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# Effects Of Kidney Transplantation on Body Image, Self-Esteem, And Marital Adjustment: A Descriptive-Comparative Study

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*The authors declared that there is no conflict of interest.*

Author contribution
*NA designed the study. NA, DT, FÜ, and NK collected the data. NA, DT, and ESG analyzed the data. NA, DT, ESG, FÜ, and NK prepared the manuscript. All authors approved the final version for submission.*

*Data Availability*
*Data supporting the findings of this study are available upon reasonable request can be obtained from the corresponding author.*

A B S T R A C T

Objective: Transplantation surgery involves numerous psychological, existential, emotional, relational, and social changes for both recipients and they families. However, recipients may experience psychosocial problems related to mood changes, sexual problems, conflicts in family roles and relationships, difficulty in returning to work, changes in body image, obligation to comply with intensive medical treatment, and the risk of rejection in the post-transplant process. This study aimed to evaluate the effects of kidney transplantation on body image, self-esteem, and marital adjustment.

Methods: The study was conducted with 68 kidney transplant recipients and 54 healthy individuals. All participants answered the questionnaire, which included Sociodemographic Information Forms, the Body Image Scale (BIS), Rosenberg Self -Esteem Scale (RSES) and Dyadic Adjustment Scale (DAS).

Results: No statistically significant differences were observed between groups in terms of total mean scores for BIS, DAS subscales. There was a significant difference between the groups in terms of RSES mean scores. There was a positive, moderate, correlation between BIS and DAS in kidney transplant recipients, and in healthy individuals. There was a negative, low level, correlation between BIS and RSES in RT recipients, and a negative, moderate, correlation in healthy individuals. There was a negative, moderate, correlation between DAS and RSES in kidney transplant recipients, and in healthy individuals.

Conclusions: No difference was observed between kidney transplant recipients and healthy individuals in terms of body image, and marital adjustment. Self-esteem of kidney transplant recipients was found to be lower than healthy individuals.

Key Words: body image, self-esteem, marital adjustment, kidney transplantation, nursing

## INTRODUCTION

Kidney Transplantation is the gold standard treatment method for End-stage Renal Disease (ESRD) with respect to survival, health costs, and quality of life1. Patients may experience psychosocial problems related to mood changes, sexual problems, conflicts in family roles and relationships, difficulty in returning to work, changes in body image, obligation to comply with intensive medical treatment, and the risk of rejection in the post-transplant process2-5.

High-dose corticosteroids used after kidney transplantation cause weight gain, fat in the abdomen and hips, moon face formation, and may affect the body image of the recipients. Anxiety and change related to the deterioration of body image can lead to decreased social relations, feelings of hopelessness along with negative feelings about the body, sexual dysfunction, lack of self-confidence, feelings of alienation and lack of self-care6. In addition, post-transplant patients may have problems with the psychological acceptance of the graft, which can lead to the development of a distorted body image7.

Sexual dysfunction is common in both male and female kidney transplant recipients8. Sexual dysfunction leads to significant deterioration in marital-spousal adjustment9-11. The sexual problems experienced by patients after kidney transplantation are psychological (difficulties in adaptation to medication, side effects of the drug, risk of rejection, difficulties in adaptation to social life, necessity of regular checkups, anxiety of re-hospitalization, anxiety of changes in body appearance) and physiological factors

(weight gain, acne, osteoporosis, gingival hyperplasia, hirsutism)12. It has been reported in the literature that spousal support has a positive effect on increased sexual desire after kidney transplantation13.

This study aimed to evaluate body image, self-esteem and marital adjustment of kidney transplant recipients. Comparing data from kidney transplant recipients with healthy individuals in this comparative study will improve our understanding of the familial effects of transplantation (eg, marital adjustment) as well as individual effects on recipients (eg, body image and self-esteem). The results of our study may provide supporting information for a holistic approach to nurses providing care for kidney transplant recipients. One of the major responsibilities of nurses is to provide psychosocial support to patients undergoing kidney transplantation; as far as we know, based on a literature review, it was determined that kidney transplant patients were not investigated in this aspect in the literature. Therefore, our research is an original study that will strengthen the literature in this area.

## METHODS

Study Design, Setting, and Population

This study was conducted using a descriptive-comparative study. The approval (Decision number 2016/382) of the Clinical Research Ethics Committee of the University and written permission from the hospital in which the study would be conducted were obtained before starting the study. The aim of the study was explained to individuals who met the inclusion criteria for sample, and their informed consent indicating that they agreed to participate in the study was obtained in writing. Permission was also obtained from the authors who performed the Turkish validity and reliability studies for all scales used in the present study.

