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A STUDY TO EXPLORE THE KNOWLEDGE, ATTITUDE, AND QUALITY OF LIFE AMONG CHRONIC RENAL FAILURE PATIENTS UNDERGOING HEMODIALYSIS AT PANIMALAR MEDICAL COLLEGE HOSPITAL AND RESEARCH INSTITUTE, CHENNAI.

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ABSTRACT

Background: Chronic Kidney Disease (CKD) is a major global public health concern, with prevalence varying across regions. It is estimated that approximately **10–15% of the global adult population** is affected by CKD. Evidence suggests that **30–60% of patients worldwide** have inadequate knowledge regarding chronic renal failure (CRF), its progression, and the role of haemodialysis in disease management. **Objectives:** The objectives of the study were to assess the knowledge, attitude and quality of life of chronic renal failure patients undergoing haemodialysis. To Correlate knowledge, attitude and quality of life and to associate the level of knowledge, knowledge, attitude and quality of life with selected demographic variables chronic renal failure patients undergoing haemodialysis. **Methods:** An evaluative approach with a descriptive research design was adopted. A total of 134 patients undergoing haemodialysis were selected using a purposive non-probability sampling technique based on predefined inclusion criteria. Data on knowledge, attitude, and QoL were collected using a structured questionnaire and standardized tools. Statistical analysis was performed using descriptive and inferential statistics. **Results:** The findings revealed that the majority of participants 88 (65.67%) had inadequate knowledge, 35 (26.11%) had moderate knowledge, and only 11 (8.20%) demonstrated adequate knowledge regarding CRF and haemodialysis. Chi-square analysis demonstrated a highly significant association between knowledge level and age, education, marital status, and duration of dialysis ($p < 0.0001$), and a significant association with gender and employment status ($p < 0.05$). Attitude was significantly associated with age ($p < 0.0001$). QoL showed a significant association with marital status and duration of dialysis treatment ($p < 0.0001$). **Conclusion:** The study highlights that patients with chronic renal failure undergoing haemodialysis generally exhibit moderate levels of knowledge, attitude, and quality of life. Significant positive correlations were identified among knowledge, attitude, and QoL, with meaningful associations observed with selected demographic variables. The findings emphasize the importance of enhancing patient education and fostering positive attitudes, which may lead to improved quality of life and better health outcomes among patients undergoing haemodialysis.

Introduction

Chronic renal failure is increasingly emerging as a global public health problem, approaching epidemic proportions. In India, the burden of chronic renal failure is substantial, although precise prevalence estimates vary across studies. This rising trend is largely attributed to the growing prevalence of diabetes mellitus, hypertension, and ischemic heart disease. Public awareness regarding chronic renal failure remains inadequate, particularly in rural areas, where nearly 70% of the population resides and access to healthcare services is limited. Consequently, the disease is often diagnosed at advanced stages. The cost of managing advanced chronic renal failure is considerable, and fewer than 10% of patients with end-stage renal disease have access to any form of renal replacement therapy. In a resource- constrained setting such as India, prioritizing prevention over treatment is both practical and essential. Prevalence studies play a critical role in highlighting the magnitude of the problem, guiding health policy, and facilitating the development of preventive strategies. Identification of high-risk characteristics associated with chronic renal failure further enables targeted interventions and modification of preventable risk factors.

Haemodialysis, a life-sustaining therapy for patients with chronic renal failure (CRF), presents distinct challenges, including dependence on dialysis machines, stringent dietary and fluid restrictions, and frequent hospital visits. Understanding the knowledge, attitude, and quality of life (QoL) of patients undergoing haemodialysis is essential for developing patient- centred interventions that enhance treatment adherence, psychological resilience, and overall well-being. Despite significant advancements in dialysis technology, the burden of the disease remains substantial, particularly in resource-limited settings such as Chennai, where access to specialized care, patient education, and supportive services may be uneven.

