Section: Internal Medicine

Original Research Article

QUALITY OF LIFE (QOL) AND ITS DETERMINANTS IN PATIENTS WITH CHRONIC KIDNEY DISEASE (CKD) ON HEMODIALYSIS

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Received : 05/01/2026
Received in revised form : 03/03/2026
Accepted : 20/03/2026

Keywords:
Chronic kidney disease, Hemodialysis, Quality of life, KDQOL-SF, Socioeconomic factors.

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DOI: 10.47009/jamp.2026.8.2.107

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2026; 8 (2); 575-580

ABSTRACT

Background: Chronic kidney disease (CKD) is a growing global health burden associated with significant morbidity and mortality. Although hemodialysis prolongs survival, it adversely affects patients' quality of life (QoL) due to physical limitations, psychological stress, and socioeconomic challenges. Limited data exist regarding QoL and its determinants among CKD patients in India. The objective is to evaluate the quality of life and its determinants in patients with CKD on maintenance hemodialysis using the Kidney Disease Quality of Life Short Form (KDQOL-SF) questionnaire. **Materials and Methods:** A cross-sectional study was conducted over 2 months (August–September 2022) in a tertiary care teaching hospital in central Tamil Nadu. Fifty CKD patients aged ≥18 years on maintenance hemodialysis for at least 3 months were selected using random sampling. Patients with major comorbidities or recent hospitalization were excluded. QoL was assessed using the validated KDQOL-SF questionnaire (Tamil version), covering physical, mental, and kidney disease-specific domains. Data were analyzed using descriptive and inferential statistics. **Result:** The mean age of participants was 47.32 ± 11.93 years, with a predominance of males (76%). Most patients were unemployed (94%) and belonged to low socioeconomic status. The overall mean QoL score was 48.0 ± 8.9, indicating poor quality of life. The physical composite score was significantly low (mean 38.07 ± 6.62; p=0.004), reflecting limitations in daily activities and functional capacity. The mental composite score was relatively better (mean 49.1 ± 5.79; p=0.003), though fatigue and emotional distress were common. The kidney disease composite score was moderate (mean 53.08 ± 8.86), with the lowest scores observed in work status and burden of disease. Duration of dialysis and socioeconomic factors significantly influenced QoL. **Conclusion:** CKD patients on hemodialysis experience significantly impaired quality of life, particularly in physical and socioeconomic domains. Factors such as unemployment, low income, and prolonged dialysis duration contribute to poorer outcomes. Comprehensive care strategies addressing physical, psychological, and social aspects are essential to improve QoL in this population.

INTRODUCTION

Chronic kidney disease that progress is becoming more prevalent in both developed and developing nations, raising both the mortality and morbidity rates worldwide. It happens as a result of lifestyle modifications and coexisting diseases like diabetes and hypertension.[1] Recent research has shown that central obesity contributes to CKD as well. It frequently affects populations with low to intermediate income.[2-7]

Renal replacement treatment (RRT) has made patients with CKD live longer by considerably reducing morbidity. Over 1.1 million people are thought to be using MHD at this time, and that number is growing by 7% annually. Despite the fact that hemodialysis lengthens the lives of CKD patients, certain restrictions do arise that lower their quality of life. The issues that hemodialysis patients deal with include fluid restriction, physical activity restrictions, emotional stress, joblessness, financial difficulties, sleep disturbances, itching and dryness, numbness and cramps, disruptions in family and social relationships, increased dependence, sexual

discomfort, and a sense of hopelessness. Due to inadequate care and awareness, hemodialysis patients are more susceptible to cardiovascular problems and peritonitis, which lowers their quality of life.[8-14]

Numerous studies, notably those carried out in industrialized nations, have evaluated patients with CKD's quality of life and discovered numerous factors that affect it. To our knowledge, very few studies have been done to evaluate the quality of life (QOL) of CKD patients in India.[15-18]

