

Assessment of Quality of Life among End-Stage Renal Disease Patients Undergoing Maintenance Hemodialysis

Ashima Ravindran, Anjali Sunny¹, Rajesh Penganazhi Kunnath², Binoo Divakaran³

Department of Pharmacy Practice, Genesis Hospital, Kannur, Departments of ¹Pharmacy Practice and ³Community Medicine, Government Medical College, Pariyaram, ²Department of Nephrology, Kmct Medical College, Manassery, Kerala, India

Abstract

Background: Renal failure is a chronic disease that can seriously affect quality of life (QOL). Health-Related QOL represents the physical, psychological, and social domains of health that are influenced by a person's experience, beliefs, expectations, and perceptions. The aim of this study is to explore QOL of Stage 5 chronic kidney disease (CKD) patients on maintenance hemodialysis (MHD) in South India. **Materials and Methods:** This was a cross-sectional observational study conducted among patients with CKD undergoing MHD at 11 major centers in South India. Demographic data were collected using a predesigned questionnaire. QOL index was measured using the 26-item WHOQOL-BREF questionnaire, and statistical analysis was carried out using the SPSS version 24 (Academy of Medical Sciences, Kannur, Kerala, India). **Results:** Five hundred and three patients undergoing MHD were enrolled, and the following QOL scores were recorded: social relationship (51.65 ± 21.03), environmental (46.91 ± 19.29), psychological (41.07 ± 20.30), and physical health (40.17 ± 17.05). QOL of patients declined with aging in all four domains. Being male, younger, educated, and unmarried appeared to have a favorable effect on several aspects of patients' QOL. **Conclusion:** The evaluation of QOL in CKD patients undergoing hemodialysis showed that it was relatively compromised. Because the patients had a chronic, progressive irreversible disease, the most affected was physical domain. Age, education, employment, and marital status were found to affect one or more domains of QOL. Age and education are significant independent variables; as the age increases, QOL decreases, and higher the education better the QOL.

Keywords: Chronic kidney disease, maintenance hemodialysis, quality of life

INTRODUCTION

Chronic kidney disease (CKD) has become one of the major medical problems worldwide. According to a study conducted in the 2015 Global Burden of Disease (GBD), CKD ranked the 17th among causes of death globally (age-standardized annual death rate of 192 deaths per 100,000 population). In India, the GBD 2015 ranks CKD as the eighth leading cause of death.^[1]

Renal failure is a chronic disease that can seriously affect quality of life (QOL) and specifically their social, financial, and psychological well-being.^[2-4] QOL is defined as "An individual perception of their position in life in the context of culture and value system where they live, and in relation to their goals, expectations, standards, and concerns." Health-Related QOL (HRQOL) represents the physical, psychological, and social domains of health that are influenced by a person's experience, beliefs, expectations, and perceptions.^[5] In this scenario, QOL has become an important indicator of health

care, patient experience, and measure of effectiveness in various chronic diseases. The assessment of QOL becomes mandatory as an outcome measure in the evaluation of adverse events and treatment effectiveness in various diseases conditions such as end-stage renal disease (ESRD), cardiovascular disease, malignancy, chronic obstructive pulmonary disease, and human immunodeficiency virus infection.^[6] Patients with CKD may experience a negative impact on their QOL, which comes from the anxiety that can appear before and during the treatment.^[7] There are various renal replacement

Address for correspondence: Dr. Rajesh Penganazhi Kunnath, Flat No 1E, Skyline Crescendo, Chevarambalam, Chevayur PO, Kozhikode - 673 017, Kerala, India.
E-mail: rajeshpkunnath@gmail.com

Submitted: 05-Aug-19 **Revised:** 10-Sep-19
Accepted: 02-Nov-19 **Published:** 28-Jan-20

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Ravindran A, Sunny A, Kunnath RP, Divakaran B. Assessment of quality of life among end-stage renal disease patients undergoing maintenance hemodialysis. *Indian J Palliat Care* 2020;26:47-53.

