

Research Article

# Determination of body image perception and life satisfaction in patients undergoing hemodialysis

Sevil Biçer<sup>1\*</sup> and Gökçe Demir<sup>2</sup>

<sup>1</sup>Department of Nursing, Faculty of Health Sciences, Erciyes University, Kayseri, Turkey

<sup>2</sup>Department of Nursing, School of Health, Ahi Evran University, Kırşehir, Turkey

## Abstract

**Objective:** This descriptive study was conducted in order to determine body image perception and life satisfaction of individuals undergoing hemodialysis treatment.

**Material and methods:** The population of the study consisted of individuals who were treated in hemodialysis units in the city center of Kırşehir. Patients. The study was conducted with 135 patients. Questionnaire, multidimensional body-self relations questionnaire, and satisfaction with life scale were used as data collection tool.

**Results:** According to study results, total mean scores of MBSRQ were significantly low in individuals who were older than 65, illiterate, had an extended family, were unemployed, had low income, suffered from disease and underwent hemodialysis treatment for 10 years and longer, had arteriovenous fistula in vascular insertion site, had body mass index within the class of morbid obese, and had no planned transplantation. SWLS mean scores of individuals, who were in the age group of 25-34 years, high school graduate, employed, described their income status as very high, had CRF for 6-12 months, underwent hemodialysis for 6-12 months, were waiting for renal transplantation, were significantly high. As a result of the correlation analysis made between body image and life satisfaction, it was determined that there was a positive, quite significant correlation

**Conclusion:** As a result, it was determined that hemodialysis patients were affected by body image and life satisfaction negatively due to many factors and the total score of body image scale was very low.

## Introduction

Individuals undergoing hemodialysis treatment have several losses in every aspects due to their disease and continuously encounter with stressors from onset of disease. It is reported that mental disorder is frequently observed in patients influenced by these severe physical and psycho-social stressors and psychological effects of disorders in this group of patients should not be ignored [1]. One of these problems is that body image is disturbed.

Body image is an important issue in patients cured with hemodialysis [2]. According to Leung's definition "Body image is the mental picture that people have of their own body and bodily functions including associated external and internal sensations" [3]. As a chronic disease, ESRD changes the patients' body and affects their body image negatively [4]. In 2013, the results of a cross-sectional study in the UK

by Leonard showed that body-image disturbance is higher in hemodialysis patients in compared to general population [5].

Physical changes such as dependence to hemodialysis process at certain intervals because of total or partial function loss of kidney, existence of fistula, shunt on arm or catheter in the body in order to undergo hemodialysis, uremia related color change on the skin, pallor caused by anemia occurring as a result of suppression of bone marrow due to uremia, and bodily changes such as weight gain depending on fluid loading negatively affect body image of patients undergoing hemodialysis [6,7]. These losses experienced by patients undergoing hemodialysis in numerous parts of life affect negatively life satisfaction by causing several adjustment disorders [4].

Life satisfaction has an important role in various aspects of life. Life satisfaction which is an important determinant for mental well-being signifies evaluation of life aspects

## More Information

**\*Address for Correspondence:** Sevil Biçer, Assistant Professor, Ph.D. Department of Nursing, Faculty of Health Sciences, Erciyes University, Kayseri, Turkey, Tel: +90 0352 207 66 66/28574; Fax: +90 352 437 92 81; Email: sevilnurse@mynet.com; sevilbicer@erciyes.edu.tr

**Submitted:** 24 June 2018

**Approved:** 08 July 2020

**Published:** 09 July 2020

**How to cite this article:** Biçer S, Demir G. Determination of body image perception and life satisfaction in patients undergoing hemodialysis. J Nov Physiother Rehabil. 2020; 4: 016-021.

**DOI:** 10.29328/journal.jnpr.1001032

**Copyright:** © 2020 Biçer S, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Keywords:** Hemodialysis; Body image; Life satisfaction





based on inner world [1]. These assessments include all responses of emotional quality to incidents, mental processes, and judgments of satisfaction in different aspects of life such as job, education. Life satisfaction is associated with accepting and continuing medical treatment voluntarily. This condition may affect course and symptoms of disease [8]. Patients undergoing hemodialysis treatment are observed to experience social limitations, and also have several physical pains due to their disorder. This change in their lives may decrease their life satisfaction depending on the efficiency of coping strategies they use [9]. Studies reveal that in addition to the strong correlation between individual's assessment of life satisfaction and health perception, high life satisfaction is an important determinant also for positive results after medical disorder [1,9].