The study population included patients who had undergone kidney transplantation in the organ transplantation clinic of a university hospital located in the south of Turkey at least 6 month ago of the start of the study and who had come in for a checkup at least once during the 3-month data collection period (kidney transplantation group), as well as healthy individuals who had similar characteristics with the kidney transplantation patient group (healthy group). Data were collected between August and October 2017. In total, 68 kidney transplant recipients and 54 healthy individuals who voluntarily participated in the study (with written consent) were included in the sample. The inclusion criteria for the study were (1) being 18 years or older, (2) having undergone kidney transplantation at least 6 month prior, (3) being married, (4) having no cognitive problems in self -expression, (5) being literate, (6) having no diagnosed psychiatric disease, (7) having no vision or hearing problems, and (8) having no any chronic disease for healthy individuals. Data collection forms were given to patients that met the study criteria and to healthy individuals with similar characteristics in a sealed envelope to ensure privacy. Participants were then asked to place the completed forms back into the envelope and deposit them in a box created by the researchers.

Data Collection

Data from kidney transplant recipients and healthy individuals were collected using a questionnaire form including Sociodemographic Information Forms, the Body Image Scale (BIS), Rosenberg Self-Esteem Scale (RSES), and Dyadic Adjustment Scale (DAS).

Sociodemographic Information Forms. Two separate information forms were prepared by the researchers for the kidney transplant recipients and healthy individuals. While the information form for healthy individuals consisted of 5 questions, the information form for the kidney transplant recipients consisted of 11 questions. Questions regarding sociodemographic characteristics were included in both forms. A total of 6 questions related to ESRD and kidney transplantation were added to the information form for kidney transplant recipients.

Body Image Scale (BIS). A Turkish validity and reliability study of the BIS developed by Secord and Jourard14 was performed by Hovardaoğlu (1993) and its Cronbach's alpha value was reported to be 0.91. BIS aims to measure how satisfied a person is with various parts of his/her body and various bodily functions. This scale consists of 40 items that are scored from 1 to 5. The total score obtained from this scale varies between 40 and 200, while the degree of satisfaction/positivity increases as the obtained score increases15. In our study, Cronbach's α value was found to be .95.

Rosenberg Self-esteem Scale (RSES). The RSES was developed by Rosenberg in 196516. Its Turkish validity and reliability study was performed by Çuhadaroğlu in 1986, with a reported Cronbach's alpha value of 0.71. The scale consists of 63 questions in 12 sub-categories structured as multiple choice questions. The self-esteem subscale used in our study consists of 10 questions with 5 positive and 5 negative statements. The total score obtained from the self-esteem subscale consisting of these 10 questions varies between 0 and 6. Self-esteem is considered high if the score obtained is 0–1, moderate if it is 2–4, low if it is 5–617. In our study, Cronbach's α value was found to be .66.

Dyadic Adjustment Scale (DAS). The DAS was developed by Spanier18 to evaluate the quality of the relationship perceived by married or cohabiting couples, with a reported Cronbach's alpha value of 0.96. DAS is a tool with 32 items that measures four aspects of relationships: dyadic satisfaction (items 16–23, 31, and 32), dyadic cohesion (items 24–28), dyadic consensus (1–3, 5, and 7–15), and affectional expression (4, 6, 29, and 30). Two items of the scale is answered as yes or no, while the other items are 5, 6, and 7 Likert types. The total score is the sum of all item scores and ranges from 0 to 151. A higher total score indicates that the individual's relationship or marital adjustment is better. A Turkish validity and reliability study of DAS was performed by Fişiloğlu and Demir, with a reported Cronbach's alpha value of 0.9219. In our study, Cronbach's α value was found to be .93.

Data Analysis

Collected data were analyzed using the IBM Statistical Package for the Social Sciences (IBM SPSS Corp.; Armonk, NY, USA) version 23 packet program. Descriptive data were provided as numbers, percentages, means, and standard deviation. The distribution of data was examined using a Shapiro-Wilk test. Parametric tests were applied to the data showing normal distribution and nonparametric tests to the data not showing normal distribution. The Mann-Whitney U test and independent-samples t test was used to determine whether the scale scores

caused a difference between the groups, and the Pearson Correlation test was used to assess the relationships between scales. The level of significance was considered as p<.05 in the entire study.

## RESULTS

The sociodemographic characteristics of kidney transplant recipients and healthy individuals are presented in Table 1. No statistically significant differences were observed between the two groups in terms of gender, educational status, monthly income level, and having a child (p>.05) (Table 1).