By examining the knowledge, attitude, and QoL of patients with CRF undergoing haemodialysis, this study aims to generate critical insights into areas requiring focused intervention. The findings will assist healthcare professionals in designing targeted educational initiatives, psychosocial support strategies, and lifestyle-modification programs that address patients' specific needs. Moreover, the study seeks to bridge the gap between clinical outcomes and patient-reported experiences, thereby contributing to improved disease management and enhanced health outcomes.

Overall, this study holds significant importance in strengthening the holistic care of patients with CRF receiving haemodialysis. By fostering a deeper understanding of patients'

lived experiences, it supports the development of comprehensive, patient-centred approaches that promote well-being and improve quality of life.

Materials and methods:

Study Participants and Setting

The study was conducted at Panimalar Medical College Hospital & Research Institute, Varadharajapuram, Poonamallee, Chennai, Tamil Nadu, India. The purpose of the study was to assess the knowledge, attitude, and quality of life (QoL) of patients with chronic renal failure (CRF) undergoing haemodialysis. A total of 134 patients who met the inclusion criteria were recruited using a purposive non-probability sampling technique. Data were collected using structured knowledge and attitude questionnaires and a standardized QoL instrument. Written informed consent was obtained from all participants prior to their inclusion in the study.

Ethical approval was obtained from the Institutional Review Board (IRB) of Panimalar Medical College Hospital & Research Institute (IRB No. 1/2020/012). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (Seoul revision, 2008).

Data Collection Tools

Data were collected using a structured questionnaire, developed based on an extensive review of relevant national and international literature. The tools were tested for validity and reliability prior to data collection. The questionnaire consisted of the following sections:

1. Demographic Variables: demographic data sheet was developed by the researcher to collect background information, including age, sex, educational status, marital status, and monthly income. Demographic data were obtained through face-to-face interviews with each participant on the first day of data collection.

2. Structured Knowledge Questionnaire The structured knowledge questionnaire comprised 10 multiple-choice questions covering various aspects of chronic renal failure. Each question had four response options, including one correct answer and three distractors. A score of 1 was awarded for each correct response A score of 0 was given for an incorrect response. The total possible score ranged from 0 to 10, with higher scores indicating better knowledge.

3. Attitude Scale: A 5-point Likert scale was used to assess participants' attitudes toward haemodialysis and chronic renal failure. The scale consisted of 10 statements, with response

options ranging from strongly disagree, disagree, neutral, agree, to strongly agree. The total score ranged from 0 to 50. Attitude levels were categorized as good, moderate, or poor

4. Quality of Life Assessment: Qol was assessed using the SF-36 Health Survey. Responses were scored and summarized according to the standardized scoring protocol described by Ware et al. (1993). Scores for each of the eight health domains were transformed to a 0–100 scale, with higher scores indicating better perceived health status. The eight domains assessed included: Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional & Mental Health. Five domains (Physical Functioning, Role Physical, Bodily Pain, Social Functioning, and Role Emotional) are unipolar, reflecting the absence of disability, whereas General Health, Vitality, and Mental Health are bipolar, capturing both positive and negative health states. Scoring was performed using the RAND SF-36 scoring method, with domain-specific scores calculated by averaging relevant items.

RESULTS

Table1: Frequency and percentage distribution of demographic variables of of patients with chronic renal failure (CRF) undergoing haemodialysis.

S.No.	Demographic variables	Frequency	Percentage
1.	**Age in years**		
	a) **20-34 years**	**17**	**12.68**
	b) **35-50 years**	**26**	**19.40**
	c) **51-60 years**	**41**	**30.59**
	d) **> 60 years**	**50**	**37.33**
2.	**Gender**		
	a) Male	**76**	**56.00**
	b) Female	**58**	**44.00**
3.	**Educational Level**		
	a) Literate	**50**	**37.33**
	b) Primary School	**48**	**35.85**
	c) High School	**33**	**24.06**
	d) Degree	**03**	**02.24**