## Materials and methods

This descriptive study was conducted in order to determine body image perception and life satisfaction of individuals undergoing hemodialysis treatment.

### Objectives

To determine body image perception and life satisfaction levels of individuals undergoing hemodialysis treatment.

To determine factors affecting body image perception and life satisfaction.

To reveal the correlation between body image perception and life satisfaction.

### Design

The population of the study consisted of individuals who were treated in hemodialysis units in the city center of Kırşehir. Totally 180 patients including 70 patients who were undergoing dialysis in hemodialysis unit of Training and Research Hospital and 110 patients who were undergoing dialysis in a private dialysis center, constituted the population of the study. It was planned to include whole of the population by using whole number method, but patients, who did not agree to participate in the study and did not meet inclusion criteria of the study, were excluded from sample and the study was conducted with 135 patients between 23 January and 1 June 2016.

### Inclusion criteria

Individuals who were older than 18, were receiving hemodialysis treatment at least for 6 months, were undergoing hemodialysis session three times a week, had no mental problem that may prevent to participate in the study, were capable of communicating, and agreed to participate in the study, were included in the study.

### Instruments

As data collection tool, questionnaire [1,2,6,9,10]

consisting of 30 questions including socio-demographic and disease characteristics of the patients which was prepared by the researcher upon review of related literature, multidimensional body-self relations questionnaire (MBSRQ), and satisfaction with life scale (SWLS) were used.

### Multidimensional Body-Self Relations Questionnaire (MBSRQ)

The questionnaire was developed by Winstead and Cash in [11] in order to conduct multidimensional examination and assessment of body image. Validity and reliability study of the scale in Turkey was conducted by Selma Doğan and Orhan Doğan [12] and Cronbach's Alfa internal consistency coefficient was determined as  $\alpha = 0.94$ . The scale has 57 items and 7 subscales (evaluation of appearance, orientation of appearance, evaluation of fitness, orientation of fitness, health evaluation, orientation of health, and satisfaction with body areas). 15 reversed items are found in 5-point likert type scale (1 = strongly disagree, 5 = strongly agree), the lowest and highest scores of the scale are respectively 57 and 285. High scores signifies a healthy body and high self-image.

### Satisfaction With Life Scale (SWLS)

The scale, which was developed by Diener, et al. (1985) in order to determine individuals' life satisfaction level, consists of 5 items containing answers ranging from "strongly disagree" to "strongly agree" [13]. Each item is scored between 1 and 7 and total score ranges from 1 point to 35 points. A high score obtained from the scale indicates that individuals' life satisfaction level is high. Turkish validity and reliability of the scale was conducted by Köker [14] and Yetim [15]. In the study of Yetim, it was reported that Cronbach's Alfa of the scale was 0.86 and test-retest reliability was 0.73.

Cronbach's Alfa internal consistency coefficient in this study was determined as 0.88 for MBSRQ and 0.89 for SWLS.

### Procedure

The data of the study were collected from the patients by using face to face interview technique. The patients were informed about the study and their verbal and written consents were received.

### Data analysis

All statistical analyses were performed with IBM Statistical Package for the Social Sciences [SPSS] Statistics 21 software, 2012. Percentage calculation; chi-square; student t test or Mann-Whitney U test for the analysis of difference between means of two groups; one way analysis of variance [ANOVA] or Kruskal-Wallis variance analysis for comparison of means of more than two groups; and Pearson correlation analysis for determining correlation between continuous variables were used as statistics.

### Ethical considerations

Before starting the study, Ethics Committee Approval



(2016-01/06) from Non-invasive Trials Ethics Committee Unit of a University and written permissions from institutions where the study was conducted were received.

### Results

It was determined that 60.0% of individuals included in the study were women, 51.9% were in age group of 65 years and older, average age was  $64.9 \pm 11.8$ , 43.7% were primary school graduates, 87.4% were married, 52.6% had nuclear family, 48.9% had general health insurance (SII), 91.9% were unemployed, 75.6% stated their income status were middle, and 59.3% were living in urban area (Table 1).

As stated in table 1, the individuals were CRF patients averagely for  $78.61 \pm 49.82$  months and were undergoing hemodialysis treatment for  $71.21 \pm 46.93$ . It was found that 84.4% of the individuals' vascular insertion site had arteriovenous fistula, BMI of 47.4% was normal, and transplantation was not planned for 60.0%.

