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Health Related Quality Of Life (HRQoL) Of Patients Unergoing Hemodialysis

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Abstract
The present study aimed to assess the health related quality of life (HRQoL) of patients undergoing hemodialysis. The objectives of the study were to assess the HRQoL of patients undergoing hemodialysis, analyze the relationship between each subscale with other subscales and overall score of HRQoL and find the association between HRQoL and selected socio personal and clinical variables. The conceptual framework of the study was based on Sister Callista Roy's Adaptation model. Descriptive study design was used in the study. 75 patients within the age group 35 to 75 years attending hemodialysis unit of KIMS Hospital, Thiruvananthapuram was selected by consecutive sampling technique. HRQoL was assessed by KDQOL ^{TM} -36 questionnaire. After data collection, individualized teaching was provided with pamphlet on measures to improve quality of life in hemodialysis patients. Data were analysed using descriptive and inferential statistics. The finding shows that 81.3% of patients had average and above average HRQoL in PCS, 82.7% in MCS, 81.3% in DB, 78.7% in SP List and 90.7% in EKD. The mean and standard deviation of HRQoLsubscalescoreofthePCS60.67±16.95,MCS88.69±11.4,DB66.13± 10.89, SP List 88.17 ± 7.76, EKD 77.63 ± 11.02 and overall score 79.79 ± 8.73. There is statistically significant positive correlation (p<0.05, p<0.01) between HRQoL with various subscales such as physical component summary, mental component summary, burden of kidney disease, symptom problem list, effect of kidney disease and overall score of HRQoL. There is statistically significant association of HRQoL with age and complications of CKD (p<0.01), religion, gender, etiology of CKD and duration of disease (p<0.05).

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I. Background of the problem

Chronic kidney disease (CKD) is a worldwide public health problem. CKD is a progressive irreversible condition that leads to series of biochemical, clinical and metabolic disorders which directly or indirectly linked to high rates of hospitalization, morbidity and mortality.[1]It causes the physiological and emotional alterations at the time of diagnosis and during the course of treatment. The estimated prevalence of CKD around the world is 10.4% and 11.8% among men and women respectively. According to the Global burden of disease (2015), CKD was ranked 17th leading cause of deaths.[2] According to World Health Organisation (WHO) Global Burden of Disease project, disease of the kidney and urinary tract contribute to approximately 850,000 deaths every year.[3,]The International Society of Nephrology reported that prevalence of CKD in India was 17%.[4]End stage renal disease (ESRD) is a major public health hazard in India. A community based study on burden of renal failure among adults in rural Kerala reported that 4.8% of patients have chronic kidney disease of any stage and 3.6% had renal failure. [5]

Hemodialysis is incapable of altering the natural course of the underlying kidney disease or completely replaces the kidney function.[6] It has a detrimental impact on the quality of life of patients and affect the physical and psychological wellbeing.[7]In Brazil, the number of patient in dialysis mounted to 87,044 in 2008; 90% were on hemodialysis and 10% on peritoneal dialysis.[8] According to Nephrology and kidney transplantation research centre, Iran; about 29,000 patients with CKD were under treatment in 2007 and 14,000 (48.5%) of them were undergoing hemodialysis.[6]Recent studies revealed that, in India over 1,30,000 patients receiving dialysis in the year 2018 and the number is increasing about 232 per million population.[9] In Kerala around 23,500 patients are undergoing hemodialysis; 635 per million population in the state.[10]