4.	**Employment Status**		
	a) **Employed**	**52**	**38.81**
	b) **Unemployed**	**23**	**17.16**
	c) **Retired**	**59**	**44.03**
5.	**Marital Status**		
	a) **Single**	**11**	**08.21**
	b) **Married**	**118**	**88.06**
	c) **Divorced**	**03**	**02.24**
	d) **Widow / Widower**	**02**	**01.49**
6.	**Duration of Dialysis Treatment**		
	a) **< 6 months**	**21**	**15.67**
	b) **6 – 12 months**	**22**	**16.41**
	c) **1 – 3 years**	**54**	**40.29**
	d) **>3 years**	**37**	**27.63**

Table 1: presents the frequency and percentage distribution of demographic variables among patients with chronic renal failure (CRF) undergoing haemodialysis. With respect to age, the majority of participants 50 (37.33%) were aged above 60 years, followed by 41 (30.59%) in the 41–50 years age group, 26 (19.40%) in the 31–40 years age group, and 17 (12.68%) in the 21–30 years age group. Regarding gender, 76 (56%) of the participants were male, while 58 (44%) were female. In terms of educational status, 50 (37%) participants were literate, 48 (36%) had primary school education, 33 (24%) had high school education, and only 3 (2%) were degree holders. With respect to employment status, the majority 59 (44%) were retired, 52 (38%) were employed, and 22 (17%) were unemployed. Regarding marital status, most participants 118 (88%) were married, 11 (8%) were single, 3 (2%) were divorced, and 2 (1%) were widowed. Concerning the duration of haemodialysis treatment, 54 (40%) had been undergoing dialysis for 1–3 years, 37 (28%) for more than 3 years, 22 (16%) for 6 months to 1 year, and 21 (16%) for less than 6 months.

Table 2: Frequency and percentage distribution of level knowledge among CRF patients undergoing haemodialysis

N=134

Level of knowledge	Frequency		Mean	Standard Deviation
	No.	%		
Inadequate	88	65.67%	4.8	1.28
Moderate	35	26.11%		
Adequate	11	08.20%		

Table 2: The above table Shows that, frequency and percentage level of knowledge among chronic renal failure patients undergoing haemodialysis, majority of 88 (65.67%) them had inadequate, 35 (26.11%) had moderate knowledge and only 11(8.20%) had adequate knowledge. The mean of level of knowledge was 4.8 with standard deviation 1,28.

