A STUDY TO ASSESS AND EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON SELF CARE OF ARTERIOVENOUS FISTULA IN TERMS OF KNOWLEDGE AND PRACTICE AMONG PATIENTS WITH END STAGE RENAL DISEASE AT SELECTED HOSPITAL NEW DELHI

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ABSTRACT

A Quasi-experimental study to "A Study to Assess and Evaluate the Effectiveness of Structured Teaching Programme on Self Care of Arteriovenous Fistula in Terms of Knowledge and Practice Among Patients with End Stage Renal Disease at Selected Hospital New Delhi" was conducted by **Mr. Umesh Kumar Bharati** *in partial fulfilment of the requirement of the award of a degree Master of Science in Nursing at the Nightingale Institute of Nursing, Noida, Uttar-Pradesh Objectives of the study were, (i) To assess and evaluate the knowledge regarding the self care of Arteriovenous fistula among ESRD patients before and after the Structured Teaching Programme, (ii) To assess and evaluate the practice regarding the self care of Arteriovenous fistula among ESRD patients before and after Structured Teaching Programme, (iii) To find out the relationship between post test knowledge score and post test practice score among ESRD patients, (iv) To find out the association between the post test knowledge score and selected demographic variables, (v) To find out the association between post test practice score and selected demographic variables*

The conceptual framework was based on **Orem's Self Care Deficit Theory***, which focuses on self care of Arteriovenous fistula among end stage renal disease. Essential elements of Orem's Self Care Deficit Theory are person, goal of nursing, health, environment and nursing activities. In order to maintain homeostasis or integrity, people must respond or adapt to any changes that occur either from internal or external stimuli. Accordingly the study was organized around this conceptual framework.*

The study made use of quasi experimental one group pre test post-test research design. The study population consisted of ESRD patients who having surgical created AV Fistula who were undergoing Hemodialysis of BLK Super Specialty Hospital, Rajendra place, New Delhi. Total 40 samples were taken with purposive sampling technique. The tool was developed on the basis of "structure knowledge and practice questionnaire". Steps involved in development of tool were: preparation of the first draft, content validity of tool, reliability of tool, preparation of final draft. Reliability of modified objective of self care was done on 40 AV Fistula patients at BLK Super Specialty hospital. The data was collected from 12th February 2016 to 29th February 2016; after obtaining administrative approval of BLK Super Specialty Hospital New Delhi. The Data was collected through structured knowledge questionnaire. The data gathered was analyzed using evaluative and inferential statistics. The level of significance set for testing the hypothesis was 0.05, using t-test and Kappa test.

Major findings of the study were: Analysis shows

The pre test mean score and post test mean score was **(8.35)** *and* **(15.65)** *respectively.The calculated* **'t'** *value was* **(31.019)** *is higher than the table value* **(3.566)** *at* **0.05** *level significance at the degree of freedom* **(39)***,The pre test mean score and post test mean score was* **(6.27)** *and* **(11.72)** *respectively. The calculated 't' value was* **(29.879)** *is higher than the table value* **(1.684)** *at* **0.05** *level significance at the degree of freedom* **(39)** *Correlation* **('r' value)** *of knowledge and practice of post test was* **(0.560)** *The P-Value is 0.000167. The result is significant at p < 0.05.*

The sample with the number of days that the patient is receiving hemodialysis in a week as shown by the obtained chi value of **9.14** *which was greater than the table value of chi square* **(7.815)** *at Degree of freedom* **(3)** *at* **0.05** *level of significance.*

The sample with the family income of the patient as shown by the obtained chi value of **(11.84)** *which was greater than the table value of chi square* **(7.815)** *at df 3 at 0.05 level of significance.*

INTRODUCTION
BACKGROUND OF THE STUDY
Arteriovenous Fistula (AVF) According to the National Kidney Foundation, by the year 2008, three million people will be expected to have what is known as end-stage renal (kidney) disease. These people can be of any age, from any background. They are typically suffering from another condition or disease that has led to kidney shutdown and most will require dialysis. Among dialysis patients, over half will have an AV fistula as vascular access.

