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The effect of self-esteem on self-care agency of patients on hemodialysis

Benlik saygısının hemodiyaliz hastalarının öz bakım gücüne etkisi

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ABSTRACT

Aim: This descriptive cross-sectional study was planned and conducted to evaluate the effect of self-esteem on self-care agency in patients undergoing hemodialysis.

Methods: The study included 116 patients receiving hemodialysis treatment. Data were collected using the Patient Information Form, the Self-Esteem Scale (CSS), and the Self-Care Agency Scale. The data were obtained from patients treated in the dialysis units of a private hospital between October 2022 and October 2023.

Results: The mean score of the Self-Esteem Scale was 77.61±14.45, and the mean score of the Self-Care Agency Scale was 97.80±18.89. A high-level positive correlation was found between self-care agency and self-esteem (r=0.75, p<0.05). The regression analysis conducted to determine the cause–and–effect relationship between self-esteem and self-care agency was statistically significant (F=153.54; p=0.001<0.05).

Conclusion: The findings indicate a strong relationship between self-esteem and self-care agency, suggesting that individuals' self-care abilities are closely associated with their perceptions of self-worth. To enhance self-esteem and self-care agency in patients undergoing hemodialysis, healthcare professionals should provide more education and support, and patients' relatives should also be included in these educational programs.

Keywords: Hemodialysis; self-care; self esteem

ÖZ

Amaç: Bu araştırma, benlik saygısının hemodiyaliz hastalarının öz bakım gücüne etkisinin değerlendirilmesi amacıyla tanımlayıcı kesitsel tipte planlandı ve uygulandı.

Yöntemler: Araştırmaya hemodiyaliz tedavisi gören 116 hasta dahil edildi. Verilerin toplanmasında Hasta Bilgi Formu, Benlik Saygısı Ölçeği (CSS) ve Öz Bakım Gücü Ölçeği kullanıldı. Veriler, Ekim 2022 ile Ekim 2023 tarihleri arasında özel bir hastanenin diyaliz ünitelerindeki tedavi gören hastalardan elde edildi.

Bulgular: Hastaların benlik saygısı ölçeğinden aldıkları puan ortalaması 77,61±14,45 ve öz-bakım gücü ölçeğinden aldıkları puan ortalaması 97,80±18,89 olarak belirlendi. Öz-bakım gücü ile benlik saygısı arasında yüksek düzeyde pozitif ilişki bulundu (r=0,75, p<0,05). Benlik saygısı ile öz bakım gücü arasındaki neden-sonuç ilişkisini belirlemek amacıyla yapılan regresyon analizi istatistiksel olarak anlamlıydı (F=153,54; p=0,001<0,05).

Sonuç: Benlik saygı ile özbakım gücü arasında güçlü bir ilişki olduğunu ve bireylerin özbakım yeteneklerinin, kişisel değer algıları ile önemli bir şekilde bağlantılı olduğunu göstermektedir. Hemodiyaliz tedavisi gören hastaların benlik saygısını ve öz bakım gücünü artırmak için sağlık profesyonelleri daha fazla eğitim vermeli ve destek verebilmeleri için hasta yakınlarının da bu eğitim programlarına dahil etmelidir.

Anahtar Sözcükler: Hemodiyaliz; özbakım; özsaygı

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INTRODUCTION

Chronic Kidney Failure (CKF) is a significant health problem that is irreversible and progresses over time, affecting many systems in the body. While CKD affects approximately 10-15% of the adult population worldwide, this rate is 15.7% in Türkiye, indicating that one in every 6-7 adults faces kidney disease (1). Treatment options include dialysis and kidney transplantation. Hemodialysis removes substances such as urea, creatinine, potassium, phosphate, and excess fluid from the body through semi-permeable membranes (2).