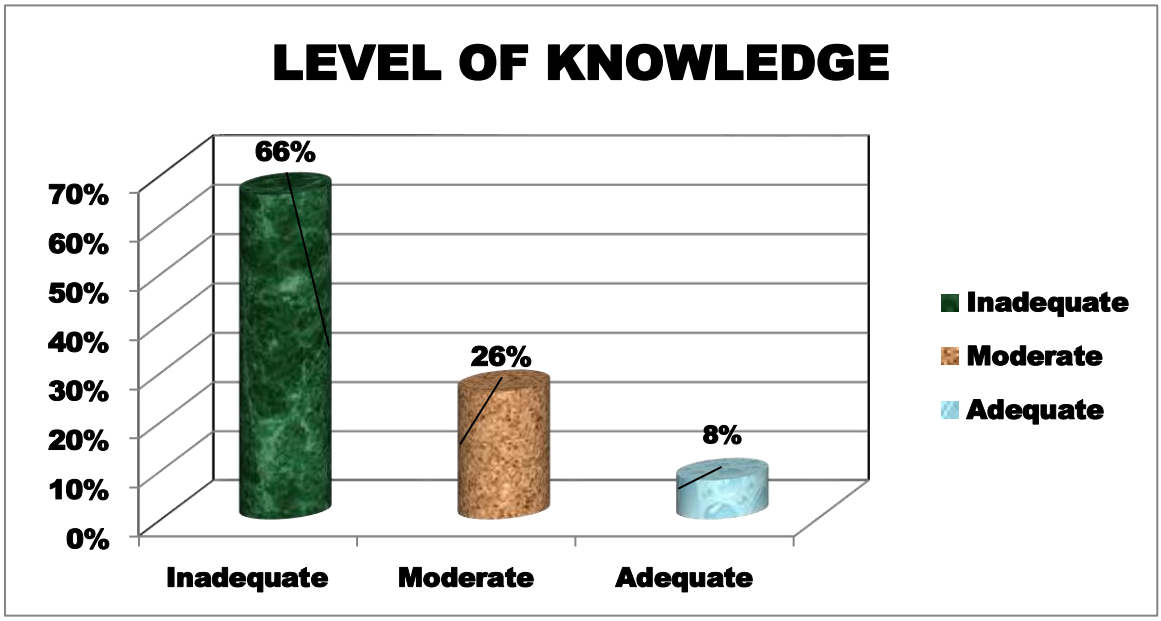

FIG.1: Level of knowledge among CRF patients undergoing haemodialysis

Table 3: Frequency and percentage distribution of level of attitude among chronic renal failure patients undergoing haemodialysis

N=134

Level of attitude	Frequency		Mean	Standard Deviation
	No.	%		
Bad	28	20.89%	19.91	5.91
Good	79	58.95%		
Excellent	27	20.14%		

Table 3: The above table Shows that, frequency and percentage level of attitude among chronic renal failure patients undergoing haemodialysis, majority of 79 (58.95%) them had good attitude, 28(21% had bad attitude and 27(20%) had excellent attitude. The mean valve of level of attitude was 19.91 with standard deviation 5.91.

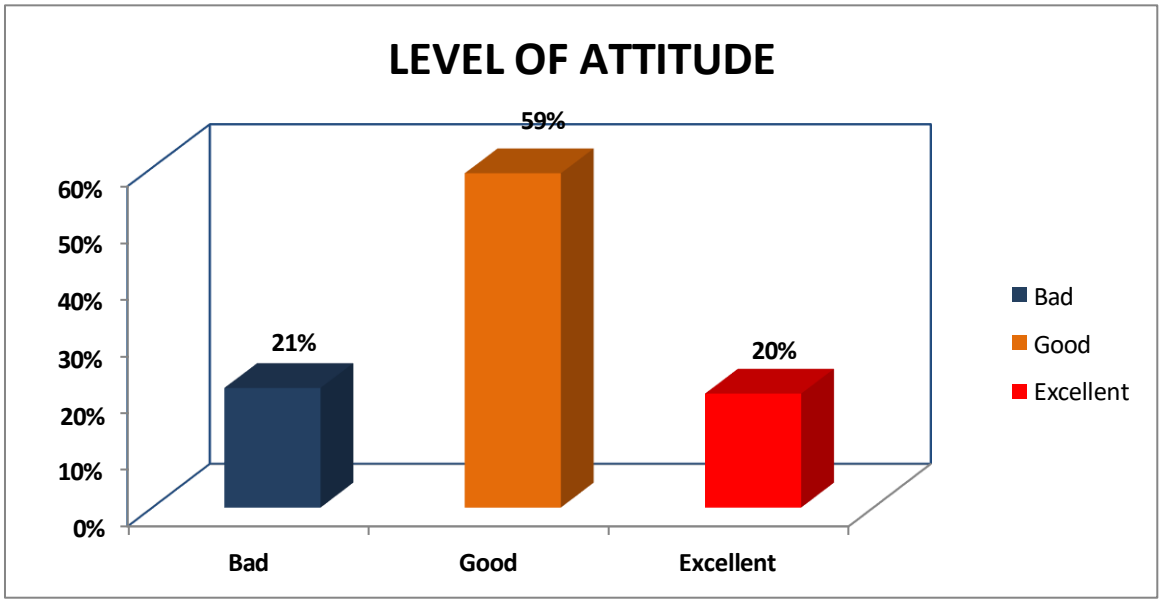

FIG.2 : Level of attitude among CRF patients undergoing haemodialysis

Table 4: Distribution of mean score of quality of life among chronic renal failure patients undergoing haemodialysis

QUALITY OF LIFE	MEAN SCORE
Physical Functioning	40
Role Limitation caused Physical health	27

Pain	54
Social Functioning	47
Emotional wellbeing	48
Role Limitation Caused Mental health	33
Energy / Fatigue	41
General Health	50

Table 4 shows the mean scores of quality of life among patients with chronic renal failure undergoing haemodialysis. The highest mean score was observed in the General Health domain (50), while the lowest mean score was noted in the Role Limitation due to Physical Health domain.

