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KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT ARTERIOVENOUS FISTULA CARE IN PATIENTSUNDERGOING HEMODIALYSIS STUDY

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ABSTRACT

Introduction: The study aims to evaluate the knowledge, attitude, and practices concerning Arteriovenous Fistula (AVF) care among hemodialysis patients. By investigating these aspects, we seek to identify potential gaps in understanding, attitudes, or adherence to recommended care practices. This research is crucial for developing targeted interventions and educational strategies to enhance AVF care, ultimately improving the overall well-being and treatment outcomes for hemodialysis patients. **Objectives:** The goal of the study is to assess and improve the Knowledge, Attitude and Practice about Arteriovenous Fistula care in patients undergoing hemodialysis. **Methodology**: An educational interventional study was carried out among 80 samplesin Nephroplus Dialysis Unit in ESIC MC PGIMSR & Model Hospital, Rajajinagar. The datawas collected by using self-designed content validated questionnaire and responses were recorded. All data obtained was processed and analyzed by using Microsoft excel. **Results:** It was found that most of the patient's knowledge (pre-test average score was 61.11 and posttest average score was 70.44) towards Arteriovenous Fistula Care in hemodialysis among hemodialysis patients improved after suitable intervention. The average score of attitude of Arteriovenous Fistula care among hemodialysis patients in pre-test was 62 and in post-test 72. Practice of hemodialysis patients regarding AVF care is found to be improved after an educational intervention (average score of pretests 64 and post -test is 73.4). **Conclusion:** With the right coaching and guidance provided by means of educationalprograms, this study was able to further enhance hemodialysis patient's knowledge, attitudeand practice regarding Arteriovenous Fistula care. It was observed that the study had a positive impact on knowledge and attitude among hemodialysis patients.

KEYWORDS: Arteriovenous fistula care, AVF, self-care, Hemodialysis, ESRD, clinical pharmacist.

INTRODUCTION

Chronic kidney disease is a general term used for the heterogeneous progressive irreversible disorder that leads to gradual loss of structure and function of kidney. Chronic Kidney Disease can be defined irrespective of clinical diagnosis based on the following criteria,

I. Presence and extent of kidney damage such as albuminuria, imaging abnormalities,urinary sediment abnormalities, renal tubular syndrome
II. Decreased renal function

According to the Kidney Disease Quality Outcome Initiative (K/DOQI), CKD is defined as whenglomerular filtration rate (GFR) <60 mL/min/1.73 m2 and albuminuria ie, albumin >30mg per gram of creatinine along with abnormalities of kidney structure and function for 3 months or more, irrespective of the cause.[1] The Chronic Kidney Disease will eventually progress to End Stage Renal Disease (ESRD) which the GFR is less than 15mL/min. It is a terminal illness which significantly increases morbidity and mortality. In fact in India, the age-adjusted incidence rate ofESRD has been calculated around 229 per million people (pmp). The treatment of ESRD mainly based on patient's clinical presentation and involves correction of parameters such as hypertension, serum electrolyte imbalance, anaemia, metabolic acidosis, glycaemic control, through medications along with diet and lifestyle modifications.[2] Once CKD is progressed renal replacement therapy and renal transplantations are the two treatment options. There are various type of renal replacement therapy include Hemodialysis, Peritoneal dialysis, Hemofiltration, Hemodiafiltration, Hemoperfusion. Before starting the hemodialysis permanent or temporary vascular access is created which acts as a connection to dialyzer. Vascular access is of different types including

1. Arteriovenous Fistula (AVF)
2. Arteriovenous Graft (AVG)

3. Central Venous Catheter (CVC).

Those receiving dialysis number over 130,000 and are growing by roughly 232 per million people.[3] In that most of them are with AVF rather than AVG. the selection of vascular access is mainly depending upon patient circumstances such as vessel characteristics, co-morbidities, health circumstances and patient preference. AVF shows high rate of primary failure. However, use of AVF is recommended because, after being used for dialysis, they have better secondary patency, needs less interventions to keep their patency, and are less likely to contract infections. The 2006 KDOQI vascular access guidelines state that the "costs of implantation and access maintenance are lowest for AVFs".[4] There are various complication occurs with AVF use. It can occur either immediately after surgery or after long term use of AVF in hemodialysis.[5]