Studies from south India show that the kidney-specific domain, which affects socioeconomic status, has a significant impact on the health-related quality of life in the late stages of CKD. Additionally, poor people's unemployment and illiteracy lower their quality of life as they progress through CKD. Studies in Oman reveals that elderly patients and increased frequency of dialysis lower the quality of life of hemodialysis patient.[19]

Quality of life reflects good care, health, and well-being. Which impacts the physical, emotional, and social well-being. Hemodialysis patient visits the dialysis unit every 2-3 times a week which influences their lifestyle with more difficulties and the caregivers are also negatively affected.[20-23] Studies in Iran show that the quality of life of CKD patients is more affected when compared with patients with conditions like diabetes, heart disease, and cancer. Information in earlier studies states that 87% of dialysis patients have poor sleep and 70-89%. A study by Mahnaz et al. in 2013 suggests that quality of life is affected in hemodialysis patients with poor sleep. Studies in the USA found that the functional status of the patient is affected after 6 months of dialysis, frequent hospitalization, and depression in dialysis patients affect their quality of life.[9,10] According to reports, individuals receiving hemodialysis (HD) experience higher rates of cardiovascular disease-related morbidity and mortality than those receiving peritoneal dialysis (PD).[24,25] The peritoneal dialysis patient has a higher quality of life while the haemodialysis patient has a lower quality of life. Because it interferes with the work, studies, and plans of the patient.to overcome this, proper psychological care should be provided for better QOL.[13]

Increase and shorter the duration of dialysis treatment lesser the QOL, than dialysis treatment duration of 10-12 months. Employed patients have a greater quality of life in physical, psychological, and environmental health than the unemployed. Haemodialysis patients are affected by the physical domain due to restricted daily activities but have better environmental health.[15]

Unlike other chronic medical conditions, dialysis patients are always dependent on the machine, procedure, and qualified medical professionals for their entire life.[16-18] Depression raises the issue of suicidal behaviour in dialysis patients with kidney failure. Repeated observational studies have shown that dialysis patients have more suicidal rates than the normal healthy population.[19] Simply missing dialysis for a few sessions or overeating potassium-rich foods can lead to death.[18]

It is debatable how the prevalence of CKD has changed throughout time. According to data from the American National Health and Nutrition Examination Study, the prevalence of CKD stages 1 to 4 dramatically rose from 1999 to 2004 compared to the survey period from 1988 to 1994. While the aging of the population contributes to this high prevalence, it is also linked to rises in hypertension and diabetes mellitus.[20-22]

In addition to assisting in evaluating the effectiveness of the dialysis programme, measuring the quality of life (QOL) of CKD patients also aids nephrologists in creating future treatment plans and interventions that will be more effective. Numerous studies, particularly those carried out in industrialised nations, have evaluated patients with CKD's quality of life and discovered numerous factors that affect it.[23]

Age and gender had an impact on QOL, but family income had the biggest impact. These results imply that significant efforts should be made to lessen the negative impact of these economic issues on the quality of life of CKD patients.[24] In ESRD patients, HRQOL exhibits a significant ability to predict negative outcomes. Finding efficient therapies to enhance patients with ESRD's HRQOL need to be considered a worthwhile healthcare objective.[26,27]

Aims and objectives

Aim: To evaluate the quality of life and its determinants in patients with CKD on hemodialysis using KDQOL questionnaire

Objectives:

- To assess the quality of life and its outcome in patients under dialysis with sociographic, clinical, and psychological characteristics
- To provide the basis for better clinical care.