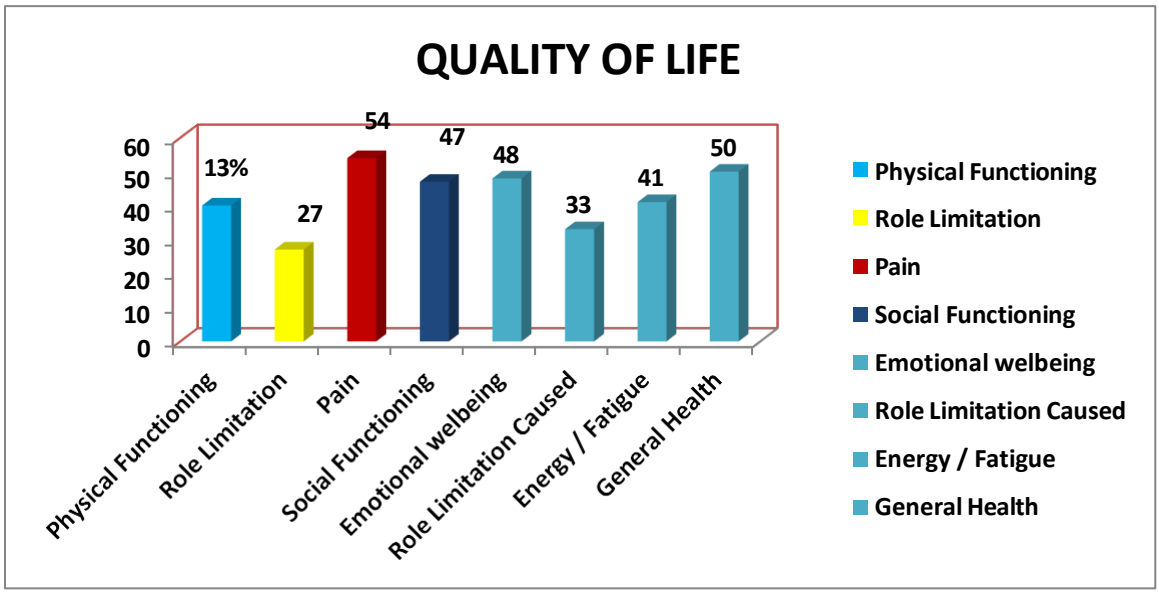

FIG.3 : Mean score of QOL 36-item Health Survey

Table 5: Correlation of knowledge & attitude with the quality of life among chronic renal failure patients undergoing haemodialysis. N = 134

Variables	**Group**		**Karl Pearson's Correlation Value**
	Mean	**SD**	
Knowledge	4.8	1.28	**r = -0.456** **p = 0.001** **S****
Attitude	19.91	5.91	

Knowledge	4.8	1.28	**r = 0.478** **p = 0.001** **S****
Quality of Life (Over all)	42.5	8.92	
Attitude	19.91	5.91	**r = -0.448** **p = 0.001** **S****
Quality of Life (Over all)	42.5	8.92	

***p<0.001, S – Significant

Table 5 reveals a statistically significant positive correlation among knowledge, attitude, and quality of life. A significant positive correlation was observed between knowledge and attitude (r = 0.456, p < 0.001). Similarly, knowledge and quality of life showed a significant positive correlation (r = 0.478, p < 0.001). Additionally, a significant positive correlation was found between attitude and quality of life (r = 0.448, p < 0.001).