Knowledge about AVF care is important to ensure patient therapeutic compliance and prevention and management of complications related to AVF in hemodialysis. Inadequate knowledge and improper practice of AVF care is common mistake among hemodialysis patients. Since failure to follow the different precautions because of ignorance or lack of practice would result in recurrent hospitalisations, patient education, attitude, and care practices are crucial in preventing complications and hospitalisation due to AV fistula. Patients should be informed about vascular access care, according to several vascular access guidelines. Patients who have AV fistulas should practice proper self-care to keep them in the best possible condition.[6,9] Similar like during the Arteriovenous Fistula maturation phase, care must be provided to increase the fistula's longevity. Some examples of this care include keeping the arm elevated, engaging in daily manual exercises, avoiding wearing tight compression garments, andmonitoring daily blood flow. Additionally, when using a fistula, various care must be followed, including monitoring blood pressure, preventing venous infusions, and employing the correct compression for hemostasis following dialysis. The knowledge of this information is essential since it influence the attitude and proper practice of self-care in patients with AV fistula. Clinical pharmacist can increase the patient knowledge about AVF care by giving patient education, which is considered as fundamental process to improve AVF use. This will helpto bring positive attitude and proper practice of AVF care in hemodialysis patients.

OBJECTIVES: To assess the Knowledge, Attitude and Practice about Arteriovenous Fistula care among patients undergoing hemodialysis.

MATERIALS AND METHODS STUDY DESIGN: This was an observational study.

STUDY SITE: The study was conducted at Nephroplus Dialysis Unit in ESIC MC PGIMSR & Model Hospital, Rajajinagar, Bangalore.

STUDY PERIOD: The study was carried out for a period of 6 months.

SAMPLE SIZE: A total of 84 subjects were selected out of which 80 subjects were included in the study.
N = z2 *p(1-p) / m2N = Sample size
Z = 1.96
P = Population proportionM = Margin of error (10%)
p = (Number of hemodialysis patients with AVF) / (Number of hemodialysis patients) =70/90=0.77
q = 0.3
n = (1.96)2x (0.77x0.3)/ (0.1)2 =~80
Net sample size = n+5% of n = 80+4= 84

STUDY APPROVAL: The study was approved by Institutional Review Board of ESIC MC PGIMSR & ModelHospital, Rajajinagar, Bangalore.

STUDY POPULATION: A total of 84 participants were included in the beginning, out of which 4 samples were dropped out due to insufficient data and the final sample size was 80.

STUDY CRITERIA

Inclusion criteria

1. Patients above 18 years of age and of both genders admitted to the Nephroplus dialysis unit in ESIC hospital, Bengaluru
2. Patients undergoing dialysis with arteriovenous fistula
3. Patients willing to participate and sign written informed consentExclusion criteria

1. Patients presented with psychological or psychiatric disorders
2. Patients on peritoneal dialysis.
3. Patients on other methods of vascular access.

SOURCES OF DATA

1. Face to face interview with study subject.

STUDY TOOLS: The following tools were employed to obtain information pertaining to the study

1. Case record form
2. Self -designed and validated questionnaire.

STUDY PROCEDURE

- After obtaining clearance from Institution Ethics Committee, the study was commenced and subjects for the study were identified based on the inclusion and exclusion criteria.
- After explaining the procedure to the patient written consent form was obtained from the subjects.
- A self-designed case report form was used to record the patient's demographic details, current illness, and other relevant information.
- Pretest was conducted to assess the Knowledge, attitude, and practice about AVF care and self-care

management of patients undergoing hemodialysis by using a self- validated questionnaire.