MATERIALS AND METHODS

This was a cross sectional study conducted over a period of 2 months from 1st august 2022 till 30th September 2022. The study was approved by ethical committee (CMI). This study was done among randomly selected 50 hemodialysis patients in a tertiary care teaching hospital in central Tamilnadu. The study participants were selected through random sampling procedure. This study includes regular hemodialysis patient aged above 18 years undergone dialysis for atleat 3 months. Patients with cognitive dysfunction, history of hospitalisation for past two months, presence of comorbidities such as stroke, chronic liver disease, malignant and multi organ failure and major hearing impairment are excluded as these factors would affect the QOL. The QOL was assessed using the KDQOL-SF. It is a validated questionnaire. The questionaare is transulated in tamil. The KDQOL SF assesses the QOL in 19 domains, which were grouped into 3 main domains. They are physical composite summary (PCS): 4

ISSN (O): 2687-5365; ISSN (P): 2753-6556

domains, Mental composite summary (MCS): 4 domains, kidney disease composite summary: 11 domains

a) Physical health components summary (PCS): physical functioning (1items), role-physical items), bodily pain (2 items), and general health (3 items);

b) Mental health components summary (MCS): social functioning (2 items), role emotional (1 items), and emotional well being (4 items) and

c) Kidney disease component summary (KDCS): symptom / problem list (4 items), effects of kidney disease on daily life (6 items), burden of kidney disease (1 items), work status (2 items), sleep (1 item), social support (1 items), dialysis staff encouragement (1 items) and patient satisfaction (1 item).

Overall score was determined by evaluating the individual data by interpreting the statistical package.

RESULTS

The data were collected from 50 patients with chronic kidney disease on maintenance dialysis in a study setting of Central Tamilnadu in order to determine the health related quality of life. This is described in the following domains.

Domain 1: deals with the demographical characteristics, clinical characteristics and bio chemical characteristics. The age wise distribution of the patients included in the study were tabulated, analyzed and interpreted. Thereby least number of patients recorded below 25 years and equal distribution observed between 26 and 75 years.

Table 1: Age wise descriptions of the subjects

No.	Sub-Domains	Number	Percentage
1	Age groups		
1a	18 – 25	01	2
1b	26 – 50	25	50
1c	51 – 75	24	48
1d	Mean ± SD	47.32 ± 11.93	
1e	CV	25.21	
1f	p value	0.002*	

P value less than 0.05 is significant

The gender wise analysis of the patients showed higher among male population (n=38; 76%) and females (n=12; 24%) [Figure 1].

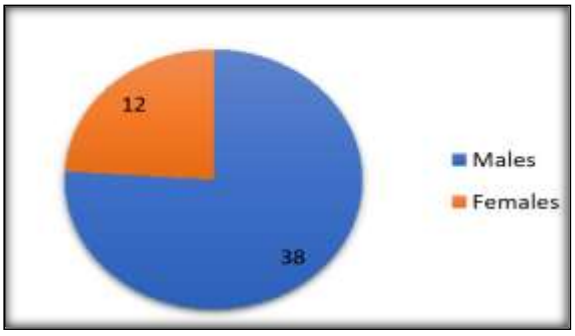

Figure 1: Genderwise analysis

Only two were not married and 96% were married [Figure 2] where the spouses accompanied with male patients; but interestingly none of the male spouse accompanied female patients [Figure 2].

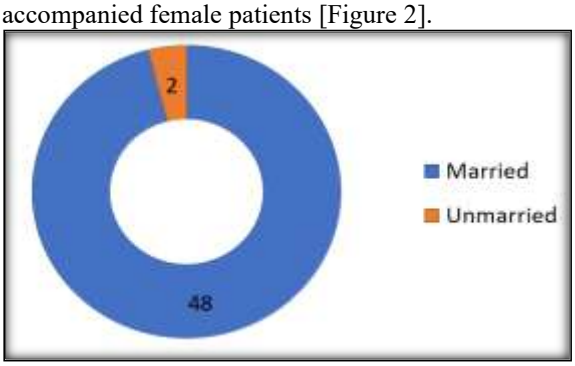

Figure 2: Marital status of the subjects included in this study (n=50)

Before kidney disorder, all the subjects included in this study are working in some sectors, Due to regular dialysis to be done, most of them lost their job either personal outlet or employer disagreement. Among the 50 subjects, 47 were unemployed during the dialysis process [Figure 3]. About 19 patients were educated and they can understand the information related to the diagnosis and treatment of them. The uneducated group of subjects had the dilemma in choosing the proper lane of treatment [Figure 4].