Table 6: Association of level of knowledge regarding Prevention & Management of Varicose veins with the selected demographic variables. N=134

Demographic Variables	**Inadequate**		**Moderate**		**Adequate**		**Chi square**
	No.	**%**	**No.**	**%**	**No.**	**%**	
Age in years							
e) 20-34 years	0	0	14	10.45	3	2.24	43.07
f) 35-50 years	2	1.41	29	14.93	4	2.98	Df=6
g) 51-60 years	10	7.46	20	14.93	11	8.21	S***
a) > 60 years	30	22.68	20	14.93	0	0	
Gender							
c) Male	0	0%	10	16.6%	12	20%	12.13
a) Female	0	0%	12	20%	26	43.3%	Df=2
							S*
Educational Level							
a) Literate	0	0%	6	10%	5	8.3%	35.83
b) Primary School	0	0%	24	40%	25	41.6%	Df=6
c) High School							S***
d) Degree							

Employment Status							5.57
d) Employed	0	0%	4	6.6%	5	8.3%	Df=6
e) **Unemployed**	0	0%	20	33.3%	32	53.3%	S*
a) Retired							
Marital Status							
e) Single	0	0%	8	13.3%	20	33.3%	22.07
f) Married	0	0%	13	21.6%	10	16.6%	Df=4
g) **Divorced**	0	0%	2	3.3%	4	6.6%	S***
a) **Widow / Widower**	0	0%	1	1.6%	2	3.3%	
Duration of Dialysis Treatment							93.85
a) < 6 months	0	0%	1	1.6%	1	1.6%	Df=6
b) 6 – 12 months	0	0%	12	20%	23	38.3%	S***
c) 1 – 3 years	0	0%	10	6.6%	10	16.6%	
d) >3 years	0	0%	2	3.3%	1	1.6%	

Table 6: The above table shows the association between the level of knowledge and demographic variables, was done using Chi square test, it was found that the association between level of knowledge and age, education. marital status and duration of dialysis treatment was highly significant at p< 0.0001 level of significance and significant with gender and employment significant at p<0.001 level of significance.

Table 7: Association of level of attitude regarding Prevention & Management of Varicose veins with the selected demographic variables. N=134

Demographic Variables	**Poor**		**Good**		**Excellent**		**Chi square**
	No.	**%**	**No.**	**%**	**No.**	**%**	
1. Age in years							
h) 20-34 years	03	02.23	10	7.46	04	2.98	14.83
i) 35-50 years	03	02.23	20	14.42	03	2.23	Df=6
j) 51-60 years	06	04.47	28	20.89	07	5.22	S*
> 60 years	10	14.92	20	14.92	10	07.46	

2.Gender							2.7
d) Male	28	20.89	30	22.38	18	13.43	Df=2
a) Female	14	10.44	30	22.38	24	10.44	NS
3.Educational Level							
a) Literate	16	11.94	25	18.65	09	6.71	4.33
b) Primary School	18	13.43	20	14.92	10	7.46	Df=6
c) High School	06	4.47	20	14.92	07	5.22	NS
a) Degree	01	0.74	01	0.74	01	0.74	
4.Employment Status							
f) Employed	14	10.44	25	18.65	13	9.70	0.48
g) **Unemployed**	06	4.47	10	7.46	07	5.22	Df=6
a) Retired	15	11.19	30	23.38	14	10.44	NS
5. Marital Status							
h) Single	0	0	10	23.3%	01	0.74	7.94
i) Married	20	14.92	60	21.6%	38	28.35	Df=4
j) **Divorced**	01	0.74	01	0.74	01	0.74	NS
a) **Widow / Widower**	0	0	01	0.74	01	0.74	
Demographic Variables	**Poor**		**Good**		**Excellent**		**Chi square**
	No.	**%**	**No.**	**%**	**No.**	**%**	
6.Duration of Dialysis Treatment							
a) < 6 months	07	5.22	10	7.46	04	12.98	9.78
b) 6 – 12 months	02	1.49	18	13.43	02	1.49	Df=6
c) 1 – 3 years	14	10.44	26	19.40	14	10.44	NS
d) >3 years	09	6.71	18	13.43	10	7.46	

Table 7: The above table shows the association between the level of attitude and demographic variables. It was found that the association between level of attitude and age was significant at $p< 0.0001$ level of significance and not significant with other demographic variables.

