

A Status of Health-related Quality of Life of Renal Recipients at a Transplant Center in Kathmandu

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ABSTRACT



Background: Renal transplant is considered as the best treatment available to restore renal function in patients with renal failure. Health-related quality of life (HRQOL) is an important indicator for evaluating therapeutic outcomes and mortality in patients with end-stage renal disease. This study aimed to assess health-related quality of life (HRQOL) of renal recipients.

Methods: This observational cross-sectional study involved 165 post renal transplant patients from Tribhuvan University Teaching Hospital, which is also the first renal transplant center in Nepal. Health-related quality of life was assessed by face-to-face interviews, using Kidney Transplant Questionnaire (KTQ-25) and scored according to the scoring algorithm of KTQ-25.

Results: The mean score of HRQOL was 5.44 ± 0.80 , with the highest score for appearance (6.65 ± 0.53) and the lowest for uncertainty/ fear dimension (4.29 ± 1.10). Several factors, including age, occupation, having loan, length of renal replacement therapy and time duration since transplantation were significantly associated with different dimensions of KTQ-25 (all, $p < 0.05$).

Conclusion: As the uncertainty/fear affected quality of life most, counselling programs for recipients are needed focusing on psychological wellbeing. Although funding is available for patients with end stage renal failure from the government, that does not seem to be adequate for them.

Keywords: Renal Transplantation, HRQOL, Kidney Transplant Questionnaire-25, Transplant center, Nepal

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INTRODUCTION

Chronic kidney disease (CKD) is a global public health problem in regard to the prevalence and financial burden of disease. In 2017, The Global Burden of Disease Chronic Kidney Disease Collaboration estimated the prevalence of CKD as 9.1% in the world's population. CKD resulted in 1.2 million deaths annually, and ranked as the 12th leading cause of death.¹ Despite such increases, availability of renal replacement therapy is still limited to 10% of needy people.² CKD is prevalent in 6.0% of general population in Nepal.³ and the government had made dialysis and renal transplant free of cost in the country in the year 2013 and 2017 respectively. The capacity of renal transplant service in Nepal has been increasing during the last few years thus greater numbers of patients are being benefited.

Renal transplantation is the treatment of choice for patients with advanced kidney disease. The aim of renal transplantation is not only to improve renal function, but also to enhance the patient's quality of life.⁴ It is cost effective and provides greater survival when compared to other sophisticated renal replacement modalities.⁵⁻⁹

Though there is a plethora of literature regarding the quality of life in the renal recipients in the western world, we find a paucity of literature regarding the same in our part of the world. Hence, the researchers aimed to assess the health-related quality of life of renal recipients to get a clear picture of health-related quality of life of renal recipients in Nepal.

MATERIAL AND METHODS

Research Design and Sampling

A hospital-based, cross-sectional study design was used. Consecutive samples of 165 renal

recipients after 3 months of renal transplantation were recruited from Renal Transplant OPD, Tribhuvan University Teaching Hospital, Kathmandu. Inclusion criteria were: (1) 18 years of age or older; (2) having no acute illness; (3) having no previous psychiatric or organic brain disease. The principal investigator herself interviewed respondents using a translated version of kidney transplant questionnaire-25. The data was collected in September 2016.

The study got ethical approval from the Institutional Review Board (IRB) of Institute of Medicine (IOM) [Ref.: - 59(6-11-E)²/073/074]. Permission for data collection was received from hospital administration of Tribhuvan University Teaching Hospital. Written informed consent was obtained prior to data collection. Participants were informed that they would be free to withdraw from the study at any point of time and that would not affect their present or future medical treatment. And the confidentiality would be maintained.