Access this article online

Quick Response Code:



Website:
www.jpalliativecare.com

DOI:
10.4103/IJPC.IJPC_141_19

therapies available that result in longer survival in Stage 5 CKD patients. Hemodialysis therapy is time-intensive, expensive, and requires fluid and dietary restrictions. Long-term dialysis therapy itself often results in loss of freedom; dependence on caregivers; disruption of marital, family, and social life; and reduced or loss of financial income. Due to these reasons, the physical, psychological, socioeconomic, and environmental aspects of life are negatively affected, leading to compromised QOL.^[8] QOL in CKD patients is a unique, personal, nontransferable, and complex concept that is linked to human adaptive mechanisms, and it requires various factors related to psychological, environmental, social, and personal relationship dimensions.^[9]

The aim of this study is to explore QOL of patients with Stage 5 CKD undergoing maintenance hemodialysis (MHD) using the WHOQOLBREF questionnaire.

MATERIALS AND METHODS

This is a cross-sectional observational study conducted among patients with CKD undergoing MHD at 11 major centers in India. Data were collected from these hospitals for a total duration of 6 months. Ethical approval for this study was obtained from the Institutional Review Board of Kannur Government Medical College, Kerala (ref no: A1/1839/2017APSC/IEC-07/2017). Patients with ESRD on MHD were included in this study. Demographic data were collected using a predesigned questionnaire. QOL index was measured using 26 items in the WHO-QOL BREF questionnaire. We included patients who had been on regular hemodialysis for at least 3 months.

The following criteria were used to exclude patients after the initial screening:

- Patients undergoing peritoneal dialysis
- Incompletely filled questionnaire.

The WHO-BREF questionnaire was translated into local language. Educated participants were encouraged to fill the questionnaire by themselves; however, for patients who were illiterate, questions were read out clearly by an investigator and responses were noted from a primary caretaker if applicable.

Sociodemographic factors such as age, gender, marital status, education, employment, and number of dialysis per week were collected using a structured questionnaire, and QOL was measured using the WHOQOL-BREF questionnaire. After explaining the purpose of this study, 530 patients were evaluated initially, of which 503 met the inclusion criteria and 27 were excluded due to incomplete responses.

The WHOQOL-BREF is a questionnaire that relies on assumption that the QOL is a subjective and multidimensional construct based on individual perception of QOL and is composed of positive and negative dimensions.^[10] The WHOQOL-BREF contains 26 questions and is cross-culturally adapted and validated in Malayalam language. The questions are relating to the physical health, psychological, social, and

environmental status of patients. Items G1 and G4 assess individual overall perception of QOL and health, respectively, and the remaining 24 questions are divided into four domains. Each item is rated by a 5-point Likert scale. Out of the four domains, one is physical health and others are psychological, social, and environmental domains. All domains have different raw score ranges; for uniformity, all raw scores were transformed to 0–100 scale using transformation formula.^[11] A higher score indicates a better QOL. Descriptive statistics were used to analyze the mean domain scores and are presented as mean \pm standard deviation (SD). Pearson's correlation coefficient was used to assess the inter-domain correlation between various demographic factors and domain scores.

Statistical analysis

SPSS version 23.0 was used for the analysis of data. Results of descriptive analysis were presented as mean \pm SD, and inter-domain correlations between various demographic factors and domain scores were assessed using Pearson's correlation coefficient. Bivariate relationship between sociodemographic factors and QOL scores was analyzed using *t*-test and one-way analysis of variance. *Post hoc* analysis was performed for variables with more than two groups. Independent predictors of QOL were analyzed through multiple linear regression analysis. $P < 0.05$ was considered statistically significant.

RESULTS

Demographic characteristics

After explaining the purpose of the study, total 530 patients were evaluated, of which 503 patients met the inclusion criteria and 27 patients were excluded due to incomplete responses.

Majority of the respondents belong to age group above 60 years (47.91%); 73.76% were male. The male-to-female ratio was found to be 3:1. Among 503 patients on MHD, 55 (10.93%) were illiterate, 379 (75.35) were married, and 447 (88.86%) were unemployed. Patients undergo one, two, or three dialysis sessions per week. Majority of the patients (60.64%) undergo thrice weekly dialysis. The mean domain score was given in Table 1, and the demographic characteristics of the study population ($n = 503$) are presented in Table 2.