- Counselling was provided to the patients regarding self-care management with AV fistula.
- Post-test was then conducted during the next visit by using the same questionnaire to assess the improvement in KAP.
- Data collected was entered into excel sheet and suitable statistical analysis was done.

STATISTICAL ANALYSIS: All recorded data were entered into Microsoft Excel software and data was summarised using descriptive statistics. Mann Whitney U test was done to compare the pre and post test scores. Association between KAP scores was done by using ANOVA test and correlation between knowledge and attitude scores was done by Pearson's correlation method.

RESULTS: The study was conducted in the Nephroplus Dialysis Unit in ESIC MC PGIMSR & Model Hospital, Rajajinagar, Bengaluru, and carried out for 6 months. A total of 84 participants were included in the beginning out of which 4 samples were dropped out due to insufficient data andthe final sample size was 80.

DISTRIBUTION OF SUBJECTS ACCORDING TO GENDER: Among the 80 study participants, majority of participants were male (n=61, 76.5%).

Table 1: Distribution of subjects based on gender.

Gender	Number of subjects	Percentage
Male	61	76.25%
Female	19	23.75%

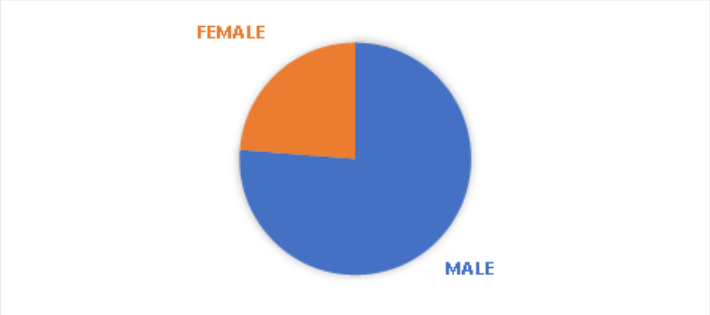
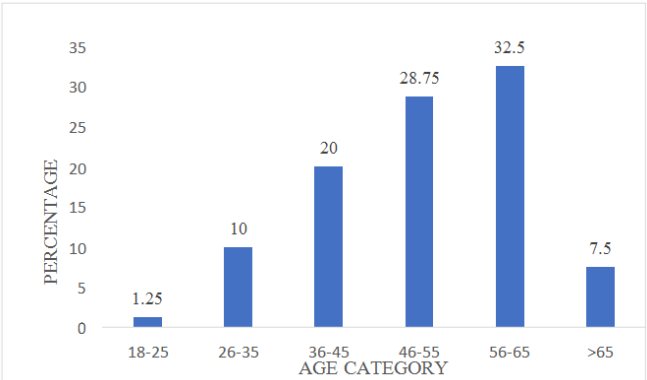


Figure 1: Distribution of subjects based on gender.

DISTRIBUTION OF SUBJECTS ACCORDING TO AGE: 32.5% percentage of subjects were in age group of 56-65 years and 28.75% of subjects were in age group of 46-55 years.

Table 2: Distribution of subjects based on age.

AGE CATEGORY	NO OF PATIENTS	PERCENTAGE
18-25	1	1.25
26-35	8	10
36-45	16	20
46-55	23	28.75
56-65	26	32.5
>65	6	7.5



DISTRIBUTION OF SUBJECTS ACCORDING TO DURATION OF HEMODIALYSIS: Majority of the study population 37 (46.25%) were undergoing hemodialysis for 1-3 years.

