



## ORIGINAL RESEARCH ARTICLE

## QUALITY OF LIFE OF HEMODIALYSIS PATIENTS IN SELECTED TEACHING HOSPITALS OF CHITWAN

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## ABSTRACT

The quality of life (QOL) needs to be regularly assessed in hemodialysis patients. Hemodialysis patients suffer from average quality of life and survival. A descriptive research design was used, 96 respondents who had received haemodialysis treatment after completion of 1 month duration of hemodialysis in two different teaching hospital at Bharatpur, Chitwan. Data was collected by using standard tool Short Form-36 version2 through face to face structure interview schedule. The objective of study is to find out the quality of life (QOL) of haemodialysis patients. Various test such as one sample t-test, ANOVA test, independent t-test, Kruskal-Wallis test and Mann-Whittney U test, Pearson's correlation was applied. The findings showed that higher proportion of respondents were from 40-59 years (41.0%) and male (62.2%). The mean±SD was 57.45±16.25, 55.72±22.41 and 60.04±11.50 in overall QOL, physical and mental component summary respectively which was slightly above the average. All dimension and sub scale was statistically significant. Younger respondents had statistically significant with overall QOL ( $p<0.001$ ) and physical component summary ( $p<0.001$ ). Non diabetics had better in overall QOL ( $p=0.040$ ) and physical component summary ( $p=0.033$ ). Level of educational had also positive impact in overall QOL ( $p=0.010$ ), physical ( $p=0.006$ ) and mental component summary ( $p<0.001$ ). Employment status ( $p=0.020$ ) and sex ( $p=0.037$ ) was also statistically significant with mental component summary. There was correlation between physical and mental component summary with overall QOL 0.970 ( $p<0.001$ ) and 0.698 ( $p<0.001$ ), and between the physical and mental component summary was 0.502 ( $p<0.001$ ). Below average score were seen in the general health (32.86±25.74) and vitality (41.53±13.98) sub scale. In order to improve quality of life family, physician, nurses and policy makers can use this finding.

**Key words:** Hemodialysis, Physical health, Mental health, Quality of life.

## INTRODUCTION

Kidney performs many important functions to regulate the internal environment of the body. It is the main regulator of all the substances of body fluids and responsible for maintaining homeostasis. Acute Renal Failure (ARF) is defined as rapid (over hours to weeks) and usually at least partially reversible decline in glomerular filtration rate (GFR) that may occur either in the setting of preexisting normal renal function (classic ARF) or in someone with preexisting renal disease (acute or chronic renal failure). ARF is associated with significant morbidity and mortality. There are few reports from Nepal on both Chronic Kidney diseases (CKD) and ARF. Major bulk of ARF patients are being handled by internist in Nepal due to the limited number of Nephrologists

and Nephrology centers.<sup>1</sup>

Kidney disease is a worldwide public health problem, due to increasing incidence and prevalence rates of diabetes, hypertension, polycystic kidney disease and an ageing population etc. The treatment and management of kidney disease is expensive and often outcomes are poor. End-stage renal disease (ESRD is also known as Chronic Kidney Disease Stage 5 or CKD 5, state where renal replacement therapy is needed, either dialysis or transplant. CKD is defined as kidney damage or glomerular filtration rate (GFR)  $<60$  mL/min/1.73m<sup>2</sup> for three months or more, irrespective of the cause. Kidney damage in many kidney can be ascertained by presence of

albuminuria, defined as albumin-to-creatinine ratio >30mg/g in two of three spot urine specimens.<sup>2</sup>

Chronic kidney disease is an important public health problem that is characterized by poor health outcomes and very high health-care costs. Because the prevalence of chronic kidney disease is highest in old people, the health effect of population ageing will depend in part on how the kidney community responds. March 13, 2014, the ninth World Kidney Day, focuses on chronic kidney disease in elderly people. Incidence rates of patients commencing renal replacement therapy (RRT) are estimated at 109 and 354 per million populations per year in the UK and US respectively, with the highest incidence seen in patients over 75 years of age.<sup>3</sup>

Chronic kidney disease (CKD) is common among adults in United States that is more than (10%), more than 20 million people may have CKD of various levels. The chances of CKD increase with age after 50 years and is most common in among adult than older 70 years. Diabetes and hypertension is most common risk factor for CKD, approximately 1 of 3 adult with diabetes and 1 of 5 adult with high blood pressure has CKD.<sup>4</sup>