AV Fistula Use among Men and Women, AV fistula use increased from 27.9 to 55.0 percent between 1998 and 2007. AV fistula use increased in both men and women. AV fistula use rates among men were twice as high as among women in the late 1990s. Women have begun to narrow the gap in AV fistula use.

End Stage Renal Disease (ESRD) can result from various hereditary and acquired kidney diseases. It is the last stage of Chronic Kidney Disease (CKD), a major cause of mortality, and is associated with compromised quality of life, high mortality and high burden of illness (Griva et al., 2009, 2010). The incidence and prevalence of ESRD has markedly increased worldwide. According to the Annual Data Report (United States Renal Data System, 2012) the incidence of ESRD between 1999 and 2009, increased from 337 to 355.4 per million. In Beijing, from 2002 to 2006, the incidence increased from 214to391 permillion (Zuo and Wang, 2007).Further, the rapid expansion of the world wide elderly population ispredicted to have a significant effect on rates of ESRD (Griva et al., 2011). Maintenance hemodialysis (MHD) is the most common therapy for ESRD. In the USA, it was reported that 64.9% of ESRD patients received hemodialysis while 4.8% received peritoneal dialysis (PD)

NEED FOR THE STUDY
As many studies have proven that the use of arteriovenous fistula is increasing day by day, the importance of care for it, also become unavoidable. Complications can also occur with this arteriovenous fistula. The most frequent complication in arteriovenous fistula is related to the vascular access site where needles are inserted. This can include infection around the access area or the formation of clots in the fistula. The greatest danger is that the clots may block the fistula and would have to be removed surgically. Frequent clotting may require creating a back up fistula at another site to allow dialysis when one access is blocked.

PURPOSE OF THE STUDY
➢ To evaluate the knowledge and practice of patient's about self care of Arteriovenous Fistula.
➢ To give knowledge to the patients about self care of Arteriovenous Fistula.
➢ To promote quality of care
➢ To reduce morbidity due to inadequate self care of Arteriovenous Fistula.
➢ To improve quality of life of patients.

OBJECTIVE OF THE STUDY
➢ To assess and evaluate the knowledge regarding the self-care of Arteriovenous fistula among ESRD patients before and after the Structured Teaching Programme.
➢ To assess and evaluate the practice regarding the self-care of Arteriovenous fistula among ESRD patients before and after Structured Teaching Programme.
➢ To find out the relationship between post-test knowledge score and post-test practice score among ESRD patients.
➢ To find out the association between the post-test knowledge score and selected demographic variables
➢ To find out the association between the post-test practice score and selected demographic variables

HYPOTHESIS
➢ H_1 **-** The mean post-test knowledge score of patients with End Stage Renal Disease regarding self- care of Arteriovenous Fistula will be significantly higher than their pretest knowledge score at 0.05 level of significance.
➢ H_2 **-** The mean post-test practice score with self-care of AV Fistula patients at End Stage Renal Disease will be significantly higher than their pretest practice score at0.05 level of significance.
➢ H_3 **-** There will be significant relationship between post-test knowledge score & post-test practice score of patients with ESRD on self-care AV Fistula

