper	
FDNA	1	Constant	4.614	0.211		21,915	0.000*	4197	5031	
		DAS	-0.393	0.019	-0.821	-15.473	0.000*	-0.332	-0.257	
		R = 0.821	$R^2 = 0.674$							
		F = 239.400	p = 0.000*							
DDNA	2	Constant	3.324	0.147		22,677	0.000*	3033	3614	
		DAS	-0.208	0.013	-0.824	-15.685	0.000*	-0.234	-0.182	
		R = 0.824	$R^2 = 0.680$							
		F = 246.008	p = 0.000*							
FFNA	3	Constant	4.593	0.209		22,009	0.000*	4179	5006	
		DAS	-0.298	0.019	-0.826	-15,812	0.000*	-0.336	-0.261	
		R = 0.826	$R^2 = 0.683$							
		F = 250.030	p = 0.000*							
DFNA	4	Constant	3.118	0.145		21,477	0.000*	2830	3405	
		DAS	-0.196	0.013	-0.811	-14.913	0.000*	-0.222	-0.170	
		R = 0.811	$R^2 = 0.657$							
		F = 222.386	p = 0.000*							

Abbreviations: DAS, Death Anxiety Scale; DDNA, degree of non-adherence with diet; DFNA, degree of non-adherence with fluid restriction; FDNA, duration of non-adherence with diet; FFNA, duration of non-adherence with fluid restriction. Bold values are significant values

* $p < 0.001$.

anxiety). The total death anxiety score was 10.00 ± 4.75 . Based on this result, it is clear that the patients had serious death anxiety in the study. Different studies concluded that hemodialysis patients experienced high or moderate death anxiety.^{20,27–29} Ghiasi et al.³⁰ reported that 60.4% of hemodialysis patients had high death anxiety. Kisomi et al.'s³¹ study reported that the prevalence of death anxiety was high in patients. Hemodialysis patients cope with significant manifestations and complications during their treatment.^{26,32} Patients' quality of life decreases due to these problems.³³ As a result of these changes in the lives of patients, they may feel death closer to them. For this reason, it can be argued that they experience intense death anxiety.

The non-adherence to diet-fluid restriction degree is scored between 0 and 4 in Dietary and Fluid Restriction Non-Adherence Scale (0 points indicate no non-adherence, 1 point: mild non-adherence, 2 points: moderate non-adherence, 3 points: serious non-adherence, and 4 points: very serious non-adherence). The average score of the patients in the "Degree of non-adherence with diet" was 1.24 ± 1.19 , and the average score in the "Degree of non-adherence with fluid restriction" was 1.16 ± 1.13 . Based on this result, it can be argued that the degree of non-adherence with diet-fluid restriction was mild in the patients who participated in the study.

Previous studies reported differences in adherence to diet-fluid restriction. In Anuja et al.'s³⁴ study, 83.3% of the patients had good adherence, 14.6% had moderate adherence, and 2% had poor adherence to fluid and dietary restrictions. It was reported in Beerappa et al.'s⁵ study that patients had moderate adherence to fluid and dietary restrictions. It was reported in different studies that non-adherence with diet-fluid restriction was at high or moderate levels.^{35–38} In a meta-analysis in which diet-fluid non-adherence were evaluated globally, the rate of non-adherence with diet was 60.2% and the rate of non-adherence with fluid restriction was 60.6%.³ Fluid and dietary restriction is important for hemodialysis patients. Failure to comply with prescribed dietary and fluid restrictions is a serious health care issue that limits the benefits of routine treatment modalities. Non-adherence with diet-fluid restriction causes important consequences in hemodialysis patients such as deterioration in fluid-electrolyte balance, cardiovascular problems, Interdialytic Weight Gain, frequent hospitalizations, decreased quality of life and increased mortality rates.^{35,37,39,40} The problems faced by patients because of diet-fluid restriction affect their perceptions of fluid dietary restriction.⁴¹ Patients who comply with the restrictions face fewer manifestations.⁴² For this reason, it is possible to argue that the

non-adherence levels of the patients were low in this study.

Death anxiety affects the degree and duration of adherence with diet-fluid restriction negatively in hemodialysis patients and as death anxiety increased in the patients in our study, the degree and duration of diet-fluid non-adherence decreased. Serious manifestations occur in patients as a result of non-adherence to diet-fluid restrictions.^{39,42} Interdialysis weight gain is greater, serum phosphorus levels are elevated, and depression is more common in non-compliant patients with diet-fluid restrictions. Serum calcium, serum albumin, quality of life and nutritional status are at better levels in compliant patients than in non-compliant patients.⁴⁰ Non-adherence causes increased hospitalization rates and mortality in hemodialysis patients. It can further enhance mortality rates in hemodialysis patients, whose mortality rate is already high.^{39,43} This may be the source of death anxiety in patients. It can be argued that patients comply better with diet-fluid restrictions, especially because the negative outcomes of non-adherence remind them of death and they want to avoid these consequences.

CONCLUSION

It was found in the study that the patients' death anxiety was high, but their non-adherence to diet-fluid therapy was low. As death anxiety increased, non-adherence to diet-fluid restriction decreased in hemodialysis patients. No studies were detected in the literature that evaluated death anxiety together with non-adherence to diet-fluid restriction. Appropriate interventions can be planned for patients with future studies to be performed in this field in different populations. Appropriate interventions planned for hemodialysis patients can improve patient outcomes.

ACKNOWLEDGMENTS

The authors are grateful to all participants who agreed to participate voluntarily in this study.

FUNDING INFORMATION

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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How to cite this article: Bahçecioglu Turan G, Özer Z, Başak S. The effects of death anxiety on diet-fluid restriction non-adherence in hemodialysis patients. *Hemodialysis International.* 2025;29(1):108–15. <https://doi.org/10.1111/hdi.13191>