Table 3: Distribution of subjects according to duration of Hemodialysis.		
DURATION	**NO OF SUBJECTS**	**% Total**
<1 year	16	**20.00%**
1-3 year	37	**46.25%**
>3 year	27	**33.75%**

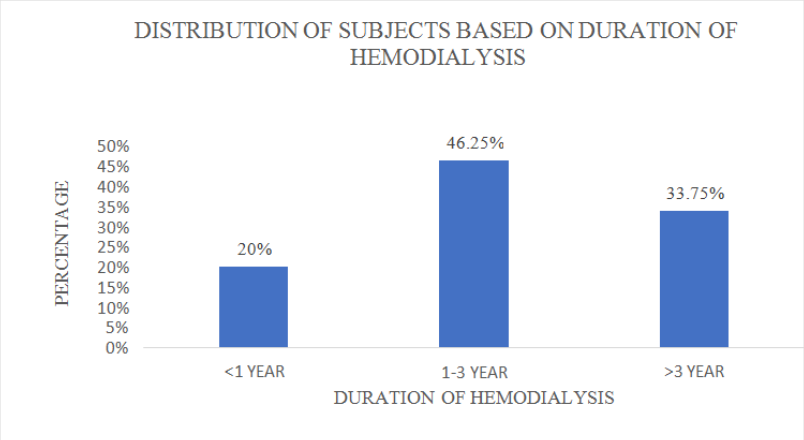


Figure 3: Distribution of subjects according to duration of hemodialysis.

ASSESSMENT OF KNOWLEDGE ON AV FISTULA CARE IN PRE-TEST

The pre – test evaluation demonstrated 31 (38.75%) had High Level Knowledge. 55% of the subjects had Moderate Level knowledge while 5 (6.25%) had Low Level knowledge.

Table 4: Distribution of subjects based on knowledge level in pre- test.			
KNOWLEDGE	**CATEGORY**	**NO OF SUBJECTS**	**% TOTAL**
High level	80-100%	31	38.75
Moderate level	60-79%	44	55%
Low level	<60%	5	6.25%

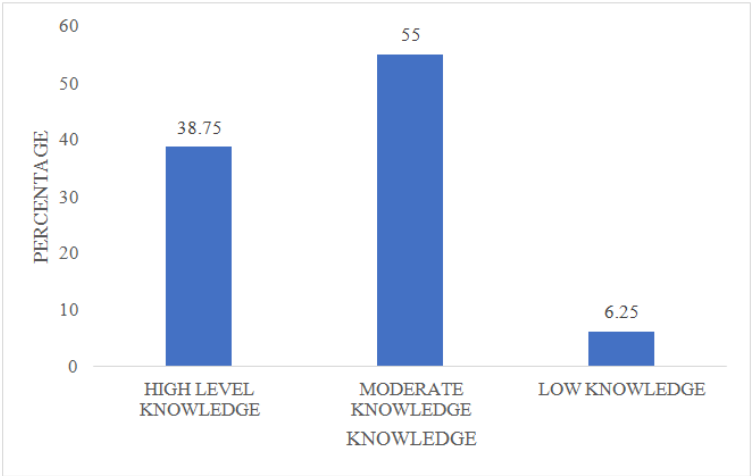


Figure 4: Distribution of subjects according to knowledge level in pre-test.

KNOWLEDGE SCORE OF AVF CARE AMONG SUBJECTS ACCORDING TO DEMOGRAPHIC CHARACTERISTICS IN PRE-TEST: Subject group of 46-55 years of had "High Level Knowledge" Compared to other age groups Subjects with secondary and/ or graduate level of education showed high level of knowledge with 17.5% and 15 % respectively. Subjects undergoing hemodialysis for more duration, namely 1-3 years, showed high level knowledge regarding AVF care.

Table 5: Patients' knowledge score distribution according to demographic characters in the post-test.

