

Application of the WHOQOL-BREF Scale for Evaluating Quality of Life Among Chronic Kidney Disease Patients: A Cross-Sectional Study

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ABSTRACT

Background: Chronic Kidney Disease (CKD) significantly impacts QOL through physical, Psychological, and social challenges. This study explores the use of WHOQOL-BREF to assess QOL in dialysis and non-dialysis patients across four domains-Physical, Psychological, Social, and Environmental well-being-along with overall health. It also examines the effects of sociodemographic and disease-related factors on QOL, providing insights into the challenges faced by CKD patients. **Objectives:** This study aims to assess the Quality of Life (QOL) across various domains using the WHOQOL-BREF and to compare the QOL of Chronic Kidney Disease (CKD) patients undergoing dialysis with those who are not. **Materials and Methods:** A cross-sectional observational study was conducted at KLE's Dr. Prabhakar Kore Charitable Hospital and Medical Research Centre, Belagavi. A total of 106 CKD patients aged 18 and above were included. Data were collected through structured interviews using the WHOQOL-BREF questionnaire, which assesses QOL on a scale of 0-100. Statistical analysis was performed using SPSS v29, with Pearson's correlation used to evaluate relationships between QOL and various factors. **Results:** The study found that dialysis patients had lower QOL scores across all domains than non-dialysis patients. Physical limitations, fatigue, and Psychological distress were prevalent among those undergoing dialysis. Additionally, CKD stage progression was strongly associated with declining QOL. Factors such as education, socioeconomic status, and social support positively influenced QOL, while comorbidities and prolonged dialysis duration negatively impacted well-being. **Conclusion:** This study highlights the need for comprehensive CKD management, integrating medical treatment with Psychological and social support. Addressing comorbidities, enhancing mental health care, and improving healthcare accessibility can significantly improve the QOL of CKD patients. Further research is required to develop long-term strategies for QOL enhancement in CKD populations.

Keywords: QOL (Quality of Life), CKD (Chronic Kidney Disease), ESRD (End-Stage Kidney Disease), (MHD) Maintenance Haemodialysis.

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INTRODUCTION

Chronic Kidney Disease (CKD) presents a significant global health issue, with approximately 2% of individuals advancing to End-Stage Kidney Disease (ESRD). Studies indicate that patients undergoing Maintenance Haemodialysis (MHD) generally experience a lower Quality of Life (QOL) compared to the general populace or those with other chronic conditions (Hao *et al.*, 2024). CKD, increasingly recognized as a lifestyle disease, affects physical fitness, restricts daily activities, and leads to more frequent hospitalizations. In Nepal, where haemodialysis is provided at no cost, about 3 million CKD patients are treated. The

disease places a burden on healthcare systems and is associated with hypertension and diabetes. Haemodialysis patients report a lower QOL than those receiving peritoneal dialysis or transplants (Jankowska-Polańska *et al.*, 2017; Mahato *et al.*, 2020). Additionally, CKD affects family income and national development.

Quality-of-life evaluations in CKD often have a limited scope, with many studies lacking comprehensive well-being data. Most research is small-scale and lacks detailed insights (Krishnan *et al.*, 2020). In India, CKD affects 17.2% of the population, with 6% at stage 3 or higher. Beyond physical symptoms, it impacts QOL, Improving HRQOL necessitates mental health support, addressing social and economic stressors, and timely medical care to enhance outcomes (Sharma *et al.*, 2023).

Medical advances have reduced ESRD mortality, yet CKD remains a major global health concern, as highlighted by



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Global Burden of Disease studies. Haemodialysis patients must visit hospitals or dialysis centers 2-3 times weekly for 3-4 hr, significantly affecting social and occupational life. Psychiatric disorders, particularly depression, are common in these patients (Aljawadi *et al.*, 2024).

There is growing interest in using QOL as a measure of dialysis outcomes. Dialysis costs can be a significant burden, particularly for low-income patients. The “WHO defines QOL as individual’s perceptions of their lives within their cultural and value systems”. In 1991, the WHO developed the 100-item WHOQOL questionnaire, later condensed to the 26-item WHOQOL-BREF, a reliable assessment tool (Liu *et al.*, 2014).

