

Analysis of the relationship between body image and quality of life in patients with functioning renal transplants

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ABSTRACT

Introduction: Renal transplantation is the most favourable therapeutic option for patients with end-stage chronic kidney disease, being associated with lower mortality and greater survival vs other alternatives. However, recipients face difficulties in adapting to the donated organ, often perceiving it as a foreign body, which distorts their body image and promotes negative behaviours that affect quality of life.

Objectives: To determine the relationship between body image and quality of life in patients with functioning renal transplants.

Material and Method: We conducted a descriptive, cross-sectional observational study. A non-probabilistic, purposive sample of renal transplant recipients who consented and met the inclusion criteria was obtained. The Body Self Relations Questionnaire was used for the body image variable, and the SF-36 questionnaire was used for the quality-of-life variable.

Results: A total of 71 patients participated; 98.6% reported moderate dissatisfaction with body image. Regarding quality of life, the majority presented a very high level (57.7%), followed by a high level (38.1%). A significant association was found between less body image impairment and better quality of life (Spearman's $Rho = -0.375$; $p < 0.001$).

Conclusions: Among patients with functioning renal transplants, at least in the sample studied, less body image impairment was associated with better quality of life.

Keywords: body image; quality of life; renal transplantation; chronic kidney disease.

RESUMEN

Análisis de la relación entre la imagen corporal y la calidad de vida en personas con trasplante renal funcional

Introducción: El trasplante renal constituye la opción terapéutica más favorable para pacientes con enfermedad renal crónica terminal, se relaciona con menor mortalidad y mayor supervivencia comparado con otras opciones; sin embargo, los receptores enfrentan dificultades para adaptarse al órgano donado, percibiéndolo como un cuerpo extraño, lo que distorsiona su imagen corporal y propicia comportamientos negativos que afectan su calidad de vida.

Objetivos: Determinar la relación entre la imagen corporal y la calidad de vida en pacientes con trasplante renal funcional.

Material y Método: Estudio observacional descriptivo de corte transversal. Se obtuvo una muestra no probabilística e intencional de receptores de trasplante renal que consintieron en participar en el estudio y cumplían los criterios de selección. Se utilizaron el cuestionario multidimensional Body Self Relations Questionnaire para la variable imagen corporal y el cuestionario SF-36 para la variable calidad de vida.

Resultados: Participaron 71 pacientes, el 98,6% refirió tener moderada insatisfacción respecto a su imagen corporal. Referente a la calidad de vida, la mayoría presenta nivel muy alto con 57,7% seguido de nivel alto con 38,1%. Se encontró una relación significativa entre menor afectación de la imagen corporal y mayor calidad de vida en los pacientes estudiados (Rho de Spearman = -0,375 y p-valor de <0,001).

Conclusiones: En los pacientes con trasplante renal funcionando, al menos en la muestra estudiada, una menor afectación de la imagen corporal está relacionada con mejor calidad de vida.

Palabras clave: imagen corporal; calidad de vida; trasplante renal; enfermedad renal crónica.

INTRODUCTION

Kidney transplantation (KT) is widely accepted as the first-line renal replacement therapy for patients with end-stage chronic kidney disease (CKD), as it is associated with lower morbidity and mortality and better quality of life compared with other renal replacement therapies¹⁻². Unlike other interventions, KT involves three key actors: the donor, the recipient, and the organ/tissue. Therefore, the procedure carries a wide range of representations and meanings for the patient, engaging biological, psychological, and social dimensions. However, the success of transplantation is often addressed primarily from a traditional biomedical perspective, focusing almost exclusively on graft assimilation while placing emotional, psychological, social, occupational, and family aspects in the background³.

KT recipients demonstrate better survival rates than patients receiving dialysis-based renal replacement therapies⁴. Medical advances include the development of new methods and medications to improve these outcomes and enhance patients' quality of life. Nevertheless, holistic perspectives—such as patients' self-perception—have received limited attention. Studies in Latin America mainly compare the psychological symptoms of transplant recipients with those of the general population, without considering factors that may contribute to rejection episodes, such as the type of donated organ, the anonymity of the donor, or family support⁵. This population requires specific follow-up, where nursing professionals must address the factors influencing health-related quality of life (HRQoL). After nursing interventions based on health education and psychological counseling, several authors have reported improvements in patients' HRQoL, particularly in psychological domains⁶⁻⁷.