Association between demographic characteristics and quality of life scores

Various demographic factors and their association with QOL were assessed in Stage 5 CKD patients on MHD [Table 3], which showed a bivariate relationship between demographic characteristics and domain scores ($P = 0.005$). A statistically significant relationship was observed between various age groups and different domains. The physical and psychological health of patients declined with aging ($P = 0.001$ and 0.009). *Post hoc* least significant difference (LSD) showed a significant difference in both mean physical and psychological health scores, as well as mean social relationship scores, between 13–34 years and ≥ 60 years and also between 35–59 and ≥ 60 years. Whereas, in the environmental domain, *post hoc* LSD showed a significant difference in mean scores between

Table 1: Mean domain scores (descriptive statistics)

Domain	Mean±SD
Physical health	40.17±17.05
Psychological	41.07±20.30
Social relationship	51.65±21.03
Environmental	46.91±19.29

SD: Standard deviation

Table 2: Characteristics of study population (n=503)

Characteristics	n (%)
Age group (years)	
13-34	36 (7.16)
35-59	226 (44.93)
≥60	241 (47.91)
Sex	
Male	371 (73.76)
Female	132 (26.24)
Marital status	
Married	379 (75.35)
Unmarried	54 (10.74)
Widow	70 (13.92)
Education	
Illiterate	55 (10.93)
Primary	185 (36.78)
Secondary	205 (40.76)
Higher/university	58 (11.53)
Employment	
Employed	56 (11.13)
Unemployed	447 (88.86)
Number of dialysis/week	
Once/week	7 (1.39)
Twice/week	191 (37.97)
Thrice/week	305 (60.64)

13–34 years and 35–59 years as well as between 13–34 years and ≥60 years' age groups.

A significant difference was observed in all the four domains based on the educational status of the patients. Educated patients (tertiary or higher education) had better QOL scores in physical (45.33 ± 17.68), psychological (48.19 ± 19.83), social (58.53 ± 22.44), environmental (54.33 ± 17.67) domains as well as in overall perception of QOL (3.14 ± 0.71) and overall perception of general health (2.86 ± 0.97). *Post hoc* LSD analysis showed a significant difference in mean physical health scores between illiterate patients and patients with secondary school education as well as illiterate patients and patients with higher education also between primary and secondary as well as primary and higher educated patients with $P = 0.001$. Moreover, in psychological domain, *post hoc* analysis revealed a significant difference in mean domain score between tertiary and all other education levels with $P = 0.02$. The *post hoc* LSD also showed a significant difference in mean environmental scores between illiterate patients and patients

with higher education, between primary and secondary as well as primary and tertiary, between secondary and tertiary education ($P = 0.001$).

A better QOL was seen in employed patients when compared to unemployed which exhibited a significant difference in all the four domains as well as in overall perception of general health and overall perception of QOL with $P < 0.05$. QOL in unmarried people is better as compared to married people, which is found to be statistically significant. Comparison of the WHO-BREF domain mean scores, standard deviation, and significance based on sociodemographic variables are given in Table 3.

Further regression analysis was conducted which showed that age, employment, and education were independent predictors of QOL affecting one or more domains of the WHOQOL-BREF. Age was found to be a significant negative predictor physical ($P = 0.000$), psychological ($P = 0.001$) and social domain ($P = 0.001$), whereas employment status was found to be a significant negative predictor affecting physical health ($P = 0.003$), psychological domain ($P = 0.003$), and environmental domain ($P = 0.001$); in contrary, education was found to be a significant positive predictor in social and environmental domain with $P = 0.014$ and 0.003 , respectively. We observed that gender, number of dialysis per week, and marital status were not associated with any of the four domains in multivariate analysis. Multiple linear regression analysis is given in Table 4.

Quality of life scores and correlations among various domains of WHO Quality of Life-BREF

Bivariate Pearson correlation (two-tailed) was carried out, wherein a significant correlation among physical, psychological, social, and environmental domains was observed ($P < 0.05$). Furthermore, a statistically significant correlation was found to exist between overall perception of QOL and general health and scores obtained from different domains ($P < 0.05$). The strength of correlation among various domains was analyzed, a moderate correlation was observed between social domain with overall perception of QOL (G1) and overall perception of general health (G4) with a person's $r = >0.3$ and <0.5 , and a strong inter-domain correlation was found in between rest of the domains. The details of Pearson correlation among various domains are given in Table 4.