The increasing prevalence of CKD, driven by common risk factors, raises morbidity, mortality, healthcare costs, and diminishes QOL. With rising rates of diabetes, obesity, and hypertension, CKD is a major public health issue, especially in low- and middle-income countries. Limited access to dialysis or transplants results in high mortality, highlighting the need for improved management strategies (Berhe *et al.*, 2023).

Research shows that advanced renal insufficiency reduces QOL, while some studies suggest even early-stage CKD can negatively impact it (Kefale *et al.*, 2019). Factors such as anaemia, comorbid conditions, and early nephrologist intervention significantly affect a patient’s QOL (Cruz *et al.*, 2011). The increase in ESRD and CKD poses a significant public health and financial challenge. QOL assessment is essential for evaluating treatment effectiveness and understanding CKD patient’s daily life and functional status (Tsai *et al.*, 2010).

This study explores the use of the WHOQOL-BREF tool in assessing QOL in both dialysis and non-dialysis CKD patients, covering four domains: Physical, Psychological, Social relationships, and Environment, along with overall QOL and general health. It aims to compare QOL scores between dialysis and non-dialysis patients across these domains and assess the impact of CKD progression on QOL, identifying patterns of decline as the disease advances.

MATERIALS AND METHODS

This cross-sectional observational study evaluated the QOL among CKD patients admitted to KLE’s Dr. Prabhakar Kore Charitable Hospital and Medical Research Centre, Belagavi. The study received approval from the Institutional Ethics Committee (Ref: KLECOBGM/EC/D021-2024, Sep 2024) and was registered with the Clinical Trials Registry-India (CTRI/2024/10/075616). Screening and randomization took place between October 2024 and February 2025. Out of 163 patients screened, 106 met the inclusion criteria and gave informed consent.

Eligible participants were CKD patients aged 18 and above who were receiving medical treatment. Exclusions were made for those with cognitive impairments, psychiatric disorders unrelated to

CKD, pregnant or lactating women, and individuals who had recently experienced major trauma or surgery. Data collection involved patient interviews, as some participants were unable to complete questionnaires on their own.

The WHOQOL-BREF, a 26-item instrument, was used to evaluate QOL in terms of Physical health, psychological well-being, Social relationships, and Environment. Responses were scored on a scale from 0 to 100, with higher scores indicating better QOL.

Data analysis was performed using SPSS v29. Descriptive statistics and frequencies were utilized to examine the sociodemographic and medical factors affecting QOL. QOL was categorized as very poor (0-20), poor (21-40), moderate (41-60), good (61-80), or very good (81-100).

RESULTS

The research study included 106 participants who were randomly selected to examine the demographic details of CKD patients based on their dialysis status. Of the participants, 56 were receiving dialysis treatment while 50 were not. Males made up 66.98% of the total participants, with 42 undergoing dialysis and 29 not undergoing dialysis. Females accounted for 33.02% of the participants, with a higher proportion 21 not receiving dialysis treatment. CKD was more prevalent in middle-aged and older individuals, with 40.57% of patients aged 41-60 years and 38.68% over 61 years.

In terms of education levels, 30.19% of participants had completed senior secondary education, 18.87% were graduates, and 16.04% were illiterate. The majority of patients (89.62%) were married. Occupationally, 45.28% were self-employed, 23.58% were housewives, and 19.81% were farmers. Regarding smoking history, 45.28% had never smoked, while 39.62% were ex-smokers. Alcohol consumption was notable, with 46.23% being ex-alcoholics, 36.79% never consuming alcohol, and 16.98% currently drinking.

The distribution of participant’s domiciles was nearly balanced, with 52.83% residing in urban areas and 47.17% in rural areas. Table 1 describes the sociodemographic profile of participants based on insights into dialysis treatment is given.

Table 2 summarizes the participants medical history of the 106 individuals, Patients living with Chronic Kidney Disease (CKD) face various challenges, more than half of the patients (52.83%) are undergoing dialysis, with a significantly higher number of males 42 compared to females 14 treatment. A significant portion (42.45%) of dialysis patients have been on it for over 6 months. Most patients (46.23%) have been diagnosed with CKD for 1-3 years, with 38.68% in Stage 2 and 23.58% in Stage 4. A large majority (79.25%) have comorbidities. Haemodialysis is the most common treatment (45.28%), followed by Acute Kidney Injury (21.70%). About 80.19% take more than five medications,

Table 1: Socio-demographic Profile of Participants Based on Insights into Dialysis Treatment (n=106).