Need and significance of the study

A community based study was conducted among 50 patients in Tamilnadu to assess the quality of life of patients with chronic kidney disease undergoing hemodialysis by using Kidney Disease Quality of Life-Short Form (KDQOL^{TM}-SF) questionnaire. The study reported that physical health was significantly affected among all the four domains of KDQOL and an average score was 25.45 ±11.85 ($p<0.0015$). The study concluded that focusing on various domains of QoL could lead to more patient-centred care and improved health and well-being.[11]A descriptive study was conducted in Nepal to assess the quality of life and association between the selected variables of patients undergoing hemodialysis. Out of 75 patients on hemodialysis, 47 were males and 28 were females. Data were collected by Kidney Disease and Quality of Life -36 (KDQOL ^{TM}-36) tool by interview technique. The study result showed that out of 5 domains; the highest score was on symptom of disease 75 (64.58-83.33) and the lowest score was on mental health components 25 (20-40) and burden of disease 25 (0-25). Education levelissignificantly associated with quality of life ($p<0.05$). The study concluded that patients with hemodialysis have poor quality of life and the most affected domain was mental health.[7]A cross-sectional descriptive study was conducted among 50 patients undergoing maintenance hemodialysis in a tertiary level referral hospital in Kerala to assess the health related quality of life (HRQoL) by using Kidney Disease Quality of Life-Short Form (KDQOL-SF) questionnaire. The study result showed that the mean score of kidney disease component summary (60.48 ± 11.81) was higher than mental component summary (41.83 ± 15.78) and physical component summary (36.49 ± 16.30). Patients possessed better quality of life in social support (73.54), dialysis staff encouragement (67.56) and quality of social interaction (67.56) and the worst scores in role-physical (13.57) and role-emotional (17.72) scales. The study concluded that the quality of life of hemodialysis patients was highly impaired and it clearly defines how the disease state adversely affects the physical and mental status of thepatient.[21]Regular assessment of symptoms and measurement of health related QoL of patients with CKD is essential to integrate kidney supportive care and treatment strategies.[12]

Statement of the problem

A descriptive study to assess health related quality of life (HRQoL) of patients undergoing Hemodialysis in a selected tertiary care hospital, Thiruvananthapuram.

Objectives

1.Assess the health related quality of life of patients undergoinghemodialysis.
2.Analyze the relationship between each subscale with other subscales and overall score of HRQoL of patients undergoinghemodialysis.
3.Findthe association between health related quality of life of patients undergoing hemodialysis with selected socio personal and clinicalvariables.

Hypotheses

H1: There is a significant relationship between each subscale with other subscales and overall score of HRQoL of patients undergoing hemodialysis.
H2: There is a significant association between health related quality of life of patients undergoing hemodialysis and selected socio personal variables like age, gender, religion, education and clinical variables like etiology of CKD, duration of disease, duration of dialysis, complications of CKD, complications of dialysis.

II. Methodology

Research approach

Quantitative Approach

Research design

Non experimental descriptive survey design.

Setting of the study

Hemodialysis unit of KIMS Hospital, Thiruvananthapuram.

Population

Patients undergoing hemodialysis within the age group of 35-75 years

Sample and sample size

Patients undergoing hemodialysis within the age group of 35-75 years at KIMS hospital, Thiruvananthapuram.Sample consist of 75 patients with CKD.

Sampling technique
Consecutive sampling technique.

Criteria for sample selection
Inclusion criteria

- Patients who are on dialysis for a period of 1 year ormore.
- Patients who are willing to participate in thestudy.
- Patients who are able to speak or understand Malayalam or English.

Exclusion criteria

- Patients who are criticallyill.
- Patients who are healthprofessionals.

Description of tools
Tool 1: Interview schedule- To collect socio-personal and clinical data

Tool 2: Kidney disease and quality of life (KDQOL)™ -36

Section 1: Socio-personal and clinical data

Socio personal variable	f	%
Age in years		
36-45	4	5.3
46-55	12	16
56-65	33	44
66-75	26	34.7
Gender		
Male	53	70.7
Female	22	29.3
Marital status		
Married	73	97.3
Unmarried	0	0
Living together	0	0
Divorced / separated	0	0
Widow	2	2.7
Occupation		
Unemployed	16	21.3
Private job	1	1.3
Government job	7	9.3
Retired	40	53.4
Others	11	14.7
Mode of Work		
Moderate work	64	85
Heavy work	11	15
Source of income		

Salary	10	13.3
Pension	16	21.3
Aid from children	18	24
Aid from family members	5	6.7
Assets	26	34.7
Medical insurance		
Yes	26	34.7
No	49	65.3
Type of family		
Nuclear family	54	72
Joint family	21	28
Availability of family support		
Yes	75	100
No	0	0
Family history of diseases		
Kidney disease		
Yes	2	2.7
No	73	97.3
Hypertension		
Yes	25	33.3
No	50	66.7
Diabetes mellitus		
Yes	41	54.7
No	34	45.3
Hypertension and Diabetes mellitus		
Yes	7	9.3
No	68	90.7
Diet pattern		
Vegetarian	2	2.7
Non vegetarian	73	97.3
Habits of smoking		
Current smoker	0	0
Ex- smoker	28	37.3
Non-smoker	47	62.7
Use of alcohol		
Current alcoholic	0	0
Ex- alcoholic	30	40