Studies conducted in individuals undergoing surgical procedures have demonstrated that such interventions can significantly alter emotional, social, and physical aspects of life, leading to disturbances in body image⁸⁻⁹. Although most patients eventually adapt to these changes,

they report feelings of mutilation, decreased self-esteem, altered sense of femininity, reduced sexual attractiveness, anxiety, sadness, humiliation, and fear of recurrence. In complex surgeries such as KT, body grief often occurs¹⁰. This phenomenon is characterized by disturbances in body image when there is a discrepancy between physical appearance and the mental representation the individual has of their body, significantly interfering with personal development and interpersonal relationships, with a negative impact on quality of life.

Rosen¹¹ defines body image as the way a person perceives, imagines, feels, and acts regarding their own body. This concept includes perceptual, subjective, and behavioral components. According to Botella García¹², the dimensions of body image in this study are 4: Subjective Importance of Corporality (ISC): concern for physical appearance, behaviors related to body shape, weight, dieting, and perceived physical attractiveness across body areas; Physical Fitness-Oriented Behaviors (COMF): regular physical activity—exercise, strength, and endurance—to maintain a healthy appearance; Self-Evaluated Physical Attractiveness (AFA): concern for maintaining an attractive body and the degree of satisfaction with one's appearance, including body image without clothing; and Physical Appearance Care (CAF): ongoing attention to bodily appearance, with emphasis on coordination and physical harmony.

Patients experiencing body image disturbances undergo changes at multiple response levels. Perceptually, these disturbances may focus on the affected area and produce distorted perceptions of defects and other changes. Cognitive disturbances—particularly those related to body image and interpersonal relationships—may trigger negative internal dialogue and dysfunctional personal values. Physiologically, patients experience changes in habits and must adapt to new and unfamiliar sensations. Emotionally, they face anxiety, dissatisfaction, aggression, and irritability, while behaviorally they may exhibit shame, fear of rejection, and social avoidance linked to their appearance¹³.

Although there is extensive research on quality of life in patients with CKD undergoing hemodialysis and peritoneal dialysis, information on kidney transplantation in our region remains limited. Comparative studies show differences in quality of life according to the renal replacement therapy used; however, determining the superiority of one therapy over another remains challenging due to multiple variable factors¹⁴. Quality of life is a multidimensional concept shaped by multiple aspects of life, closely related to well-being, satisfaction of basic needs, and the means to achieve them¹⁵. Physical health integrates objective and subjective aspects influencing quality of life and personal, economic, and social development—key elements in the patient's life¹⁶.

A KT recipient's ability to identify changes in body image and in quality of life related to such changes—as well as the interaction between these two factors—may constitute a valuable source of information for designing interventions

aimed at improving not only graft survival but also the recipient's overall well-being. Such findings may also inform health policy development.

Therefore, the primary endpoint of this study was to determine the relationship between body image and quality of life, and to analyze the sociodemographic characteristics of KT patients at a public hospital.

MATERIAL AND METHOD

Study design, setting, and duration

We conducted a descriptive, observational, cross-sectional study in the outpatient nephrology clinic of the *Hospital Nacional Alberto Sabogal Sologuren*, an institution that provides healthcare services to individuals insured by the social security system in the Constitutional Province of Callao, Peru. The study period was from March 1st to July 30th, 2022.

Population and sample

The study population included all patients who received a deceased-donor KT at Hospital Nacional Alberto Sabogal Sologuren up to February 2022. A non-probability convenience sampling method was used. Inclusion criteria were more than three months post-transplant, active insurance coverage during the study period, and signed informed consent. Patients experiencing clinical complications during the study period were excluded.

Study variables and measurement instruments

The main variables analyzed were body image and HRQoL. Sociodemographic data were also collected, including sex, age, marital status, educational level, employment status, dialysis history, and time since transplantation.

Body image was measured using the short version of the Multidimensional Body Self Relations Questionnaire (MBSRQ), which includes 45 items structured into four dimensions and uses a Likert-type scale. This instrument evaluates overall body image perception and satisfaction with various body parts. Minor terminology adaptations were made to apply the tool to the Peruvian population; therefore, validity was reassessed by a panel of five experts (two specialists and three methodologists). The binomial test yielded statistical significance ($p=0.045139$, $p<0.05$), supporting the instrument's validity. A pilot test yielded a Cronbach's alpha of 0.792, indicating high reliability.

Quality of life was assessed using the SF-36 questionnaire, a widely validated tool measuring HRQoL through 36 items grouped into eight dimensions: physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role, and mental health. In Latin America, the SF-36 has shown Cronbach's alpha values between 0.80 and 0.91 across its domains, indicating high internal consistency¹⁷.