MBSRQ mean score of the patients, undergoing hemodialysis, in this study was  $93.42 \pm 07$ . Table 1 shows MBSRQ total mean scores of the individuals in terms of their descriptive characteristics. As the related table was examined; it was determined that difference between total MBSRQ mean

scores of the of individuals in terms of gender, age groups, educational level, family structure, employment status, and income status was statistically significant ( $p < 0.05$ ). According to the study result, MBSRQ total mean scores were significantly low in those who were women, were older than 65, were illiterate, had an extended family, were unemployed, had very low income status. The difference between MBSRQ total mean scores of the individuals in terms of marital status was not statistically significant ( $p > 0.05$ ).

When MBSRQ total mean scores of the individuals were examined in terms of their disease characteristics; it was found that the difference between total mean scores of the individuals was statistically significant in terms of disease and hemodialysis time, vascular insertion site, body mass index, and transplantation history ( $p < 0.05$ ). MBSRQ total mean scores of the individuals, who had disease for 10 years and longer and underwent hemodialysis treatment, whose vascular insertion site had arteriovenous fistula, had body mass index in class of morbid obese, had no planned transplantation, were significantly low (Table 2).

As a result of this study, SWLS mean score of the patients was found as  $19.2 \pm 5.4$ . Age, educational status, employment status, and income status among socio-demographic characteristics

**Table 1:** Comparison of the Individuals' MBSRQ and SWLS Total Mean Scores in Terms of Their Descriptive Characteristics.

Descriptive Characteristics	n (%)	MBSRQ $\bar{x} \pm SS$	Test and $p$ value	SWLS $\bar{x} \pm SS$	Test and $p$ value
Gender					
Female	81 (60.0)	$63.39 \pm 0.44$	$t = 3.69$ $p < 0.05$	$18.8 \pm 6.5$	$t = 0.504$ $p > 0.05$
Male	54 (40.0)	$93.51 \pm 0.37$		$19.4 \pm 6.9$	
Age Groups					
25-34 ages	2 (1.5)	$93.54 \pm 0.41^a$	$F=3.05$ $p < 0.05$	$21.7 \pm 4.5^a$	$KW = 16.69$ $p < 0.001$
35-44 ages	5 (3.6)	$63.45 \pm 0.42^b$		$19.9 \pm 3.3^a$	
45-54 ages	17 (12.6)	$63.40 \pm 0.42^b$		$19.1 \pm 3.6^a$	
55-64 ages	41 (30.4)	$58.09 \pm 0.29^{a,b,c}$		$17.7 \pm 4.1^b$	
65 ages and above	70 (51.9)	$58.01 \pm 0.39^{a,b,c}$		$17.1 \pm 3.2^b$	
Average age ( $\bar{x} \pm ss$ )		$64.9 \pm 11.8$			
Educational level					
Literate	59 (40.7)	$83.29 \pm 0.39^a$	$F = 24.21$ $p < 0.05$	$17.6 \pm 6.6^a$	$KW = 11.053$ $p < 0.01$
Primary School	10 (7.4)	$73.47 \pm 0.34^b$		$18.1 \pm 5.7^a$	
Secondary School	55 (43.7)	$73.53 \pm 0.39^b$		$20.8 \pm 7.6^b$	
High School	11 (8.1)	$113.74 \pm 0.38^{a,b}$		$22.6 \pm 5.5^b$	
Marital Status					
Single	17 (12.6)	$86.48 \pm 0.42$	$MW-U = 0.11$ $p > 0.05$	$19.5 \pm 6.9$	$t = 0.957$ $p > 0.05$
Married	118 (87.4)	$83.45 \pm 0.41$		$18.1 \pm 6.3$	
Family Type					
Nuclear family	71 (52.6)	$62.54 \pm 0.40^a$	$F = 17.51$ $p < 0.05$	$17.4 \pm 5.6$	$KW = 2.123$ $p > 0.05$
Extended family	62(45.9)	$83.31 \pm 0.42^b$		$18.1 \pm 4.7$	
Broken families	2 (1.5)	$71.32 \pm 0.42^b$		$19.8 \pm 5.6$	
Working Status					
Working	11 (8.1)	$95.54 \pm 0.40$	$t = 4.34$ $p < 0.05$	$20.7 \pm 2.3$	$t = 2.28$ $p < 0.05$
Unemployed	124 (91.9)	$73.31 \pm 0.42$		$17.2 \pm 3.8$	
Income Status					
Very high	1 (0.7)	$96.62 \pm 0.40^a$	$KW = 33.76$ $p < 0.05$	$20.8 \pm 3.5^a$	$KW = 14.26$ $p < 0.001$
High	15 (11.1)	$83.42 \pm 0.41^b$		$19.6 \pm 2.3^a$	
Middle	102 (75.6)	$81.28 \pm 0.41^b$		$17.1 \pm 3.8^b$	
Low	15 (11.1)	$78.15 \pm 0.39^b$		$17.3 \pm 4.5^b$	
Very low	2 (1.4)	$60.09 \pm 0.29^c$		$17.1 \pm 3.4^b$	

