



Assessment of Quality of Life and Associated Factors in Patients of Non-diabetic Chronic Kidney Disease in Various Stages: Pre-dialysis, Dialysis, and Kidney Transplant Recipients

Dear Editor,

Chronic kidney disease (CKD) is characterized by progressive nephron loss, leading to irreversible decrease in GFR and loss in renal function.¹ Five to ten percent of the world's population is estimated to be suffering from CKD.² The Global Burden of Disease Study 2015 ranked CKD as the 8th leading cause of death in India.³ The overall age-adjusted incidence rate of end-stage renal disease in India is 229 million.⁴ Very few studies that assess the quality of life in various stages of CKD, including dialysis and transplantation,

have been done in our country. The disease burden has a strong impact on the patient's quality of life (QOL) and other associated factors.

Our study included 120 subjects: 30 each in CKD, hemodialysis, peritoneal dialysis, and renal transplantation. The mean age of the study participants was 43.31 ± 11.99 years. The male-to-female ratio was 2:1. Of the total number of participants, 86.7% were married and 60.8% belonged to the upper-middle class. Sixty-one percent of the study participants belonged to the normal

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Table 1: Healthrelated quality of life among CKD, hemodialysis, peritoneal dialysis, transplant

Parameter	CKD	Haemodialysis	Peritoneal Dialysis	Transplant	P
Frequency (n, %)	30 (25%)	30 (25%)	30 (25%)	30 (25%)	
Kidney disease-specific domains					
Symptoms/problems	96.36±4.41	91.77±6.71	95.92±6.74	96.44±6.11	0.01
Effects of kidney disease	61.11±25.55	27.89±24.62	47.50±23.38	59.45±20.14	0.00
Burden of kidney disease	67.50±25.55	41.50±39.11	55.17±32.55	60.83±23.38	0.01
Work status	53.33±36.98	20.00±28.16	16.22±23.37	26.67±36.51	0.00
Cognitive function	89.33±12.58	90.83±16.19	89.58±14.62	92.00±12.70	0.88
Quality of social interaction	85.00±14.08	83.08±18.91	87.25±15.85	93.21±7.06	0.05
Sleep	72.58±16.01	69.00±19.44	78.54±14.27	87.33±5.76	0.00
Social support	73.33±24.99	77.78±25.27	61.66±25.95	71.66±21.06	0.08
KDCS	67.33±23.18	41.67±35.44	44.33±35.59	55.00±40.41	0.02
SF-36 scores					
Physical functioning	70.18±16.14	51.49±20.70	63.75±20.21	81.95±10.20	0.00
Role-physical	79.52±5.47	78.69±8.76	83.25±7.79	81.68±5.16	0.05
Pain	60.35±19.19	50.57±16.59	54.12±18.48	58.33±21.11	0.19
General health	50.83±15.33	45.41±10.54	38.85±10.87	55.08±12.88	0.00
Emotional well-being	43.63±7.14	47.20±8.05	48.47±7.57	46.53±10.61	0.16
Role emotional	66.89±19.37	61.98±15.72	60.60±14.02	71.81±8.78	0.02
Social function	38.33±23.88	20.42±25.32	17.00±23.94	19.17±23.61	0.00
Energy/fatigue	20.62±13.73	61.65±12.74	62.46±12.94	38.60±8.91	0.00
PCS	65.22±10.85	56.54±10.11	59.99±10.16	90.77±121.26	0.13
MCS	42.37±9.13	47.81±7.54	47.13±7.44	44.03±7.67	0.03

CKD: chronic kidney disease, PCS: physical composite summary, KDCS: kidney disease component summary, MCS: mental composite summary

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Table 2: Impact of social and clinical parameters on quality of life scores

