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Original Article

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Body Image Perception of Chronic Kidney Disease Patients and Its Impact on Their Personal Relationships

Burcu Kıvrak Güçer[1], Gülçin Kantarcı[2]

[1]Department of Psychology, İstanbul Medeniyet University Göztepe Training and Research Hospital, İstanbul, Turkey
[2]Department of Internal Medicine, Yeditepe University School of Medicine, İstanbul, Turkey

Abstract

Objective: This study aimed to find the correlation between the interpersonal relationships of patients who had dialysis, kidney transplantation, and early-stage chronic renal failure (CRF) and the body image perception dependent on the therapy.
Materials and Methods: One-hundred twenty patients from each group were included in the study. The patients were assessed using patient information form, short symptom inventory, and social physique anxiety scale, and their answers were evaluated.
Results: As a result of the research, 51.7% of the patients had a change in body appearance after the illness and there was a significant relationship (χ^2=21, p=0.002) between the patient group and the body appearance and discomfort, and as the inconvenience of the appearance of the body increased, the increase in social physique anxiety and body image perception (r=-0.334, p<0.05) were found to be weakened.
Conclusion: According to these results, it is proposed that informative education about the probable body image changes must be given to the patients before the therapy, and supportive psychotherapies for the deformation of the relationship between the patients and their surroundings have to be planned.
Keywords: Body image, dialysis, kidney transplantation, social anxiety

Corresponding Author: Burcu Kıvrak Güçer ✉ faburcu@gmail.com
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INTRODUCTION

Physical diseases lead to cognitive distortions that also affect the mental structure and processes and induce feelings of hopelessness, uncertainty about the future, anxiety about losing control and autonomy, anxiety about breakdown of relationships with immediate environment (with different attribution systems), anxieties about economic or social concerns, depression, severe stress disorders, delirium, and some psychotic disorders. In this context, the main aim of the research was to determine whether there is an effect of body image perception in the interpersonal relationships of patients with early-stage chronic renal failure (CRF) who have undergone dialysis and kidney transplantation.

Hemodialysis, peritoneal dialysis, and kidney transplantation treatments each cause different image changes and disorders in the body. These disruptions cause the patients to have difficulties in establishing interpersonal relationships.

Schilder stated, “It is our own scheme or picture that we shape in our minds as a three-dimensional integrity that includes interpersonal, environmental, and temporary factors” (1, 2). Secord and Jounard stated that whether the individual likes some parts of his body will change his body image (1).

The perception of body image during individual development is determined by sensory but primarily visual experiences, social experiences, the value that the individual gives to his/her body image, the attitudes and ideas of others about his/her physical image, and the reactions of

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the individual to these attitudes and ideas. Whenever there is a discrepancy between the individual's body image and the ideal body image, the individual's perception of body image is in danger. The individual reacts by not touching the areas that cause a change in perception of the individual's body, hiding or exposing these areas, rejecting or exaggerating the possible loss of function in the body parts, reducing the frequency of social relations, being desperate about future plans, and unable to make emotional investments because of the anxiety of rejection by the other.

It is possible to see the deterioration of body integrity and mental consequences related to this deterioration not only in patients with renal failure, but also in all patient groups with a chronic disease. In a study conducted by Öngören (3) on the image of a healthy body, it was found that the presence of a chronic disease reduces positive body perception. Similarly, in the research by Mutlu (4), it was seen that when the perception of health increases, body perception increases in the comparison between healthy groups and those with chronic diseases. Therefore, it is seen that having a chronic disease is a significant factor on body image perception.

In a study with young people who underwent regular hemodialysis, it was determined that the individuals participating in the study had apparently negative feelings about the changes that occur in their bodies, and they could not adapt to their own bodies and felt fear and alienation against the changes (5).

"The anxiety that people feel when their physical appearance is evaluated by others is defined as social physique anxiety" (6). People are motivated to have a positive impact on others; thus, some people are also concerned about how their physical appearance is perceived by others (6). Having a chronic illness and deterioration of body image are also factors that cause a role change. The grief of losing health leads to disruption of interpersonal relationships.