Individuals undergoing hemodialysis treatment face significant challenges due to the treatment process and chronic complications of dialysis. Long-term hemodialysis treatment increases patients' dependence on healthcare teams, dialysis machines, and their families. This situation can negatively affect individuals' personal lives and independence (3,4). Furthermore, environmental factors such as the alarm sounds of the dialysis machine can lead to psychological problems in patients, including fear, anxiety, hopelessness, dissatisfaction, anger, and fear of death. In addition to psychosocial problems such as bodily changes, internal conflicts, fatigue, sexual dysfunction, fluid and dietary restrictions, short life expectancy, and constant fear of the future, distortions in patients' body image are also observed (5,6).

Dependence on daily living activities and loss of self-care ability are frequently observed in individuals undergoing treatment for chronic kidney disease (CKD). Insufficient self-care ability makes adaptation to the disease difficult and negatively impacts the treatment process. This situation increases the treatment costs of the disease and reduces the overall quality of life (7).

In recent years, studies on the relationship between self-care ability and self-esteem in patients undergoing hemodialysis treatment have increased. However, research on this topic in Türkiye is still limited. Existing studies are generally conducted with small sample groups, and there is a need for research that in-depth examines the relationship between self-esteem and self-care ability in hemodialysis patients. The number of studies in this field in Turkey is limited, and therefore, more data and research are needed on the relationship between self-esteem and self-care ability in hemodialysis patients in Türkiye. This study is considered to support this gap in literature.

MATERIAL AND METHODS

Participants

Study Aim and Type: This descriptive, cross-sectional study was designed and conducted to evaluate the effect of self-esteem on the self-care ability of hemodialysis patients.

Research questions within the scope of the study

1. Does self-esteem affect the self-care agency of hemodialysis patients?
2. Is there a relationship between self-esteem and the self-care agency of hemodialysis patients?

Study Location and Duration: The study was conducted in the dialysis unit of a private hospital between March and December 2022.

Study Population and Sample: The population of the study consisted of all patients applying to the dialysis unit (n=180). The sample was selected from 116 patients who voluntarily participated in the study. In this study, statistical power analysis was conducted to evaluate the adequacy of the sample size (n=116). Power analysis was calculated based on the mean effect size (Cohen's d = 0.5) and alpha level (α = 0.05). The sample size was determined using G*Power, a power analysis software. This software aims for a mean effect size and an 80% power level. In this context, the sample size of 116 individuals was calculated to ensure the probability of obtaining significant results with 80% power.

Inclusion criteria for the study: Individuals who have been diagnosed with CKD for at least 6 months, individuals undergoing hemodialysis treatment, individuals who are conscious and able to communicate verbally, individuals willing to participate in the study will be included.

Exclusion criteria for the study; individuals with communication problems and severe psychological problems will not be included.

Procedure

Patient Information Form: Developed by researchers, it consists of 18 questions covering individuals' sociodemographic characteristics and disease-specific traits.

The Self-Esteem Scale (SES): Developed by Bogenç (1994) to obtain information about individuals' self-esteem levels. Each item is graded using "always", "often", "sometimes", "rarely", and "never" on a five-point likert-type scale. The scale consists of 20 items, five of which are negative (items 3, 4, 6, 7, and 12) and fifteen are positive (items 1,

2, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, and 20). It has a single sub-dimension. When scoring the positive items, "always" is assigned five points and "never" is 1 point, and the opposite applies to the negative items. A low score on the scale indicates low self-esteem and a high score indicates high self-esteem. A minimum of 20 points and a maximum of 100 points can be obtained from the scale. The SES can be applied both individually and as a group. There is no time limit. Cronbach's alpha coefficient of the scale was found to be 0.81 (8). In this study, the reliability of the scale was found high with a Cronbach's alpha coefficient of 0.90.

The Self-Care Agency Scale: Developed by Kearney and Fleischer in 1979 (9). It was adapted to Turkish by Nakhchivan in 1993, and its validity and reliability were established. Cronbach's alpha reliability coefficient was found to be 0.89. This 35-item scale focuses on individuals' self-evaluation of their self-care activities. Each item is scored from 0 to 4 on a five-point Likert-type scale. The evaluation options are "0" (does not describe me at all), "1" (does not describe me very well), 2 (I have no idea), 3 (describes me a little), and 4 (describes me a lot). Eight of the items on the scale are negative (items 3, 6, 9, 13, 19, 22, 26, and 31) and the scoring is reversed. The maximum score is 140. As the score on the scale increases, the self-care agency of the patients increases in direct proportion (10). In this study, the reliability of the self-care scale was found to be high with a Cronbach's alpha value of 0.892. Data collection method; the patients participating in the study were interviewed face-to-face and informed about the study for an average of 10 minutes, and they signed an informed consent form. Participants who completed the questionnaires fully were included in the study.