Multiple linear regression analysis

In this study, there is a significant relationship between age and different domains such as physical, psychological, and environment with $P = 0.006$, 0.035 , and 0.007 , respectively. In physical health, an increase in age by 1 year causes a decrease in physical QOL by 0.179 units, whereas in psychological health and social relationship of patients, it declines by 0.166 units and 0.007 units, respectively [Table 5].

In categorical variables, the category unemployment is compared with the reference (working category), which showed a significant relationship between employment and

Table 3: Comparison of WHO-BREF domain mean scores, standard deviation, and significance based on sociodemographic variables

Variable	Physical	Psychological	Social	Environmental	G1	G4
Age						
13-34	47.3611±14.89	48.36±18.52	59.67±15.54	54.33±18.09	3±0.99	2.89±1.06
35-59	41.76991±18.0	42.53±22.47	53.61±23.49	46.99±21.20	2.55±1.13	2.52±1.05
≥60	37.60166±15.98	38.61±17.97	48.62±18.73	45.73±17.31	2.58±0.91	2.54±0.94
<i>P</i>	0.001	0.009	0.002	0.044	0.046	0.114
Sex						
Male	40.34±17.14	41.19±20.58	50.89±21.97	46.06±19.34	2.62±1.02	2.59±1.00
Female	39.70±16.85	40.73±19.58	53.80±18.04	49.28±19.03	2.52±1.03	2.46±1.00
<i>P</i>	0.714	0.825	0.135	0.1	0.336	0.216
Education level						
Illiterate	36.55±16.77	37.64±17.82	45±23.01	43.15±18.84	2.15±0.97	2.24±0.98
Primary	37.43±15.09	39.57±19.02	49.97±19.86	43.72±18.32	2.52±1.02	2.52±1.02
Secondary	42.16±18.07	41.33±21.78	53.02±20.55	48.69±20.00	2.63±1.06	2.59±1.00
Higher	45.33±17.68	48.19±19.83	58.53±22.44	54.33±17.69	3.14±0.71	2.86±0.96
<i>P</i>	0.001	0.02	0.003	0.001	<0.001	0.009
Job						
Working	49.91±17.36	52.35±19.28	60.20±22.48	59.36±19.96	3.27±1.008	3.16±0.898
No job	38.98±16.65	39.69±20.01	50.60±20.63	45.38±18.67	2.51±0.999	2.47±0.989
<i>P</i>	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Marital status						
Married	39.36±16.77	40.37±20.82	50.74±21.77	45.71±19.67	2.55±1.04	2.50±1.01
Unmarried	49.11±15.16	49.96±18.60	60.96±18.00	54.30±17.70	3±0.78	3.00±0.89
Widow	37.67±16.24	38.00±16.85	49.39±17.19	47.71±17.26	2.51±1.03	2.53±0.93
<i>P</i>	<0.001	0.002	0.002	0.008	0.009	0.002
Number of dialysis/week						
1	53±17.330	53.857±24.89	58.857±19.0	57.429±18.884	2.286±0.95	3.571±1.13
2	40.869±17.283	41.445±20.248	50.408±20.03	46.770±19.686	2.2597±1.07	2.513±1.015
3	39.443±16.820	40.544±20.202	52.262±21.68	46.754±19.049	2.603±0.998	2.557±0.979
<i>P</i>	0.089	0.218	0.419	0.349	0.721	0.022

P significance (using one-way ANOVA); G1: Overall perception of quality of life; G4: Overall perception of general health (range of score 1-5). (*P*<0.05) indicate significant. ANOVA: Analysis of variance