Table 8: Association of mean score of quality of life with the selected demographic variables. N=134

S.No.	Demographic variables	No	Qol High > 45	Qol Low < 45	Chi square
1.	**Age in years**				
	k) 21-35 years	17	13.24	3.76	**χ2 -7.815**
	l) 36-50 years	26	20.00	6.00	**df-3**
	m) 51-65 years	41	31.50	9.50	S*
	n) > 65 years	50	38.69	11.31	
2.	**Gender**				**χ2** =3.841
	e) Male	76	38	38	df =1
	f) Female	58	31	27	NS
3.	**Educational Level**				
	e) Literate	50	50	41	**χ2 =16.815**
	f) Primary School	48	48	50	**df-3**
	g) High School	33	33	48	S**
	h) Degree	03	03	47	
4.	**Employment Status**				
	h) Employed	52	2	**41**	**χ2** =12.33
S.No.	**Demographic variables**	**No**	**Qol High > 45**	**Qol Low < 45**	**Chi square**
	i) **Unemployed**	23	23	**50**	**df – 2**
	j) Retired	59	59	**48**	**S****
5.	**Marital Status**				
	k) Single	11	11	41	**χ2** : 120.60
	l) Married	118	118	50	**df – 3**
	m) **Divorced**	03	3	48	S***
	n) **Widow / Widower**	02	2	47	

6.	**Duration of Dialysis Treatment**	21	21	**41**	$\chi 2$ -10.72
	e) < 6 months	22	22	**50**	
	f) 6 – 12 months	54	54	**48**	df – 3
	g) 1 – 3 years	37	37	**47**	S*
	h) >3 years				

Table 8: The above table shows the association between the mean score of quality of life and demographic variables, was done using Chi square test, it was found that the association between Mean score QOL and marital status and duration of dialysis treatment was significant at $p< 0.0001$ level of significance and not with other demographic variables.

DISCUSSION:

Level of Knowledge

The findings of the present study revealed that the majority of patients with chronic renal failure (CRF) undergoing haemodialysis demonstrated inadequate knowledge. Specifically, 88 (65.67%) participants had inadequate knowledge, 35 (26.11%) had moderate knowledge, and only 11 (8.20%) had adequate knowledge. The mean knowledge score was 4.8 ± 1.28, indicating an overall low level of awareness regarding the disease and its management.

These findings are consistent with a study conducted by **Zhuo Li, Li Song, and Ruifang Hua (2024)**, which assessed the knowledge, attitudes, and practices (KAP) related to cardiovascular complications among end-stage renal disease patients undergoing maintenance haemodialysis. The study reported insufficient knowledge despite generally positive attitudes, emphasizing the need for targeted educational interventions, particularly among patients with lower educational and income levels. This similarity highlights the widespread knowledge deficit among haemodialysis patients and underscores the importance of structured patient education programs.

Level of Attitude

With regard to attitude, the present study found that 79 (58.95%) participants exhibited a good attitude, 27 (20.0%) demonstrated an excellent attitude, while 28 (21.0%) had a poor attitude toward haemodialysis and disease management. The mean attitude score was 19.91 ± 5.91, suggesting an overall positive outlook among most patients despite limited knowledge.

These results align with the findings of **Fangfang Xu and Bing Zhuang (2023)**, who reported that good knowledge and positive attitudes toward haemodialysis and its complications contribute to improved practices and treatment adherence. Their study, involving 493 patients, demonstrated significant associations between higher knowledge scores and younger age, higher educational levels, and better social support. Positive correlations were also observed between attitude and practice scores, reinforcing the role of attitude in promoting effective self-care behaviors.