Data collection method

Patients participating in the study were given information about the study for approximately 10 minutes through face-to-face interviews, and they signed an informed consent form. Individuals who answered all questions completely were included in the study.

Ethical considerations

The research obtained ethics committee permission from Fenerbahce University Academic Research and Publication Ethics Board (decision no: FBU/2020-050, date: 15.12.2020) and was completed in accordance with the Helsinki Declaration. The researchers verbally informed all participants included in the study about the purpose and procedure of the research. The data gathering process was completed after receiving written informed consent from each volunteer.

Statistical analyses

Data obtained in the research were analyzed using SPSS (Statistical Package for Social Science; IBM SPSS Statistics for Windows, Version 25.0. IBM Corp). Frequency and percentage analyses were used to determine the descriptive characteristics of the patients participating in the study and mean and standard deviation statistics were used to analyze the scales. Kurtosis and skewness values and the Kolmogorov-Smirnov test were used to determine the normality of research variables. In the literature, the kurtosis-skewness values between +1.5 and -1.5 (11) or between +2.0 and -2.0 (12) are considered to show normality for the variables. It was determined that the variables showed a normal distribution. Parametric methods were used in the analysis of the data. The relationships between patients scores on the scales were examined with Pearson correlation and linear regression analyses. T-test, one-way analysis of variance (ANOVA), and post-hoc (Tukey, LSD) analyses were used to examine the differences between scale scores according to the descriptive characteristics of the patients. Cohen (d) and eta squared ($\eta 2$) coefficients were used to calculate the effect size. The effect size indicates whether the difference between the groups is large enough to be considered significant. Cohen values are interpreted as follows: 0.2, small; 0.5, medium; 0.8, large. The interpretation of eta squared values is 0.01: small, 0.06: medium, and 0.14: large (11,12).

RESULTS

The distribution of the patients according to their descriptive characteristics is given in Table 1. Of the patients, 21.6% were under the age of 50, 22.4% were aged between 50 and 59, 33.6% were aged between 60 and 69, 22.4% were aged 70 and over, and 62.1% were male. According to the results, 73.3% were married, 81.0% had social security, 31.0% had six or more siblings, 31.9% were the second child in their family, 42.2% were elementary school graduates, 90.5% did not work, 85.3% stayed with their families, and 65.5% had a middle-level economic status. Apart from these, 75.9% lived in the Marmara region for a long time, and 85.3% lived in

Table 1. Distribution of patients by descriptive characteristics

Groups	Frequency (n)	Percentage (%)
Age		
<50	25	21.6
50- 59	26	22.4
60-69	39	33.6
≥70	26	22.4
Gender		
Male	72	62.1
Female	44	37.9
Marital status		
Married	85	73.3
Single	31	26.7
Social security		
SSK (public social security system in Turkey)	94	81.0
Pension fund (public social security system in Turkey)	10	8.6
Bagkur (public social security system in Turkey)	12	10.3
Number of siblings		
2	10	8.6
3	24	20.7
4	15	12.9
5	31	26.7
≥6	36	31.0
Birth order		
1	30	25.9
2	37	31.9
3	21	18.1
4	16	13.8
5	12	10.3
Education		
Non-literate	15	12.9
Elementary	49	42.2
Middle	15	12.9
High	24	20.7
University	13	11.2
Employment status		
Yes	11	9.5
No	105	90.5
Accommodation		
With family	99	85.3
Other	17	14.7
Economic status		
Poor	12	10.3
Middle	76	65.5
High	28	24.1
Region of longest residence		
Marmara Region	88	75.9
Black Sea Region	10	8.6
Central Anatolia Region	5	4.3
Southeast Anatolia Region	2	1.7
Aegean Region	2	1.7
East Anatolia Region	8	6.9
Mediterranean Region	1	0.9
Place of longest residence		
City	99	85.3
Village-town	17	14.7
Presence of other diseases on constant treatment		
Yes	28	24.1
No	88	75.9
Duration of dialysis treatment (years)		
0-1	22	19.0
1-5	38	32.8
5-10	29	25.0
>10	27	23.3
Leisure time activities		
Meeting friends	21	18.1
Reading books	20	17.2
Listening to music	7	6.0
Going to the cinema or theatre	4	3.4
None	64	55.2