\*While the same letters indicate lack of difference, different letters indicate presence of difference.



**Table 2:** Comparison of the Individuals' MBSRQ and SWLS Total Mean Scores in Terms of Their Disease Characteristics.

Disease Characteristics	n (%)	MBSRQ $\bar{x} \pm SS$	Test and $p$ value	SWLS $\bar{x} \pm SS$	Test and $p$ value
Duration of disease					
6 – 12 month	12 (8.9)	93.52 $\pm$ 0.39 <sup>a</sup>	KW=16.06 $p < 0.05$	20.2 $\pm$ 7.7 <sup>a</sup>	KW = 8.637 $p < 0.05$
1-5 years	39 (28.9)	84.53 $\pm$ 0.38 <sup>a</sup>		19.4 $\pm$ 6.7 <sup>a</sup>	
6-10 years	47 (34.8)	82.52 $\pm$ 0.35 <sup>a</sup>		18.9 $\pm$ 6.2 <sup>b</sup>	
10 years and more	37 (27.4)	63.24 $\pm$ 0.47 <sup>b</sup>		17.1 $\pm$ 6.8 <sup>a,c</sup>	
The average duration of disease (month) ( $\bar{x} \pm ss$ )			78.61 $\pm$ 49.82		
Duration of hemodialysis					
6 – 12 month	12 (8.9)	93.57 $\pm$ 0.36 <sup>a</sup>	KW = 10.86 $p < 0.05$	19.4 $\pm$ 4.6 <sup>a</sup>	KW = 11.859 $p < 0.01$
1-5 years	42 (31.1)	83.53 $\pm$ 0.40 <sup>a</sup>		19.2 $\pm$ 5.8 <sup>a</sup>	
6-10 years	46 (34.1)	82.46 $\pm$ 0.43 <sup>a</sup>		19.1 $\pm$ 5.2 <sup>a</sup>	
10 years and more	35 (25.9)	63.21 $\pm$ 0.47 <sup>b</sup>		17.3 $\pm$ 4.1 <sup>b</sup>	
The average duration of hemodialysis (month) (Ay) ( $\bar{x} \pm ss$ )			71.21 $\pm$ 46.93		
Vascular access					
Arteriovenous Fistula	114 (84.4)	63.20 $\pm$ 0.38	t = 2.11	18.5 $\pm$ 4.9	t = 0.687
Port Catheter	21 (15.6)	84.43 $\pm$ 0.44	$p < 0.05$	19.4 $\pm$ 5.6	$p > 0.05$
Body mass index					
Weak	10 (7.4)	97.53 $\pm$ 0.35 <sup>a</sup>	KW = 20.96 $p < 0.05$	17.5 $\pm$ 4.8	KW = 1.214 $p > 0.05$
Normal	64 (47.4)	93.53 $\pm$ 0.42 <sup>a</sup>		18.5 $\pm$ 5.7	
Overweight	42 (31.1)	65.41 $\pm$ 0.37 <sup>b</sup>		18.8 $\pm$ 5.2	
Obese	15 (11.1)	62.34 $\pm$ 0.49 <sup>b</sup>		18.6 $\pm$ 5.3	
Morbidly obese	4 (3.0)	62.26 $\pm$ 0.35 <sup>b</sup>		17.7 $\pm$ 4.6	
Transplant story					
Failed transplant	4 (3.0)	73.49 $\pm$ 0.41 <sup>a</sup>	F = 4.85 $p < 0.05$	17.5 $\pm$ 5.3 <sup>a</sup>	KW = 9.057 $p < 0.05$
Transplant waiting	50 (37.0)	76.58 $\pm$ 0.43 <sup>a</sup>		19.6 $\pm$ 5.1 <sup>b</sup>	
Unplanned transplantation	81 (60.0)	61.39 $\pm$ 0.40 <sup>b</sup>		17.6 $\pm$ 5.7 <sup>b</sup>	

\*While the same letters indicate lack of difference, different letters indicate presence of difference.

of patients were determined to cause a significant difference on life satisfaction. SWLS mean scores of the individuals who were in age group of 25-34 years, were high school graduate, were employed, and stated their income status as very high were determined to be significantly high. It was determined that gender, marital status, and family type did not affect SWLS mean score significantly (Table 1), ( $p > 0.05$ ).

