Original Article

Assess the effectiveness of structured of teaching programme on knowledge and practice regarding self-care management among chronic renal failure patients undergoing Hemodialysis at Kuppam

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Abstract

Background: Chronic kidney disease (CKD) is a progressive condition characterized by impaired kidney function or structural damage that persists for more than three months. This study aimed to assess the effectiveness of a structured teaching programme on knowledge and practice regarding self-care management among chronic renal failure (CRF) patients undergoing hemodialysis at PES General Hospital, Kuppam. Andhra Pradesh.

Methods: A quantitative, pre-experimental one-group pre-test post-test design was used. A total of 40 CRF patients were selected using a convenience sampling technique. Data were collected through a structured questionnaire and checklist.

Results: Demographically, 57.5% of participants were aged between 46–65 years, 85% were male, and 75% lived in rural areas. In the pre-test,57.5%hadmoderateknowledge,and70%demonstrated
adequate practice. Following the intervention, 90% had adequate knowledge and 97.5% had adequate practice. The mean knowledge score improved from 17.03 (SD=5.916) in the pre-test to 24.55 (SD=4.018) in the post-test. Statistical analysis showed a significant improvement in both knowledge and practice scores post-intervention.

Conclusion: The findings suggest that structured teaching programmes are effective in enhancing self-care management among CRF patients on hemodialysis.

Keywords: chronic renal failure, self-care management of CRF, Kuppam

Article Summary: **Submitted:** 05-April-2025 **Revised:** 30-April-2025 **Accepted:** 25-May-2025 **Published:** 30-June-2025

Quick Response Code:

Web Site
http://ijmsnr.com/

DOI
10.55349/ijmsnr.202552914

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Introduction

Chronic kidney disease (CKD) is characterized by either kidney damage or an estimated glomerular filtration rate (eGFR) below 60 ml/min/1.73 m² that persists for three months or longer, regardless of the underlying cause. This condition involves a gradual decline in kidney function, which can eventually necessitate renal replacement therapy, such as dialysis or a kidney transplant. Kidney damage is identified through pathological abnormalities that may be indicated by imaging studies, renal biopsy, abnormal urinary sediment, or increased urinary albumin excretion rates. The 2012 KDIGO CKD classification provides detailed information about the cause of CKD and categorizes it into six stages based on glomerular filtration rate (G1 to G5, with G3 further divided into G3a and G3b). Additionally, CKD staging includes three levels of albuminuria (A1, A2, and A3), with each stage further classified according to the urinary albumin-creatinine ratio (mg/gm or mg/mmol) from an early morning "spot" urine sample. [1] In the United States, over 500,000 individuals live with end-stage renal disease (ESRD). The progression from chronic kidney disease (CKD) to this advanced stage is a major contributor to diminished quality of life and early mortality. CKD is a severe condition, and standard medical care includes rigorous monitoring for disease progression and early specialist referrals for dialysis or potential kidney transplantation. According to the Kidney Disease Improving Global Outcomes (KDIGO) foundation guidelines, CKD is defined by markers of kidney damage, particularly those indicating proteinuria and glomerular filtration rate. CKD is diagnosed when both a glomerular filtration rate (GFR) of less than 60 mL/min and

How to cite this article: Daniel AKK, Abhirami M, Devi S, Sreedevi TK, Pavithra MN, David M, Thomas A, Priya AS, Benny A, James A, Saju A. Assess the effectiveness of structured teaching programme (STP) on Knowledge and Practice regarding self-care management among chronic renal failure patients undergoing Hemodialysis at Kuppam. Int J Med Sci and Nurs Res 2025;5(2):9–14.

gram of creatinine are present, along with structural or functional kidney abnormalities for more than three months. End-stage renal disease is characterized by a GFR of less than 15 mL/min. [2] Self-care training programs improve quality of life of the patients and their families and increase their participation in self-care programs. 17 These programs help patients to improve their self-care abilities and personal commitment to their own health, leading to greater awareness and sound decisions about therapies and life changes, which can increase their emotional and physical well-being. 18 With the advancements in technology, virtual education can now be accompanied by text, voice, pictures and films, making it more accessible to patients. Social media have proven to be useful for exchanging health materials between patients and health professionals. [3] Comorbidities like low hemoglobin levels, diabetes, hypertension, dyslipidemia, and thyroid disorders can significantly diminish patients' quality of life. This highlights the importance of patient counseling, which helps patients understand the necessary lifestyle modifications to reduce preventable comorbidities. [4], [5] Objectives of the study to assess the pre-test and post-test level of knowledge and practice, to assess the effectiveness of STP by comparing pre-test and post-test level of knowledge and practice and to associate the pre-test level of knowledge and practice with their selected demographic variables

Materials and Methods

An Quantative pre-experimental study was conducted in December 2024 among 40 CRF patient who is undergoing hemodialysis in dialysis unit at PES Hospital were selected by using convenient sampling technique, informed consent were taken before the study, patients knowledge and practice were assessed by using structured self-administered questionnaire.