Table 2. Mean Self-Esteem and Self-Care Agency Scores

	n	Mean	SD	Min	Max	Kurtosis	Skewness	Z	p
Self-Esteem	116	77.61	14.45	39	100	-0.77	-0.21	0.91	0.372
Self-Care Agency	116	97.80	18.89	49	136	-0.71	-0.03	0.69	0.723

min: Minimum, max: Maximum, n: Number, SD: Standard deviation, Z: Test statistic for normality

Table 3. Correlation analysis between scale scores

		Self-Esteem
Self-Care Agency	r	0.75**
	p	0.000

**p<0.001; Pearson Correlation Analysis

Table 4. The effect of self-esteem on self-care agency

Independent variable	Non-standardized coefficients		Standardized coefficients	t	p	%95 Confidence Interval	
	B	SE	ß			Lower	Upper
Constant	20.98	6.30		3.32	0.001	8.49	33.47
Self-Esteem	0.99	0.08	0.75	12.39	**0.000**	0.83	1.14

Dependent variable = Self-Care Agency

B: Unstandardized coefficient, SE: Standard error, ß: Standardized coefficient (Beta) t: t-test statistic

R=0.75, R2=0.57, F=153.54, p=0.000, Durbin Watson Value=1.97

a city. It was determined that 75.9% of the participants had other diseases on constant treatment, 32.8% had been receiving treatment for 1 to 5 years, and 55.2% of them did not have leisure time activities (Table 1).

The mean scores of the patients were 77.61±14.45 on the "self-esteem scale" and 97.80±18.89 on the "self-care agency scale" (Table 2).

The examination of the correlations between self-esteem and self-care agency scores indicated a positive and high-level correlation (r=0.75, p=0.000<0.05) (Table 3).

A regression analysis conducted to determine the cause-and-effect relationship between self-esteem and self-care agency was significant (F=153.543; p=0.000 <0.05). Self-esteem explained 57% of the total variance in self-care agencies (R2=0.57). Self-esteem increased the level of self-care agency (ß=0.75) (Table 4).

Patients' self-esteem and self-care agency scores did not differ significantly according to age, gender, social security status, number of siblings, and the number of children in the family (p>0.05). The self-esteem scores of the married individuals were higher than those of the single (t=2.25; p=0.026.05; d=0.47; η2=0.04). The self-care agency scores of the married individuals were higher than the scores of the single (t=2.41; p=0.017<0.05; d=0.50; η2=0.04). The self-esteem scores of the patients differed significantly according to their education (F=2.85; p=0.027<0.05; η2=0.09). The reason for the difference was that the self-esteem scores of university graduates were higher than those of elementary, middle, and high school graduates (p<0.05), and the self-esteem scores of the non-literate were higher than those of high school graduates (p<0.05). The self-care agency scores of the patients did not differ significantly according to their educational status (p>0.05). The self-esteem scores of those who spent most of their lives in a city were found to be higher than the scores of those who spent most of their lives in a village or town (t=4.09; p=0.05; d=1.07; η2=0.12). Likewise, the self-care agency scores of those who lived in a city were found to be higher than the scores of those who lived in a village or town (t=3.53; p=0.001<0.05; d=0.92; η2=0.09). The self-esteem and self-care agency scores of the patients did not differ significantly according to the presence of other diseases on constant treatment (p>0.05). Patients' self-esteem and self-care agency scores did not differ significantly according to the duration of dialysis treatment, either (p>0.05) (Table 5).