Measure of health-related quality of life

The Kidney Transplant Questionnaire-25 (KTQ-25), developed by Laupacis et al.¹⁰, is a disease-specific instrument to measure quality of life of renal recipients. After acquiring permission from the developer of the KTQ-25, the questionnaires were translated into Nepali language by 2 translators. After the professionals reached consensus, the Nepali version was retranslated to English. The provisional translated questionnaire was pretested in 16 kidney transplant recipients to determine whether the respondents could understand the questionnaire. The Nepali version of the KTQ was thus finalized. The questionnaire had a total of 25 items, which were grouped into 5 dimensions: physical symptoms (six items), fatigue (five items), uncertainty/fear (four items), appearance (four items), and emotional (six items). Each

dimension asked the patient to report on how bothersome a symptom or problem has been in the past 2 weeks. Client's responses were measured on a 7-point Likert scale. Scores for all subscales range from 1 (worst QOL) to 7 (best QOL). The cutoff point for KTQ-25 was 3.5. The average score was obtained by adding the scores for each item and dividing by the number of items.

Data Analysis

Descriptive statistics (frequency, percentage, mean, standard deviation and range) were used to describe the socio- demographic, financial, clinical characteristics and quality of life scores of renal recipients. Mann Whitney U test and Kruskal Wallis test was used to measure the association of selected variables and health related quality of life. The significance level was set at p value < 0.05 .

RESULTS:

Demographic characteristics of the sample ($n = 165$) are presented in Table 1. The mean age of the recipients was 37.52 ± 10.70 years and 77.6% were male. *Aadibasi/Janajati* (indigenous) and *Brahmin/Chhetri* ethnic group comprise majority i.e., 47.3% and 40% respectively. Married renal recipients (77.6%) were predominant over single. Majority of renal recipients (93.3%) were literate, among them 27.27% had completed the bachelors and above level of studies. More than half of renal recipients (61.8%) were employed and most of them were involved in business (42.16%).

Table 2 describes financial characteristics of recipients. Half of the recipients had annual household income sufficient for a year. All the recipients had taken government aid and almost half of recipients (47.3%) had taken loan for transplant. Majority of recipients (89.1%) could resume routine work within 6 months of post transplantation.

Most of the renal recipients (90.9%) had chosen hemodialysis as a renal replacement

therapy before transplantation. However only half of them (51%) had spent less than 6 months on hemodialysis. The mean duration of time spent on hemodialysis was 8.69 ± 7.28 months, which varied from 1 to 48 months. Three fourth of renal recipients (76.96%) were living with comorbidities and among them 87.1% were suffering from hypertension. Among the renal recipients, 56.4% were between the 13 to 60 months of time since transplantation and the mean time since transplantation was 39.01 ± 26.39 months, which ranged from 6 to 98 months (Table 3).

Table 1: Demographic Characteristics of Renal Recipients (RR) ($n=165$)

Characteristics	Number	Percentage
Age of recipients (completed years)		
Mean \pm SD=	37.52 \pm 10.70 years	
Range =	18- 62 years	
Sex		
Male	128	77.6
Female	37	22.4
Ethnicity		
<i>Aadibasi/Janajati</i>	78	47.3
<i>Brahmin/ Chhetry</i>	66	40
<i>Madhesi</i>	10	6.1
<i>Dalit</i>	9	5.5
<i>Muslim</i>	2	1.2
Marital status		
Single	37	22.4
Married	128	77.6
Education status		
Illiterate	11	6.7
Literate	154	93.3
Education level (n=154)		
Read and write only	22	14.29
Primary level	18	11.69
Secondary level	38	24.68
Higher secondary level	34	22.08
Bachelors and above	42	27.27
Current employment status		
Unemployed	63	38.2
Employed	102	61.8
Occupation (n=102)		
Agriculture	7	6.86
Service	36	35.29
Business	43	42.16
Homemaker	14	13.73
Foreign employment	2	1.96

Table 2: Financial Characteristics of Renal Recipients (RR)

Characteristics	Number	Percentage
Annual Household income		
Income sufficient for less than 6 months	57	34.5
Income sufficient for 1 year	90	54.5
Income sufficient for more than a year	18	10.9
Financial supports*		
Parents	42	25.5
Spouse	27	16.4
Offspring	16	9.7
Siblings	27	16.4
Government	165	100.0
Loan	78	47.3
Friends	8	4.8
Insurance	12	7.3
Back to routine work		
Within 6 months	147	89.1
More than 6 months	18	10.9
Mean \pm SD= 3.99 \pm 3.75		
Range (1 – 24 months)		

*Multiple responses

Table 3: Clinical Characteristics of Renal Recipients (RR) (n=165)