Table 4: Pearson correlation among domain score

Domain	Pearson correlation/ regression analysis	G1	G4	Physical health	Psychological health	Social relationship	Environmental health
G1	<i>r</i>	1					
	<i>P</i>						
G4	<i>r</i>	0.62	1				
	<i>P</i>	<0.001					
Physical health	<i>r</i>	0.53	0.55	1			
	<i>P</i>	<0.001	<0.001				
Psychological health	<i>r</i>	0.60	0.62	0.70	1		
	<i>P</i>	<0.001	<0.001	<0.001			
Social relationship	<i>r</i>	0.49	0.47	0.58	0.61	1	
	<i>P</i>	<0.001	<0.001	<0.001	<0.001		
Environmental health	<i>r</i>	0.58	0.53	0.68	0.67	0.63	1
	<i>P</i>	<0.001	<0.001	<0.001	<0.001	<0.001	

r: Pearson correlation; *P*: Significance (two-tailed); G1: Overall perception of QOL (range of score: 1-5); G2: Overall perception of general health (range score: 1-5); Domain 1: Physical domain; Domain 2: Psychological domain; Domain 3: Social domain; Domain 4: Environmental domain. QOL: Quality of life

domains such as physical, psychological, environmental, G1, and G2 with *P* < 0.05. Employed patients showed better QOL, greater psychological health, and social relationship by 11.617 and 7.676 units as compared to unemployed patients.

Table 5: Multiple linear regression analysis

QOL domain	Unstandardized coefficients		Standardized coefficient (β)	<i>t</i>	Significance
	<i>B</i>	SE			
Physical health					
Age	-0.179	0.065	-0.136	-2.748	0.006
Education					
Illiterate	-2.120	3.353	-0.039	-0.632	0.528
Primary	-2.642	2.639	-0.075	-1.001	0.317
Secondary	-0.566	2.537	0.016	0.223	0.824
Job	9.882	2.495	0.181	3.961	<0.001
Marital status					
Married	-0.364	2.162	-0.009	-0.169	0.866
Unmarried	5.846	3.222	0.108	1.815	0.070
Psychological health					
Age	-0.166	0.079	-0.106	-2.111	0.035
Education					
Illiterate	-2.644	4.052	-0.041	-0.652	0.514
Primary	-2.358	3.188	-0.056	-0.739	0.460
Secondary	-2.086	3.066	-0.051	0.680	0.497
Job	11.61	3.015	0.179	3.854	<0.001
Marital status					
Married	0.447	2.613	0.009	0.171	0.864
Unmarried	6.680	3.893	0.103	1.716	0.087
Social relationship					
Age	-0.220	0.082	-0.135	-2.687	0.007
Education					
Illiterate	-7.557	4.206	-0.112	-1.797	0.073
Primary	-3.684	3.310	-0.085	-1.113	0.266
Secondary	-1.987	3.182	-0.046	-0.624	0.533
Job	7.676	3.129	0.114	2.453	0.015
Marital status					
Married	-1.840	2.712	-0.038	-0.679	0.498
Unmarried	3.552	4.041	0.053	0.879	0.380
Environment					
Age	-0.096	0.074	-0.064	-1.288	0.198
Education					
Illiterate	-5.616	3.814	-0.091	-1.473	0.142
Primary	-5.254	3.001	-0.131	-1.751	0.081
Secondary	-1.491	2.886	-0.038	-0.517	0.606
Job	12.279	2.837	0.199	4.328	<0.001
Marital status					
Married	-3.916	2.459	-0.088	-1.592	0.112
Unmarried	2.832	3.664	0.046	0.773	0.440
G1	-0.001	0.004	-0.010	-0.203	0.839
Age					
Education	-0.692	0.202	-0.211	-3.427	0.001
Illiterate	-0.327	0.159	-0.154	-2.060	0.040
Primary	-0.260	0.153	-0.125	-1.706	0.089
Secondary	0.614	0.150	0.187	4.097	<0.001
Job					
Marital status					
Married	-0.121	0.130	-0.051	-0.927	0.357
Unmarried	0.275	0.194	0.084	1.420	0.156
G4					
Age	-0.343	0.196	-0.107	-1.745	0.082
Education					

Contd...

Table 5: Contd...