Aim of Research

The goal of this research is to determine whether there is a relationship between the perception of body image related to treatment and interpersonal relationships by comparing the group of patients with dialysis and kidney transplantation with a control group of patients with early-stage CRF.

The research is based on the basic hypothesis that there is a relationship between body image perception and social physique anxiety in patients with early-stage CRF who underwent dialysis and kidney transplantation.

There is limited research on preventing the negative effects of the deterioration of interpersonal relationships of patients undergoing dialysis and kidney transplantation who spend most of their time on their treatment and psychological status, providing therapeutic support to patients in this field in case a relationship between body image perception and interpersonal relations is detected, and providing information for preparation before treatment, which makes this research important.

Main Points

- Patients who recieved dialysis and kidney transplantation treatment thought that they had more change in their body appearence compared to the early CRF group and the disease had an effect on the change in body appearence and the satisfaction with the body appearence.
- It was observed that the level of social anxiety due to the physical appearance of those who were disturbed by the body image was high.
- As the satisfaction with the body image increases, the expectation and anxiety that his/her physics will be evaluated negatively by others have decreased.
- It was determined that the perception of body image related to the disease in all patient groups had an effect on the interpersonal relationships and social anxiety of the patients.

MATERIALS AND METHODS

Sample

The research was performed in 2008 with the approval of the Ethics Committee of İstanbul Göztepe Training and Research Hospital (Approval Date: January 2, 2008; Approval No: 42/A). The sample of the study consisted of patients undergoing hemodialysis, continuous ambulatory peritoneal dialysis (CAPD), or kidney transplantation and patients with CRF who had not started dialysis or had a kidney transplant in İstanbul Medeniyet University Göztepe Training and Research Hospital. Thirty people were selected from adult patients between the ages of 18 and 50 years from each treatment group, and a total of 120 patients participated.

Among those patients who underwent CAPD, only those having a fistula in the selected patients who had hemodialysis and those who had a permanent peritoneal catheter were included in the study. In patients who had had a transplant, the sample was chosen without looking for this criterion. The control group of the study consisted of 30 patients with CRF who had not started dialysis or had a kidney transplant; did not take drugs such as cortisone and cyclosporine; and had not yet had a fistula created and/or peritoneal catheter placed.

Patients with serum creatinine less than 2.5 mg/dL selected for the study were in the stage 1-3 group stated in the Kidney Disease: Improving Global Outcomes (KDIGO) guidelines (7) at the time of the study. Because the Glomerular filtration rate (GFR) estimation formulae used at that time were insufficient and there was a loss of patients in GFR measurement while collecting urine in outpatient patients, the patients with stage 1-3 kidney failure having serum creatinine value of 2.5 mg/dL were accepted to represent the age group used in the study.

Patients with stage 1-3 are considered to have early-stage CRF, whereas patients with stage 4-5 are considered advanced stage

and were excluded from the study. In the subsequent calculations of these patients, GFRs were found to be higher than 29 mL/min/1.75 sq m, but they were not changed because ethical committee approval was obtained at the time of writing the article and the criteria in the period in which the study was planned were taken into consideration and adhered to the original.

Since the progression of age in the primary and middle adulthood causes individuals to diverge from their ideal body image expectations and thus increase their anxieties about their physical appearance (8), the group of patients under 18 and over 50 was not included in the study. The short symptom inventory was based on the exclusion of patients with severe psychiatric symptoms, but no participant with this feature was encountered.

Data Collection Tools

Research data were collected in a single step using inventories modified to Turkey. Forms were administered to hemodialysis patients in the first hour of the dialysis sessions, at the exit of the peritoneal dialysis outpatient clinic in patients with CAPD, at the outpatient clinic of kidney transplantation patients, and in a specially prepared test room at the exit of the nephrology outpatient clinic for patients with early-stage CRF.

Patient Information Form

Current studies on CRF, hemodialysis, CAPD, and kidney transplantation and a questionnaire prepared in accordance with the literature include sociodemographic information about patients, descriptive information about diseases, and information about the treatment methods. In the sociodemographic information section, the age, gender, birthplace, marital status, duration of marriage, educational status, and occupation of each patient group are found and in the section describing the diseases and treatment methods, the year of diagnosis of CRF, the year of receiving dialysis, questions about whether he/she has undergone an operation, and questions regarding the ailments arising from the operation are included.