Each SF-36 item is scored from 0 to 100, with 0 representing the poorest quality of life and 100 the highest. For this study, the average across all dimensions yielded an overall quality-of-life score categorized into five levels: 0–19 very low; 20–39 low; 40–59 average; 60–79 high; 80–100 very high.

Data collection

Data collection occurred in three phases. First, authorization was obtained from the hospital ethics committee. Second, coordination was undertaken with the leadership of the Transplant Recipients Association of the National Hospital Alberto Sabogal Sologuren to establish objectives and procedures. Third, researchers contacted patients by phone to schedule their nephrology outpatient visits. After their medical appointments, patients were approached to complete the questionnaires following explanation and informed consent. Administration of the instruments required approximately 15–20 minutes per patient.

Statistical analysis

Data were entered into Microsoft Excel 2019 and analyzed using SPSS v25. Qualitative variables were described using frequency distributions, and numerical variables using mean \pm standard deviation or median and interquartile range, depending on whether they followed a normal distribution. Inferential analysis employed Spearman's correlation coefficient (Spearman's rho) after verifying the normality of the variables, with statistical significance set at $p<0.05$ and a 95% confidence interval.

Ethical considerations

Informed consent was obtained from all participants, ensuring voluntary participation and confidentiality. The study complied with the Declaration of Helsinki and all relevant ethical and legal biomedical research regulations. Ethical approval was granted by the Hospital Ethics Committee. The study adhered to the guidelines of Peruvian regulations D.S. 011-2011-JUS and Law 29733 on personal data protection.

RESULTS

A total of 71 patients participated in the study. Their sociodemographic characteristics are shown in **table 1**.

Regarding body image (**figure 1**), 98.6% ($n=70$) of participants reported moderate dissatisfaction with their body image, while only one patient displayed mild dissatisfaction. No cases of normal satisfaction or severe dissatisfaction were recorded. Overall, 100% of patients exhibited some degree of body image disturbance, primarily moderate or mild dissatisfaction.

Table 2 presents the dimensions of body image among transplant recipients. Findings included: 71.8% ($n=51$) had moderate dissatisfaction in the subjective importance of corporality dimension; 93% ($n=66$) had moderate dissatisfaction in physical fitness-oriented behaviors;

Table 1. Sociodemographic Characteristics.

Category	Subcategory	Frequency	Percentage
		n=71	100.0
Age	25 to 29 years	4	5.6
	30 to 39 years	11	15.5
	40 to 59 years	40	56.3
	60 years and older	16	22.5
Gender	Male	36	50.7
	Female	35	49.3
Marital status	Single	24	33.8
	Married	40	56.3
	Cohabiting	5	7.0
	Divorced	2	2.8
Educational level	No formal education	1	1.4
	Primary	7	9.9
	Secondary	37	52.1
	Higher education	26	36.6
Employment status	Employed	14	19.7
	Unemployed	34	47.9
	Student	2	2.8
	Retired	21	29.6
Dialysis history	No dialysis	7	9.9
	Hemodialysis	56	78.9
	Peritoneal dialysis	8	11.3
Time as a transplant recipient	< 1 year	3	4.2
	1 to 4 years	22	31.0
	5 years or more	46	64.8

67.6% (n=48) had moderate dissatisfaction in self-evaluated physical attractiveness; and 77.5% (n=55) had moderate dissatisfaction in physical appearance care.

Regarding quality of life, 57.7% (n=41) perceived very high quality of life, and 38.1% (n=27) reported high quality of life. Only a minimal percentage showed normal or low scores (figure 2).

Among HRQoL dimensions: physical functioning: 95.8% (n=68) scored at a very high level; physical role: 60.6% (n=43) had high quality of life; bodily pain: 52.1% (n=37) reported very high quality of life; emotional role: 70.4%

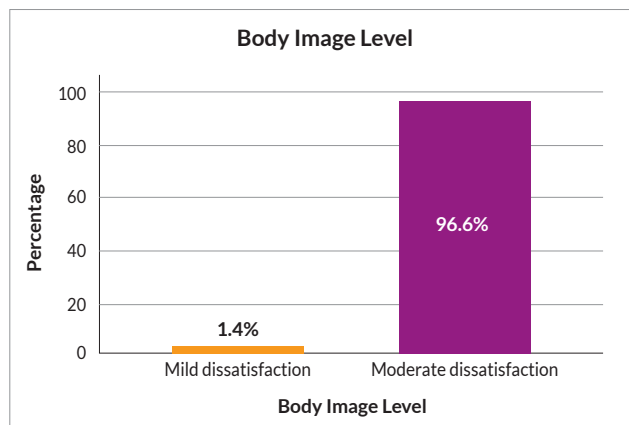


Figure 1. Level of body image satisfaction in kidney transplant recipients according to the Multidimensional Body Self-Relations Questionnaire (MBSRQ).