> ➢ **H$_4$ -** There will be a significant association between post- test knowledge score and demographic variables.
> ➢ **H$_5$** - There will be a significant association between post-test practice score and demographic variables.
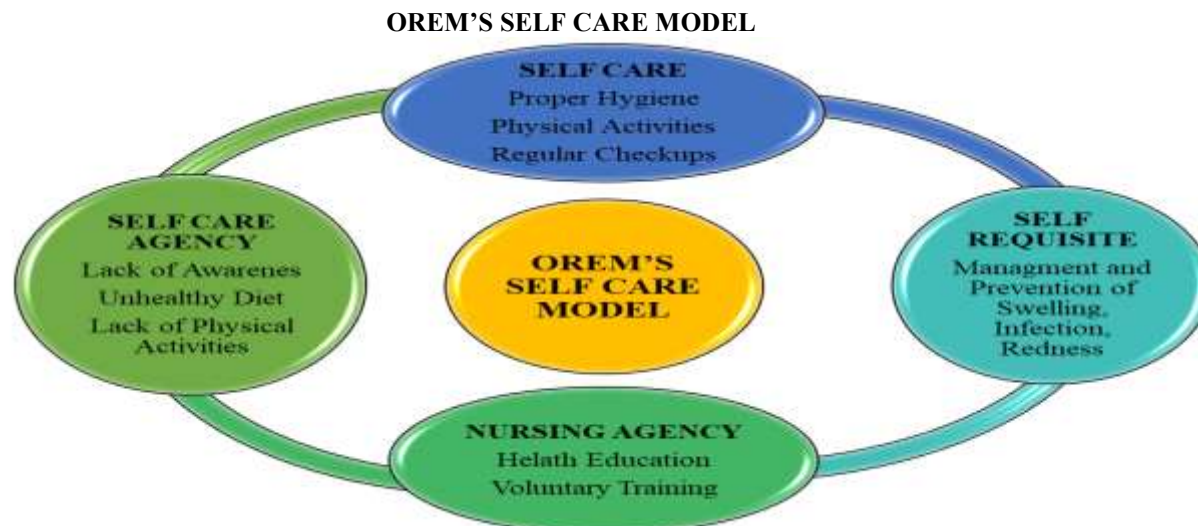
OREM'S SELF CARE MODEL

Figure-1 Conceptual framework based on Orem's self care model

ASSUMPTIONS OF THE STUDY
➢ ESRD patients may have knowledge regarding self- care of arteriovenous fistula to some extent.
➢ The level of knowledge of ESRD patients regarding care of their fistula site can have an impact on their practice.
➢ Structured teaching programme may improve the practice of ESRD patients in caring their Arteriovenous fistula site
➢ A Structured teaching programme on self -care of AV fistula can improve the knowledge level of ESRD patients.

DELIMITATIONS OF THE STUDY
➢ The study will be limited to ESRD patients
➢ Only those ESRD patients who have AV fistula.
➢ The research is limited to those ESRD patients who are willing to participate.

OPERATIONAL DEFINITION OF THE TERMS
Effectiveness:
Effectiveness refers to the extent to which the Structured teaching programme delivered has achieved the desired improvement as assessed by gain in knowledge of End Stage Renal Disease patients on care of AV fistula.
Structured Teaching Programme:
Refers to written and verbal instruction on knowledge and practice of self- care of AV Fistula to the patients
Knowledge:
Knowledge refers to the correct responses to the items to the questionnaire on care of AV fistula which is measured by structured knowledge questionnaire and the content area include meaning purpose after cannulation care immediate and late complications of AV fistula and its management.
Practice:
It refers to the actions or measures taken by the ESRD patients regarding care of their arteriovenous fistula site such as hygienic care, prevention of accidents, injuries and prevention of complications like infection, rupture, clotting.
Self -Care of Arteriovenous Fistula:
It refers to the actions taken by the patients with arteriovenous fistula in care of fistula site such as keeping the access site clean at all times, preventing accidents, preventing complications like infection, clotting & rupture.

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Arterio venous Fistula:
Arterio Venous fistula refers to connection between vein and artery developed by planned surgical procedure to allow access to the vascular system for hemodialysis.

End Stage Renal Disease (ESRD):
ESRD is a condition when the kidneys stop working well enough for to live without dialysis or a transplant. This kind of kidney failure is permanent.

Patients:
Patients refer to the persons with AV fistula undergoing hemodialysis at ESRD condition.

REVIEW OF LITERATURE

Literature review aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources. A well-structured literature review is characterized by a flow of logical idea; current and relevant references with consistent, appropriate referencing style; proper use of terminology; and an unbiased and comprehensive view of the previous research on the topic. In this present study the literature reviews have been taken from journals, internets and unpublished research studies. Literature reviews related to self care of arteriovenous fistula among end stage renal disease included.