Table – 1 Distribution of Neurobiological mechanisms of post-MI depression [21]

S. No	Demographic Variables	Classifications	No. of Patients	Percentage
1	Age Groups	a) 15 -25 Years	3	7.5
		b) 26 - 35 Years	4	10.0
		c) 36 - 45 Years	10	25.0
		d) 46 - 65 Years	23	57.5
2	Gender	a) Male	34	85.0
		b) Female	6	15.0
3	Educational Status	a) Illiterate	9	22.5
		b)Primary education	11	27.5
		c) Secondary Education	12	30.0
		d) Higher Secondary Education	3	7.5
		e)Under graduation	3	7.5
		f)Post-Graduation	2	5.0
4	Occupation	a) Sedentary worker	5	12.5
		b) Moderate Worker	16	40.0
		c) Heavy Worker	19	47.5.
5	Religion	a) Hindu	33	82.5
		b) Muslim	6	15.0
		c) Christian	1	2.5
6	Area of Residence	a) Rural	30	75.0
		b) Urban	10	25.0
	Dietary Pattern	a) vegetarian	2	5.0
7	Dietary pattern	b) Non-vegetarian	38	95.0
	Duration of illness	a) <1 year	14	35.0
8	Habits	b) 1.1 to 3 years	9	22 .5
		c) 3.1 to 5 years	12	30.0
		d)>5 years	5	12.5
9	Type of access	a) AVF	35	87.5
		b) AVG	0	0
		c) IJC	3	7.5
		d) SC	1	2.5

10	Frequency of dialysis per week	a) 1 Dialysis	1	2.5
		b) 2 Dialysis	15	37.5
		c) 3 Dialysis	24	60.0
		d) >3 Dialysis	0	0
11	Co-morbid condition if any specify	a) Hypertension	16	40.0
		b) No	23	57.5
		c) Yes Hypertension and diabetes	1	2.5
12	Previous knowledge regarding self-care management of CRF	a)Yes	2	5
		b)No	38	95.0

This includes demographic variables and Questionnaire on knowledge and practice regarding self-care management of chronic renal failure.

Statistical Analysis: Collected data were entered and complied using Microsoft Excel 2013 and data were analyzed using SPSS 14.0 version [SPSS, IBM USA Ltd.] Categorical data were presented as frequency and proportions. Continuous variables were presented as mean and standard deviation. Chi-Square test was used.

Results

The demographic characteristics of coronary artery disease (CAD) patients. as shown in **Table-1.**

Table-2 Frequency and percentage distribution of the pre-test level of knowledge among CRF patients (N=40)

Level of Knowledge	Frequency	Percentage
Adequate Knowledge	13	32.5
Moderate Knowledge	23	57.5
In adequate Knowledge	4	10.0

23 (57.5%) chronic renal failure patient were had moderate knowledge, 13 (32.05%) were had adequate Knowledge and 4 (10.0%) were had inadequate Knowledge. **[Table – 2]**

Table-3 Frequency and percentage distribution of the post-test level of knowledge among CRF Patients (N=40)

Level of Knowledge	Frequency	Percentage
Adequate Knowledge	36	90.0
Moderate Knowledge	4	10.0
In adequate Knowledge	0	0

Majority 36 (90.0%) chronic renal failure patient were had Adequate knowledge, 4 (10.0%) were had Moderate Knowledge. **[Table – 3]**

Figure–1 Comparison of frequency and percentage distribution of pre-test and post-test level of Knowledge among of the CRF patients

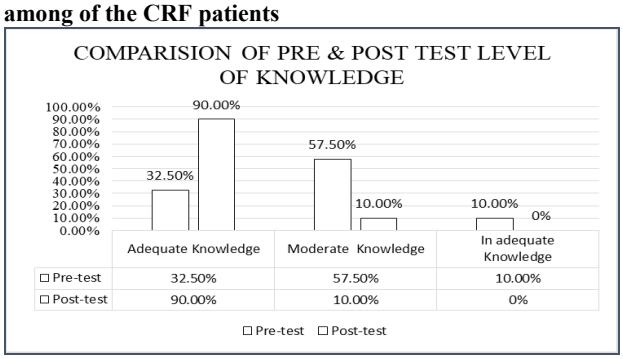

Table: 4 - Frequency and percentage distribution of the pre-test level of practice among CRF patients

Level of Knowledge	Frequency	Percentage
Adequate Practice	28	70.0
Inadequate Practice	12	30.0

Majority 28 (70%) chronic renal failure patient were had adequate practice, 12 (30%) were had in adequate practice.

