International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 9 Issue 6, Nov-Dec 2025 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Enhancing Caregivers Awareness Regarding Haemodialysis: Efficacy of Learning Package

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ABSTRACT

Introduction

CKD is a condition of gradual loss of kidney actions, eventually causing in the requirement for renal function replacement therapy, like as dialysis or renal transplantation. An estimated 175,000 people in India were receiving chronic dialysis in 2018. On the basis of literature and clinical experience researchers realized the urgent need to plan and conduct a study on awareness about haemodialysis of caregivers of such patients. The study finding might be beneficial for the caregivers of haemodialysis patients.

Methods:

Present research study employed quantitative approach and pre experimental nature of research design. The research study was performed at Govt. general hospital, Upasana hospital and Lions hospital Mehsana city. Information booklet on knowledge was given as intervention. The time period employed in data collection was 4 weeks. Questionnaire method was used to gather data. The data collection tool encompasses two parts.

Result:

Around three fourth of the participants 70% scored poor knowledge level, 30% scored average knowledge level in pre test. Whereas in post test majority of the participants 62% scored good knowledge level, 32% scored average knowledge level regarding Haemodialysis. Paired 't' test is 20.66 superior to table value (2.02, df 99) at .05 significance level. This illustrates about considerable disparity amid post and pre test knowledge score among among caregivers of haemodialysis patients following information booklet.

Conclusion: Caregivers of haemodialysis patients have important role in reduction of complications. Awareness and education on haemodialysis can help to curb such complications and prepare them in advance in taking action against such issues and problems and maintain quality of life of haemodialysis patients.

How to cite this paper: Deept Pandya | Khyati Joshi | Rajesh Pandya | Jayesh Pandya | Gaurav Pathak | Dharmesh Chaturvedi | Shatrughan Pareek "Enhancing Caregivers Awareness Regarding Haemodialysis: Efficacy of Learning Package" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-6, December 2025, pp.473-479, URL: www.ijtsrd.com/papers/ijtsrd99894.pdf

IJTSRD99894

KEYWORDS: *Caregivers, Knowledge, Haemodialysis, effectiveness, information booklet.*

INTRODUCTION

CKD is a condition of gradual loss of kidney actions, eventually causing in the requirement for renal function replacement therapy, like as dialysis or renal transplantation. Pathologic abnormalities indicated by imaging tests or renal biopsies, anomalies in urine sediment, or elevated urinary albumin excretion rates

are all considered forms of kidney disease.[1] In spite of the cause, renal injury or an estimated glomerular filtration rate (eGFR) of less than 60 mL/min/1.73 m² that lasts for three months or longer are indicators of chronic kidney disease (CKD).[2] While anemia, electrolyte imbalance, and pulmonary edema were typical problems, common complaints included anorexia, nausea, vomiting, oliguria, easy fatigability, dyspnea, and pedal edema. Early diagnosis and proper treatment of conditions like hypertension, diabetes mellitus and renal stones may retard the progression of renal disease.[3] The ultimate progression of CKD is end-stage renal disease, a rigorous impediment necessitating kidney replacement therapy (peritoneal dialysis, hemodialysis, or renal transplantation). This condition is associated with numerous adverse outcomes, including increased risks of cardiovascular disease (CVD), mortality, and infection.[4] Over 800 million people, or more than 10% of the global population, suffer from chronic kidney disease, a degenerative illness. Chronic kidney disease is more prevalent in older individuals, women, racial minorities, and in people experiencing diabetes mellitus and hypertension. The burden of chronic kidney disease is particularly high in low- and middle-income nations, which are ill-prepared to handle its effects. One of the main causes of death in the world today is chronic renal disease.[5] In India, the combined prevalence of CKD from community-based research was 13.24%. The prevalence of CKD was 13.51% in women and 14.80% in males. According to this research, the prevalence of CKD among Indians aged 15 and older has been on the rise in recent years, going from 11.12% between 2011 and 2017 to 16.38% between 2018 and 2023.[6] Approximately 2.5 million people worldwide received chronic renal replacement therapy (RRT) in 2010. It is the mainstay in end-stage renal disease management, a renal condition with a rising global burden attributed mainly to diabetes mellitus (45%) and hypertension (30%). Hemodialysis, peritoneal dialysis, and hemofiltration are the three main forms of dialysis. Dialysis ensures maintenance of homeostasis (a stable internal environment) in people experiencing a rapid loss of kidney function, known as acute kidney injury (AKI), or a prolonged, gradual loss in renal function, called chronic kidney disease.[7] In India, the prevalence of hemodialysis is estimated to be around 129 per million population. While the number of patients receiving dialysis has increased, it's estimated that only about one-third of those needing kidney replacement therapy (KRT) actually receive it. An expected 175,000 inhabitants in India were getting chronic dialysis in 2018.[8]