The available literature and studies are discussed under these sections

Section – I   : Literature related to knowledge and practice regarding self care of av fistula
Section – II   : Literature related to care of arteriovenous fistula
Section – III   : Literature related to end stage renal disease
Section – IV : literature related to knowledge of hemodialysis patients on care of av fistula

RESEARCH METHODOLOGY

This chapter deals with a brief description of the different steps which were undertaken by the investigator for the study. It includes the research approach, research design, variables, setting, population, sample size, sampling technique and description of tool, content validity, ethical issues, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

Evaluation research" as research approach on the basis of knowledge and Practice and objectives to be accomplished. An evaluative research is applied form of research that involves how well a programmed practice

RESEARCH DESIGN

Pre- experimental one group pretest post test research design.

VARIABLES

Dependent and Independent variables. The Dependent variable is Knowledge and practice, Independent variable is structured teaching programme

SETTING OF THE STUDY

Research study was conducted in BLK Super Specialty hospital in New Delhi.

POPULATION

The population of this study includes the End stage renal disease patient who having surgical created AV Fistula at selected hospitals in Delhi. Size of the population consists of 40 patients.

SAMPLE AND SAMPLING TECHNIQUES.

The sample is a subset of population i.e. AV Fistula patients who full filled the inclusion criteria was selected in sample.

➢ **Sample Size:** A total of 40 patients with AV Fistula were selected to assess the knowledge and practice of self care of AV Fistula among ESRD patients
➢ **Sampling Technique:** in this Purposive sampling technique was used.

CRITERIA FOR SELECTION OF SAMPLE

Inclusive criteria
Patients of both sexes who are

- ➢ AV Fistula patients at selected hospital in Delhi.
- ➢ Willing to participate in the study.
- ➢ Present at the time of study.

Exclusive Criteria
Patients of both sexes who are,
- ➢ Not willing to participate in the study
- ➢ AV Fistula patients other Dialysis unit.

DEVELOPMENT AND DESCRIPTION OF TOOL:-

The tool used for research study was structured knowledge and practice questionnaire which was prepared to assess the effectiveness of structured teaching programme on knowledge and practice regarding self care of AV Fistula among ESRD patients.

The tool was prepared after extensive review of literature, consultation with experts and based on past experience of the investigator.

STEPS IN THE CONSTRUCTION OF TOOL

The investigator has involved the following steps in the development of the tool
- ➢ Related literature was reviewed in the preparation of the tool.
- ➢ Guidance and consultation from medical surgical nursing experts in the construction and modification of tool as per the guidance.
- ➢ Consultation with statistician was done in the preparation of plan for statistical analysis.

DESCRIPTION OF TOOL

The tool was organized into three sections

S. No.	Assessment Of Variables	Number of Questions	Score Of Wrong Answer	Score of Right Answer
1	Socio-Demographic Data	10	-	-
2	Structured Knowledge Questionnaire	20	0	1
3	Structured Practice Questionnaire	15	0	1

Table shows the distribution of questions along with their numbers and scores for right and wrong answer.

RELIABILITY OF THE TOOL

The reliability of the tool was measured using ***Kuder and Richardson Formula 20 (KR20)*** the reliability value of the Knowledge tool is KR20 =**0.73** and Practice tool KR20 =**0.74** which indicates a good reliability

PILOT STUDY

The pilot study was conducted from 16th December 2015 to 31st December 2015. by selecting AV fistula patients from Sir Ganga Ram hospital New Delhi. Non probability purposive sampling technique was used to select 15 patients. The patients who fulfilled the inclusion criteria for the study alone was selected and included in the study..

PLANS FOR DATA ANALYSIS

Analysis of data was done in accordance with the objectives. The data obtained from 40 AV fistula patients were analyzed and plan for data analysis are as follows:

SECTION I: Finding related to compute the frequencies and percentage of demographic sample characteristics

SECTION II: Finding the level of knowledge and practice score

SECTION III: Mean, Mean difference, Standard Deviation and 't' value were used to describe the pre-test and post-test scores of knowledge.