Category	On Dialysis	Non-dialysis	FQ (%)
Gender			
Male	42	29	71 (66.98%)
Female	14	21	35 (33.02%)
Age group			
< 20 Years	7	7	14 (13.21%)
20-40 Years	22	16	38 (35.85%)
41-60 Years	25	18	43 (40.57%)
> 61 Years	22	19	41 (38.68%)
Education level			
Illiterate	9	8	17 (16.04%)
Primary	6	8	14 (13.21%)
Secondary	7	11	18 (16.98%)
Sr. Secondary	18	14	32 (30.19%)
Graduate	13	7	20 (18.87%)
Postgraduate	3	2	5 (4.72%)
Marital status			
Single	4	7	11 (10.38%)
Married	52	43	95 (89.62%)
Occupation			
Unemployed	2	1	3 (2.83%)
Self-employed	31	17	48 (45.28%)
Farmer	10	11	21 (19.81%)
Retired	3	2	5 (4.72%)
Housewife	9	16	25 (23.58%)
Other	1	3	4 (3.77%)
History of smoking			
Current Smoker	6	10	16 (15.09%)
Former smoker	24	18	42 (39.62%)
Never Smoked	26	22	48 (45.28%)
History of alcohol			
Current Alcoholic	3	15	18 (16.98%)
Former alcoholic	35	14	49 (46.23%)
Never Consumed	18	21	39 (36.79%)
Domicile			
Rural	26	24	50 (47.17%)
Urban	30	26	56 (52.83%)
Total	56	50	106 (100%)

Table 2: Clinical Profile of Chronic Kidney Disease (CKD) Patients by Gender (n=106).

Category	Male	Female	Total (percentage)
Taking dialysis			
Yes	42	14	56 (52.83%)
No	29	21	50 (47.17%)
Duration of dialysis			
More than 6 months	32	13	45 (42.45%)
Less than 6 months	12	3	15 (14.15%)
Not on Dialysis	27	19	46 (43.40%)
Duration of CKD diagnosis			
< 1 Year	12	8	20 (18.87%)
1 - 3 Years	32	17	49 (46.23%)
3 - 5 Years	22	8	30 (28.30%)
> 5 Years	5	2	7 (6.60%)
Stage of CKD diagnosis			
Stage 1	8	6	14 (13.21%)
Stage 2	27	14	41 (38.68%)
Stage 3A	5	2	7 (6.60%)
Stage 3B	1	0	1 (0.94%)
Stage 4	18	7	25 (23.58%)
Stage 5	12	6	18 (16.98%)
Any comorbidities			
Yes	53	31	84 (79.25%)
No	18	4	22 (20.75%)
Treatment for CKD			
Haemodialysis	36	12	48 (45.28%)
Transplant	1	1	2 (1.89%)
Peritoneal Dialysis	3	1	4 (3.77%)
Acute Kidney Injury	15	8	23 (21.70%)
None of the Above	16	13	29 (27.36%)
Number of medications			
More than 5	57	28	85 (80.19%)
Less than 5	14	7	21 (19.81%)
BMI range			
< 18.5	19	14	33 (31.13%)
18.5 - 24.9	27	14	41 (38.68%)
25 - 29.9	25	6	31 (29.25%)
> 30	0	1	1 (0.94%)

and most have a BMI between 18.5 and 29.9, reflecting varying degrees of CKD severity and complex treatment needs.