In Nepal, approximately 2600 new cases developed end stage renal disease patient every year. Median percentage of physical component summary score

(PCS) was 50 (37-75) and mental component summary (MCS) was 56 (46.5-65.5). The lowest score was achieved in the vitality domain that is only 40 (30-52.5) and highest ones in social functioning domain was 70 (60-75). Regarding the duration of hemodialysis, physical component summary ( $p=0.871$ ) and mental component summary ( $p=0.785$ ).<sup>5</sup>

## MATERIAL AND METHODS

A cross sectional descriptive research design was used; by enumerated sampling method choose who had received haemodialysis treatment after completion of 1 month duration of hemodialysis in Chitwan Medical College (CMC) and College of Medical Sciences (CMSTH) at Bharatpur, Chitwan. Data was collected by using standard tool Short Form-36 version2 through face to face structure interview schedule. The verbal informed consent was obtained from each respondent prior to data collection. The privacy, anonymity and confidentiality of the respondents were maintained. The respondents' dignity was maintained by giving right to reject or discontinue from the research study at any time. Data was analyzed by Epidata 3.1 and SPSS version 20. Various test such as one sample t-test, ANOVA test, independent t-test, Kruskal-Wallis test and Mann-Whitney U test, Pearson's correlation was applied.

## RESULTS

Table 1: Socio Demographic Characteristics of Respondents and overall Quality of life (n = 96)

Variables	Frequency	Percentage	QOL score	p value
<b>Age group in years</b>				
20-39	27	28	67.06±12.89	<0.001**
40-59	39	41	55.84±17.17	
≥60	30	31	50.90±14.17	
Mean ±SD = (48.86 ±15.49) in years, (range 20-84)				
<b>Gender</b>				
Male	60	62.5	57.87±16.79	0.745*
Female	36	37.5	56.75±15.15	
<b>Type of Family (n = 96)</b>				
Nuclear	38	39.6	60.51±14.07	0.136*
Joint	58	60.4	55.44±17.36	
<b>Educational level (n=71)</b>				
Basic	41	58	54.01±16.22	0.001*
Secondary and above	30	42	66.18±13.19	
<b>Marital Status (n = 96)</b>				
Married	87	90.6	56.56 ±16.18	0.092*
Unmarried	9	9.4	66.14 ±15.06	
<b>Employment status (n = 96)</b>				
Yes	4	4.16	65.82±12.03	0.295*
No	92	95.8	57.09±16.36	
<b>Diabetes along with renal failure</b>				
Yes	27	28.1	52.01±13.32	0.040*
No	69	71.9	59.58±16.88	
<b>Hypertension along with renal failure</b>				
Yes	89	92.7	56.86±16.37	0.205*
No	7	7.3	64.97±13.43	

Significance level 0.05, \*t - independent test, \*\*Anova test

Higher respondents falls under were from age group 40-59, male, without diabetes and living with hypertension (41.0%), (62.5%), (71.9%) and (92.7%) respectively. There was statistically significant between quality of life and age ( $p < 0.001$ ). The mean±SD of overall quality of life was above the average 67.06±12.89 in 20-39 years followed by 40-59 years 55.84±17.17 and average 50.90±14.17 in ≥60 years which shows that better QOL in young adult than older age. There was statistically significant between quality of life and level of education ( $p = 0.010$ ). The mean±SD of overall quality of life was higher 66.18±13.19 who were Secondary and above and lower 54.01±16.22 who were basic education which shows that better QOL in higher education than lower education. There was statistically significant between quality of life and diabetes comorbidities ( $p = 0.040$ ). The mean and SD of overall quality of life was higher who had not diabetes and lower who had diabetes which shows that better QOL in who had not diabetes than who have diabetes.