Table: 5 - Frequency and percentage distribution of the post-test level of practice among CRF patients

Level of Knowledge	Frequency	Percentage
Adequate Practice	39	97.5
Inadequate Practice	1	2.5

Table – 6 Association of pre-test level of knowledge among CRF patients with their selected demographic variables.

S. No	Demographic Variables	Classifications	Level of Knowledge			Chi-square Value	p-Value
			In adequate Knowledge	Moderate Knowledge	Adequate knowledge		
1	Age Groups	a) 15 -25 Years	1	0	2	8.609	0.197 NS
		b) 26 - 35 Years	0	4	0		
		c) 36 - 45 Years	1	7	2		
		d) 46 - 65 Years	2	12	9		
2	Sex	a) Male	2	20	12	4.457	0.108 NS
		B) Female	2	3	1		
3	Educational status	a) Illiterate	0	3	6	6.582	0.254 NS
		b) Primary education	2	7	2		
		c) Secondary education	2	9	1		
		d) Higher secondary education	0	1	2		
		e) Under graduate	0	1	2		
		f) Post graduate	0	2	0		
4	Occupation	a) Sedentary Worker	0	3	2	0.715	0.949 NS
		b) Moderate Worker	2	9	5		
		c) Heavy Worker	2	11	6		
5	Religion	a) Hindu	4	20	9	4.585	0.333 NS
		b) Muslim	0	2	4		
		c) Christian	0	1	0		
6	Area of Residence	a) Rural	4	15	11	3.148	0.207 NS
		b) Urban	0	8	2		
7	Dietary Pattern	a) Vegetarian	0	2	0	1.556	0.459 NS
		b) Non vegetarian	4	21	13		
8	Duration of illness	a) <1 year	3	4	7	9.665	0.139 NS
		b) 1.1 to 3 years	1	7	1		
		c) 3.1 to 5 years	0	8	4		
		d)>5 years	0	4	1		
9	Type of Access	a) AVF	3	21	11	6.036	0.419 NS
		b) AVG	1	0	2		
		c) IJC	0	1	0		
		d) SC	0	1	0		
		e) FC	0	0	0		
10	Frequency of dialysis per week	a) 1 Dialysis	0	0	1	2.498	0.645 NS
		b) 2 Dialysis	1	9	5		
		c) 3 Dialysis	3	14	7		
		d) >3 Dialysis	0	0	0		
11	Co-morbid condition if any specify	a) Hypertension	4	8	4	11.338	0.183 NS
		b) No	0	14	9		
		c) Yes Hypertension and diabetes	0	1	0		
12	Previous knowledge regarding self-care management of CRF	a)Yes	0	1	1	0.430	0.807 NS
		b)No	4	22	12		

Table: 7 Association of pre-test level of practice among CAD patients with their selected demographic variables

S.No	Demographic variables	Classifications	Level of Practice		Chi-square Value	p-Value
			In adequate Practice	Adequate Practice		
1	Age	a) 15 -25 Years	1	2	0.945	0.814 NS
		b) 26 - 35 Years	2	2		
		c) 36 - 45 Years	3	7		
		d) 46 - 65 Years	6	17		
2	Sex	a) Male	11	23	0.598	0.405 NS
		b) Female	1	5		
3	Educational status	a) Illiterate	2	7	6.582	0.254 NS
		b) Primary education	4	7		
		c) Secondary education	3	9		
		d) Higher secondary education	0	3		
		e) Under graduate	1	2		
		f) Post graduate	2	0		
4	Occupation	a) Sedentary Worker	3	2	7.014	0.030 S*
		b) Moderate Worker	7	9		
		c) Heavy Worker	2	17		
5	Religion	a) Hindu	10	23	2.843	0.241 NS
		b) Muslim	1	5		
		c) Christian	1	0		
6	Area of Residence	a) Rural	4	26	15.873	0.000 S*
		b) Urban	8	2		
7	Dietary Pattern	a) Vegetarian	0	2	0.902	0.485 NS
		b) Non vegetarian	12	26		
8	Duration of illness	a) <1 year	6	8	11.927	0.008 S*
		b) 1.1 to 3 years	0	9		
		c) 3.1 to 5 years	2	10		
		d)>5 years	4	1		
9	Type of Access	a) AVF	10	25	2.812	0.422 NS
		b) AVG	2	1		
		c) IJC	0	1		
		d) SC	0	1		
		e) FC	0	0		
10	Frequency of dialysis per week	a) 1 Dialysis	1	0	3.175	0.204 NS
		b) 2 Dialysis	3	12		
		c) 3 Dialysis	8	16		
		d) >3 Dialysis	0	0		
11	Co-morbid condition if any specify	a)Hypertension	3	13	4.810	0.307 NS
		b) No	9	14		
		c)Yes Hypertension and diabetes	0	1		
12	Previous knowledge regarding self-care management of CRF	a)Yes	1	1	0.401	0.527 NS
		b)No	11	27		