**Table 1.** Sociodemographic characteristics of kidney transplant recipients and healthy individuals

| Sociodemographic Characteristics | Kidney Transplant Recipients (n=68) | | Healthy Individuals (n=54) | | Statistical Evaluation |
|---|---|---|---|---|---|
| | Mean±SD | | Mean±SD | | |
| **Age** | 44.22 ± 9.89 (Min 25; Max 65) | | 40.59 ± 9.02 (Min 27 Max 63) | | |
| | n | % | n | % | |
| **Gender** | | | | | |
| Female | 29 | 42.6 | 21 | 38.9 | $x^2$=.408 p>.05 |
| Male | 39 | 57.4 | 33 | 61.1 | |
| **Educational status** | | | | | |
| Literate | 7 | 10.3 | 3 | 5.6 | $x^2$=.332 p>.05 |
| Primary-secondary school graduate | 38 | 55.9 | 26 | 48.1 | |
| High school graduate | 17 | 25.0 | 15 | 27.8 | |
| Associate degree and above | 6 | 8.8 | 10 | 18.5 | |
| **Monthly income level** | | | | | |
| Low | 16 | 23.5 | 6 | 11.1 | $x^2$=.188 p>.05 |
| Moderate | 46 | 67.6 | 41 | 75.9 | |
| High | 6 | 8.8 | 7 | 13.0 | |
| **Having a child** | | | | | |
| Yes | 53 | 77.9 | 46 | 85.2 | $x^2$=.218 p>.05 |
| No | 15 | 22.1 | 8 | 14.8 | |
| **Total** | 68 | 100.0 | 54 | 100.0 | |

Table 2 shows the distribution of clinical characteristics of Kidney transplant recipients. The mean diagnosis age of ESRD among kidney transplant recipients was 34.10±12.48 (Min 11; Max 61), and hemodialysis was the most frequently applied treatment method in ESRD was identified (57.3%). The time elapsed after kidney transplantation was 0–4 years in 70.6% (n=48) of the patients. Moreover, 94.1% (n=64) of kidney transplant recipients were transplanted for the first time. It was determined that 80.9% (n=55) of the patients underwent living donor transplantation. Also, 55.9% (n=38) of kidney transplant recipients stated that they were "very satisfied" with their condition after transplantation (Table 2).

Table 3 shows the comparison of BIS, RSES and DAS scores of kidney transplant recipients and healthy individuals. No statistically significant differences were observed between groups in terms of total mean scores of the BIS (t=-.061; p=.952), and DAS (Z=-.085; p=.932). There was a significant difference between the groups in terms of RSES (Z=-2.358; p=.018) scale mean scores (Table 3). It was determined that the mean BIS score averages of kidney transplant recipients (155.03±23.90) and healthy individuals (155.30±24.52) were found to be similar and the levels of satisfaction/positivity was high in both groups (Table 3). It was determined that the mean RSES score of healthy individuals was below a score of one point (0.81±1.06) (Table 3). The mean score of kidney transplant recipients was above one point (1.25±1.14). No statistically significant differences were observed between kidney transplant recipients and healthy individuals in terms of mean scores of the DAS subscales of dyadic satisfaction (Z=-.478; p=.633), dyadic cohesion (Z=-1.360; p=.397), dyadic consensus (Z=-.846; p=.397), and affectional expression (Z=-1.093; p=.932) (Table 3).

Correlations between the scales in kidney transplant recipients and healthy individuals are presented in Table 4. There was a positive (r = .407), moderate, correlation between BIS and DAS in kidney transplant recipients, and a positive (r = .352), moderate, statistically significant correlation in healthy individuals (p <.01) (Table 4). Individuals with high body image also had a high level of marital adjustment. There was a negative (r = -.269; p <.05), low level, correlation between BIS and RSES in kidney transplant recipients, and a negative (r=-.378; p <.01), moderate, statistically significant correlation in healthy individuals (Table 4). There was a negative (r = -.435; p <.01), moderate, correlation between DAS and RSES in kidney transplant recipients, and a negative (r=-.336; p<.05), moderate, statistically significant correlation in healthy individuals (Table 4).