When correlation between disease characteristics and life satisfaction of individuals was examined; it was found that while SWLS mean score was significantly high in individuals who had CRF disease for 6-12 months, were undergoing hemodialysis for 6-12 months, were waiting for renal transplantation, body mass index did not affect life satisfaction (Table 2).

As a result of the correlation analysis made between body image and life satisfaction, it was determined that there was a positive, quite significant correlation. Consequently, as mean score obtained by the patients from multidimensional body-self relations questionnaire decreased, their mean scores of the satisfaction with life scale also decreased (Table 3).

## Discussion

The results showed that hemodialysis patients have some

**Table 3:** Correlation Coefficient of Multidimensional Body-Self Relations Scale and Satisfaction With Life Scale Scores of Individuals.

MBSRQ	SWLS	
	r	p
	0.258	0.022

levels of body-image disturbance. Also, researches indicated that the level of body-image disturbance is higher among hemodialysis patients as compared with kidney transplant patients and continuous ambulatory peritoneal dialysis patients [2,16,17].

Although impaired body image is a common psychological consequence of living with hemodialysis studies about the effects of hemodialysis on KBY patients' body image are very limited.

According to results of the study, self-esteem, body image and life satisfaction levels of female patients were found to be lower compared to male patients. As stated in the literature, women mainly attach importance to aesthetical values; whereas men mainly attach importance to social image [18]. This result made us think that women were affected by diseases more compared to men, they integrated functional loss of an organ with appearance of the body regardless of being visible, and they were less satisfied with their body integrity.

While previous studies state that mean score of body image was higher in advanced age group, mean scores of body image and life satisfaction were determined to be higher in young adult individuals in the present study, which was in contrast to literature [2,6]. Young patients' having many expectations about their future and desire of fulfilling these expectations positively affect their attitudes and approaches to treatment.

According to results of the study, it was remarkable that mean scores of MBSRQ and SWLS increased as educational



level increased. Previous studies also reported that satisfaction level of body image in patients with higher educational level was higher [10,17]. It was thought that educational level positively influenced coping mechanisms of patients and indirectly increased MBSRQ and SWLS.

In the present study, MBSRQ and SWLS scores of those, who described their income status as very high and were employed, were higher than MBSRQ and SWLS scores of those, who described their income status as very low and were unemployed, in a statistically significant manner. This result was found to be compatible with results of other studies that revealed the effect of economic status on life satisfaction [1,19]. It is stated in the literature that existence of economic support, which needs to last for lifelong, relieves individuals and their family and makes adaptation of individuals easier against disease process compared to those without insurance [17].

MBSRQ and SWLS mean scores of the individuals living in an extended family were found to be higher than those living in a nuclear family. It is stated that social support positively influences physical and mental well-being directly by meeting basic needs such as love, compassion, self-esteem, and belonging to a group [20]. According to these results; it can be asserted that individuals receiving higher family support adapt disease and experienced problems more easily. It is mentioned in the literature [21,22] that social support brings healthy coping to individual, decreases feeling of hopelessness and depression, increases personal sufficiency during stress periods, provides emotional balance, and brings life satisfaction and psychological well-being.

It was found that duration of disease and dialysis time caused a significant difference on body image and life satisfaction. In advancing times of hemodialysis treatment, patients mostly live together physical/mental complications induced by chronic disease and hemodialysis and concern about their lives under threat is common. It is stated there is an adaptation period for patients who start to undergo dialysis in first years of CRF treatment and patients try to get used to a new way of treatment and to regulate their lives according to this new way of treatment in this period [23,24]. For this reason, MBSRQ and SWLS mean scores of the individuals can be thought to be high at early times of treatment.