(n=50) had high quality of life; general health: 53.5% (n=38) scored at an average quality-of-life level; and physical role also included a very low level in 12.7% (n=9) (table 3).

The correlation analysis between body image and quality of life in kidney transplant patients at the National Hospital Alberto

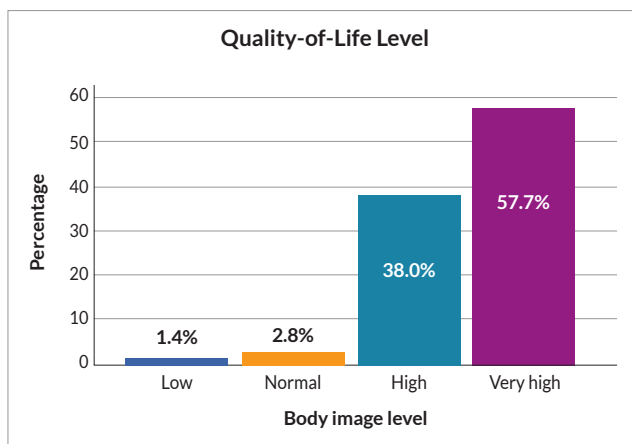


Figure 2. Percentage distribution of quality-of-life levels in kidney transplant recipients according to the SF-36 questionnaire.

Table 2. Dimensions of body image satisfaction.

	Normal		Mild dissatisfaction		Moderate dissatisfaction		Severe dissatisfaction		Total	
	f	%	f	%	f	%	f	%	f	%
Subjective importance of corporality	-	-	-	-	51	71,8	20	28,2	71	100,0
Behaviors aimed at maintaining physical fitness	-	-	3	4,2	66	93,0	2	2,8	71	100,0
Self-evaluated physical attractiveness	1	1,4	3	4,2	48	67,6	19	26,8	71	100,0
Care of physical appearance	-	-	5	7,0	55	77,5	11	15,5	71	100,0

Where: f= frequency; %= percentage.

Table 3. Percentage comparison of the dimensions of the quality-of-life variable in transplanted patients according to the SF-36 questionnaire.

Dimension	Very Low		Low		Average		High		Very high		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
Physical Functioning	1	1.4	1	1.4	1	1.4	-	-	68	95.8	71	100.0
Role Physical	9	12.7	4	5.6	8	11.3	7	9.9	43	60.6	71	100.0
Bodily Pain	1	1.4	4	5.6	12	16.9	17	23.9	37	52.1	71	100.0
General Health	1	1.4	8	11.3	38	53.5	23	32.4	1	1.4	71	100.0
Vitality	1	1.4	2	2.8	26	36.6	37	52.1	5	7.0	71	100.0
Social Functioning	1	1.4	5	7.0	21	29.6	30	42.3	14	19.7	71	100.0
Emotional Role	11	15.5	6	8.5	4	5.6	50	70.4	-	-	71	100.0
Mental Health	-	-	2	2.8	19	26.8	31	43.7	19	26.8	71	100.0

Where: f= frequency; %= percentage.

Sabogal Sologuren showed a Spearman's rho of -0.375 with $p=0.001$ (<0.05), indicating a significant correlation between the two variables. At the dimensional level: Subjective importance of corporality ($\rho=0.363$; $p=0.002$) and Self-evaluated physical attractiveness ($\rho=0.309$; $p=0.009$) showed moderate correlations with quality of life. In contrast: Physical fitness-oriented behaviors ($\rho=0.085$; $p=0.479$) and physical appearance care ($\rho=0.211$; $p=0.078$) showed no correlation with quality of life (table 4).

DISCUSSION

When analyzing the general data of the study, it was observed that the largest proportion of kidney transplant patients were between 40 and 59 years of age, with a predominance of males. This finding is consistent with the study by Nieto-Ríos¹⁸, who reported that the average age of transplant recipients was 44 years, with a majority (60.7%) being male. However, these results differ from those obtained by Gómez-Sánchez et al.¹⁹, who found that the mean age of transplant recipients ranged from 19 to 65 years, with a mean of 35 ± 11.3 years, and with 65.9% being men. This discrepancy may be explained by differences in sample size and population context across studies.