When it came to post-dialysis home care, Kaur N. et al. (2015)[9] found that no single participant had great knowledge, 19% had good knowledge, 50% of the caregivers had average knowledge, 29% had bad information, and 2% had very low knowledge. The usefulness of a structured teaching program on caregivers' understanding of patients with chronic renal disease receiving hemodialysis therapy was demonstrated by Kumari P et al. (2021)[10]. Pre test mean score was lower than post test mean score with significant t test showing significant improve in knowledge level among caregivers of HD patients. Venkatesan B. et al (2023) discovered that 9.2% had good knowledge about CKD and 40.8% had poor knowledge. 57.1% scored good attitude as well as 161 scored poor attitude. 52.3% had good perception and 179 had poor perception. The study showed a significant association between age and knowledge ($P < 0.001$), occupation and knowledge ($P = 0.000$) about the risk of CKD was observed. The socioeconomic status of the caregivers had good association with knowledge and attitude.[11] On the basis of literature and clinical experience researchers realized the urgent need to plan and conduct a study on awareness about haemodialysis of caregivers of such patients. The study finding might be beneficial for the caregivers of haemodialysis patients.

Objectives

1. To measure the knowledge concerning haemodialysis amid caregivers of haemodialysis patients.
2. To determine the effectiveness of information booklet on knowledge regarding haemodialysis among caregivers of haemodialysis patients.
3. To find out the association between pre-test knowledge score regarding haemodialysis among care givers with their selected demographic variables.

Materials and Method

Present research study employed quantitative approach and pre experimental nature of research design. The research study was performed at Govt. general hospital, Upasana hospital and Lions hospital Mehsana city. The sample mass consisted of 100 caregiver of haemodialysis patients. Nonprobability purposive sampling technique was chosen to decide on participants. The time period employed in data compilation was four weeks. Information booklet on knowledge regarding haemodialysis among caregivers was distributed among caregivers. The knowledge questioonaire consisted of 24 items of multiple choice questions covering the all areas on haemodialysis as explained in information booklet. The answers were scored, with each correct response earning 1 point, resulting in a total possible score of

24. The reliability of the questionnaire was tested by calculating the internal consistency through Spearman – Brown prediction formula. The alpha value was discovered to be 0.89, indicating good reliability. Institutional Ethical Review Board granted ethical approval for the study. Prior to data collection, all participants were made well-versed about the rationale of the study, participation without any force, and the discretion of their answers. Written consent collected from each contributor prior to employing the pre-test and post-test. After completing the data collection process, the knowledge scores acquired from the pre and post-test were examined using statistical methods. The data were analyzed to determine: The mean, standard deviation and range of the pr and post-test marks. A paired t-test conducted to measure the dissimilarity flanked by the pre and post-test scores.

Results

Table I. Demographic Characteristics of the Sample (N = 100) in tabulation form

S. No.	Characteristics	Categories	Frequency (F)	Percentage (%)
1.	Age (in year)	21-30 31-40 41-50 51-60	21 26 27 26	21% 26% 27% 26%
2.	Gender	Male Female	51 49	51% 49%
3.	Habitat	Urban Rural	52 48	52% 48%
4.	Religion	Hindu Muslim Sikh Others	50 48 2 0	50% 48% 2% 0%
5.	Occupation	Private job Self employee Home care Government job	31 30 10 29	31% 30% 10% 29%
6.	Any information regarding Haemodialysis	Yes No	27 73	27% 73%
7.	Since how long patient is on dialysis	Less than 6 months 7 to 12 months 13 to 24 months More than 25 months	20 29 31 20	20% 29% 31% 20%
8.	Which type of Vascular access	Temporary Permanent	50 50	50% 50%

