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Evaluating Structured Teaching Programmes for Dietary Education in Hemodialysis Patients

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Abstract

Critical illness can affect individuals at any stage of life, impacting their physical, psychological, socio-cultural, and spiritual well-being. Hemodialysis patients are particularly vulnerable and require comprehensive care to maintain health equilibrium. Nursing plays a vital role in supporting this process by providing informed, goal-oriented care. This study was undertaken to assess and enhance the knowledge of dietary management among hemodialysis patients in selected hospitals of Vadodara through a structured teaching programme.

The study employed a pre-experimental one-group pre-test post-test design. A total of 30 hemodialysis patients were selected using a non-probability convenient sampling method. Data were collected using a self-administered structured questionnaire to assess knowledge before and after the intervention. The results indicated that prior to the structured teaching, 60% of participants had poor knowledge and 40% had average knowledge. Following the intervention, 87% (26) achieved average knowledge, while 10% (3) demonstrated good knowledge. The mean percentage score increased from 45.3% (SD = 3.4) in the pre-test to 67.5% (SD = 3.37) in the post-test. The improvement was statistically significant with a mean difference of 4.4 and a t-value of 4.53 ($p < 0.05$).

The findings suggest that structured teaching programs significantly enhance dietary knowledge among hemodialysis patients. Therefore, such educational interventions are effective tools in promoting better self-care and management among this patient group.

Keywords: Hemodialysis, Dietary Management, Structured Teaching Programme, Patient Education, Nursing Intervention, Knowledge Assessment.

Problem Statement

"A Study To Assess The Effectiveness Of Structured Teaching Programme On Knowledge Regarding Dietary Management Of Hemodialysis Patients In Selected Hospitals Of Vadodara City."

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Introduction

The kidneys play a vital role in maintaining the body's internal environment. They regulate fluid and electrolyte balance, remove waste products from the blood, and help maintain acid-base balance. These complex functions are supported by a well-balanced diet that meets the body's nutritional needs while allowing the kidneys to efficiently excrete excess substances.

However, in patients with end-stage renal disease (ESRD), the kidneys lose their ability to perform these critical functions. Hemodialysis becomes necessary to artificially remove waste products and excess fluids from the blood. Dietary management in hemodialysis is essential to control the levels of potassium, phosphorus, sodium, and fluid, while also ensuring adequate protein and calorie intake to prevent malnutrition. An individualized nutrition plan helps reduce the risk of complications, supports the effectiveness of dialysis, and improves overall quality of life. This introduction highlights the need for a comprehensive, patient-centered dietary approach as a critical component of care for individuals on hemodialysis.

CKD is a global threat to health in general and for developing countries in particular because therapy is expensive and life-long. In India -90% patient cannot afford the cost. Over 1 million people worldwide are alive on dialysis or with a functioning graft. Incidence of CKD has doubled in the last 15 years.The overall prevalence of CKD in the general population is approx14%.The incidence rates increased with age. HTN and Diabetes were the main etiologies diagnosed haemodialysis was the chosen dialysis modality on the majority of patient(92.6%), whereas the percentage of patients referred for peritoneal dialysis decreased from 10.1% to 5.5% Dialysis is a treatment that takes over jobs that healthy kidneys normally do. kidney are in need of dialysis when approximately 85-90% of kidney function is last, in addition to a GFR of less than 15.

Dialysis is a treatment that does not cure kidney disease; a kidney transplant will cure kidney disease. Dialysis has a life expectancy of 5-10 years with patients having lived up to 30 years while receiving treatment types of dialysis include CRRT, Haemodialysis and PD. A person on dialysis need to eat more protein on dialysis need to eat more protein levels and improve health diet continues to play vital role in patients' rehabilitative care. It is essential for dialysis patients to have the right amount to protein, calories, fluids, vitamins and minerals each day.

Objectives

1. To assess the knowledge regarding dietary management among hemodialysis patients in selected hospitals of vadodara.
2. To evaluate the effectiveness of structured teaching programme regarding dietary management among hemodialysis patients in selected hospitals of vadodara.

