ORIGINAL ARTICE

https://doi.org/10.1590/1806-9282.20230423

Determination of the relationship between self-care agency and sleepiness in chronic hemodialysis patients

Nese Kiskac[1], Mahruk Rashidi[1], Egemen Cebeci[2], Ilkay Coban[2], Muharrem Kiskac[3]*

SUMMARY

OBJECTIVE: This study was conducted to determine the relationship between self-care agency and sleepiness in chronic hemodialysis patients.

METHODS: The study was conducted with 75 patients with chronic renal failure in the hemodialysis unit of a training and research hospital in our country. In the descriptive study, the data were collected through a face-to-face questionnaire. The IBM SPSS Statistics 22.0 program was used to evaluate the data.

RESULTS: It was determined that there was no significant relationship between self-care agency and sleepiness total scores in chronic hemodialysis patients ($p>0.05$) and a significant relationship between sleepiness and drug use compliance and mental status in female patients and between diet compliance and sleepiness in patients younger than 52 years of age ($p<0.05$).

CONCLUSION: As a result, it was observed that there was no relationship between self-care agency and sleepiness in chronic hemodialysis patients. We think that working with a larger sample group can lead to clearer results.

KEYWORDS: Hemodialysis. Sleep. Self-care.

INTRODUCTION

Chronic kidney disease (CKD) is observed as a common health problem all over the world, and its frequency is reported to be increasing[1]. The primary replacement therapy for CKD is hemodialysis. The aim of the hemodialysis treatment was to correct the electrolyte and fluid imbalance of the patients and to increase the self-care agency of the patients and the quality of life of the individuals[2]. Although the life span of individuals is prolonged with hemodialysis[3], the fact that they constantly come to the institution on certain days of the week for treatment and have to stay connected to the device and personnel negatively affects the quality of life and social life of the patients[4]. Depending on this process, the self-care agency of these patients is adversely affected.

Self-care agency is an individual's ability to initiate or implement health activities to maintain his or her life, health, and well-being[5]. Self-care agency levels are of great importance in the control of disease symptoms of individuals undergoing hemodialysis. Studies have shown that individuals' self-care agencies are affected by their bio-psycho-social status[6-8]. As with all risky diseases, sleep disorders are frequently encountered in patients with CKD and undergoing hemodialysis[9,10]. As a result, the mental health of individuals is adversely affected. In addition, it has been determined that gender, age, and anxiety are related to sleep in hemodialysis patients[11]. When we review the literature, it is observed that sleep problems are frequently experienced in hemodialysis patients. However, a limited number of studies have been reached on how much these patients' self-care agencies are affected due to the sleep problems they have experienced. This study was conducted to determine the relationship between self-care agency and sleepiness in chronic hemodialysis patients and to contribute to future experimental studies.

METHODS

Study design: The study was conducted as descriptive and cross-sectional.

The sample of the study: The sample of the study consisted of 75 patients with chronic renal failure who were accepted to work at the Dialysis Unit of a Training and Research Hospital in Turkey, aged 18 years and over. Those who used drugs that affect sleep were excluded from the study.

[1]Istanbul Gelisim University, Faculty of Health Sciences, Department of Nursing – Istanbul, Turkey.
[2]University of Health Sciences, Haseki Training and Research Hospital, Department of Nephrology – Istanbul, Turkey.
[3]Bezmialem Vakif University, Faculty of Medicine Hospital, Department of Internal Medicine – Istanbul, Turkey.
*Corresponding author: muharremkiskac@gmail.com
Conflicts of interest: the authors declare there is no conflicts of interest. Funding: none.
Received on April 30, 2023. Accepted on May 20, 2023.

Data collection method: Data were collected by the face-to-face survey method between January 18, 2023 and February 18, 2023. While collecting the questionnaires of foreign nationals, support was obtained from the translator of the hospital.
Data collection: A form describing the personal characteristics of the patients, the Self-Care Scale for Chronic Hemodialysis Patients, and the Epworth Sleepiness Scale were used while collecting the data.

Personal data identification form of patients

The data were created by scanning the literature and consist of six items related to age, gender, educational status, marital status, medications used, and number of months they underwent hemodialysis.

Self-care agency scale for chronic hemodialysis patients

The self-care agency scale was developed by Oren in 2010, and its validity and reliability were made. In Oren's study, it is stated that Cronbach's alpha values are between 0.56 and 0.68 based on sub-dimensions and 0.75 in the whole scale. The self-care agency scale consists of 22 items. It is a three-point Likert scale scored between 0 and 2. The statements in the scale consist of five sub-dimensions related to the use of drugs, diet, self-monitoring of the patient, hygienic care, and mental state. Low scores obtained from the scale are considered poor self-care agency, and high scores are considered good[12,13]. In this study, the Cronbach's alpha coefficient of the Self-Care Scale was determined as 0.702.