Table 1 depicts that as per age, 27% participants were in age group of 41-50 years, 26% each 31-40 years & 51-60 years of age group. 51% of participants were from male gender. As per residence, 52% participants were residing in urban areas. As per religious faith 50% were Hindus. In connection with occupation, 31% participants were in private job and 30% had their own business. 73% participants have no information regarding Haemodialysis. 31% caregiver's patients were on Haemodialysis from 13 to 24 months duration and equal percentage of caregiver's patients has temporary and permanent vascular access.

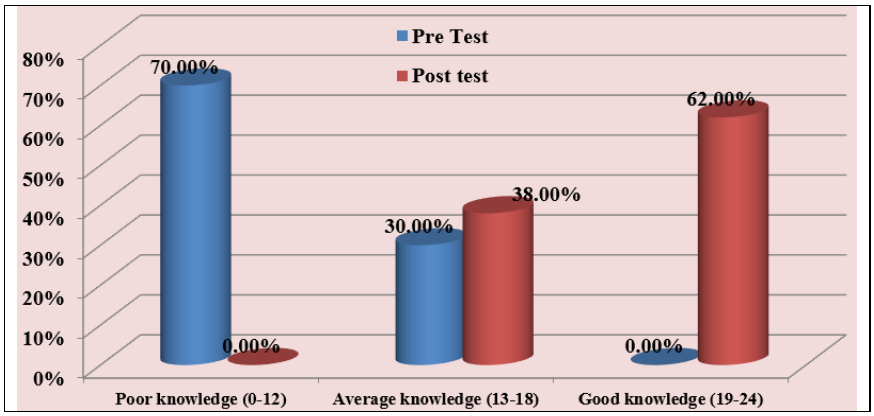

Figure-1 Pre-test and post-test score of knowledge level

As per above figure, around three fourth of the participants 70% scored poor knowledge level, 30% scored average knowledge level in pre test. Whereas in post test majority of the participants 62% scored good knowledge level, 32% scored average knowledge level regarding Haemodialysis. (Figure-1)

Table- II Effectiveness of structured teaching program on knowledge score n= 100

Assessment	Average	Average %	SD	Average difference	Average difference%	df	"t" value	Inference
Pre test	10.06	41.92%	2.77	+8.06	33.58%	99	20.66	S (p=.0001)
Post test	18.12	75.5%	2.87					

As per table II, average score in pre test is 10.06 and average % is 41.92% and average score in post –test is 18.12, and average % is 75.5% with mean distinction is +8.06, the value in Paired 't' test is 20.66 higher to table value (2.02 at df 99) at .05 significance level. This illustrates about considerable disparity amid post and pre test knowledge score among caregivers of haemodialysis patients following information booklet.

Table III Association of pre test level of knowledge with selected demographic variables

Variable	Category	Level of Knowledge		df	Table Value	Calc. Value	S/NS
		Poor (0-12)	Average (13 –18)				
Age	21 – 30	15	6	3	7.82	4.77	NS
	31 - 40	16	10				
	41 – 50	23	4				
	51 – 60	16	10				
Gender	Male	38	13	1	3.84	1.01	NS
	Female	32	17				
Habitat	Urban	39	13	1	3.84	1.29	NS
	Rural	31	17				
Religion	Hindu	35	15	2	5.99	0.89	NS
	Muslim	33	15				
	Sikh	2	0				
	Others	0	0				
Occupation	Private job	22	9	3	7.82	1.195	NS
	Self-employee	19	11				
	Home Care	8	2				
	Govt. Job	21	8				
Information regarding haemodialysis	Yes	26	1	1	3.84	12.18	S***
	No	44	29				
Since how Long Patients	< 6 month	14	6	3	7.81	7.07	NS
	7 – 12Months	17	12				
	13 – 24 Months	27	4				
	> 25 months	12	8				
Types of Vascular Access	Temporary	38	12	1	3.84	1.72	NS
	Permanent	32	18				

As per above table only information regarding haemodialysis was significantly associated with the pre test knowledge level regarding haemodialysis among caregivers. Rest all demographic variables were not significantly associated with the pre test knowledge level regarding haemodialysis.