Characteristics	Number	Percentage
Type of previous renal replacement therapy		
Hemodialysis	150	90.9
Pre-emptive transplantation	15	9.1
Duration on previous renal replacement therapy (n=150)		
Up to 6 months	77	51.3
7 – 12 months	48	32.0
More than 12 months	25	16.7
Mean \pm SD = 8.69 \pm 7.28 months		
Range (1 – 48 months)		
Types of comorbidity* (n=124)		
Diabetes mellitus	31	25.0
Hypertension	108	87.1
Hypothyroidism	13	10.5
Hyperuricemia	7	5.6
Atrial septal defect	3	2.4
Asthma	2	1.6
Arthritis	1	0.8

Time since transplantation

Up to 12 months	32	19.4
13 – 60 months	93	56.4
More than 60 months	40	24.2
Mean \pm SD = 39.01 \pm 26.39 months		
Range (6 - 98 months)		

*Multiple responses

The mean scores in the present study, on 5 dimensions of KTQ-25 were as follows: KTQ-physical, 4.65 \pm 1.77; KTQ-fatigue, 6.03 \pm 1.10; KTQ-uncertainty/fear, 4.29 \pm 1.10; KTQ-appearance, 6.65 \pm 0.53; and KTQ-emotional, 5.56 \pm 1.09. The composite KTQ-25 was 5.44 \pm 0.80. The highest score was found in appearance dimension and lowest in uncertainty/fear dimension. As scores were > 3.5 (cut-off point mentioned in methods), renal recipients had good HRQOL, both dimension wise and overall (table 4).

Table 4: HRQOL of Renal Recipients

KTQ-25 Indicators	Mean \pm SD (minimum, maximum)
Physical symptoms	4.65 \pm 1.77 (1.00, 7.00)
Fatigue	6.03 \pm 1.10 (2.80, 7.00)
Uncertainty/ fear	4.29 \pm 1.10 (1.50, 6.50)
Appearance	6.65 \pm 0.53 (4.00, 7.00)
Emotional	5.56 \pm 1.09 (1.50, 7.00)
Composite KTQ-25	5.44 \pm 0.80 (3.22, 6.82)

The more the score, the better the quality-of-life scores.

Table 5 represents association of different dimensions of KTQ-25 with selected variables. Among the renal recipients the fatigue dimension of HRQOL scores was found to be higher among the age group of up to 40 years (6.20 \pm 1.07) as compared to those who were more than 40 (5.72 \pm 1.10), which was found to be statistically significant ($p= 0.006$). Though the renal recipients with foreign employment scored highest in all 5 dimensions i.e. fatigue, uncertainty/fear, appearance and emotional, it was found to be statistically significant in physical symptoms dimension ($p= 0.003$), fatigue ($p= 0.037$) and emotional ($p= 0.020$) dimensions. It signifies that the renal recipients with foreign employment had better quality of

life regarding physical symptoms, fatigue and emotional dimension. Those renal recipients who had taken a loan in the form of financial support had relatively lower HRQOL scores in all dimensions. However, it is statistically significant in uncertainty/fear ($p=0.044$) and emotional dimension ($p=0.001$) only. Those renal recipients who spend less than 6 months in previous renal replacement therapy (RRT), i.e., haemodialysis, scored higher in all

dimensions except appearance dimensions where renal recipients who spend more than 12 months in RRT scored higher and to our surprise, it was found to be statistically significant at the very same dimension ($p=0.027$). Those renal recipients whose time since transplantation was less than 12 months scored higher in all dimensions but it was found statistically significant at physical symptoms dimension ($p=0.007$).