Epworth sleepiness scale

It is a simple and self-reported scale. It questions the general sleepiness level of the individual. It aims to evaluate the chances of falling asleep or napping in eight different daily life situations. It is a simple, easy-to-understand, eight-item scale with proven validity and reliability in assessing the general sleepiness level in adults. A total score of "10" or more is considered increased daytime sleepiness, and scores above "15" are considered pathological sleepiness. Cronbach's alpha coefficient was found to be 0.870 for 150 individuals with sleep apnea and 0.860 for 60 healthy individuals. In this study, the Cronbach's alpha coefficient was determined as 0.738[14].

Analysis of data: The IBM SPSS Statistics 22.0 program was used for statistical analysis in the study. While evaluating the study data, in addition to descriptive statistical methods (i.e., mean, standard deviation, frequency, and percent). Pearson and Spearman correlation analyses were used to evaluate the correlation between variables. The results were evaluated at the 95% confidence interval and the significance level of $p<0.05$.

Ethical aspect of the study: Before starting the study, permission was obtained from Istanbul Gelişim University Ethics Committee with decision number 2023-02-44 dated 18.01.2023. Participants who voluntarily accepted to participate in the study were informed about the research and their rights as necessary, and their "informed consent" was obtained before the research. All the rights of the participants were respected, and the principles of voluntariness and confidentiality were paid attention to.

RESULTS

The descriptive features of chronic hemodialysis patients are shown in Table 1. It was determined that 54.7% of the participants were women, 84% were married, 38.7% were primary school graduates, their mean age was 52.41±15.90 years, and they underwent hemodialysis for an average of 28.71±22.24 months (Table 1).

The self-care agency sub-dimensions, self-care, and sleepiness scale total scores of chronic hemodialysis patients are shown in Table 2. It was determined that the patients' self-care agency total score was moderate (29.07±5.35) and the daytime sleepiness total score was at the borderline (9.64±4.79).

Table 1. Descriptive characteristics of chronic hemodialysis patients (n=75).

	n	%
Gender		
Female	41	54.7
Male	34	45.3
Age (average) (years)	52.41±15.90	
Marital status		
Married	63	84
Single	12	16
Educational status		
Illiterate	17	22.7
Literate	5	6.7
Primary school	29	38.7
Middle school	9	12
High school	12	16
Bachelor degree	3	4
Number of months they underwent dialysis	28.71±22.24	

The correlation between the sub-dimensions of the self-care agency scale, self-care agency, and sleepiness scale total scores among chronic hemodialysis patients was examined (Table 3). In addition, the correlation between these scales was evaluated with the relationship between gender, age, and the months of starting dialysis. In the selection of patient groups, ≥52 and <52 years were taken as ≥28 and <28 months in the months of dialysis. The reason for taking it this way is that the mean age of the patients was 52.41±15.90 years, and the months of starting dialysis were 28.71±22.24 (Table 3).

In the correlation of the scales in terms of gender of the patients, while no correlation was found in male patients, a negative linear relationship was found between sleepiness and drug use compliance (p=0.001; r=-0.525) and a positive linear relationship between mental states and sleepiness (p=0.047; r=0.343) in female patients. In the correlation in terms of age, while no correlation was found in ≥52 patients, a negative linear relationship was found between the patients' adherence to diet and sleepiness in <52 patients (p=0.020; r=-0.380). It was found that there was no significant correlation between the two groups in terms of the months of starting dialysis (≥28 and <28 months) (p>0.05) and no significant correlation between the total self-care agency scale and the sleepiness scale (p>0.05) (Table 3).

Table 2. Self-care agency sub-dimensions, self-care, and sleepiness total score averages of chronic hemodialysis patients (n=75).

	Min-max points	Scale mean scores
Self-care agency sub-dimensions		
Drug use	0–12	7.69±2.19
Diet	0–10	6.45±1.67
Self-monitoring	0–8	5.64±1.66
Hygienic care	0–8	6.37±1.46
Mental state	0–6	2.91±1.65
Self-care agency total	0–44	29.07±5.35
Sleepiness total	0–24	9.64±4.79

DISCUSSION

It was determined that the studies conducted between sleepiness and self-care agency were limited in number. There was no significant correlation between the total self-care agency scale and the sleepiness scale (p>0.05) (Table 3). When we look at the studies in the literature that look at the relationship between self-care agency and sleepiness, Zhu et al.[15] found a positive correlation (R^2=0.51, p<0.001) between sleepiness and self-care in 64 patients with type 2 diabetes[15]. In the systematic review of Spadela et al.[16], no relationship was found[16] between the two scales in the study of cardiac patients in three studies[17], while, in the other two studies[18,19], relationship was determined. The result of this study supports the research result of Kessing et al[17]. Reigel et al.[19]

Table 3. Correlation between the self-care agency scale sub-dimensions, self-care agency, and sleepiness scale total scores of chronic hemodialysis patients in terms of gender, age, and months of starting dialysis.