In Table 3, the Comparison of the QOL among CKD patients, divided into those on dialysis and those not on dialysis, across four key domains of QOL, the QOL of CKD patients across four domains: Physical, Psychological, Social, and Environmental. In

the Physical domain, most patients (41.50%) report a moderate QOL, with 27.40% experiencing poor QOL and 21.70% reporting very poor QOL. A smaller proportion (7.50%) have a good QOL, while only 1.90% rate their physical well-being as very good. In the Psychological domain, the majority (45.30%) report moderate QOL, followed by 29.20% with poor QOL and 15.10% with very poor QOL. Only 9.40% report a good QOL, and 0.90% report a

very good QOL. For the Social domain, 43.40% of patients rate their social well-being as moderate, 30.20% report poor QOL, and 13.20% have very poor QOL, while 12.30% report a good QOL and 0.90% report very good QOL. In the Environmental domain, poor QOL is most common, affecting 35.80%, followed by 37.70% with moderate QOL, and 11.30% with very poor QOL. Good QOL is reported by 14.20%, and only 0.90% report very good QOL. Overall, moderate QOL is the most frequently reported across all domains, with poor QOL being particularly prominent in the psychological and environmental aspects. Very few patients report very good QOL, indicating that CKD patients face significant challenges in maintaining a high quality of life.

Overall, dialysis patients report a worse quality of life across all domains, particularly in physical and psychological well-being, whereas non-dialysis patients generally have better ratings in moderate and good QOL, especially in the social and environmental aspects.

Table 4 presents the evaluation of QOL across different domains and stages for CKD patients. The study examines the QOL of CKD patients across five stages in four domains.

As the disease progresses to more severe stages (Stage 4 and Stage 5), patients tend to report poorer QOL, particularly in the physical and psychological domains. Moderate QOL is the most common across all stages, while higher stages show an increase in reports of very poor and poor QOL. The environmental and social domains also reflect challenges in later stages, with very few patients reporting very good QOL. Overall, there is a decline in quality of life as CKD advances. This information underscores the importance of addressing the various domains of QOL in CKD patients to improve their overall well-being and quality of life.

DISCUSSION

The present study evaluated the QOL in patients with CKD at different stages, including those on dialysis and those receiving conservative management. The findings are compared with existing literature on CKD-related QOL. Our study shows a decline in QOL across CKD stages, with dialysis patients reporting the lowest scores in all domains. These findings align with previous research showing a progressive deterioration in QOL with advancing CKD (Krishnan *et al.*, 2020).

Table 3: Impact on Quality of Life Across Key Domains in Dialysis and Non-Dialysis Patients.

Category	Quality of Life	On Dialysis		Dialysis total	Non-Dialysis		Non-dialysis total
		Male	Female		Male	Female	
Physical	Very Poor QOL	18	5	23	0	0	0
	Poor QOL	14	5	19	8	2	10
	Moderate QOL	6	4	10	17	17	34
	Good QOL	4	0	4	3	1	4
	Very Good QOL	0	0	0	1	1	2
Total		42	14	56	29	21	50
Psychological	Very Poor QOL	9	6	15	0	1	1
	Poor QOL	13	4	17	9	5	14
	Moderate QOL	18	4	22	15	11	26
	Good QOL	2	0	2	5	4	9
Total		42	14	56	29	21	50
Social	Very Poor QOL	6	2	8	5	1	6
	Poor QOL	11	6	17	7	8	15
	Moderate QOL	18	6	24	13	9	22
	Good QOL	7	0	7	4	3	7
	Very Good QOL	0	0	0	0	1	1
Total		42	14	56	29	21	50
Environmental	Very Poor QOL	6	4	10	1	1	2
	Poor QOL	13	6	19	11	8	19
	Moderate QOL	15	4	19	12	9	21
	Good QOL	7	0	7	5	3	8
	Very Good QOL	1	0	1	0	0	0
Total		42	14	56	29	21	50

Table 4: Quality of Life Across Different Domains And Stages.