DISCUSSION AND CONCLUSION

Self-esteem refers to the attitudes individuals develop toward their own judgments about themselves, influencing their self-concept. The level of satisfaction with oneself

Table 5. Differences between self-esteem and self-care agency scores according to descriptive characteristics

Demographic characteristics	n	Self-Esteem	Self-Care Agency
Age		Mean±SD	Mean±SD
<50	25	80.24±14.13	97.24±18.57
50- 59	26	79.26±13.23	99.80±19.22
60-69	39	73.76±15.30	92.43±16.80
≥70	26	79.19±14.26	104.38±20.41
F		1.42	2.28
p		0.230	0.080
Gender		Mean±SD	Mean±SD
Male	72	77.75±14.45	98.40±18.42
Female	44	77.38±14.63	96.81±19.80
t		0.13	0.43
p		0.890	0.660
Marital status		Mean±SD	Mean±SD
Married	85	79.41±13.32	100.30±17.68
Single	31	72.67±16.43	90.93±20.63
t		2.25	2.41
p		**0.026**	**0.017**
Social security		Mean±SD	Mean±SD
SSK (public social security system in Turkey)	94	77.64±14.67	98.83±18.37
Pension fund (public social security system in Turkey)	10	79.70±15.97	100.40±23.94
Bagkur (public social security system in Turkey)	12	75.58±12.15	87.58±16.68
F		0.22	2.02
p		0.803	0.137
Number of siblings		Mean±SD	Mean±SD
2	10	80.60±13.02	104.30±14.95
3	24	78.29±16.72	99.54±21.86
4	15	80.80±12.52	99.26±19.90
5	31	76.41±12.97	95.51±16.80
≥6	36	76.02±15.53	96.19±19.44
F		0.45	0.53
p		0.769	0.707
Birth order		Mean±SD	Mean±SD
1	30	81.43±13.44	103.83±17.34
2	37	76.54±13.95	94.94±19.26
3	21	74.09±14.31	97.33±15.83
4	16	75.06±16.57	94.62±22.07
5	12	80.91±15.35	96.58±21.42
F		1.17	1.10
p		0.326	0.356
Education status		Mean±SD	Mean±SD
Non-literate	15	82.40±15.17	105.93±21.69

Elementary	49	76.83±15.24	95.91±18.31
Middle	15	74.40±12.72	96.13±20.98
High	24	73.00±13.49	96.12±17.62
University	13	87.23±8.94	100.53±17.49
F		2.85	0.96
p		**0.027**	0.433
PostHoc		5>2, 5>3, 1>4, 5>4 (p<0.05)	
Employment status		Mean±SD	Mean±SD
Yes	11	80.09±11.06	92.73±16.09
No	105	77.35±14.78	97.75±19.22
t		0.59	0.08
p		0.464	0.931
Accommodation		Mean±SD	Mean±SD
With family	99	77.77±13.65	97.78±18.03
Other	17	76.64±18.94	97.88±23.93
t		0.29	-0.01
p		0.816	0.988
Economic status		Mean±SD	Mean±SD
Poor	12	72.41±16.65	90.00±19.03
Middle	76	79.67±14.06	99.97±19.80
High	28	74.25±13.87	95.25±15.36
F		2.35	1.80
p		0.099	0.169
Place of longest residence		Mean±SD	Mean±SD
City	99	79.74±13.75	100.25±18.26
Village-town	17	65.17±12.27	83.52±16.40
t		4.09	3.53
p		**0.000**	**0.001**
Presence of other diseases on constant treatment		Mean±SD	Mean±SD
Yes	28	76.25±12.17	94.14±19.26
No	88	78.04±15.15	98.96±18.73
t		-0.57	-1.17
p		0.569	0.241
Duration of dialysis treatment (years)		Mean±SD	Mean±SD
0-1	22	77.90±13.92	97.68±17.36
1-5	38	77.89±13.99	96.94±17.66
5-10	29	75.17±15.70	94.82±18.59
>10	27	79.59±14.58	102.29±22.05
F		0.44	0.77
p		0.72	0.51

F: ANOVA Testi, t: Independent groups t-test, PostHoc: Tukey, LSD, n: number, SD: Standard Deviation

and how much individuals like themselves is a key determinant of their self-esteem. In daily life relationships and actions, self-esteem plays a significant role in achieving the desired satisfaction and success (1).