Discussion

Our study was undertaken with the main aim to assess the effectiveness of an information booklet on knowledge regarding haemodialysis among caregivers of haemodialysis patient admitted in selected hospitals. The present study discovered that 79% participants were in age group of more than 31 years and 51% of participants were from male gender, 52% participants were residing in urban areas. 73% participants have no information regarding Haemodialysis**.** Our study findings were consistent with **Kumari P et al (2021)**[10] who also revealed 62% participants were more than 31 years of age and around 44% were male in their study on knowledge regarding chronic kidney disease patient undergoing haemodialysis care among caregivers. Around three fourth of the participants 70% scored poor knowledge level, 30% scored average knowledge level in pre test. Our study findings were supported by a study conducted by **Wale G et al (2021)**[13] who also found

70% of samples had inadequate knowledge, 30% had moderately adequate knowledge about home care management of HD pre-interventional in Experimental group. **Tavakoli N et al (2022)**[14] also revealed that majority of participants scored inadequate knowledge on care of haemodialysis patient. Whereas in post test majority of the participants 62% had good knowledge level, 32% had average knowledge level level regarding Haemodialysis. Our study findings were similar with study conducted by **Thomas A et al (2019)**[15], they found that after providing self instructional module the result of posttest shows that among the samples 10% of patients attained average knowledge, 63.33% got good knowledge and 26.67% had excellent knowledge regarding Home care Management among Patients undergoing Hemodialysis. The efficiency of STP was also demonstrated by **Zagade T (2019)**[16], which showed that the mean knowledge score of hemodialysis subject caregivers was 39.48% on the pre-test but increased to 82.50% on the post-test. As per findings of our study, there was 10.06 average score in post test while 18.2 average in pre test with noticeable gain of +8.06 in post test. As per Paired 't' test finding 20.66 superior than table value (2.02 at df 99) indicating that the observed difference was significant and information booklet on knowledge regarding haemodialysis among caregivers of haemodialysis patients was effective. **Bhushal P et al (2022)**[17] also found effective of Self-Instructional Module (SIM) regarding home care management in enhancing the knowledge among hemodialysis patients. **Kaur V et al (2023)**[18] also revealed significant difference in pre-test and post-test mean score as 22.67 in their quasi experimental study on the effectiveness of structured teaching programme on knowledge regarding post dialysis home care among caregivers of chronic renal patients undergoing hemodialysis**. Anagha PS et al (2022)**[19] also revealed effectiveness of the health education regarding selected aspects of Home Care Management among patients undergoing Hemodialysis. **Puri S et al (2021)**[20] also revealed intervention was significantly effective to enhance the knowledge (P=0.00001) and attitude (P=0.00001) of caregivers regarding postdialysis home care. **Pandya U et al (2024)**[21] and **Nagda S et al (2025)**[21] also found effectiveness of learning package in improving knowledge level of participants in their respective research studies. As per our study, only information regarding haemodialysis was significantly associated with the pre test knowledge level regarding haemodialysis among caregivers. **Kaur L. et al (2021)**[23] also revealed association of pre-test knowledge with education of the patient regarding home care management in haemodialysis. **Machado NM (2024)**[24] & **Karkar M et al (2025)**[12] also found no significant correlation between demographic factors and knowledge scores.

Limitation: Sample size was 100 only with which compromised generalization of the study findings. Self structured tool was used and knowledge aspect was assessed.

Conclusion

Our study concluded that information booklet was important in enhancement of knowledge level in caregivers of haemodilysis patients. Caregivers of haemodialysis patients have important role in reduction of complications. Awareness and education on haemodialysis can help to curb such complications and prepare them in advance in taking action against such issues and problems and maintain quality of life of haemodialysis patients.

Source of funding: Researchers have self financed the current study.

Conflict of Interest: No conflict of concern shown by researchers during study period.

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