Brief Symptom Inventory

The brief symptom inventory is a 53-item scale developed in 1992 by L. R. Derogatis (9). Cronbach alpha internal consistency coefficients obtained for 9 subscales of the inventory were found to vary between 0.71 and 0.85 ($p<0.01$). The brief symptom inventory is a short form of SCL-90-R that results from studies with SCL-90-R. Among the 90 items scattered across 9 factors of SCL-90-R, a total of 53 items with the highest load in each factor were selected, and a short scale of similar structure was obtained, which could be applied in 5-10 minutes. The inventory consists of 9 subscales, additional items, and three global indices. Somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety disorder, hostility, phobic anxiety, paranoid thoughts, psychotism, and additional items are the 9 subscales of the inventory. Disease severity index, symptom total index, and symptom discomfort index constitute three global indices.

Body Perception Scale

The body perception scale is a scale consisting of 40 items developed by Secord et al. (10) in 1953 and adapted to Turkish society by Hovardaoğlu et al. (11) in 1989. As a result of the validity/reliability studies of the scale performed by Hovardaoğlu et al. (11), the Cronbach alpha internal consistency coefficient of the scale was found to be 0.91 ($p<0.01$). Each substance is related to an organ or part of the body (such as arms, legs, face) or a function (such as the level of sexual activity). The total score of the scale, which ranges from 1 to 5 for each item, ranges from 40 to 200, and the height of the score indicates the level of satisfaction.

Social Physique Anxiety Scale

The social physique anxiety inventory (SPAI) is a scale developed by Hart et al. (12) in 1989 to measure the anxiety that individuals feel when their physical appearance is evaluated by others. Cronbach alpha internal consistency coefficient of the scale was found to be 0.88 ($p<0.01$). The inventory consists of 12 items and the questions in the inventory are answered using a five-point scale. The lowest score that can be obtained is 12, and the highest score is 60. Items 1, 2, 5, 8, and 11 in the inventory are scored reversely. As the score obtained from SPAI increases, the level of anxiety that the person feels from his appearance increases. The validity and reliability study of this tool for the Turkish population was done by Mülazımoğlu et al. (6).

Statistical Analysis

The questionnaire forms were evaluated by the researcher, and the calculations were made with the IBM Statistical Package for the Social Sciences software for Windows version 21.0 (IBM SPSS Corp.; Armonk, NY, USA). Single sample Kolmogorov-Smirnov test was used in the data normality of the research and Levene Test was used in determining homogeneity. Although the numerical data obtained in the study are expressed with mean and standard deviation, the evaluation of the differences between the various parameters between the groups was made with the chi-squared independence test, Student t-test, and one-way variance analysis, and the relationship between the numerical data was determined with the Pearson correlation test. Post-hoc Tukey test was used to evaluate the difference in the results of one-way variance analysis. Statistical significance was accepted as $p<0.05$

RESULTS

A total of 120 people, including 53 women and 67 men, participated in the study. The mean age of the participants was 34.5 yrs (s=9.1).

A total of 51.7% of the patients informed that there was a change in body appearance after the disease. A significant ($\chi^2=29$, $p<0.05$) relationship was found between the patient groups and changes in their body appearance. Although 57% of hemodialysis (HD) patients, 53% of CAPD patients, and 80% of

Table 1. Comparison of change in body appearance by patient groups (n=30)

	There is a change in body appearance	There is no change in body appearance
Hemodialysis	17 (56.7%)	13 (43.3%)
Continuous ambulatory peritoneal dialysis	16 (53.3%)	13 (43.3%)
Transplantation	24 (80.0%)	6 (20.0%)
Early-stage chronic renal failure	5 (16.7%)	21 (70.0%)
p=0.00006		

Table 2. Comparison of discomfort of body appearance by patient groups (n=30)

	There is a change in body appearance	There is no change in body appearance
Hemodialysis	17 (56.7%)	13 (43.3%)
Continuous ambulatory peritoneal dialysis	17 (56.7%)	12 (40.0%)
Transplantation	19 (63.3%)	11 (36.7%)
Early-stage chronic renal failure	4 (13.3%)	24 (80.0%)
p=0.002		