QOL domain	Unstandardized coefficients		Standardized coefficient (β)	t	Significance
	B	SE			
Illiterate	-0.069	0.156	-0.033	-0.445	0.656
Primary	-0.047	0.151	-0.023	-0.312	0.755
Secondary	0.649	0.148	0.203	4.388	<0.001
Job	-0.146	0.128	-0.063	-1.141	0.254
Marital status					
Married	0.350	0.175	0.110	2.003	0.046
Unmarried	-0.073	0.084	-0.038	-0.880	0.379

SE: Standard error, QOL: Quality of life

Age and education are significant independent variables; as the age increases, QOL decreases, and higher the education better the QOL.

DISCUSSION

CKD patients undergoing MHD have to cope with the fact of having an incurable disease that requires painful treatment and causes limitations to life. They often end up having poor QOL. In this study, it was noticed that the best QOL domain was social relationship, with an average of 51.65 ± 21.03 , followed by environmental (46.91 ± 19.29) and psychological (41.07 ± 20.30). It was found that psychological was the second most affected domain. Dialysis treatment is a repetitive and exhausting routine for CKD patients were as changes in lifestyle and occupational inactivity causes mood swings and emotional stress that affect mental and physical health of patients. Other factors such as dependence and restrictions imposed by treatment, fear of death, and alterations in bodily appearance may add a negative result in this scenario. The domain affected most adversely was physical health. The low scores clearly demonstrate that daily activities such as sleep and capacity to work were disrupted in ESRD patients due to physical pain and dependence on medical treatment.

Overall QOL is correlated with age. A common trend exists within all the domains and age ≥ 60 , i.e., a negative correlation can be observed with respect to older age and physical, psychological, social, and environmental domains. This decline in scores for older age can be attributed to the fact that with increasing age, there is deterioration in physical status of the patient, i.e., energy, work capacity, and quality of sleep, and with increasing age, there is a decrease in scores of psychological domain. This may be due to various comorbidities, poor support from the family and society, financial burden which in turn drives them up in a state of solitude, blue mood, anxiety, and depression. Our findings also indicate that older patients had significantly lower QOL scores than younger patients in the social domain. This may be due to lack of solid personal relationships and dissatisfied sexual life. The environmental domain assesses the influence of factors such as environment, financial resources, health-related information, transport facilities, and insurance schemes. The decline in scores may be due to unhealthy living

conditions, lack of adequate transport facilities, and absence of social support groups for the elderly unlike in developed countries. Although a number of government schemes exist (like Karunya, employees' state insurance), most of the patients are unable to avail these because they do not fulfill the inclusion criteria. Similarly, Mandoorah *et al.*^[12] showed that patients older than 60 years had a worst report of QOL. In contrary, the study done by Joshi *et al.*^[13] revealed that older patients had better QOL than younger patients in social domain.

This study claimed that a better educational background positively impacted the patient's QOL. They are directly proportional. The level of education has been identified as a predictor of good health because more the academic qualifications, greater the chances of being employed and hence a reliable income and better socioeconomic conditions. Literate patients have a better understanding of the disease and awareness regarding its treatment and lifestyle modifications. Hence, in this study, higher scores in all the domains are observed in participants who have received tertiary education and in those who are employed. In this study, only 11.13% of the patients were employed and the remaining were not working either due to being retired or unable to work due to physical limitations. This is in line with the study conducted by Theofilou^[2] and Gerasimoula *et al.*^[14] Whereas, the study by Joshi *et al.*^[13] did not come across any significant association between QOL and educational status.

While we expected gender to affect QOL in CKD patients, we did not come across any significant results on comparing scores in both the sexes. In contrast, the study conducted by Sathvik *et al.*^[8] revealed that females have a lower score in psychological and environmental domains compared to males.

Marital status significantly affects QOL in all domains. Unmarried people had better scores, whereas married people scored lower. This may be because married people have to run the family which increases financial stress and dependence and finally affects QOL. In India, due to extended family structure, even unmarried people get adequate emotional and financial support from their families. While many previous studies have indicated that married people have higher QOL,^[2] a study carried out in Nepal^[13] is in line with our findings.

Although we expected the QOL to improve in patients undergoing thrice weekly dialysis, it was found to decline. This may be owing to the fact that as the number of dialysis increases, the patient has to spare more time and resources. Furthermore, since many of them stay far off from the dialysis centers, they have to spend extra money to meet their travel expenses and also the medication costs. Apart from this, the surplus charges also include the cost of replacing the dialyzer after the definite time interval.