Non-alcoholic	45	60
Etiology of CKD		
Diabetes mellitus		
Yes	46	61.3
No	29	38.7
Hypertension		
Yes	25	33.3
No	50	66.7
Kidney disease		
Yes	4	5.3
No	71	94.7
Exposure to nephrotoxic substances		
Yes	0	0
No	75	100
Duration of disease		
≤10 years	68	90.6
>10-20 years	5	6.7
>20 years	2	2.7
Duration of dialysis		
≤5 years	65	86.7
>5-10 years	9	12
>10 years	1	1.3
IDWG (Inter Dialytic Weight Gain) in kg		
≤3	40	53.3
>3	35	46.7
BMI		
<18.5	7	9.3
18.5 - 24.9	34	45.3
25 - 29.9	26	34.7
30-34.9	8	10.7
Adherence to dialysis		
Yes	75	100
No	0	0
Complications of CKD		
Pulmonary edema		
Yes	34	45.3
No	41	54.7
Anaemia		
Yes	62	82.7
No	13	17.3
Cardiovascular disease		

Yes	48	64
No	27	36
Bone disease		
Yes	0	0
No	75	100
Hepatitis		
Yes	0	0
No	75	100
Chronic liver disease		
Yes	0	0
No	75	100
Sepsis		
Yes	0	0
No	75	100
Cancer		
Yes	0	0
No	75	100
Others		
Yes	0	0
No	75	100
Complications of dialysis		
Hypotension		
Yes	6	8
No	69	92
Muscle cramps		
Yes	56	74.7
No	19	25.3
Nausea/Vomiting		
Yes	18	24
No	57	76
Anorexia		
Yes	23	30.7
No	52	69.3
Skin problem		
Yes	24	32
No	51	68
Fatigue		
Yes	33	44
No	42	56
Febrile reactions		
Yes	0	0
No	75	100
Access site infection		
Yes	0	0

No	75	100

Section- 2

Frequency distribution and percentage of patients undergoing hemodialysis based on scores of HRQoL is classified as below average, average and above average.

Health Related Quality of Life (HRQoL)						
HRQoL subscales	**below average**		**Average**		**above average**	
	f	**%**	**f**	**%**	**F**	**%**
Physical Component Summary(PCS)	14	18.7	46	61.3	15	20
Mental Component Summary (MCS)	13	17.3	41	54.7	21	28
Burden of Kidney Disease (DB)	14	18.7	48	64	13	17.3
Symptom/problem List(SP List)	16	21.3	50	66.7	9	12
Effect of Kidney Disease (EKD)	7	9.3	55	73.4	13	17.3

Section - 3

Mean and standard deviation of HRQoL subscale scores and overall score.

HRQoL subscales	**Mean**	**SD**	**95% confidence interval**	
			LowerBound	**UpperBound**
Physical component summary (PCS)	60.67	16.95	56.77	64.57
Mental component summary (MCS)	88.69	11.41	86.06	91.31
Burden of kidney disease (DB)	66.13	10.89	63.63	68.64
Symptom /problem list (SP)	88.17	7.76	86.39	89.96
Effect of kidney disease (EKD)	77.63	11.02	75.1	80.17
Overallscore	79.79	8.73	77.78	81.80

Section: 4 Correlation between each subscale with other subscales and overall score of HRQoL.

Health related quality of life (HRQoL)						
Subscales	**PCS**	**MCS**	**DB**	**SP list**	**EKD**	**Overall scores**
Pearson correlation coefficient' r' value						
Physical component summary (PCS)	-	0.676**	0.558**	0.576**	0.679**	0.848**
Mental component summary (MCS)	0.676**	-	0.630**	0.61**	0.626**	0.846**
Burden of kidney disease (DB)	0.558**	0.630**	-	0.277*	0.453**	0.637**
Symptom /problem list (SP)						

	0.576**	0.610**	0.227*	-	0.678**	0.828**
Effect of kidney disease (EKD)						
	0.679**	0.626**	0.453**	0.678**	-	0.876**

****Significant at 0.01 level**
***Significant at 0.05 level**

Section 3: Association of HRQoL with socio personal and clinical variables.