## DISCUSSION

This study revealed the relationship between kidney transplant recipients' body image, self-esteem and marital adjustment and compared them with healthy individuals with similar characteristics. Most people who live with a well-functioning kidney after kidney transplant do not have any fluid and dietary restrictions, unlike their peers who receive dialysis treatment, and

**Table 2.** Distribution of clinical characteristics of kidney transplant recipients (n:68)

| Clinical Characteristics | Mean±SD | |
|---|---|---|
| **ESRD diagnosis age** | 34.10 ± 12.48 (Min 11; Max 61) | |
| | **n** | **%** |
| **Treatment after failure** | | |
| Hemodialysis | 39 | 57.3 |
| Peritoneal dialysis | 5 | 7.4 |
| Hemodialysis + Peritoneal dialysis | 5 | 7.4 |
| Medical treatment | 19 | 27.9 |
| **Time after Transplantation** | | |
| 6 weeks-4 years | 48 | 70.6 |
| 5-9 years | 14 | 20.5 |
| 10 years and above | 6 | 8.9 |
| **Number of transplantations** | | |
| 1 time | 64 | 94.1 |
| ≥ 2 | 4 | 5.9 |
| **Donor** | | |
| Living | 55 | 80.9 |
| Cadaver | 13 | 19.1 |
| **Level of satisfaction with condition after transplantation** | | |
| Very satisfied | 38 | 55.9 |
| Quite satisfied | 28 | 41.2 |
| Undecided | - | - |
| Not very satisfied | 2 | 2.9 |
| Never satisfied | - | - |

survival improves, hospitalizations decrease and quality of life increases20,21. However, this treatment carries the potential for a highly disciplined and constantly controlled life following transplantation, the lifelong use of immunosuppressive drugs, increased potential for infection as complications, and the use of hemodialysis due to acute and chronic rejection. These problems experienced after transplantation also may lead to different physical, social, and psychological problems12. Emotional and mental difficulties, alienation and identity problems can be observed in many patients after transplantation. The majority of patients wonder how their new organ will affect their brains, emotions, and personalities. Problems related to body image, identity, and sense of personality may also appear in individuals3. Nevertheless, quality of life and sexuality are expected to improve in kidney transplant recipients22.

In literature, it was determined that concerns regarding body image among organ transplant patients made it difficult for them to adapt to life23. To live with a donated organ not only leads to clinical issues (e.g. surgical risk and possible graft rejection) but also leads to problems related to psychological adaptation to the transplanted organ and the recipient's body experience. Organ recipients should cope with the effects of transplantation on their bodies and lives24. The development of a positive body image after transplantation—alongside the reduction of negative effects the body caused by dialysis on—is expected after transplantation. However, the body image of patients may be adversely affected as a result of side effects, such as weight gain and acne on the skin along with the effects of the drugs used after transplantation. Such changes in body image may lead to patients experiencing feelings of alienation, decreased social relations, fear of being rejected by others, having negative feelings about their bodies, problems with sexual function, loss of confidence, having a secret hostility to a transplanted kidney, disruption of self-care, and feelings of hopelessness.6 According to the results of our study, there was no difference between kidney transplant recipients and healthy individuals in terms of body image dissatisfaction. Kidney transplant recipients and healthy individuals had high levels of satisfaction with their body image. In a study carried out with patients undergoing hemodialysis and kidney transplant recipients, it was reported that the body images of the patients undergoing hemodialysis were deteriorated at low, moderate, and high levels by 64.3%, 19%, and 16.7%, respectively. It was reported that the body images of transplant patients were deteriorated at low, moderate and high levels by 69%, 26.2%, and 4.8%, respectively, and the difference between mean body image impairment scores in the two groups was statistically significant25. In the literature, in a study conducted with hemodialysis patients, the scores of the participants in the experimental group who underwent spiritual therapy were compared with the control group. It was reported that the scores of the experimental group changed in spiritual health from 39.32 ± 3.38 to 43.40 ± 2.82, in self-esteem from 42.65 ± 2.61 to 45.90 ± 3.88, and in self-efficacy scores from 40.99 ± 2.19 to 44.65 ±2.5826. A limited number of studies on the direct effect of transplantation on body image were found in the literature, with different results being reported regarding the body image of patients undergoing kidney transplantation3,23,24,27. Similar to the results of our study, a study by Yagil et al.27 compared the body