MBSRQ mean scores of the individuals having arteriovenous fistula in vascular insertion site were determined to be lower compared to individuals with port catheter. It is required to find an appropriate way of vascular access in order to provide sufficient HD treatment to patients. Temporary catheterization, permanent catheterization, and arteriovenous [AV] fistula were used as vascular access in patients starting to undergo hemodialysis. AV fistulas with the rate of 83.6% are the most frequent vascular access used for hemodialysis [25]. Therefore, life length and quality of

individual receiving HD treatment are directly related with vascular access route. Presence of local complications such as hemorrhage in early period, thrombosis in late period, extremity edema, ischemia of extremity, aneurysm, and graft infection following arteriovenous fistula surgery may cause individuals to have impaired body image [26].

It was determined that MBSRQ mean scores of individuals whose body mass index were classified overweight, obese, and morbid obese were significantly low, but BMI did not affect life satisfaction. Previous studies emphasized that body image satisfaction of obese people was very low, and as BMI increased, self-esteem decreased [27,28].

According to result of the study, existence of positive correlation between body image perception and life satisfaction is compatible with data of literature [29]. It was reported in previous studies that life quality and life satisfaction of individuals with high body image perception were high [4,5]. Body image satisfaction and life satisfaction are closely associated with the nature and status of physical and mental health of the individuals. The review of the literature demonstrated that physical and mental health conditions significantly affect body image satisfaction and life satisfaction of the individuals.

In conclusion, body image and life satisfaction are an important issue among hemodialysis patients that has not been paid enough attention by now. Health care team members working with this group of patients should be aware of this important issue and conduct psychological programs to decrease the level of body image disturbance and life satisfaction. It is recommended to plan an experimental study evaluating efficiency of practices or interventions of nurses, who provide care to patients undergoing hemodialysis, for diagnosis of impaired body image in such patients.

### Authors' contributions

Study design: SB, GD; Data collection and analysis: SB, GD; Manuscript writing: SB.

### References

1. Kutner NG, Brogan D, Hall WD, Haber M, Daniels DS. Functional impairment, depression, and life satisfaction among older hemodialysis patients and age-matched controls: a prospective study. *Arch Phys Med Rehabil.* 2000; 81: 453-459.  
**PubMed:** <https://www.ncbi.nlm.nih.gov/pubmed/10768535>
2. Sadeghian J, Roudsari DM, Seyedfatemi N, Rafiei H. Body-image disturbance: A comparative study among haemodialysis and kidney transplant patients. *J Clin Diagn Res.* 2016; 10: 14-16.  
**PubMed:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4948440/>
3. Leung DKC. Psychosocial aspects in renal patients. *Perit Dial Int.* 2003; 23: 90-94.  
**PubMed:** <https://pubmed.ncbi.nlm.nih.gov/17986567/>
4. Finnegan-John J, Thomas VJ. The psychosocial experience of patients with end-stage renal disease and its impact on quality of life: findings from a needs assessment to shape a service. *ISRN Nephrol.* 2013;