Table 3. Comparison of body perception scores by patient groups (n=30)

Body Perception	mean±s	min/max	p
Hemodialysis	134.9±5.5	76/185	F=1.86
Continuous ambulatory peritoneal dialysis	127.7±27.7	73/176	
Transplantation	143.9±21.2	87/187	
Early-stage chronic renal failure	138.5±28.4	91/191	p=0.14
Total	136.0±27.5	73/191	

kidney transplantation patients stated that there was a change in body appearance because of disease and treatment, 70% of the patients with early CRF stated that there was no change in body appearance (Table 1).

A significant relationship (χ^2=21, p=0.002) was found between patient groups and discomfort from body appearance (p<0.05). Although 57% of HD patients, 57% of CAPD patients, and 63% of kidney transplantation patients stated that they were uncomfortable with their body appearance, 80% of patients with early CRF stated that they were not disturbed by their body appearance (Table 2).

The average body perception score was 136 (s=27.5). There was no significant relationship (F=1.86, p=0.14) between patient groups and the body perception scores (p>0.05) (Table 3). However, a significant relationship (t=-2.29, p=0.024) was found between gender and body perception (p<0.05). It was observed that the mean perception score of female patients (mean=129.9, s=27.8) was lower than that of male patients (mean=141.3, s=26.4).

In parallel with this, when evaluated in terms of sociodemographic data, the average age of those who care about their body appearance was 35.3 (s=8.4).

Although those who were married for 7-9 years constitutes the group that is most disturbed by body appearance with an average of 80%, the least disturbed group of patients were those who had been married for 4-6 years with an average of 20%. Therefore, the effect of the duration of marriage on the level of being uncomfortable with the body image was detected.

When the liking of the patients was evaluated in detail, it was observed that the group with the highest percentage of dislike of the arms (p>0.05) was HD (13.3%) patients, although there was no significant difference (>2=12.3, p=0.65) between the patient groups.

A significant (χ^2=27.47, p=0.025) relationship was found between patient groups and dislike of body hair distribution (p<0.05) with 3% of HD patients, 13% of CAPD patients, 20% of kidney transplantation patients, and 17% of patients with CRF not liking the distribution of hair on their body. Though not significant, there was a difference between kidney transplantation patients and patients with CRF in terms of dislike of hair distribution (χ2=0.848, p=0.97) (p>0.05).

When the relationship between the disease groups and the subscales of the brief symptom inventory was examined, it was found that there was a significant difference (F=2.76, p=0.045) between the symptom total index (STI) scores of the patient groups (p<0.05) (Table 4). As a result of the post-hoc Tukey test performed after analysis of variance to determine which subgroups of STI differ according to the patient groups, there was a significant difference (p=0.031) at (p<0.05) level in favor of the group of patients with kidney transplant between the group of patients with CRF and the group of patients with kidney transplantation.

STI scores (mean=16.8, s=9.1) of kidney transplant patients were found to be lower compared with the STI scores (mean=24.6, s=13) of patients with early CRF. The difference between other patient groups was not statistically significant (p>0.05) (Table 5).

The mean interpersonal sensitivity score (mean=5.23, s=10.6) of HD patients was higher than the other patient groups. This result shows that HD patients are more sensitive than other pa-

Table 4. Comparison of Symptom Total Index scores by patient groups (n=30)

	mean±s	min/max	p
Hemodialysis	22.0±10.20	00/47	F=2.76
Continuous ambulatory peritoneal dialysis	22.3±10.40	1/49	
Transplantation	16.8±9.10	4/36	p=0.045
Early-stage chronic renal failure	24.6±13.01	4±51	

Table 5. Distribution of Tukey test comparisons regarding Symptom Total Index scores by patient groups

	Patient Groups	Difference of Averages	p
Hemodialysis	CAPD	-0.23333	1.000
	Transplantation	5.20000	0.249
	Early-stage CRF	-2.56667	0.794
CAPD	Hemodialysis	0.23333	1.000
	Transplantation	5.43333	0.214
	Early-stage CRF	-2.33333	0.837
Transplantation	Hemodialysis	-5.20000	0.249
	CAPD	5.43333	0.214
	Early-stage CRF	7.76667*	0.031*
Early-stage CRF	Hemodialysis	2.56667	0.794
	CAPD	2.33333	0.837
	Transplantation	7.7667*	0.031*

CAPD: continuous ambulatory peritoneal dialysis; CRF: chronic renal failure
*The mean difference is significant at the 0.05 level.

tient groups in interpersonal relationships; therefore, it is the group with a higher level of anxiety in social relationships compared with other patient groups.