Chi square value showing the association of HRQoL of patients undergoing hemodialysis and socio personal variables like age, gender, religion and education.

Health related quality of life (HRQoL)- Subscales

Socio personal variable	Physical Component Summary		Mental Component Summary		Burden of Kidney Disease		Symptom/ Problem List		Effect of Kidney Disease		Overall Score	
	df	χ2	df	χ2	df	χ2	df	χ2	df	χ2	df	χ2
Age	6	26.15**	6	10.68	6	7.33	6	3.63	6	30.14**	6	17.72
Gender	2	3.11	2	2.21	2	1.68	2	4.2	2	0.31	2	7.93*
Religion	4	3.37	4	6.1	4	4.52	4	3.21	4	9.98*	4	3.76
Education	8	6.4	8	8.58	8	7.22	8	11.27	8	7.39	8	11.1

***Significant at 0.05 level**
**** Significant at 0.01 level**

Chi square value showing the association of HRQoL of patients undergoing hemodialysis and clinical variables such as etiology of CKD, duration of disease, duration of dialysis, complications of CKD and complications ofdialysis.

Health related quality of life (HRQoL)- Subscales

Clinical variables	Physical Component Summary		Mental Component Summary		Burden of Kidney Disease		Symptom/ ProblemList		Effect of Kidney Disease		Overall Score	
	df	χ2	Df	χ2	df	χ2	df	χ2	df	χ2	df	χ2
Etiology of CKD	4	9.83*	4	6.95	4	1.46	4	1.99	4	7.37	4	8.83
Duration of disease	4	3.37	4	4.77	4	3.95	4	9.98*	4	10.89*	4	12.59*
Duration of dialysis	4	4.68	4	2.84	4	3.83	4	0.96	4	7.39	4	3.96
Complications of CKD	12	17.14	12	16.35	12	25.29**	12	18.02	12	9.73	12	29.09**
Complications of dialysis	54	45.58	54	65.7	54	63.82	54	66.45	54	53.19	54	60.52

***Significant at 0.05 level**
**** Significant at 0.01 level**

Nursing Implications

Nursing Practice:

Need based patient education should be made mandatory in every hospital to provide required health information to patients and motivate them to change the baseline behaviours through their own effort. Dialysis nurse should give health education sessions during the dialysis time regarding the measures to improve the quality of life.

Nursing Education:

Student nurses should be exposed to various aspects which improve the quality of life of patients with hemodialysis. Continuing education programs need to be conducted regularly for nurses in order to update them with the recent advances in the hemodialysis and lifestyle modification needed and they in turn motivate patient undergoing hemodialysis to improve the quality oflife.

Nursing Administration:

Nursing is a rapidly growing profession. Nurse administrator should initiate in creating policy, developing protocols and procedures related to the assessment and improvement in health related quality of life of patients undergoing hemodialysis. The nurse administrators need to convince the hospital management about setting up of a patient education desk along with the hemodialysis unit to provide patient teaching and counselling services.

Nursing Research:

The researcher can take initiative to conduct research studies on various aspects of improving health related quality of life in hemodialysis patients. There is a need for extensive and intensive research in this area.

Limitations

- The study was confined to hemodialysis patients attending the hemodialysis unit of KIMS Hospital, Thiruvananthapuram; so that it is difficult to draw generalization.
- The study was confined to hemodialysis patients not on patients with peritonealdialysis.
- The study was confined in a private sector hemodialysisunit.

Recommendations

- A comparative study can be done among patients undergoing hemodialysis and peritonealdialysis.
- An experimental study can be conducted among patients undergoing hemodialysis to assess the effect of nurse ledinterventions.
- Structured teaching programme may be made available in the hemodialysis unit to make patients and family members aware about the impact of hemodialysis.
- Similar study can be conducted with large sample size and differentsettings.

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