The association of pre-test scores of Knowledge on Self-care management among chronic renal failure patients with their selected demographic variables such as Age, Sex, Educational Status, Occupation, Religion, Area of Residence Dietary Pattern, Duration of illness, Type of access, Frequency of dialysis per week, Comorbid condition if any specify and Previous knowledge regarding self-care management of CRF were not significant. **[Table – 6]**

the association of pre-test scores of Practice on self-care management among chronic renal failure patients with their selected demographic variables such as occupation, Duration of illness, was significant at the level of $p<0.001$ respectively Age, Sex, Educational Status, Religion, Area of residence, Dietary Pattern, Type of access, Frequency of dialysis per week, Comorbid condition if any specify and Previous knowledge regarding self-care management of CRF were not significant**.** **[Table – 7]**

Discussion

The present study was conducted to explore the knowledge and practice of self-care management among chronic renal failure (CRF) patients undergoing hemodialysis in a tertiary care hospital at Kuppam, Chittoor district, Andhra Pradesh. A descriptive and evaluative research approach was adopted. The demographic data revealed that half of patients were aged between 46–65 years, and nearly 3/4th were male. About more than 1/4th had completed secondary education, 82.5% were heavy workers, and an equal percentage followed the Hindu religion. A majority resided in rural areas, 95.0% were non-vegetarian, and 1/4th had a duration of illness less than one year. Most patients had AVF access for dialysis, and few were undergoing dialysis once daily and more than half reported no comorbid conditions. In the pre-test, more than ½th of CRF patient has demonstrated moderate knowledge, more than 1/4th had adequate knowledge, and few had inadequate knowledge. Post-test results showed significant improvement, with 90.0% of patients attaining adequate knowledge and few demonstrating moderate knowledge; none had inadequate knowledge. Regarding self-care practices, pre-test results indicated nearly 3/4th had adequate practice, which increased to 3/4th in the post-test. Only very few exhibited inadequate practice post-intervention. Statistical analysis showed no significant association between pre-test knowledge scores and demographic variables such as age, sex, education, occupation, religion, residence, diet, and duration of illness, type of access, dialysis frequency, comorbidities, or prior knowledge. However, practice scores showed a statistically significant association with occupation and duration of illness ($p<0.001$).

These findings are supported by a similar study conducted by Ahmed SH and Abd Elzaher OM, [6] which evaluated the effect of a structured teaching programme on knowledge and self-management behaviours among hemodialysis patients. In their study, only 17% of patients had satisfactory knowledge in the pre-test, which significantly increased to 93% in the post-test. A statistically significant improvement was noted in self-management behaviours following the implementation of the structured programme ($p<0.001$).

Conclusion

This study revealed that most chronic renal failure (CRF) patients undergoing hemodialysis in the tertiary care hospital had moderate knowledge and adequate practice in self-care management during the pre-test phase. The structured teaching program significantly improved their knowledge and practice, as evident from the post-test results, with 90% achieving adequate knowledge and 97.5% demonstrating adequate practice. Demographic factors showed no significant association with knowledge, while occupation and duration of illness had a significant association with practice scores. The findings underscore the effectiveness of educational interventions in enhancing self-care management among CRF patients. This highlights the need for continued education to empower patients in managing their condition effectively.

Source of funding: None

Conflict of Interest: Nothing to declared by the authors

Acknowledgement: We acknowledge all the CRF patients who actively participated in the study.

Authors' Contributions: All authors conceived and designed the article. Wrote the full paper and checked by all the authors.

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