There is a significant (r=-0.307, p=0.001) relationship between body perception score and symptom disturbance index (SDI) (p<0.05) (Table 6). As the body perception score increases, the SDI score decreases.

The average social physical anxiety score (SPAS) of the patients participating in the study is 29.57 (s=8.3). There is no difference between the patient groups in terms of SPAS score (F=0.153, p=0.928) (p>0.05) (Table 7). A significant relation (t=2.12, p=0.035) was found between being disturbed by body appearance and SPAS score (p<0.05). Patients who did not want their friends to see the deterioration in their body appearance were the most (16.7%), whereas 10% did not want their partners to see the deterioration. With regard to the basic question of the study, it was found that the SPAS score decreased (r=-0.334, p<0.05) as the body perception score increased (Table 6) (Figure 1).

Table 6. Correlation between Body Perception, Social Physique Anxiety, and Symptom Disturbance Index

	Body Perception (136.28±27.5)	Symptom Disturbance Index (1.6±0.66)	Social Physique Anxiety (29.57±8.33)
Body perception (r=)	-	-0.307	-0.334
p		0.001	0.0002
Symptom disturbance index (r=)	-0.307	-	0.319
p	0.001		0.0004
Social physique anxiety (r=)	-0.334	0.319	-
p	0.0002	0.0004	

Table 7. Comparison of Social Physique Anxiety scores by patient groups (n=30)

Body Perception	mean±s	min/max	p
Hemodialysis	29.0±6.6	16/42	F=0.153 p=0.928
Continuous ambulatory peritoneal dialysis	29.1±7.1	13/43	
Transplantation	30.1±9.2	16/50	
Early-stage chronic renal failure	30.0±10.2	2±50	
Total	29.5±8.3	2±50	

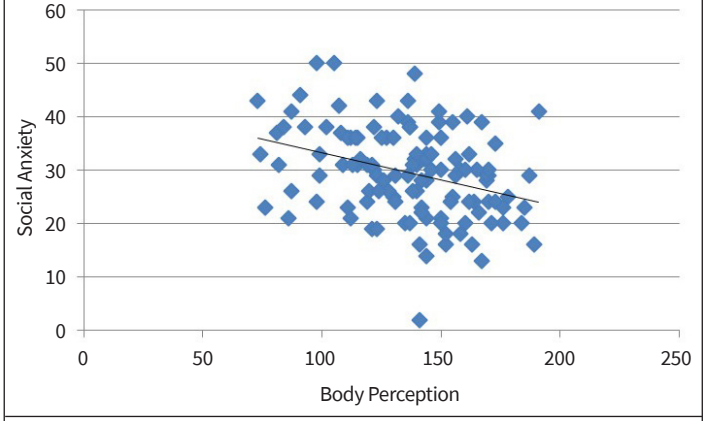

Figure 1. The relationship between social anxiety and body perception.
Correlation analysis between patients' body perceptions and social physique anxiety (r=-0.334, p<0.05)

DISCUSSION

In the study where we investigated the effect of body image perception on interpersonal relationships of patients, the re-

sults show that the patients who received dialysis and kidney transplantation treatment thought that there was more change in body appearance compared with the control group and the disease affected this change. This result showed that there is no significant difference between dialysis patients and patients with kidney transplantation in contrast to the study in which Eti et al. (13) detected that body image satisfaction level of the patients with kidney transplantation was affected more.

In a study of 97 adult hemodialysis and peritoneal dialysis patients in the UK on the disturbance level from their body image, it was found that both groups of patients were more disturbed by the body image than the normal population, but dialysis methods did not show a significant difference in terms of discomfort (14). Considering that the group of patients with early CRF has similar characteristics with the population whose body image has not yet changed, the apparent low level of the discomfort percentage from the body appearance of this patient group revealed the importance of the discomfort of the patients receiving dialysis and kidney transplantation from the body appearance and the effect of the disease on their level of satisfaction about their body appearance.

