



## Factors Determining Physical and Mental Quality of Life of Living Kidney Donors in Taiwan

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### ABSTRACT

**Background.** Living-donor kidney transplantation has a positive influence on recipients' life expectancy and improves quality of life for patients with end-stage renal disease compared with dialysis patients. Evaluation of the physical and mental quality of life for donors can promote positive perceptions about donation and help potential donors in their decision-making process. The aim of this study was to explore the predictive factors of quality of life for living kidney donors.

**Methods.** A cross-sectional and descriptive design was used, and the study was conducted from January to July 2013. The donors were a convenience sample of 34 participants who had undergone kidney transplant surgery >1 year earlier.

**Results.** The results showed that kidney donors had a low to moderate physical and mental quality of life. Multiple regression analysis revealed that financial concerns and anxiety explained 27.8% of the total variance of quality of life in the physical component. Anxiety and paid work explained 61.4% of the total variance of quality of life in the mental component.

**Conclusions.** After renal transplantation, living kidney donors experienced low to moderate quality of life. Because donors are family members (siblings, sons or daughters, spouses, or parents), monthly family income is a significant issue that influences both the decision to donate and quality of life after transplantation. Our findings suggest that pre-transplantation assessment must include social workers as part of the health care team to evaluate the impact of a donor's financial status on post-transplantation quality of life.

**E**ND-STAGE RENAL DISEASE (ESRD) affects not only patients' physical health but also their psychosocial well-being [1]. Dialysis is used to sustain life for patients with ESRD and continues for the rest of the patient's life. Kidney transplantation has a positive influence on recipients' quality of life compared with dialysis [2]. Research shows that living-donor kidney transplantation has better health outcomes than cadaver-donor kidney transplantation. Recipients of living-donor kidney transplantation have less postoperative complications and a shorter length of hospital stay [3]. Increasing attention has been placed on the value of living-donor kidney transplantation for patients with ESRD [4].

After kidney transplantation, some donors experience stress due to a range of factors: mental distress, intrafamilial

conflicts, dual role of being both a patient and a relative, financial drawbacks, or occupational disadvantages [5–7]. These stresses may persist, which results in impaired physical, functional, and psychologic components of health-related quality of life. Although information is available regarding quality of life for donors of kidney transplantation, there are little data regarding the factors of psychologic and donation-related concerns that contribute to quality of life for this population. The aim of the present

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study was to explore the predictive factors of physical and mental quality of life of living kidney donors in Taiwan.

## METHODS

### Sample and Data Collection

A cross-sectional and descriptive design was used, and the study was conducted from January to July 2013. We identified 87 living kidney donors who had undergone transplant surgery >1 year earlier from one medical center in northern Taiwan, and a convenience sample was drawn. The 1st author invited these donors by telephone to participate in the study and then mailed the consent form and questionnaires. The response rate was 39%. Donor characteristics were obtained from a self-administered questionnaire, which also included 2 questions regarding the use of sleep medication. The first question simply asked, "Have you used any medication for sleep between the transplant and now?" If the response was "yes," they indicated frequency of use: >1 month or <1 month after the donation. The Hospital Anxiety and Depression Scale (HADS) assessed donors' anxiety and depression. We assessed physical, financial, and psychosocial concerns with the use of the Living Donor Concerns scale [8]. In addition, the Short-Form 36 (SF-36) Health Survey questionnaire was used to collect information on physical and mental quality of life.

### Statistical Analysis

Statistical analyses were conducted with the use of IBM SPSS, version 22.0, for analysis. Means, SDs, and percentages were used for descriptive statistics of donor characteristics, donation-related concerns, anxiety and depression, and quality of life. Mann-Whitney *U* tests were used to examine the differences between 2 variables. Pearson correlation and stepwise multiple regression were used to analyze the presence of bivariate relationships and the predictors of quality of life.

## RESULTS

### Sample Description

A total of 34 living kidney donors returned the consent form and questionnaire. The donors had a mean age of 51 years (range, 30–70 years), 58.8% were employed, 73.5% had never used sleep medication, and 11.8% had used sleep medication for >1 month after the transplant. The donors were siblings (32.4%), sons or daughters (29.4%), spouses (20.6%), and parents (17.6%) of the transplant patient. Donor characteristics are presented in Table 1.

We assessed emotional status, donor concerns, and quality of life for the 34 living kidney donors (Table 1). The mean HADS subscale scores were 3.1 for anxiety (range, 0–15) and 2 (range, 0–9) for depression. Anxiety was present in 14.7% of respondents (score of  $\geq 8$ ) and depression was present in 2.9% (score of  $\geq 8$ ). The mean Living Donor Concerns subscale scores were 27.4 (49% of total score) for physical concerns, 13.8 (49.3% of total score) for financial concerns, and 9.4 (33.4% of total score) for psychosocial concerns. Quality of life for kidney donors was low to moderate: The mean score for physical quality of life was 53.8 (53.8% of total score) and 42 (42% of total score) for the mental subscale.

We examined employment status and variables of psychologic distress and sleep medication use. Donors

**Table 1. Demographic and Clinical Characteristics of Living Kidney Donors (*n* = 34)**

Variable	Mean	SD	<i>n</i>	%
Age (y)	51	10.8		
Sex				
Female			18	52.9
Male			16	47.1
Marital status				
Married			23	67.6
Unmarried			8	23.5
Divorced/separated			3	8.8
Education				
Primary school			12	35.3
High school			12	35.3
College and above			9	26.4
Missing			1	3.0
Relationship of donor to recipient				
Sibling			11	32.4
Son or daughter			10	29.4
Spouse			7	20.6
Parent			6	17.6
Time of survey after transplantation (mo)	80.8	52.8		
BMI after transplantation (kg/m <sup>2</sup> )	21.1	10.1		
Employment status after transplantation				
Employed			20	58.8
Unemployed			14	41.2
Use of sleep medication after transplantation				
Never			25	73.5
>1 mo			4	11.8
<1 mo			5	14.7
Living Donor Concerns Scale score				
Physical	27.4	16.7		
Financial	13.8	9.5		
Psychosocial	9.4	7.8		
Depression (HADS-D score)	2	1.9		
No			33	97.1
Yes			1	2.9
Anxiety (HADS-A score)	3.1	3.5		
No			29	85.3
Yes			5	14.7
Quality of life (SF-36 score)				
Physical component	53.8	5.3		
Mental component	42	8.1		

Abbreviations: BMI, body mass index; HADS, Hospital Anxiety and Depression Scale; SF-36, Short-Form 36 Health Survey questionnaire.

who were unemployed had higher scores for anxiety and depression than employed donors (anxiety, 4.1 vs 2.5; depression, 2.2 vs 1.9). Donors who were using sleep medication had higher anxiety and depression scores than those not using medication (anxiety, 4.7 vs 2.6; depression, 2.9 vs 1.7). However, Mann-Whitney *U* tests indicated that the differences between scores for these variables were not significant.

### Factors Influencing Physical and Mental Quality of Life in Living Kidney Donors

Pearson correlation showed that the physical component of quality of life had a significant negative correlation with age

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