**Table 3.** Comparison of BIS, RSES and DAS scores of kidney transplant recipients and healthy individuals

| Scales | Kidney Transplant Recipients (n=68) | | Healthy Individuals (n=54) | | Statistical Evaluation |
|---|---|---|---|---|---|
| | **Mean± SD** | **(Min-Max)** | **Mean± SD** | **(Min-Max)** | |
| **BIS** | 155.03±23.90 | (105.00-200.00) | 155.30±24.52 | (89.00-200.00) | [a]t= -.061; p=.952 |
| **RSES** | 1.25±1.14 | (0.00-4.00) | 0.81±1.06 | (0.00-5.00) | [b]Z= -2.358; ***p=.018*** |
| **DAS** | 117.53±18.55 | (57.00-148.00) | 117.30±18.84 | (46.00-143.00) | [b]Z= -.085; p=.932 |
| Dyadic satisfaction | 39.12±7.29 | (18.00-48.00) | 39.15±6.28 | (14.00-49.00) | [b]Z= -.478; p=.633 |
| Dyadic cohesion | 15.07±4.80 | (1.00-23.00) | 16.05±4.89 | (5.00-23.00) | [b]Z= -1.360; p=.397 |
| Dyadic consensus | 54.09±7.37 | (31.00-65.00) | 52.24±9.48 | (20.00-65.00) | [b]Z= -.846; p=.397 |
| Affectional expression | 9.25±2.47 | (2.00-12.00) | 9.85±1.90 | (6.00-12.00) | [b]Z= -1.093; p=.932 |

a: Independent-Samples T test; b: Man-Whitney U test

**Table 4.** Correlation between BIS, DAS and RSES in kidney transplant recipients and healthy individuals

| | | BIS | DAS | RSES |
|---|---|---|---|---|
| **Kidney transplant recipients (n=68)** | **BIS** | 1 | | |
| | **DAS** | 0.407** | 1 | |
| | **RSES** | -0.269* | -0.435** | 1 |
| **Healthy individuals (n=54)** | **BIS** | 1 | | |
| | **DAS** | 0.352** | 1 | |
| | **RSES** | -0.378** | -0.336* | 1 |

Pearson correlation analysis, **p<0.01; * p<0.05

image dissatisfaction, quality of life, and psychological distress among kidney transplant recipients compared to their healthy peers, with no difference being observed between the two groups in terms of body image dissatisfaction. In an examination of qualitative and quantitative studies, Zimbrean28 determined that the post-transplant body image of patients undergoing transplantation improved compared to the period before transplantation, while the body image satisfaction of transplanted patients—except for those undergoing bone marrow transplantation was further improved in the long term after transplantation. Furthermore, it was emphasized that body image is an important component of measuring the quality of life in transplant patients. Previous studies have reported that kidney transplant patients may experience a relative improvement in body image impairment after transplantation27. Notably, nurses should take an approach that supports the satisfaction of kidney transplant recipients with positive body images.

In a study on the long-term psychosocial outcomes of young adults after pediatric liver transplantation, patients were reported to have high self-confidence29. Mollazadeh and Hemmati30 indicated that the self-esteem of kidney transplant recipients was better compared to that of hemodialysis patients. According to the results of the present study, the mean self-esteem scores of kidney transplant recipients were found to be higher compared to healthy individuals. Self-esteem decreases as the score obtained from RSES increases. Self-esteem, which contributes to the high motivation of individuals as well as various support mechanisms in adaptation to a new life after transplantation, can be considered an important factor in managing this process and increasing the success of transplantation. It has been demonstrated that nurses must implement measures to increase self-esteem in transplant recipients, to determine the factors reducing self-esteem, and to eliminate these factors.

Kidney disease has negative effects on sexuality. These effects are expected to decrease with transplantation. Because of the normalization of hormonal disorders, transplantation improves sexual health (eg libido), energy, and fertility. However, sexual dysfunction is a multifactorial problem. After transplantation, the prevalence of SD still remains at 46% in both men and women31,32. Since comorbidities cannot be completely eliminated, many patients continue to experience sexual dysfunction after transplantation31,33,34. In addition, the introduction of a new organ into the body may have a detrimental effect on body image and, as a result, intimacy and sexual activity22. Sexual health deterioration not only leads to physical health deterioration, but also to mental, family and social health of couples9. Noerskov et al.'s34 study showed a significant decline in overall sexual function after transplantation in both men and women. Forty-seven percent of men and 60% of women reported at least one physical sexual problem 1 year after hematopoietic stem cell transplantation34. Similarly, Perri et al.35 reported that psychological factors such as self-esteem, altered body image perception, anxiety and depression (related to kidney disease and transplant) generally affect erectile function in men after transplantation. According to the research of Spirito et al.36 kidney transplantation appears to have a negative effect on sexual health and significantly worsens both erectile and ejaculatory functions.

## CONCLUSION

As far as we know, this was the first study to examine the body image, self-esteem, and marital adjustment of kidney transplant recipients compared to healthy individuals. No difference was observed between kidney transplant recipients and healthy individuals with similar characteristics in terms of body image, and marital adjustment. It was determined that the body images and the adjustment between the couples were high in two groups. Moreover, the self-esteem levels of kidney transplant recipients were found to be lower compared to those of healthy individuals.

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