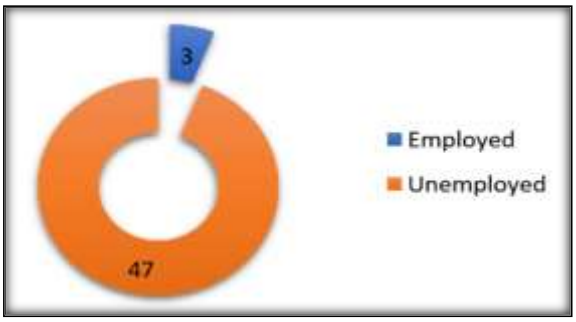

Figure 3: Employment status

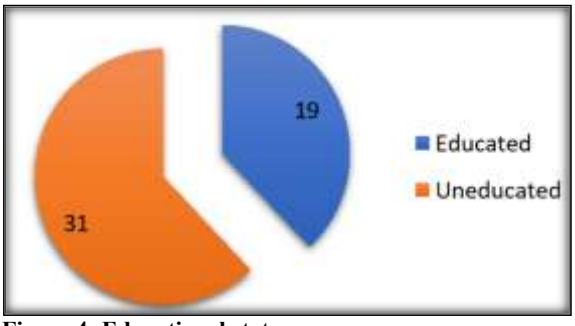

Figure 4: Educational status

ISSN (O): 2687-5365; ISSN (P): 2753-6556

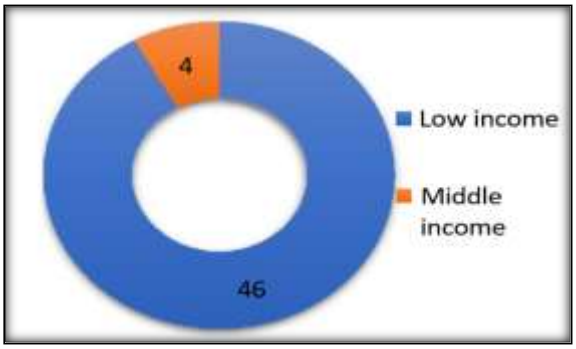

Figure 5: Socioeconomic status

Majority of the dialysis patient were receiving their dialysis through the government schemes which impacts the some better quality of life economically and very few of them from middle income population [Table 2 and Figure 6]. Greater and lesser duration of dialysis population has poor quality of life the emotional status was highly affected in patients with duration less than 1 year. Patients with 1 to 3 years were mentally prepared for their dialysis procedure. Patients greater than 6 years of duration of dialysis have been lost their hope and they were extremely frustrated.

Table 2: Duration of dialysis

No.	Sub-Domains	Number	Percentage
2	Duration of Dialysis		
2a	Below 1 year	23	46
2b	1 – 3 years	16	32
2c	3 – 6 years	5	10
2d	6 – 9 years	6	12
2e	Mean ± SD	2.43 ± 2.32	
2f	CV	95.43	
2g	p value	0.124*	

p value less than 0.05 is significant; thus this value is insignificant

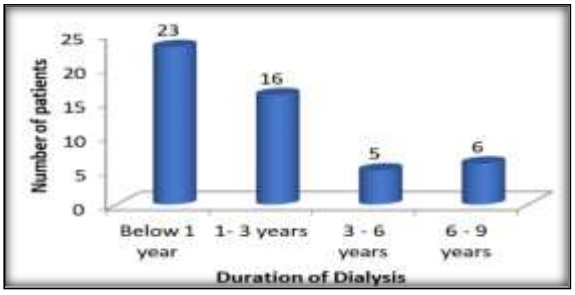

Figure 6: Duration of dialysis

The domains under the physical score were highly limited in hemodialysis patient such as walking, running, lifting heavy objects even lifting the grosseries are also affected. Their normal work and amount of time for their day to day activities are also limited. Most of them say that there is poor health and its gets worsen day by day. Speaking about the bodily, the pain worsens their physical condition very much which reduces their work efficiency thus causing problem with their financial status.