Parameter	KDCS	P	PCS	P	MCS	P
Age						
16 to 30 years	43.91±39.40	0.40	70.40±24.72	0.01	45.32±8.16	0.97
31 to 45 years	56.67±33.97		74.32±14.27		45.07±8.22	
46 to 60 years	52.46±34.53		61.08±20.20		45.50±8.31	
Gender						
Male	51.67±34.49	0.09	70.33±76.70	0.71	46.05±8.39	1.32
Female			64.05±9.00		44.00±7.71	
Marital status						
Married	46.88±39.62	0.63	68.39±66.47	0.12	45.20±8.31	0.46
Unmarried			66.42±12.14		46.22±7.47	
Socio Economic Status						
Upper lower	67.50±15.00	0.19	54.33±23.99	0.00	41.52±11.86	0.27
Lower middle	43.70±37.12		58.20±18.80		47.45±8.18	
Upper middle	51.37±34.97		67.19±20.42		44.51±8.27	
Upper class	65.63±34.64		82.95±10.48		46.45±6.54	
BMI						
Underweight	42.50±36.55	0.43	66.30±17.83	0.38	46.94±9.05	0.66
Normal range	55.14±34.17		64.58±21.08		45.46±8.67	
Overweight	50.00±36.78		71.90±19.41		45.16±7.09	
Obese	26.67±46.19		65.14±17.88		39.95±6.92	
Education						
Illiterate	23.57±31.04	0.06	56.81±19.01	0.00	48.33±7.10	0.89
Primary school or literate	55.45±30.45		51.77±21.29		45.71±9.84	
Middle school certificate	62.67±26.85		68.19±15.58		45.06±10.09	
High school certificate	50.83±37.75		61.48±22.63		44.80±8.83	
Intermediate/post high school diploma	50.67±35.95		68.74±18.28		44.92±7.11	
Graduate or Postgraduate	57.94±34.53		76.90±17.17		44.57±7.00	
Professional or Honours	60.00±43.59		73.17±19.03		45.82±10.36	

PCS: physical composite summary, KDCS: kidney disease component summary, MCS: mental composite summary, BMI: body mass index.

BMI range, and 28.3% were graduates. The aetiologies for CKD were chronic glomerulonephritis (55/120; 45.83%), unknown aetiology (51/120; 42.5%) and chronic pyelonephritis (14/120; 11%).

The health-related QOL (HRQOL) was studied using Kidney Disease Quality of Life Short Form 36 (KDQOL-SF 36) version 1.3⁵ from RAND corporation, which has been validated in our population. The kidney disease-specific instrument assesses the burden of kidney disease in 11 domains (symptoms or problems of kidney disease, burden of kidney disease, effects of kidney disease, work status, cognitive function, quality of social interaction, sexual function, sleep, social support, patient satisfaction, and dialysis staff encouragement). Each domain is scored on a 100-point scale, with higher scores representing better QOL. The individual scores can be averaged to a kidney disease component summary (KDCS) score.

The SF-36 assesses the HRQOL in eight domains (physical functioning, role limitations caused by physical problems, role limitations caused by emotional problems, pain,

general health, energy or fatigue, emotional well-being, and social function). Results from the SF-36 are further summarized into a physical composite summary (PCS) and a mental composite summary (MCS) score.

The QOL in the four groups is listed in Table 1. Symptom burden and problem, effects of kidney disease, burden of kidney disease, and KDCS were highest. Quality of social interaction and sleep was higher in the transplant group. There seemed to be no difference in the dialysis groups. The work status was affected in all the groups, with better scores noted in the dialysis groups.

The SF-36 scores are tabulated in Table 1. Physical functioning, role physical, general health, role emotional, and PCS were well preserved in the transplant group. Emotional well-being and MCS were comparable. In physical functioning, physical role was better in PD compared to hemodialysis (HD). In social functioning, significantly lower scores were seen in the transplant group and peritoneal dialysis group, whereas the highest

score was seen in the CKD group. The physical and mental composite scores were better in the transplant group.

The impact of social and demographic parameters (age, gender, marital and socioeconomic status, BMI, and education) is tabulated in Table 2. A significant impact of age, socioeconomic status, and education was observed only on the PCS scores, and there was no impact on the MCS scores and the KDCS scores. PCS showed a significantly declining trend with respect to age, with higher scores noted in the younger age group; this implied a higher threshold and better ways of coping. Men were found to have better PCS, MCS, and KDCS scores. Upper class and higher education had significantly higher scores in the PCS. This data, when analyzed under multiple linear regression, emphasized irrespective of the socioeconomic class of the study subjects, in KDCS domain education plays an important role in raising an awareness on health thus bringing the *P* value to 0.029, where as it does not seem to affect the PCS and MCS. In the analysis of SF-36, we observed that RT patients scored better results compared to the other three groups. In the dialysis groups, PD patients had better scores in physical and emotional well-being. Overall, the scores were poor in HD in comparison with others. The PCS showed a nonsignificant declining trend from RT to HD, whereas the MCS was comparable in all the groups.

In conclusion, transplant patients had a better QOL with respect to physical functioning, role physical, general

health, role emotional, and PCS. CKD patients had better work status and KDCS scores. In the dialysis groups, PD patients had better physical and emotional well-being. Socioeconomic status and education seem to play an important role in influencing the QOL. The higher the education status, the better was the QOL. All four groups required emotional support uniformly.

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Conflicts of interest

There are no conflicts of interest.

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