Limitations

First, the absence of control group limits the interpretation of the comorbidities on HRQOL. Since the questionnaire was filled by the patients themselves, the responses may be based on their personal perceptions and understanding of the questions. We did not include the duration on MHD and also information on diet.

CONCLUSION

The evaluation of the QOL in CKD patients undergoing hemodialysis showed that it was relatively compromised. Because the patients had a chronic, progressive irreversible disease, the most affected was physical domain. Age, education, employment, and marital status were found to affect one or more domains of QOL. Age and education are significant independent variables; as the age increases, QOL decreases, and higher the education better the QOL. It was found that studies on QOL offer strategies to health workers that allow them to measure physical, psychological, and environmental necessities in order to meet the real needs of patients undergoing renal therapy. To our knowledge, no such study has been conducted in Kerala, and this study provides an insight on how dialysis affects various dimensions of life.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Jha V, Modi G. Uncovering the rising kidney failure deaths in India. *Lancet Glob Health* 2017;5:e14-e15.
2. Theofilou PA. The impact of socio-demographic and psychological variables on quality of life in patients with renal disease: Finding of a cross-sectional study in Greece. *World J Nephrol Urol* 2012;1:101-6.
3. Ginieri-Coccosis M, Theofilou P, Synodinou C, Tomaras V, Soldatos C. Quality of life, mental health and health beliefs in haemodialysis and peritoneal dialysis patients: Investigating differences in early and later years of current treatment. *BMC Nephrol* 2008;9:14.
4. Theofilou P. Quality of life in patients undergoing hemodialysis or peritoneal dialysis treatment. *J Clin Med Res* 2011;3:132-8.
5. Anees M, Malik MR, Abbasi T, Nasir Z, Hussain Y, Ibrahim M, *et al.* Demographic factors affecting quality of life of hemodialysis patients – Lahore, Pakistan. *Pak J Med Sci* 2014;30:1123-7.
6. Tsai YC, Hung CC, Hwang SJ, Wang SL, Hsiao SM, Lin MY, *et al.* Quality of life predicts risks of end-stage renal disease and mortality in patients with chronic kidney disease. *Nephrol Dial Transplant* 2010;25:1621-6.
7. Lopes JM, Fukushima RL, Inouye K, Pavarini SC, Orlandi FS. Quality of life related to the health of chronic renal failure patients on dialysis. *Acta Paul Enferm* 2014;27:230-6.
8. Sathvik BS, Parthasarathi G, Narahari MG, Gurudev KC. An assessment of the quality of life in hemodialysis patients using the WHOQOL-BREF questionnaire. *Indian J Nephrol* 2008;18:141-9.
9. de Melo GA, Silva RA, Pereira FG, de Lima Pinto S, Neta IF, da Silva LA. Health related quality of life in elderly chronic kidney disease patients undergoing hemodialysis. *Int Arch Med* 2016;9:1-10.
10. The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Soc Sci Med* 1995;41:1403-9.
11. Saxena S, Carlson D, Billington R; WHOQOL Group. World Health Organization Quality Of Life. The WHO quality of life assessment instrument (WHOQOL-bref): The importance of its items for cross-cultural research. *Qual Life Res* 2001;10:711-21.
12. Mandoorah QM, Shaheen FA, Mandoorah SM, Bawazir SA, Alshohaib SS. Impact of demographic and comorbid conditions on quality of life of hemodialysis patients: A cross-sectional study. *Saudi J Kidney Dis Transpl* 2014;25:432-7.
13. Joshi U, Subedi R, Poudel P, Ghimire PR, Panta S, Sigdel MR. Assessment of quality of life in patients undergoing hemodialysis using WHOQOL-BREF questionnaire: A multicenter study. *Int J Nephrol Renovasc Dis* 2017;10:195-203.
14. Gerasimoula K, Lefkothea L, Maria L, Victoria A, Paraskevi T, Maria P. Quality of life in hemodialysis patients. *Mater Sociomed* 2015;27:305-9.