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3. To find association of knowledge score regarding dietary management of hemodialysis management and their selected demographic variables.

Hypothesis

H1- There will be significant difference in pretest and post test knowledge score regarding dietary management of hemodialysis patients.

H2- There will be significant association between knowledge regarding dietary management of hemodialysis patients with their selected demographic variable.

Limitations

The study is limited to:

The sample size is limited to 30 hemodialysis patients.

The period of data collection for study will be limited to 3-4 weeks.

The study is limited to selected hospitals of Vadodara city.

The study will be limited to samples who are willing to participate in the study.

The study will be limited to samples who are present at the period of data collection.

Literature Review

A review of related literature helps in understanding existing research, identifying knowledge gaps, and supporting the development of evidence-based educational interventions aimed at improving outcomes in hemodialysis patients. This section presents a synthesis of studies focused on the effectiveness of structured teaching programmes in improving knowledge and practices related to dietary management among individuals undergoing hemodialysis.

A study conducted by Nishitha et.al (2023) at Apollo DRDO Hospital, Hyderabad, evaluated the effectiveness of a structured teaching programme on dietary management among hemodialysis patients. Using a one-group pre-test and post-test design with 45 participants, results showed a significant improvement in knowledge and attitude after the intervention. The mean knowledge score increased from 8.4 to 21.8, with a paired ‘t’ value of 13.4, indicating effectiveness. The study concluded that structured teaching significantly improved patients’ knowledge and attitude towards dietary management.

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A study was conducted by Naladev Malagi, (2022) to evaluate the effectiveness of a structured teaching programme on the prevention of infections and knowledge of post-dialysis complications among patients undergoing hemodialysis. Using a pre-experimental one-group pre-test and post-test design, 50 participants were selected through convenient sampling. Data were collected using a structured knowledge questionnaire and analyzed using descriptive and inferential statistics. Results showed a significant improvement in knowledge scores post-intervention, with the mean score increasing from 18 (SD ±6.93) to 30.42 (SD ±4.04). The calculated t-value (19.11) was significantly higher than the table value (2.010), indicating that the structured teaching programme was effective.

Methodology

An evaluative approach was used for this study to test the effectiveness of structured teaching programme on knowledge regarding dietary management of hemodialysis patients under investigation. The research design used in this study was the quantitative, pre-experimental design i.e. “One group Pre-test, post-test” was used for assessing the effectiveness of structured teaching program on knowledge regarding dietary management of hemodialysis patients in selected hospitals of Vadodara city. In the present study independent variable was structured teaching programme on knowledge regarding dietary management of hemodialysis patients, dependent variable was knowledge of hemodialysis on dietary management and demographic variable were age, education, living areas, previous educational programme attended, addiction and previous treatment taken for kidney disorders. The samples consist of 100 hemodialysis patients of selected hospitals of Vadodara city. Non-probability convenient sampling technique was used to recruit samples. Demographic and clinical data was collected through structured questionnaire. The pilot study was done on 10 hemodialysis patients from the Satyam Hospital, Vadodara. Descriptive statistics such as frequency and percentage distribution, measures of central tendency and inferential statistics such as paired ‘t’ test and chi-square test were used.

Ethical clearance was obtained from hospitals before conducting the study. Informed written consent was taken from all participants after explaining the purpose, procedure, benefits, and their right to withdraw at any time. Confidentiality and anonymity were maintained throughout the study, and participants’ privacy was respected. The structured teaching programme posed no harm and was intended solely for educational benefit. Data collected were used only for research purposes and securely stored, ensuring dignity, respect, and ethical conduct at all stages of the research.