Table 5: Association of Dimensions of KTQ-25 with selected variables

Variables	Categories	n	PS	F	U/F	A	E
Age of recipients (completed years)	Up to 40	106	4.85±1.78	6.20±1.07	4.33±1.06	6.64±0.57	5.63±1.07
	≥ 41	59	4.29±1.70	5.72±1.10	4.22±1.16	6.67±0.46	5.42±1.13
Mann Whitney U test (p-value)			0.055	0.006*	0.522	0.691	0.238
Occupation (n=102)	Agriculture	7	2.64±1.05	5.03±1.02	3.79±1.25	6.89±0.20	4.57±0.55
	Service	36	4.79±1.61	6.25±0.94	4.35±1.12	6.65±0.45	5.85±1.04
	Business	43	4.26±1.72	5.99±1.16	4.06±1.12	6.47±0.72	5.31±1.23
	Homemaker	14	4.94±1.62	5.64±1.06	4.05±1.12	6.89±0.19	5.29±1.05
	Foreign employment	2	7.00±0.00	6.80±0.28	5.13±0.53	7.00±0.00	6.58±0.59
Kruskal Wallis test (p-value)			0.003*	0.037*	0.447	0.064	0.02*
Financial support	With loan	78	4.52±1.77	5.90±1.06	4.11±1.15	6.64±0.48	5.26±1.06
	Without loan	87	4.77±1.77	6.15±1.13	4.46±1.03	6.66±0.58	5.82±1.06
Mann Whitney U test (p-value)			0.377	0.143	0.044*	0.869	0.001*
Duration on previous renal replacement therapy (n=150)	Up to 6 months	77	4.85±1.81	6.13±1.14	4.45±0.90	6.71±0.49	5.73±1.12
	7 to 12 months	48	4.50±1.65	5.96±1.10	4.08±1.29	6.49±0.65	5.38±1.13
	More than 12 months	25	4.72±1.70	6.10±0.95	4.33±1.21	6.80±0.33	5.60±1.09
Kruskal Wallis test (p-value)			0.561	0.694	0.191	0.027*	0.243
Time since transplantation	Up to 12 months	32	5.49±1.73	6.37±0.83	4.45±0.98	6.70±0.47	5.92±0.90
	13 to 60 months	93	4.53±1.71	6.02±1.12	4.38±1.15	6.62±0.59	5.48±1.08
	More than 60 months	40	4.25±1.76	5.79±1.20	3.96±1.00	6.68±0.45	5.45±1.23
Kruskal Wallis test (p-value)			0.007*	0.081	0.086	0.746	0.11

PS- Physical symptoms, F- Fatigue, U/F- Uncertainty/Fear, A-Appearance, E- Emotional

*Significant at <0.05 level. The more the score, the better the quality of life.

DISCUSSION

As per the study published in Nepal in 2008, renal transplantation is considered an optimum form of therapy for patients with stage V (GFR <15 mL/min/1.73m²) chronic kidney disease because renal transplant restores the quality of life, restores vitality, improves survival and is also very cost-effective.¹¹ In our study, the highest score was found in appearance dimension and lowest in uncertainty/fear

dimension. The findings of the study were consistent with the study done in Germany in 2006 by Neipp et al.¹² and in the UK in 2010 by Shrestha et al.¹³. The reason behind the highest scores in appearance dimension is not understood, however, the lowest scores in uncertainty/fear dimension may be attributable to the fact that renal transplant recipients experience more graft-related threat.¹⁴

Contrary to this study, a study by Rostami et al.¹⁵ in 2011, the highest mean score was observed in the uncertainty/fear dimension, while the lowest score was detected in the emotional dimension.

The KTQ-25 scores were higher in the age group of up to 40 years in 4 out of 5 dimensions of under study i.e., physical symptoms, fatigue, uncertainty/fear and emotional signifying the better quality of life. However, the findings were statistically significant ($p = 0.006$) in fatigue dimensions only. In agreement with this study, a study by Chisholm-Burns et al. in 2012 in the USA stated that the quality-of-life scores of young patients who had undergone kidney transplants was higher than those of older patients.¹⁶

Regarding the sex of recipients, in this study though the male had higher scores than female in fatigue, uncertainty/fear and emotional dimensions, it was statistically insignificant ($p > 0.05$). This study did not show the association between the sex and the HRQOL of renal recipients that in agreement with the study by Neipp et al.¹² and in 2014 by Raiesifar et al.¹⁷.

Among the ethnic groups of Nepal, Madhesi scored higher in physical symptoms and appearance dimensions, whereas Muslim scored higher in fatigue, uncertainty/fear and emotion dimensions. However, the association between ethnicity and HRQOL was statistically insignificant ($p > 0.05$). Many studies have not taken this variable under consideration and those who had taken ethnicity as study variable had different ethnic groups, not similar as in Nepal.