- 2013: 308986.  
**PubMed:** <https://pubmed.ncbi.nlm.nih.gov/24959536/>
5. Leonard C. Shame and disgust-sensitivity in adult dialysis patients: Are these variables predictive of psychological morbidity, body image disturbance and quality of life? Doctorate Thesis. Department of Clinical Psychology University of Leicester, 2013.  
<https://ira.le.ac.uk/bitstream/2381/28525/1/2013LeonardCLDClinPsy.pdf>
  6. Oyekçin DG, Gülpek D, Şahin EM, Mete L. Depression, anxiety, body image, sexual functioning, and dyadic adjustment associated with dialysis type in chronic renal failure. *Int J Psychiatry Med.* 2012; 43: 227-241.  
**PubMed:** <https://pubmed.ncbi.nlm.nih.gov/22978081/>
  7. Muringai T, Noble H, McGowan A, Channey M. Dialysis access and the impact on body image: role of the nephrology nurse. *Br J Nurs.* 2008; 17: 362-366.  
**PubMed:** <https://pubmed.ncbi.nlm.nih.gov/18414304/>
  8. Erdem N, Karabulutlu E, Okanlı A, Tan M. Life satisfaction and hopelessness in hemodialysis patients. *J Human Sci.* 2004; 1: 1-14.
  9. Al Eissa M, Al Sulaiman M, Jondeby M, Karkar A, Barahmein M, et al. Factors affecting hemodialysis patients' satisfaction with their dialysis therapy. *Int J Nephrol.* 2010; 1: 1-5.
  10. Eti AF. Body-Image Disturbance: A comparative study among haemodialysis and kidney transplant patients. *J Çınar.* 1996; 1: 4-6.
  11. Winstead BA, Cash TF Reliability and Validity of the body-self relations questionnaire: A new measure of body image. Paper presented at the meeting of the Southeastern Psychological Association, New Orleans, LA. 1984.
  12. Doğan O, Doğan S. Multidimensional Body -Self Relations Questionnaire hand book. Sivas Cumhuriyet University Faculty of Medicine Publications. 1992; 1-29.
  13. Diener E, Oishi S, Lucas ER. Subjective well-being: the science of happiness and life satisfaction. In: Synder CR, Lopez SJ [ed.] *The Oxford handbook of positive psychology* (2 ed.) Oxford University Press. 2009; 187-194.
  14. Köker S. Comparison of life satisfaction level of normal and troubled adolescents. Ankara University Institution of Social Sciences Master Thesis, Ankara, Turkey. 1991.
  15. Yetim Ü. Life satisfaction: A study based on the organization of personal projects. *Soc Indicators Res.* 1993; 3: 277-289.
  16. Rezaei R, Hejazi SH, Shahnazarian J, Mahmoudi M, Seidiandi SJ. To compare the patient's body imaging under haemodialysis treatment with patients renal transplantation. *Payesh.* 2009; 8: 279-287.
  17. Tan M, Karabulutlu E. The evaluation of the level of self-esteem and body image satisfaction of continuous ambulatory peritoneal dialysis patients. *J Anotolia Nurs Health Sci.* 2004; 7: 67-73.
  18. Eti AF. Approaches to nursing practices patients with experience changes in body image. *J Çınar.* 1998; 3: 79-82.
  19. Arkar H, Sarı Ö, Fidaner H. Relationships between quality of life, perceived social support, social network and loneliness in a Turkish sample. *New Symposium.* 2004; 42: 20-27.
  20. Haslam A, O'Brien A, Jetten J, Vormedal K, Penna S. Taking the strain : Social identity, social support and the experience of stress. *British J Soc Psychol.* 2005; 44: 355-337.  
**PubMed:** <https://pubmed.ncbi.nlm.nih.gov/16238844/>
  21. Aşti T, Karam İ, Erci B. The experiences of loneliness, depression and social support of Turkish patients with continuous ambulatory peritoneal dialysis and their caregivers. *J Clin Nurs.* 2006; 15: 490-497.  
**PubMed:** <https://www.ncbi.nlm.nih.gov/pubmed/16553763>
  22. Kahraman A, Çınar S, Pınar R. Relationship of depression and perceived social support levels in hemodialysis patients. *Turk Nephrol, Dialy Transplan J.* 2006; 4: 130-133.
  23. Özçürümez G, Tanrıverdi N, Zileli L. Psychiatric and psychosocial aspects of chronic renal failure. *Turk J Psychiatry.* 2003; 14: 72-80.  
**PubMed:** <https://www.ncbi.nlm.nih.gov/pubmed/12792842>
  24. Tossani E, Cassano P, Favo M. Psychosocial factors in patients with chronic kidney disease. *Seminars in Dialysis.* 2002; 2: 73-81.
  25. Turkey National Hemodialysis, Transplantation and Nephrology Registry Report Turkish Society of Nephrology Publications. 2014. <http://www.tsn.org.tr/folders/file/2014-REGISTRY-KITABI.pdf>
  26. Atay M, Türkyılmaz S, Kavala AA, Bakuy V, Gülmaliyev C. Complications of arteriovenous fistula in hemodialysis patients. *J Vascular Sur.* 2017; 26: 128-131.
  27. Chao HH, Hills RK. Body image change in obese and overweight persons enrolled in weight loss intervention programs: A systematic review and meta-analysis. *Plos One.* 2015; 10: 15-20.
  28. Martin Ginis KA, McEwan D, Josse AR, Phillips SM. Body image change in obese and overweight women enrolled in a weight-loss intervention: The importance of perceived versus actual physical changes. *Body Image.* 2012; 3: 311-317.  
**PubMed:** <https://www.ncbi.nlm.nih.gov/pubmed/22608984>
  29. Jain P, Tiwari GK. Body Image Satisfaction and Life Satisfaction in HIV/AIDS Patients. *Int J Indian Psychol.* 2016; 3: 81-90.