Result

SECTION – I: DEMOGRAPHIC PROFILE OF HEMODIALYSIS PATIENTS

N=100

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DEMOGRAPHIC VARIABLES	FREQENCY	PERCENTAGE
Age		
➢ **<50**	**51**	**51%**
➢ **50-60**	**23**	**23%**
➢ **60-65**	**26**	**26%**
Education		
➢ **Primary**	**53**	**53%**
➢ **Secondary**	**47**	**47%**
Living area		
➢ **Urban**	**81**	**81%**
➢ **Rural**	**19**	**19%**
Education program attended		
➢ **Yes**	**76**	**76%**
➢ **No**	**24**	**24%**
Drug regimen for Diabetes		
➢ **Yes**	**43**	**43%**
➢ **No**	**57**	**57%**
Drug regimen for HTN		
➢ **Yes**	**48**	**48%**
➢ **No**	**51**	**51%**

SECTION-I indicates that majority of the subjects belongs to age group <50 years (51%), 53 (53%) the subject gained primary education and 47 (47%) gained secondary education. 81 (81%) living in urban area and 19 (19%) living in rural area, 76 (76%) have attained an educational programme related to the topic and 24 (24%) subject have not attended any education programme related to study. 43 (43%) subjects have adapted regimen for diabetes mellitus while 57 (57%) subjects have not adapted regimen for diabetes mellitus. 48 (48%) subjects have adapted regimen for hypertension and 17 (56.66%) subjects have not adapted regimen for hypertension.

SECTION- II: COMPARISON OF PRE AND POST-TEST OF KNOWLEDGE OF THE HEMODIALYSIS PATIENTS

N= 100

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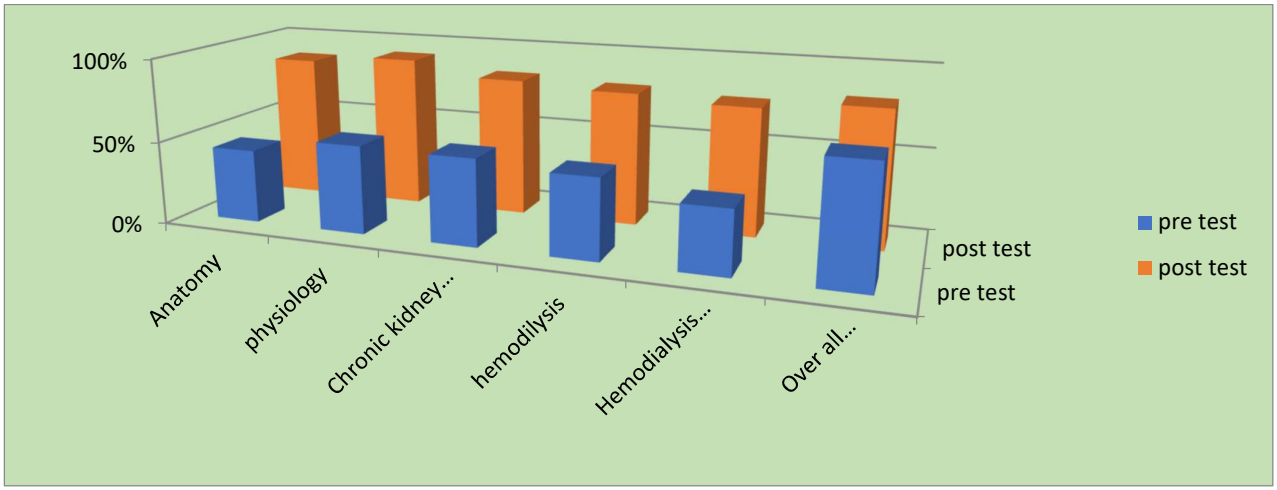
SR NO	KNOWLEDGE VARIABLES	PRE TEST		POST TEST		Mean difference	't' TEST	INFERENCE
		MEAN	SD	MEAN	SD			
1.	Anatomy of kidney	0.66	1.4	1.2	3.5	0.54	0.79	NS
2.	Physiology of kidney	1.8	4	2.2	4.35	0.40	0.37	NS
3.	Chronic kidney diseases	2.6	2.2	3.4	2.96	0.80	1.03	NS
4.	Hemodialysis	1.2	6.1	2.2	3.05	1	0.83	NS
5.	Dietary management	2.8	3.4	4.5	3.5	1.7	1.93	NS
6.	OVERALL KNOWLEDGE	9.06	4.2	13.5	3.37	4.44	4.53	S

The table values revealed that the mean obtain from the overall knowledge in the pre-test was 9.06 and in post-test 13.5. the gain in mean for overall knowledge was 4.44 with "t" value at df=99=1.98 which was highly significant at $p<0.05$. The finding revealed that the overall mean post-test knowledge score of the subject are significantly higher than the overall mean pre-test knowledge score at 0.05 level of significance. Hence the H1 is accepted.