In this study, the married renal recipients scored higher in physical symptoms and appearance dimensions only and the findings were not statistically significant ($p > 0.05$). However, in contrast to these findings, married

renal recipients revealed superior mean score values in all of the six dimensions of the KTQ-25 dimensions when compared to recipients living alone. However, a statistical significance was reached only in the dimension of emotion ($p < 0.05$) in one of the studies published in 2006.¹² The reason behind this is not clear.

In this study, no significant difference was noted between education status, education level and health related quality of life ($p > 0.05$). This implies that higher education is not related to better quality of life. Findings are consistent with a study by Tayyebi et al.¹⁸ in 2010 and Chisholm-Burns et al.¹⁶ in 2012.

The findings of this study showed no statistically significant association between current employment status alone and HRQOL of renal recipients. Regarding the occupation, statistically significant association was found in physical symptoms dimension ($p = 0.003$), fatigue ($p = 0.037$) and emotional ($p = 0.020$) dimensions only. Renal recipients who were in foreign employment had greater income that positively affected the health-related quality of their life. The study by Tayyebi et al.¹⁸ also showed a similar result ($p = 0.02$). That may be due to their better financial status as compared to other occupations.

HRQOL scores were found higher among the renal recipients with household income sufficient for more than 1 year in all dimensions except in appearance dimension only. However, findings were not statistically significant ($p > 0.05$). Those renal recipients who had taken a loan in the form of financial support had relatively lower scores in all dimensions. However, it is statistically significant in uncertainty/fear ($p = 0.044$) and emotional dimension ($p = 0.001$) only.

HRQOL scores were found higher among the renal recipients who have undergone

hemodialysis before kidney transplantation as compared to those renal recipients with pre-emptive transplantation at all 5 dimensions i.e., physical symptoms, fatigue, uncertainty/fear, appearance and emotional. The reason behind these findings may be attributable to the relatively small number of the recipients with preemptive renal transplantation.

The renal recipients who spend less than 6 months in previous renal replacement therapy i.e., hemodialysis, scored higher in all dimensions except appearance dimensions whereas renal recipients who spend more than 12 months in hemodialysis scored higher and it was found to be statistically significant at the very same dimensions ($p= 0.027$). This surprising finding is attributable to the fact that the longer the duration at hemodialysis, the more the skin changes in patients.¹⁹⁻²⁰

Those renal recipients whose time since transplantation was less than 12 months scored higher in all dimensions and it was found statistically significant at physical symptoms dimension ($p=0.007$) only. As the time since transplantation increases, the side effects of immunosuppressant are more prevalent, which may be attributable to these findings.

CONCLUSION

The overall health-related quality of life of renal recipients was good. The highest scores were observed in the appearance dimension, while the lowest score was found in uncertainty/fear dimension. The health-related quality of life dimensions of renal recipients was significantly different according to various socio-demographic and health related

factors of the renal recipients. The fatigue related quality of life was significantly better among the less than 40 years age group than the older age group. The occupation of renal recipients has affected three dimensions i.e., physical symptoms, fatigue, and emotions of health-related quality of life of recipients significantly. The uncertainty/fear and emotional dimension of HRQOL was significantly lower among the renal recipients who had taken a loan for the treatment. It indicates that government support for the treatment is inadequate. The appearance dimension of HRQOL of renal recipients was significantly affected by the duration of previous renal replacement therapy. The physical symptoms dimension of HRQOL of renal recipients was significantly affected by the time since transplantation. As the lowest score was found in uncertainty/fear dimension, it is recommended to recruit a clinical nurse in transplant centers, who can better fulfill the role of developing a strategic plan for renal recipients to cope with this treatment modality.

Limitations: This study was hospital-based study limited to renal recipients who were in follow-up visits at Tribhuvan University Teaching Hospital. The cross-sectional study design and consecutive sampling were used in this study. The sample size was 165 only. Both the study design and lack of random sampling may have influenced the internal validity of the study and findings cannot be generalized to all renal recipients in Nepal.

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