SECTION IV: Mean, Mean difference, Standard Deviation and 't' value were used to describe the pre-test and post-test scores of practice.

SECTION V: Correlation findings related to post-test knowledge and practice scores.

SECTION VI: Chi-square was used to describe the association between the post-test score of knowledge and selected demographic variables

SECTION VII: Chi-square was used to describe the association between the post-test score of Practice and selected demographic variables

SECTION - I

Frequency and percentage distribution of AV Fistula patients according to socio-demographic variables

N=40

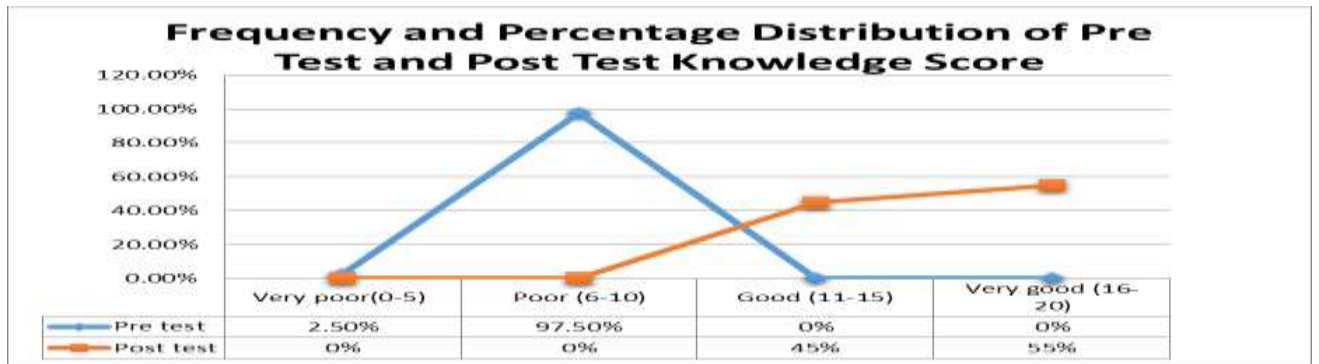| S. No.	Demographic Variables	Frequency (f)	Percentage (%)
1	**Age (in years)** a) 20 – 30 years b) 31 – 40 years c) 41 – 50 years d) 51 years and above	4 7 12 17	10 17.5 30 42.5
2	**Gender** a) Male b) Female	29 11	72.5 27.5
3	**Education Level** a) No formal education b) Primary education c) Secondary education d) Higher secondary education e) Graduate and above	9 1 1 10 19	22.5 2.5 2.5 25 47.5
4	**Occupation** a) Business b) Employee of govt. sector c) Employee of private sector d) Unemployed	15 9 10 6	37.5 22.5 25 15
5	**Family income per month** a) Less than Rs.10, 000 b) Rs.10,001 - 15, 000 c) Rs.15, 001 -20, 000 d) Rs. 20,001 and above	6 3 11 20	15 7.5 27.5 50
6	**Marital Status** a) Unmarried b) Married c) Divorced d) Widowed	3 37 0 0	7.5 92.5 0 0
7	**Religion** a) Hindu b) Muslim c) Christian d) Others… (Specify)	23 12 5 0	57.5 30 12.5 0
8	**How many days a week do you receive hemodialysis** a) 2 days or less b) 3 days c) 4 days d) 5 days and above	33 6 1 0	82.5 15 2.5 0
9	**Source of information related to the self care of AV Fistula is** a) Textbooks b) Media(Television, Radio) c) Through medical practitioners d) Others………….(specify)	0 3 37 0	0 7.5 92.5 0