Quality of Life

In the present study, quality of life (QoL) assessment revealed that the highest mean score was observed in the General Health domain (50), while the lowest score was noted in the Role Limitation due to Physical Health domain, indicating significant physical constraints among patients undergoing haemodialysis.

These findings are consistent with a study by **Gabrielle Morais (2024)**, which evaluated QoL among patients with chronic kidney disease receiving haemodialysis. The study reported that the physical domain was the most affected, while social functioning was relatively preserved. The authors emphasized that patients undergoing haemodialysis generally experience a moderate quality of life and highlighted the critical role of healthcare professionals' knowledge in optimizing patient care and outcomes.

Correlation between Knowledge, Attitude, and Quality of Life

The present study demonstrated a **statistically significant positive correlation** between: Knowledge and attitude ($r = 0.456$, $p < 0.001$), Knowledge and quality of life ($r = 0.478$, $p < 0.001$), Attitude and quality of life ($r = 0.448$, $p < 0.001$)

These findings suggest that improved knowledge and positive attitudes are associated with better perceived quality of life among haemodialysis patients. Similar observations were reported by **Haerani Rasyid (2024)**, who identified knowledge and attitude as key determinants influencing quality of life in patients undergoing haemodialysis. The study emphasized that enhanced patient awareness and positive attitudes contribute significantly to improved clinical outcomes and overall well-being.

Association with Demographic Variables

The association between knowledge level and demographic variables was analyzed using the chi-square test. The results revealed a highly significant association between knowledge level and age, educational status, marital status, and duration of dialysis treatment ($p < 0.0001$). Additionally, gender and employment status showed a significant association with knowledge at $p < 0.05$. The association between attitude and demographic variables indicated that age was significantly associated with attitude levels ($p < 0.0001$), while no significant associations were observed with other demographic variables.

Similarly, the association between quality of life and demographic variables showed that marital status and duration of dialysis treatment were significantly associated with QoL scores ($p < 0.0001$), whereas other variables did not demonstrate statistical significance. These findings are supported by a study conducted by Ganesh Sritheran Paneerselvam (2023), which reported that longer duration of dialysis was associated with better quality of life, possibly due to improved adaptation and coping mechanisms. The study also highlighted that patients' knowledge and attitudes play a crucial role in influencing quality of life outcomes.

Summary

Overall, the findings of the present study indicate that patients with chronic renal failure undergoing haemodialysis generally exhibit inadequate knowledge, moderately positive attitudes, and a moderate quality of life. The significant positive correlations among knowledge, attitude, and quality of life emphasize the need for comprehensive educational and psychosocial interventions. Enhancing patient knowledge and fostering positive attitudes may substantially improve quality of life and promote better disease management among haemodialysis patients.

Conclusion

The present study, titled *"Knowledge, Attitude, and Quality of Life among Chronic Renal Failure Patients Undergoing Haemodialysis at Panimalar Medical College Hospital & Research Institute,"* provides valuable insights into the awareness, perceptions, and overall well-being of individuals receiving haemodialysis. The findings indicate that, although most patients demonstrated a moderate level of knowledge regarding their disease and treatment, notable gaps persist in areas related to disease management, self-care practices, and lifestyle modification.

Patients' attitudes toward haemodialysis varied, with several participants exhibiting acceptance and adherence to treatment, while others experienced emotional distress and psychological challenges. Assessment of quality of life revealed significant impairment across physical, emotional, and social domains, emphasizing the profound impact of chronic renal failure and long-term haemodialysis on patients' daily lives.

The study highlights the critical need for structured patient education programs, psychological support services, and individualized lifestyle counseling to improve knowledge, foster positive attitudes, and enhance quality of life among patients undergoing haemodialysis. Addressing these dimensions through a holistic and patient-centred approach may contribute to improved treatment adherence, better coping mechanisms, and enhanced overall well-being.

Future research should focus on developing and evaluating targeted educational and psychosocial interventions aimed at addressing the identified gaps, thereby optimizing patient care and long-term health outcomes for individuals with chronic renal failure undergoing haemodialysis.

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