				Self-care agency scale sub-dimensions					Self-care agency scale total score
				Drug use	Diet	Self-monitoring	Hygienic care	Mental state	
Women		Sleepiness scale total score	r	-0.525	-0.110	-0.025	-0.139	0.343	-0.211
			p	0.001	0.534	0.890	0.433	0.047	0.232
Men		Sleepiness scale total score	r	0.130	-0.282	-0.240	0.213	-0.279	-0.211
			p	0.419	0.074	0.130	0.182	0.077	0.232
Age	≥52 years	Sleepiness scale total score	r	-0.104	-0.045	-0.066	-0.002	-0.109	-0.110
			p	0.534	0.790	0.695	0.989	0.514	0.509
	<52 years	Sleepiness scale total score	r	-0.149	-0.380	-0.251	0.142	0.051	-0.212
			p	0.379	0.020	0.134	0.401	0.764	0.208
Months of starting dialysis	≥28	Sleepiness scale total score	r	-0.271	-0.212	-0.038	-0.039	0.028	-0.198
			p	0.141	0.252	0.839	0.833	0.882	0.286
	<28	Sleepiness scale total score	r	-0.014	-0.194	-0.197	0.157	-0.059	-0.111
			p	0.927	0.206	0.200	0.309	0.706	0.472
In all patients		Sleepiness scale total score	r	-0.125	-0.214	-0.148	0.065	-0.035	-0.157

conducted their studies with 29 patients with chronic heart failure, Kamrani et al.[18] conducted their studies with 180 elderly patients with heart failure, and Zhu et al.[15] conducted their studies with 64 patients with type 2 diabetes. This study was conducted with hemodialysis patients with chronic renal failure. As the chronic diseases of the patients in the sample group in the literature studies and the chronic diseases of the patients in this study are different, it is thought to affect the result.

No study has been found in the literature examining the correlation between self-care agency sub-dimensions and sleepiness. In this study, in the correlation of the scales in terms of gender of the patients, while no correlation was found in male patients, a negative linear relationship was found between sleepiness and drug use compliance (p=0.001; r=-0.525) and a positive linear relationship between mental states and sleepiness (p=0.047; r=0.343) in female patients. In the correlation in terms of age, while no correlation was found in ≥52 patients, a negative linear relationship was found between the patients' adherence to diet and sleepiness in <52 patients (p=0.020; r=-0.380).

There was no significant correlation between the two groups (p>0.05) in terms of the months of starting dialysis (≥28 and <28 months). It is known that gender differences and different age groups in individuals are affected by sociocultural levels, lifestyles, hormonal differences, and participation in business life. In addition, the fact that in the female sample group (54.7%), primary school graduates (38.7%) and married (84%) are higher is considered to affect the results.

CONCLUSION

It was determined that there was no significant relationship between self-care agency and sleepiness total scores in chronic hemodialysis patients and a significant relationship between sleepiness and drug use compliance and mental status in female patients and between diet compliance and sleepiness in patients younger than 52 years of age. These results are important for future multicenter studies with larger samples and clinical applications. Self-care agency of individuals is the agency to perform physical activities, eating behaviors, drug use, and many other activities. With the increase in daytime sleepiness, there will be a possibility that the individual will not be able to perform these activities. We think that conducting future studies with larger sample groups to examine this potential relationship will lead to clearer results.

ETHICS COMMITTEE APPROVAL

Before starting the study, permission was obtained from Istanbul Gelişim University Ethics Committee with decision number 2023-02-44 dated 18.01.2023. Participants who voluntarily accepted to participate in the study were informed about the research and their rights as necessary, and their "informed consent" was obtained before the research. All the rights of the participants were respected, and the principles of voluntariness and confidentiality were paid attention to.

AUTHORS' CONTRIBUTIONS

NK: Conceptualization, Data curation, Methodology, Supervision, Resources, Validation, Writing – original draft, Writing – review & editing. **MR:** Writing – original draft. **EC:** Conceptualization. **IC:** Data curation. **MK:** Supervision, Resources, Validation, Writing – original draft, Writing – review & editing.