Figure 1: **Comparison of pre-test & Post-test mean %**



SECTION III: ASSOCIATION BETWEEN PRE TEST KNOWLEDGE OF HEMODIALYSIS PATIENTS AND DEMOGRAPHICAL VARIABLES.

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Median = 47 N=100

SR NO	VARIABLE	CATEGORY	TOTAL SCORE		CHI SQURE VALUE	TABLE VALUE	INFERENCE
			< MEDIAN	> MEDIAN			
1.	**Age**	< 50 Years	18	35	1.92	D f-2 5.99	NS
		50-60 Years	11	13			
		60 -65 Years	3	20			
2	**Education**	Primary	14	41	1.07	Df-1 3.84	NS
		Secondary	18	27			
3	**Living Area**	Urban	23	51	0.37	Df-1 3.84	NS
		Rural	11	15			
4	**Education program attended**	Yes	9	20	0.50	Df-1 3.84	NS
		No	1	5			
5.	**Drug regimen for Diabetes**	Yes	4	9	0.06	Df-1 3.84	NS
		No	6	11			
6.	**Drug regimen for Hypertension**	Yes	4	8	3.94	Df-1 3.84	S
		No	12	5			

S- Significant, **NS** – Non Significant, **P** <0.05

From the table it is evident that the obtained chi-square values for previous taken hypertension treatment more than table value and found that there is significant association between them. Hence hypothesis H_2 there is significant association between pre-test practice score of heamodialysis patient and selected demographic variable is accepted for previous hypertension medication taken.

Discussion

The present study aimed to evaluate the effectiveness of a structured teaching programme on knowledge regarding dietary management among hemodialysis patients in selected hospitals of Vadodara city. The findings revealed a significant improvement in the knowledge scores of patients following the intervention, indicating the effectiveness of the structured teaching programme. Before the intervention, the majority of patients had limited knowledge about dietary management, and the importance of adhering to a renal diet. The baseline knowledge scores suggest a gap in patient education, which is consistent with findings from previous studies that emphasize the need for targeted dietary education in chronic kidney disease management. Post-

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intervention results demonstrated a statistically significant increase in knowledge levels. This improvement reflects the impact of structured and focused education in enhancing patient awareness. These findings are aligned with similar studies conducted in different settings, which concluded that structured teaching programmes contribute to better dietary compliance and improved quality of life among hemodialysis patients. The structured teaching programme used in this study was simple, interactive, and tailored to the patients' level of understanding, which likely contributed to its effectiveness. Educational materials, verbal explanations, and visual aids were used to cater to different learning styles, ensuring maximum retention.

Conclusion

Based on the findings of the study the following conclusion was drawn. The existing knowledge regarding dietary management among heamodialysis patients. The planned teaching programme significantly increase the knowledge regarding dietary management among heamodialysis patients. Based on the statistical findings 't' value 4.53, it evident that provision of such kind of structured teaching programme will motivate heamodialysis patients and help them to acquire knowledge.

Recommendations

Based on the findings of the study, following recommendation have been made:

A similar study can be replicated on large sample to generalize the findings.

A similar study can be conducted by including practical aspect.

A similar study can be carried out the evaluate the efficiency of various teaching strategies like self instructional module , pamphlets ,leaflets , and computer assisted instruction on a knowledge regarding dietary management of hemodialysis. Based on the study findings, intervention should be given to all patient through mass media, role play, drama and puppet show, etc. to enhance knowledge level.

A similar study can be undertaken with control group design.

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