Regarding other sociodemographic covariates—such as marital status, educational level, and employment status—the findings are in agreement with those of Cantillo-Medina²⁰, who reported that most transplant recipients were married, had completed secondary education, and that a significant proportion were unemployed, mainly engaging in household activities. In the present study, 47.9% of transplant recipients were not working at the time of the survey. This finding aligns with the results of Julián-Mauro et al²¹, in Spain, who observed that only 27% of patients undergoing renal replacement therapies were employed, while 46.5% held a disability certificate. This is likely due to the functional limitations imposed by end-stage chronic kidney disease and renal replacement therapies, which affect patients' ability to re-enter the workforce²²⁻²³.

Body image encompasses cognitive, emotional, and behavioral dimensions, including the individual's subjective perception of their body and its influence on socialization²⁴. In this study, most transplant recipients reported moderate dissatisfaction with their body image. This suggests a direct relationship between body image and quality of life, as many patients experience difficulties accepting the transplanted organ, initially perceiving it as foreign to their bodies²⁵⁻²⁶.

Table 4. Correlation between body image dimensions and quality of life (Spearman's Rho).

Dimension	Rho Coefficient	Sig. (two-tailed)	Interpretation	Significance
Subjective Importance of Corporality	0.363	0.002	Moderate positive correlation	Significant**
Behaviors Oriented Toward Maintaining Physical Fitness	0.085	0.479	No correlation	Not significant
Self-Evaluated Physical Attractiveness	0.309	0.009	Moderate positive correlation	Significant**
Care of Physical Appearance	0.211	0.078	Weak correlation	Not significant

** $p<0.01$; N=71 in all cases.

Analysis of specific body image dimensions revealed that patients expressed concern regarding the maintenance of physical fitness and physical appearance, showing moderate dissatisfaction in both dimensions. These findings are consistent with those of Quezada Andrade et al²⁷. in Mexico, who found that young patients with chronic kidney failure presented alterations in body image, personal care, weight loss, skin color changes, and other disease-related characteristics. Likewise, Ramírez et al²⁸. in Chile highlighted that bodily changes in patients undergoing dialysis negatively affect self-esteem and self-image, leading many to modify their clothing in order to conceal visible signs of disease and its treatment.

When analyzing the role of corporeality in kidney transplantation, it is important to consider the evolutionary process experienced by the recipient in relation to the donor organ. To support this interpretation, we may refer to Hyman Muslin²⁹, who proposed one of the earliest theories describing the gradual psychological integration of the transplanted organ. This process is divided into three stages: in the first stage, the organ is perceived as a foreign body, separate from oneself; in the second stage, patients begin to experience the foreign organ increasingly as part of their own body; and in the third stage, the transplanted organ becomes integrated into the individual's body image and is perceived as part of the self. The findings of the present study support this conceptualization, as most transplant recipients reported moderate dissatisfaction with the subjective importance of corporality dimension (71.8%, n=51).

Overall, the study found that 57.7% of patients perceived a very high quality of life, while 38.1% considered it high. The physical functioning, physical role, bodily pain, and social functioning dimensions yielded the highest scores. These findings are consistent with those of Montoya-Hincapié³⁰ in Colombia, who identified physical role, social functioning, and emotional role as the most influential dimensions.

Furthermore, the relationship between body image and quality of life has been documented by Gargantini and Casari³¹ in Argentina, who examined how body image perception affects multiple aspects of well-being. Their findings revealed that women undergoing complex surgeries exhibited dissatisfaction in dimensions such as physical attractiveness and sexuality, suggesting that bodily alterations can profoundly affect psychological and emotional well-being. In our study, correlation analysis of body image dimensions and HRQoL showed that cognitive and emotional perceptions—specifically subjective importance of corporality and self-evaluated attractiveness—had the greatest impact on HRQoL. In the present study, the physical role dimension had the highest proportion of patients with low quality of life (12.7%), a finding similar to that reported by Franco et al³² in Colombia, where this dimension also received the lowest scores. This suggests that although transplant recipients experience overall improvements in quality of life, they continue to face limitations in daily and occupational activities. A study conducted in Peru by Lostaunau, Torrejón, and Cassaretto³³ likewise found low scores in the physical role dimension of

the MOS-SF-36, likely due to side effects of treatment and the process of post-transplant adaptation.

This study faced theoretical and methodological limitations. First, the scarcity of previous research in this area limited comparisons with recent studies. Second, data collection was affected by restrictions during the COVID-19 pandemic, which limited access to patients and hindered in-person interviews.

In conclusion, the findings demonstrate a significant relationship between body image and quality of life in kidney transplant recipients at a public hospital in Peru. Specifically, a more preserved perception of body image was associated with better quality of life. Furthermore, the dimensions of subjective importance of corporality and self-evaluated physical attractiveness showed the strongest correlation with patients' perceived well-being.

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Conflicts of interest

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