QOL Domain	Stage 1	Stage 2	Stage 3a	Stage 3b	Stage 4	Stage 5	Total
Physical							
Very Poor QOL	0	0	3	1	12	7	23
Poor QOL	1	13	1	0	6	8	29
Moderate QOL	11	25	2	0	4	2	44
Good QOL	0	3	1	0	3	1	8
Very Good QOL	2	0	0	0	0	0	2
Total	14	41	7	1	25	18	106
Psychological							
Very Poor QOL	0	6	0	0	7	3	16
Poor QOL	1	11	6	1	9	3	31
Moderate QOL	10	18	1	0	9	10	48
Good QOL	3	5	0	0	0	2	10
Very Good QOL	0	1	0	0	0	0	1
Total	14	41	7	1	25	18	106
Social							
Very Poor QOL	1	5	1	1	3	3	14
Poor QOL	3	15	2	0	9	3	32
Moderate QOL	7	17	3	0	10	9	46
Good QOL	3	4	0	0	3	3	13
Very Good QOL	0	0	1	0	0	0	1
Total	14	41	7	1	25	18	106
Environmental							
Very Poor QOL	0	4	0	0	6	2	12
Poor QOL	2	19	3	1	8	5	38
Moderate QOL	10	12	2	0	9	7	40
Good QOL	2	6	2	0	1	4	15
Very Good QOL	0	0	0	0	1	0	1
Total	14	41	7	1	25	18	106

No significant differences were found between non-dialysis and haemodialysis groups in overall QOL scores, but a clear reduction in physical functioning was observed as CKD progressed. Our study supports this, with most dialysis patients reporting "poor" or "very poor" QOL. Comorbidities had a profound impact on QOL, as individuals with multiple conditions showed diminished physical and psychological well-being. Higher education levels were linked to better QOL, likely due to improved health literacy. Female CKD patients had lower QOL than males, consistent with higher pain, anxiety, and depression. Married individuals had better QOL, highlighting the importance of social support. Our study emphasizes addressing comorbidities, education, gender, and marital status to improve CKD patient well-being (Cruz *et al.*, 2011).

Dialysis and QOL, in our research, patients undergoing dialysis showed notably lower scores in physical functioning, aligning

with previous studies that indicate dialysis adversely affects various QOL domains. It is documented that dialysis patients face challenges in mobility, self-care, and daily activities, along with heightened anxiety and depression (Liu *et al.*, 2014).

Both studies underscore the severe impact of CKD on physical, mental, and social well-being, highlighting the necessity for targeted interventions (Sharma *et al.*, 2023).

Research indicates that dialysis patients have a diminished QOL, as evidenced by lower KDQOL-36 scores. Our study confirms this, with dialysis patients scoring lower across all subscales compared to those not on dialysis. Dialysis patients are generally older (51.6 years vs. 48.29 years) and show a slight tendency towards having more secondary or higher education. Interestingly, they are also more likely to be employed (68.2% vs. 50.9%) despite their poorer health. Although both groups share similar sociodemographic

characteristics, the dialysis group has more comorbidities and a lower QOL. These findings highlight the significant burden CKD places on patient's lives, with one study focusing on physical and lifestyle determinants of QOL, while the other emphasizes the critical role of mental health in CKD management.

The findings suggest that a comprehensive care model-incorporating medical, Psychological, and social interventions, is essential for improving overall well-being. Abed *et al.*, (2023) show poorer QOL in advanced CKD stages (4 and 5), while other factors like comorbidities, smoking, alcohol use, low education, and medication burden further reduce QOL. Together, these studies stress the need for a holistic approach to CKD care.

The Brazilian study by Lee Y (2013) highlights how demographic and socioeconomic factors, such as age, gender, education, and financial stability, influence CKD patient's QOL, emphasizing the physical and emotional challenges of dialysis. In contrast, our study focuses on CKD stages and dialysis duration, revealing those advanced stages (4 and 5) and prolonged dialysis lead to significantly poorer QOL across all domains. Additionally, our research identifies strong correlations between education, smoking, alcohol use, and comorbidities with QOL outcomes, offering a more detailed understanding of these factors' impact on CKD patient's well-being.

CONCLUSION

- There is a progressive decline in QOL (QOL) with Chronic Kidney Disease (CKD), and patients on dialysis treatment have an impact on both physical and psychological QOL domains.
- Despite relatively better scores in social and environmental well-being, these aspects may be considered less affected, which could result from the social and family support systems surrounding patients.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

QOL: Quality of Life; **CKD:** Chronic kidney disease; **ESRD:** End-Stage Kidney Disease; **MHD:** Maintenance Haemodialysis.

ETHICAL CONSIDERATION

The study received approval from the Institutional Ethics Committee (Ref: KLECOBPGMEC/D021-2024, Sep 2024).

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