10	Site of AV fistula		
	a) Elbow	5	12.5
	b) Snuff box	0	0
	c) Forearm	34	85
	d) Wrist	0	0
	e) Other	1	2.5

SECTION II

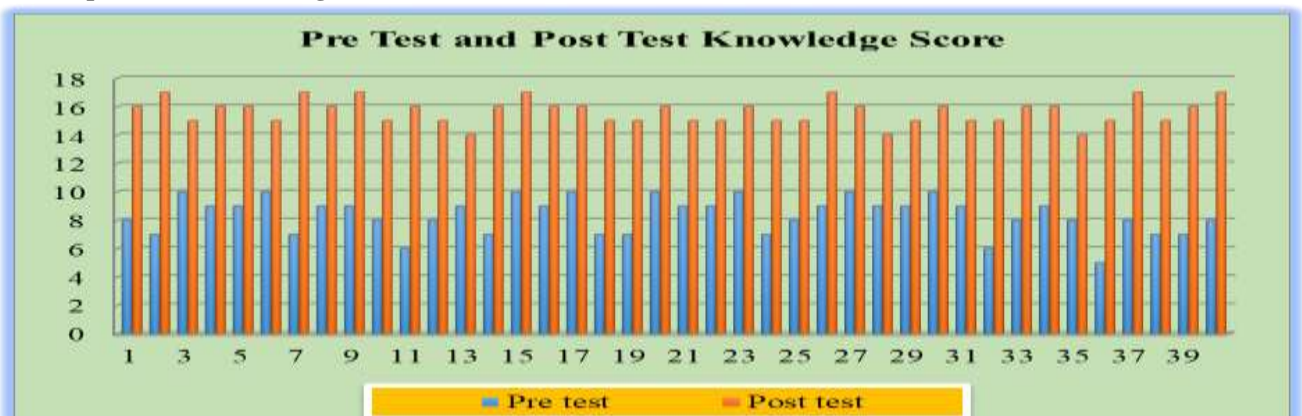**Frequency and percentage distribution of AV fistula patient according to their pretest and post- test knowledge score**   **N=40**

Grading of Scores	Grading of Knowledge	Pre test		Post test	
		Frequency	**Percentage**	**Frequency**	**Percentage**
0-5	Very poor	1	2.5%	0	0%
6-10	Poor	39	97.5%	0	0%
11-15	Good	0	0%	18	45%
16-20	Very good	0	0%	22	55%

Table shows that the knowledge of pre-test score **(2.5%)** was grading of very poor **(97.5%)** were poor and remaining good and very good was **(0%)** and post test score of knowledge **(0%)** was very poor and poor **(45%)** were good **(55%)** were grading of very good.

Line graph showing the percentage distribution of ESRD patients with AV fistula according to their pre-test and post-test of knowledge score.
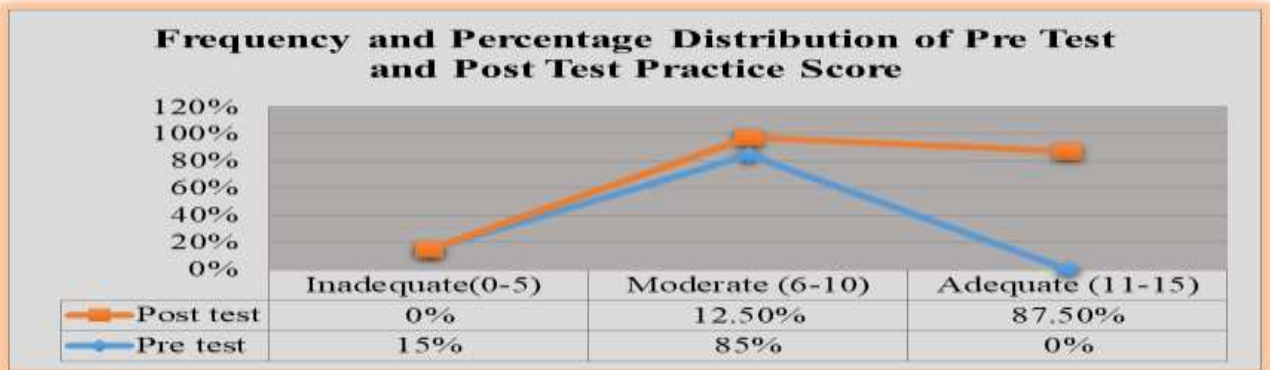
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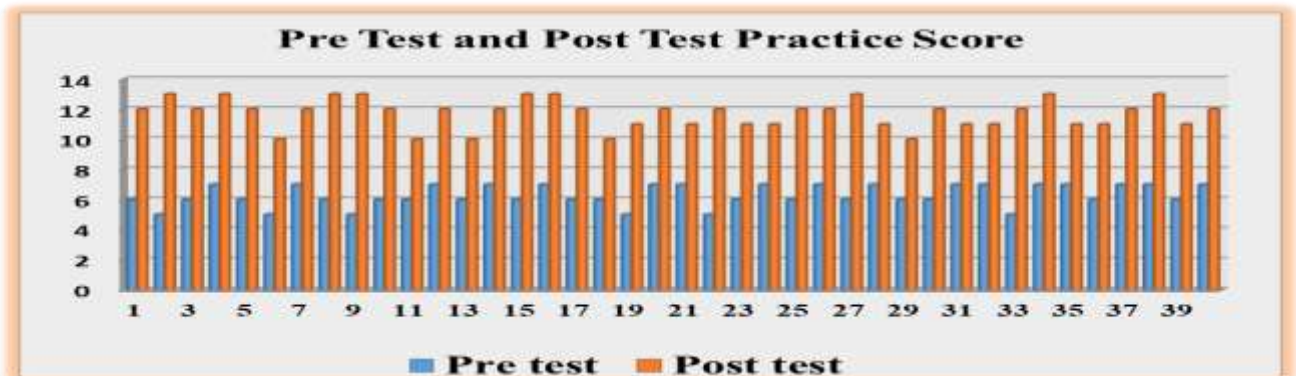**Column graph shows that pre-test and post-test knowledge score**