In evaluations made in terms of sociodemographic parameters, it was determined that the body image perception of female patients was weaker than that of male patients. Physical changes caused by treatment can be expected to affect male gender who are too busy with their physical skills more than women (14), but it is thought that male patients may be trying to be satisfied with their body image, especially as a defense mechanism against this sensitivity. In addition, it was observed that discomfort from body appearance occurred the most between the ages of 35 and 41 years. Defined as "mid adulthood" by developmental psychologists, it is the period between the ages of 31 and 40 years when both the appearance and the activity are redirected (15). Therefore, this result supports the theory of body image perception in a developmental sense.

It can be said that the fistula operations of patients undergoing hemodialysis in terms of their satisfaction with body parts made a significant change in the appearance of the arm, and this change occurred in the form of dissatisfaction with the appearance of the arms. However, the fact that the group most disturbed by the hair distribution is kidney transplant patients may indicate the psychological consequences of hair growth caused by the drugs used after transplantation.

The increase in the STI score of the early CRF patient group, which was observed as a result of the evaluation of the patient groups in terms of psychopathological symptoms screening, may be because of the higher level of anxiety and the frequency of depression symptoms that may occur with deterioration in future plans as the group is uncertain how the disease will progress in the future. This difference in the frequency of psychiatric symptoms may be because of anxiety that kidney transplant patients will no longer receive dialysis treatment, and patients with CRF may go on to have dialysis treatment over time.

The finding that interpersonal sensitivity symptom is common in HD patients is similar to previous studies. In a study on HD patients, scores were obtained on the interpersonal sensitivity subscale and in the HD patient group at the pathological level. This is explained by the fact that the kidneys, which have an important role, lose their function, and the patients feel incomplete and inadequate (16). The patient's body image is degraded, and he/she has difficulty in communicating with others.

The finding that the psychiatric symptom discomfort index decreases with increasing satisfaction with the body image indicates that as the satisfaction with the body image increases, psychopathological symptoms decrease in patients. In this context, preliminary information regarding the disease and treatment process is one of the most important early interventions. Oral and visual information should be given about permanent and temporary body image changes during the treatment process before the patients are taken for treatment. In addition, the healthcare professionals should be informed in detail about the possible psychopathological symptoms that will develop in patients because of the deterioration of body image; thus, the patients should be directed to a doctor and/or psychologist in the early stages.

As a result of the analysis on the relationship between body appearance and social physique anxiety, it was observed that those who were uncomfortable with their body appearance had higher SPAS scores than those who were comfortable with their physical appearance, i.e., the level of social anxiety because of physical appearance of those who were uncomfortable with their external appearance was high. This finding is parallel with the finding of Öngören's (3) research that those who avoided social environments because of their body image had a low body perception and the finding in Polat's (17) study that patients who had undergone dialysis avoided social environments because of their body image, and this situation caused their body image perceptions to decrease.

Because the anxiety caused by deterioration of body appearance being seen by friends and spouses will also affect the sexual life of the patients, they should be informed about modifying their sexual activities with their changing bodies and if necessary, their sexual partners should be included in these discussions.

The finding that as the satisfaction with the body image increases, the social physique anxiety decreases and the expectation that the physique will be evaluated negatively by others and the anxiety decreases has verified the basic hypothesis of the research that there is a relationship between the patient's perception of body image because of disease in dialysis and kidney transplantation patients and the patients' social physique anxiety.

CONCLUSION

In the light of the findings obtained from this study, which aims to evaluate body image perception in terms of social physique anxiety by comparing dialysis and kidney transplantation patients with patients with early CRF, it has been determined that body image perception because of disease has an effect on interpersonal relationships and social anxiety of patients in all patient groups.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of İstanbul Göztepe Training and Research Hospital (Approval Date: January 2, 2008; Approval No: 42/A).

Informed Consent: Written informed consent was obtained from the patients who participated in this study.

Peer-review: Externally peer-reviewed.

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