**Table 2: Quality of Life Score on Different Dimension**

Quality of life	Raw score mean $\pm$ SD	Transformed score mean $\pm$ SD	Minimum Score	Maximum Score	p value
Physical Health dimension	55.44 $\pm$ 6.90	55.72 $\pm$ 22.41	6.90	96.43	0.014
Physical Function	22.71 $\pm$ 6.04	63.59 $\pm$ 30.23	0.00	100.00	<0.001
Role Physical	13.10 $\pm$ 3.34	56.90 $\pm$ 20.90	0.00	100.00	0.002
Bodily pain	4.61 $\pm$ 2.45	71.22 $\pm$ 27.28	22.50	100.00	<0.001
General Health	15.01 $\pm$ 2.81	32.86 $\pm$ 25.74	0.00	90.00	<0.001
Mental Health dimension	53.89 $\pm$ 5.48	60.04 $\pm$ 11.50	26.79	78.57	<0.001
Vitality	13.02 $\pm$ 1.62	41.53 $\pm$ 13.98	18.75	75.00	<0.001
Social function	6.28 $\pm$ 1.18	55.33 $\pm$ 22.48	0.00	100.00	0.022
Role emotion	13.18 $\pm$ 3.03	84.89 $\pm$ 25.25	0.00	100.00	<0.001
Mental Health	21.40 $\pm$ 2.99	61.82 $\pm$ 11.19	20.00	80.00	<0.001
Overall QOL	109.34 $\pm$ 9.00	57.45 $\pm$ 16.25	19.14	88.57	<0.001

Significance level 0.05, one sample t test used in Transformed score

All dimensions, sub dimension and overall QOL were statistically significant with hemodialysis and the lowest SF-36 score (32.86  $\pm$ 25.74) was obtained for general health scale, followed by vitality scale (41.53  $\pm$ 13.98) and role emotion scale had the highest score (84.89  $\pm$ 25.25).

**Table 3: Dimension of Quality of Life According to Demographic Variables**

Variables	No.	Physical health dimension Md(Q1-Q3)	p value	Mental health dimension Md (Q1- Q3)	p value
<b>Age in years</b>					
20-39	27	75.00 (57.38-83.57)	<0.001*	64.28(51.78-73.21)	0.456*
40-59	39	53.80 (43.80-71.90)		62.50(53.57-69.64)	
$\geq$ 60	30	40.00(30.11-67.14)		59.82(51.33-67.85)	
<b>Sex</b>					
Female	36	55.59 (42.73-74.22)	0.913**	57.14(50.00-67.41)	0.037**
Male	60	56.42 (35.59-76.19)		64.28(55.80-69.19)	
<b>Educational level</b>					
Basic	41	53.80(31.66-72.14)	0.006**	58.92(50.00-66.07)	<0.0001**
Secondary and above	30	66.90(53.09-81.19)		67.85(62.50-73.66)	
<b>Marital status</b>					
Married	87	54.76(37.38-75.23)	0.092**	62.50(51.78-67.85)	0.095**
Unmarried	9	75.00(57.26-81.54)		69.64(51.78-74.10)	
<b>Type of family</b>					
Joint	58	54.40(33.09-75.47)	0.197**	62.50(51.33-67.85)	0.411**
Nuclear	38	61.78(53.12-69.64)		63.39(53.12-69.64)	
<b>Employment</b>					
Yes	4	56.07(47.44-56.07)	0.660**	71.42(68.30-74.55)	0.020**
No	92	55.59(37.44-75.95)		62.50(51.78-67.85)	
<b>Diabetes</b>					
Yes	27	49.04(33.09-63.09)	0.033**	60.71(51.78-64.28)	0.150**
No	69	63.33(43.45-78.09)		64.28(52.67-69.64)	
<b>Hypertension</b>					
Yes	89	55.47(37.50-75.11)	0.320**	62.50(51.78-67.85)	0.119**
No	7	74.28(49.04-81.19)		66.07(64.28-67.85)	

Significance level 0.05, Median (Q1- Q3) of Transformed Score p-value calculated by \*\*Mann Whitney test and \*Kruskal Wallis.

There was statistically significant between physical health dimension of QOL with age ( $p < 0.001$ ), level of education ( $p = 0.006$ ), diabetes (0.003) which shows that better physical health dimension in young age than old age, higher education than lower education and non diabetics than who had diabetes.

Similarly, there was statistically significant between mental health dimension and sex ( $p < 0.037$ ), level of education ( $p < 0.001$ ) and employment status ( $p = 0.020$ ). The median of mental health dimension of was higher 64.28(55.80-69.19) in male and lower 57.14(50.00-67.41) in female which shows that the QOL of patients regarding mental health dimension is better in male than female respondents. The median of mental health dimension of quality of life was higher 67.85 (62.50-73.66) in equal or above secondary level education and lower 58.92 (50.00-66.07) in basic education but both are above the average. Therefore the QOL of patients regarding mental health dimension is better in higher education than lower education. The median of mental health dimension of QOL was higher 71.42(68.30-74.55) who are currently employed and lower 62.50(51.78-67.85) in unemployed respondents which show that mental health was better in who are working than non working.