Frequency and percentage distribution of pre -test and post- test of practice score   N=40

Grading of Scores	Grading of Practice	Pre Test		Post Test	
		Frequency	**Percentage**	**Frequency**	**Percentage**
0-5	Inadequate	6	15%	0	0%
6-10	Moderate	34	85%	5	12.5%
11-15	Adequate	0	0%	35	87.5%

Table shows that the practice of pre-test score **(15%)** were grading of inadequate **(85%)** were moderate **(0%)** was adequate and post test score of practice **(0%)** was grading of inadequate **(12.5%)** were moderate and **(87.5%)** were grading of adequate.

Line graph showing the percentage distribution of ESRD patients with AV fistula according to their pre-test and post-test of Practice score.

Column graph showing pre-test and post-test of practice score

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SECTION III

This table describe the finding of Mean, Mean difference, Standard deviation and 't' value was used to describe the pretest and post test score of knowledge.

N=40

S. No.	Mean	Mean difference	Standard deviation	Standard deviation error	't' value	P Value
Pre test	8.35		1.29			
		7.3		0.235	31.0190	.00001.
Post test	15.65		**0.86**			

Table shows that the pre- test mean score and post-test mean score was (**8.35**) and (**15.65**) respectively. The calculated **'t'** value was (**31.0190**) is higher than the table value (**3.566**) at **0.05** level significance at the degree of freedom(39) This finding revealed that there was a significant difference exists among mean pre-test and mean post-test knowledge score. It conclude that the structured teaching programme is effective to the ESRD patients. Thus research hypothesis H_1 is accepted.

SECTION IV

This table describe the finding of Mean, Mean difference, Standard deviation and 't' value was used to describe the pretest and post test score of practice.

N=40

S. No.	Mean	Mean difference	Standard deviation	Standard deviation error	't' value	P Value
Pre test	6.27		0.715			
		5.45		0.182	29.8796	.00001
Post test	11.72		0.960			

Table shows that the pre-test mean score and post-test mean score was (**6.27**) and (**11.72**) respectively. The calculated **'t'** value was (**29.8796**) is higher than the table value (**1.6848**) at **0.05** level significance at the degree of freedom (39) This finding revealed that there was a significant difference exists among mean pre-test and mean post-test practice score. It concludes that the structured teaching programme is effective to the ESRD patients. Thus research hypothesis H_2 is accepted.