Table 3: Physical, mental and kidney disease composite scores

Physical composite score	**N**	**MEAN**	**Standard Deviation**	**P value**
Physical functioning	50	42.90	29.5	0.004
General health	50	33.58	25.05	
Role physical	50	21.00	38.914	
Pain	50	54.80	33.058	
		38.07	6.62	
Mental composite score	**N**	**Mean**	**Standard Deviation**	**P value**
Emotional well being	50	50.48	24.867	0.003
Role emotion	50	64.67	25.341	
Social function	50	51.50	37.256	
Energy/fatigue	50	31.80	27.400	
		49.1	5.7985	
Kidney disease composite scores	**N**	**Mean**	**Standard deviation**	**P value**
Burden of kidney disease	50	17.75	29.134	0.123
Social interaction	50	77.20	23.794	
Cognitive function	50	67.99	27.803	
Symptoms	50	78.50	11.808	
Effects of kidney disease	50	56.25	26.031	
Work status	50	6.00	16.413	
Sexual function	50	0	0	
Sleep	50	48.00	26.196	
Social support	50	86.07	28.965	
Dialysis staff encouragement	50	66.00	19.404	
Patient satisfaction	50	79.59	20.204	
-	-	53.08	8.86	-
Overall mean	48.00	8.9	-	

ISSN (O): 2687-5365; ISSN (P): 2753-6556

DISCUSSION

The incidence and prevalence of patients with Chronic Kidney Disease (CKD) is increasing worldwide and in India. CKD is now recognised as a significant and rapidly growing global health burden, which affects HRQOL not only for patient but the family also. The complications of CKD, its treatment and co existing disease have been found to have a significant impact on the physical health of patients.

It is well documented that the health status of the renal patients population is worse than that of the general healthy population, for this reason, the assessment of HRQOL of CKD patients have received considerable attention. The present study is intended to assess the HRQOL of patients with CKD on maintenances dialysis in a Central district of Tamilnadu. A descriptive correlation design was adopted for the study, A total of 50 subjects were selected conveniently.

Kidney Disease Quality of Life Short Form (KDQOL- SF) was used to assess the QOL. Data was collected over a period of 5 weeks. Data were analysed using descriptive and inferential statistics. Among 50 patients with Chronic Kidney Disease on maintenance dialysis majority (73.3%) were less than 50 years of age. A little less than 2/3rd (62.7%) were males. Nearly half of them were literate (48%) and illiterates of (52%). An overwhelming majority (92%) were unemployed. A little over half of them (53.3%) had a monthly income of Rs 5000 – 10,000. Majority of the samples were married (77.3%) and 3/4th of them were hailing from a rural area (72%).

AS on the physical activities to be concerned, the subjects are not comply with physical activities and acceptance rate is high among the females than males. Previous reports also suggested the same. Emotional status are not much interfering in their day to day activities. Social interactions are very less due to avoiding travel and discomfort in crowd as well as stigma and discrimination in society. Almost all told that their happiness totally lost due to this disease and clinical disturbances. Tiredness is considered as the major part of their life.

CONCLUSION

This study demonstrates that health-related quality of life (HRQoL) among patients with chronic kidney disease on maintenance hemodialysis is profoundly impaired, particularly within the physical and socioeconomic domains. Despite modest preservation of mental health indices, the overall burden of disease remains substantial, driven by functional limitations, treatment dependence, and financial vulnerability.

There is an urgent need to reorient CKD management toward a patient-centered, multidisciplinary model that integrates medical optimization with structured psychosocial support, functional rehabilitation, and targeted socioeconomic interventions. Future research should focus on longitudinal and interventional strategies aimed at mitigating modifiable determinants to achieve meaningful improvements in quality of life and overall patient-centered outcomes.

Ultimately, improving survival without improving quality of life is an incomplete success in the care of CKD patients.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556