REFERENCES

1. Kovesdy CP. Epidemiology of chronic kidney disease: an update 2022. Kidney Int Suppl. 2022;12(1):7-11. https://doi.org/10.1016/j.kisu.2021.11.003
2. Yang B. Xu J. Xue Q, Wei T, Xu J, Ye C. et al. Non-pharmacological interventions for improving sleep quality in patients on dialysis: systematic review and meta-analysis. Sleep Med Rev. 2015;23:68-82. https://doi.org/10.1016/j.smrv.2014.11.005
3. Cinar Mentes S. Hemodiyaliz hastalarında optimal yaşam kalitesinin sağlanması. Sendrom. 1999;11(7):115-8.
4. Hacihasanoglu R, Yildirim A. Hemodiyaliz hastalarında yaşam kalitesi ve öz bakım gücünün değerlendirilmesi. Ege Üniv Hemşirelik Yüksek Okulu Dergisi. 2009;25(1):87-100.
5. Orem DE. Self-care deficit theory of nursing: concepts and applications. St. Louis, USA: Dennis CM Mosby-Year Book Inc; 2001.
6. Tsay SL. Self efficacy training for ith end-stage renal disease. J Nurs Adv Nurs. 2003;43(4):370-5. https://doi.org/10.1046/j.1365-2648.2003.02725.x
7. Moattari M, Ebrahimi M, Sharifi N, Rouzbeh J. The effect of empowerment on the self-efficacy, quality of life and clinical and laboratory indicators of patients treated with hemodialysis: a randomized controlled tria. Health Qual Life Outcomes. 2012;10:115. https://doi.org/10.1186/1477-7525-10-115
8. Theofilou P. Quality of life in patients undergoing hemodialysis or peritoneal dialysis treatment. J Clin Med Res. 2011;3(3):132-8. https://doi.org/10.4021/jocmr552w
9. Huzmeli C, Candan F, Kockara AS, Akkaya L, Kayatas M. Hemodiyaliz hastalarında uyku kalite bozukluğu ve huzursuz bacak sendromu arasındaki ilişki. Cumhuriyet Tıp Dergisi. 2014;36(4):466-73.
10. Turgay G, Kes D. Hemodiyaliz hastalarında uyku bozuklukları ve nonfarmakolojik tedavi yöntemleri. Nefroloji Hemşireliği Dergisi. 2019;14(2):63-9.

11. Afsar B, Elsurer R. The relationship between sleep quality and daytime sleepiness and various anthropometric parameters in stable patients undergoing hemodialysis. J Ren Nutr. 2013;23(4):296-301. https://doi.org/10.1053/j.jrn.2012.06.006
12. Oren B. Hemodiyaliz ve periton diyalizi olan hastaların yaşam kalitesi ve öz-bakım gücünü etkileyen faktörlerin incelenmesi. PhD thesis. İstanbul: İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü; 2010.
13. Oren B, Enc N. Development and psychometric testing of the self-care agency scale for patients undergoing long-term dialysis in Turkey. J Ren Care. 2014;40(4):266-73. https://doi.org/10.1111/jorc.12098
14. Izci B, Ardic S, Firat H, Sahin A, Altinors M, Karacan I. Reliability and validity studies of the Turkish version of the epworth sleepiness scale. Sleep Breath. 2008;12(2):161-8. https://doi.org/10.1007/s11325-007-0145-7
15. Zhu B, Quinn L, Kapella MC, Bronas UG, Collins EG, Ruggiero L. et. al. Relationship between sleep disturbance and self-care in adults with type 2 diabetes. Acta Diabetol. 2018;55(9):963-70. doi: 10.1007/s00592-018-1181-4.
16. Spedale V, Luciani M, Attanasio A, Mauro S, Alvaro R, Vellone, E. et. al. Association between sleep quality and self-care in adults with heart failure: a systematic review. Acta Diabetol. 2018;20(3):192-201. https://doi.org/10.1177/1474515120941368
17. Kessing D, Denollet J, Widdershoven J, Kupper N. Fatigue and self-care in patients with chronic heart failure. Eur J Cardiovasc Nurs. 2016;15(5):337-44. https://doi.org/10.1177/1474515115575834
18. Kamrani AA, Foroughan M, Taraghi Z, Yazdani J, Kaldi AR, Ghanei N, et al. Self care behaviors among elderly with chronic heart failure and related factors. Pak J Biol Sci. 2014;17(11):1161-9. https://doi.org/10.3923/pjbs.2014.1161.1169
19. Riegel B, Vaughan Dickson V, Goldberg LR, Deatrick JA. Factors associated with the development of expertise in heart failure self-care. Nurs Res. 2007;56(4):235-43. https://doi.org/10.1097/01.NNR.0000280615.75447.f7