SECTION V

This table describes the finding of correlation between the Mean post-test knowledge score and Mean post-test practice score.   **N=40**

S. No.	Mean score	Degree of freedom	'r' value	P Value
Mean post-test knowledge score	15.65			The P-Value is 0.000167. The result is significant at p < 0.05.
		39	0.560	
Mean post-test Practice Score	11.72			

Table shows that the Mean post-test knowledge score (**15.65**) and Mean post-test practice score was (**11.72**) and the correlation (**'r' value**) of knowledge and practice of post-test was (**0.560**) The P-Value is 0.000167. The result is significant at p < 0.05. Findings revels that the mean post-test knowledge score and post-test practice score has positive correlation Thus research hypothesis H_3 is accepted.

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RESULTS
MAJOR FINDINGS OF THE STUDY
Section – I Findings related to socio demographic data
  ➤ Age wise majority of patients (42.5%) were in the age 51 years and above.
  ➤ Majority of patients (72.5%) were male and rest (27.5%) are female.
  ➤ As regard to education level majority of patients (47.5%) were Graduate and above
  ➤ As regard occupation majority of patients (37.5%) were business
  ➤ As regard family income per month majority of patients (50%) were Rs. 20,001 and above.
  ➤ As regard Marital Status majority of patients (92.5%) were married
  ➤ As regard religion majority of patients (57.5%) were Hindu
  ➤ As regard How many days a week do you receive hemodialysis majority of patients (82.5%) were 2 days or less
  ➤ As regard to source of information majority of patients (92.5%) acquire information through medical practitioners
  ➤ As regard site of AV fistula majority of patients (85%) were Forearm

Section – II Findings related to pre-test and post- test values of knowledge
In the present study, the mean of pre-test and post-test value of knowledge is (**8.35**) and (**15.65**) respectively, standard deviation of pre- test and post- test of knowledge are(**1.29**) and (**0.86**) respectively and paired't' test value is (**31.0190**) The level of significance is 0.05 and the table value of 't'(**3.566**) therefore we can say that existing knowledge is less than expected.

H1: There will be a significant gain in the knowledge scores after the administration of structured teaching programme regarding self- care of AV fistula.

Section – III Findings related to pre- test and post-test values of practice
The mean of pre-test and post-test value of practice is (**6.275**) and (**11.725**) respectively, standard deviation of pre-test and post-test of practice is (**0.715**) and (**0.960**) respectively and paired't' test value is (**29.879**) The level of significance is 0.05 and the table value(**3.566**), therefore we can say that it is highly significant. This rejects the null hypothesis, and accepts the hypothesis that was formulated.

H2: There will be a significant gain in the practice scores after the administration of structured teaching programme regarding self care of AV fistula.

Section – IV Findings related to correlation between post-test knowledge and post-test practice score
The value of co-relation is 0.5609, which The P-Value is 0.000167. The result is significant at p < 0.05.

H3- There will be a significant co-relation between the post-test knowledge and post test practice scores.

Section –V- Findings related to association between socio demographic data and post-test knowledge scores.
Chi-square is used to find out the association between post test score of knowledge with demographic variables:There was a positive significant association between the post-test knowledge score of the sample with the number of days that the patient is receiving hemodialysis in a week as shown by the obtained chi value of (**9.14**) which was greater than the table value of chi square (**7.815**) at d/f 3 at 0.05 level of significance.

H4 - There will be a significant association between post-test knowledge score and socio demographic variable.

Section -VI-Findings related to association between socio demographic data and post-test practice scores.
Chi-square is used to find out the association between post test score of practice with demographic variables: There was a positive significant association between the post-test practice score of the sample with the family income of the patient as shown by the obtained chi value of (**11.84**) which was greater than the table value of chi square (**7.815**) at d/f 3 at 0.05 level of significance.This indicated that the family income of the patient and their post-test practice had significant association and were dependent on each other.

H5- There will be a significant association between post-test practice score and socio demographic variable.