In this study, it was observed that both self-esteem and self-care agency were significantly influenced by the sociodemographic characteristics of patients. Married hemodialysis patients demonstrated higher levels of self-esteem and self-care agency. This finding is consistent with studies by Biçer et al. (2020), which indicate that married individuals tend to receive positive support from their spouses. The mutual harmony and feeling of being valued within the marriage positively impact the self-esteem of dialysis patients, thus enhancing their self-care agency (13). Additionally, the assistance provided by spouses in managing self-care when patients are unable to do so is a critical factor (14,15).

Another factor that positively impacted both self-esteem and self-care agency was the living environment. Hemodialysis patients who spent a substantial part of their lives in urban areas had higher self-esteem and self-care agency. This is likely because individuals in urban settings have easier access to healthcare resources and social support systems that address their bio-psycho-social needs. These findings align with those of Küçükkaya and Alptekin (2024), who emphasized that urban dwellers are better equipped to manage chronic conditions like kidney failure due to better access to medical care and social services (16). Consequently, living in the city enables hemodialysis patients to manage their condition more effectively, contributing to better self-esteem and enhanced self-care agency (13,16).

A key challenge for hemodialysis patients is the negative impact on body image due to their dependence on machines. Body image is a crucial element of self-esteem, and negative emotions associated with body dissatisfaction are well-documented in the literature (13,15). As Candara et al. (2021) pointed out, chronic illness and prolonged treatment can cause body image distortions, which negatively influence self-esteem. Our study confirms that as self-esteem increases, self-care agencies also improve, highlighting the reciprocal relationship between the two variables (17). On the other hand, a decrease in self-esteem can result in diminished self-care agencies, which in turn may affect the patient's ability to engage in essential health behaviors (18).

Hemodialysis requires continuous medical supervision and self-care due to both acute and chronic complications associated with the treatment (18,19). Self-care is defined as the ability to take responsibility for maintaining and improving one's health. It involves a range of activities that are critical for managing kidney functions, particularly in hemodialysis patients (20). According to Orem's Self-Care Theory, an individual must possess adequate self-care agency to fulfill their self-care needs. Self-care agencies refer to the ability to initiate and execute health-promoting activities to sustain life, health, and well-being (21). The findings of this study underscore the importance of self-care behaviors in improving health outcomes for hemodialysis patients and highlight the role of learned behaviors through education and experience in fostering better health management (16,22).

An interesting and significant finding of this study is the positive relationship between educational level and self-esteem. Patients with higher education, particularly those with university degrees, exhibited higher levels of self-esteem. Hung et al (2024) and Li et al (2025) both demonstrated that education increases an individual's self-awareness and enhances their capacity to manage their health and well-being. Education shapes how individuals perceive their abilities and resources, thereby contributing to their overall sense of self-worth (3,19).

This study reveals a strong relationship between self-esteem and self-care ability, and that individuals' self-care skills are significantly linked to their perceptions of personal worth. It can be argued that healthcare professionals should provide more comprehensive training to improve the self-esteem and self-care abilities of hemodialysis patients. Furthermore, including family members in these training programs to support patients' self-care skills could be a critical step in improving both the individuals and their care processes.

Limitations of the study

This study has several limitations. First, it was conducted in a single hospital, which may limit the generalizability of the findings. Additionally, the cross-sectional design prevents establishing cause-and-effect relationships between self-esteem and self-care agency. Longitudinal studies are needed for a clearer understanding. Furthermore, the study focused only on hemodialysis patients, excluding those at earlier stages of kidney disease or using different treatments. Lastly, self-reported data may be influenced by social desirability bias.

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