**TABLE 4: Correlation between QOL Dimension and Overall QOL**

Dimension	r value	p value
Physical health	0.970	<0.001
Mental health	0.698	<0.001
Physical health vs Mental health	0.502	<0.001

Significance level 0.05

There was correlation between quality of life and physical health dimension 0.970 ( $p < 0.001$ ) and correlation between QOL and mental health dimension was 0.698( $p < 0.001$ ) which shows that dimension of QOL was positively correlated with overall QOL. The correlation between Physical health dimension and mental health dimension was 0.502( $p < 0.001$ ) which shows that physical health dimension was positively correlated with mental health.

## DISCUSSION

Regarding the overall QOL ( $p < 0.001$ ), physical health dimension ( $p = 0.014$ ) and mental health dimension ( $p < 0.001$ ). Regarding the sub scale low score obtained for general health scale and vitality scale and role emotion scale had the highest score. Mental health was better than physical health. The findings of this study are supported by Shadafat & Abdul Manaf,<sup>6</sup> but contrast to Shrestha et. al.<sup>7</sup>

Regarding the Karl Pearson's Correlation between overall QOL and physical health dimension and mental health dimension with was ( $p < 0.001$ ) and ( $p < 0.001$ ) which shows that dimension of QOL was positively correlated with overall QOL. Physical health dimension with mental health dimension ( $p < 0.001$ ) also statistically significant correlation. The findings of this study is supported by Shrestha et. al.<sup>7</sup>

Regarding demographic characteristics, this study concluded the mean $\pm$ SD age of the respondents was 48.86 $\pm$ 15.49 years. The overall QOL was above the higher ( $p < 0.001$ ) in 20-39 years followed by 40-59 years and average in  $\geq 60$  years group; younger patients had better quality of life than older patients. The median of physical health dimension of QOL ( $p < 0.001$ ) was higher in 20-39 years and below average in  $\geq 60$  years of age group which shows that better physical component summary in young age than old age. Mental component summary was not statistically significant with age ( $p = 0.456$ ). The finding of this study is supported by Mandoorah et al,<sup>8</sup> and AL-Jumaih et al.<sup>9</sup>

Regarding sex, the overall QOL ( $p = 0.745$ ) and physical component summary ( $p = 0.913$ ) was not statistically significant. Patients regarding mental health dimension ( $p = 0.037$ ) is better in male than female respondents. Ayoub et al.,<sup>10</sup> supported overall QOL. Similarly, the findings is contrast to AL-Jumaih et al;<sup>9</sup> Mandoorh et al.,<sup>8</sup> but supported by Shdaifat & Abdul Manaf.<sup>6</sup>

Regarding the level of education ( $p = 0.010$ ), the mean $\pm$ SD of overall quality of life was higher 66.18 $\pm$ 13.19 who were Secondary and above and lower 54.01 $\pm$ 16.22 who were basic education. Those who receive higher education has better physical health dimension ( $p = 0.006$ ) and mental

health dimension ( $p < 0.001$ ) then lower education level education. The finding of study is supported by Mandoorah et al., (2014) education had a positive impact on QOL ( $p < 0.001$ ). The finding of this study is contrast to AL-Jumaih et al;<sup>9</sup> and Shdaifat & Abdul Manaf.<sup>6</sup>

Regarding the diabetes, overall quality of life score ( $p = 0.040$ ) and physical component summary score ( $p = 0.033$ ) was statistically significant which shows that better QOL in who had not diabetes than who have diabetes but contrast in mental component summary ( $p = 0.150$ ). The finding of study is supported by Mandoorah et al.,<sup>8</sup> and Anees et al.,<sup>11</sup> which show nondiabetics patients on hemodialysis had a better QOL in physical health as compared to diabetics.

## CONCLUSION

In this study, I found majority of respondents had average quality of life. Low score found in general health and vitality sub scale. Younger people, higher educated, employed and non diabetic had better quality of life. This finding can be used by family, physician, nurses and policy makers to identify and implement appropriate interventions for achieving better management of hemodialysis patients and ultimately improving the QOL of hemodialysis patients.

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