Demographic details		Lowm level Knowledge (Score <60%)		Moderate Knowledge (Score 60% - 79%)		High level Knowledge (Score >80%)	
		N	%	N	%	N	%
Age	18 – 25 Years	0	0%	0	0%	1	1.25%
	26 – 35 Years	0	0%	1	1.25%	7	8.75%
	36 – 45 Years	0	0%	4	5%	12	15%
	46 – 55 Years	0	0%	10	12.5%	13	16.25%
	56 – 65 Years	0	0%	13	16.25%	13	16.25%
	Above 65 Years	0	0%	3	3.75%	3	3.75%
Educational status	None	0	0%	5	6.25%	1	8.75%
	Primary	0	0%	10	12.5%	4	25%
	Secondary	0	0%	13	16.25%	14	40 %
	Graduate	0	0%	3	3.75%	12	26.25%
Dialysis Duration	< 1 Year	0	0%	7	8.7.5%	9	11.25%
	1 – 3 Years	0	0%	11	13.75%	26	32.5%
	> 3 Years	0	0%	13	16.25%	4	17.5%

ASSESSMENT OF KNOWLEDGE ABOUT AV FISTULA CARE IN POST-TEST: Post-test Evaluation of knowledge about AV Fistula care showed improvement with 49(61.25%) subjects having high level knowledge, 31 (38.75%) having moderate level knowledge.

Table 6: Distribution of subjects based on knowledge level in post- test.

KNOWLEDGE	CATEGORY	NO OF SUBJECTS	% TOTAL
High level	80-100%	49	61.25%
Moderate level	60-79%	31	38.75%
Low level	<60%	0	0%

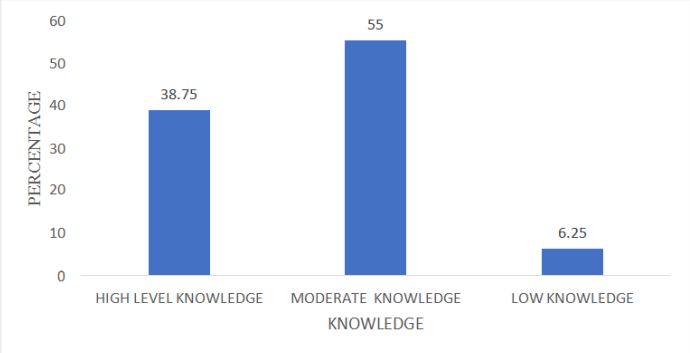


Figure 6: Distribution of subjects according to knowledge level in post-test.

KNOWLEDGE SCORE OF AVF CARE AMONG SUBJECTS ACCORDING TO DEMOGRAPHIC CHARACTERISTICS IN POST-TEST: Post-test evaluation of knowledge about AV Fistula care showed substantial increase in knowledge in all age groups with subjects of age group 46-55 and 56-65 years of age (16.5%) showing high level knowledge.

Table 7: Patients' knowledge score distribution according to demographic characters in the post-test.

Demographic details		Low level Knowledge (Score <60%)		Moderate Knowledge (Score 60% - 79%)		High level Knowledge (Score >80%)	
		N	%	N	%	N	%
Age	18 – 25 Years	0	0%	0	0%	1	1.25%
	26 – 35 Years	0	0%	1	1.25%	7	8.75%
	36 – 45 Years	0	0%	4	5%	12	15%
	46 – 55 Years	0	0%	10	12.5%	13	16.25%
	56 – 65 Years	0	0%	13	16.25%	13	16.25%
	Above 65 Years	0	0%	3	3.75%	3	3.75%
Educational status	None	0	0%	5	6.25%	1	8.75%
	Primary	0	0%	10	12.5%	4	25%

	Secondary	0	0%	13	16.25%	14	40 %
	Graduate	0	0%	3	3.75%	12	26.25%
Dialysis Duration	< 1 Year	0	0%	7	8.7.5%	9	11.25%
	1 – 3 Years	0	0%	11	13.75%	26	32.5%
	> 3 Years	0	0%	13	16.25%	4	17.5%

Evaluation of knowledge during the post-test revealed improvement in knowledge regarding AVF care in Hemodialysis patients. During post-test the knowledge about the benefits of AVF over catheters had increased to 75%. However, the knowledge regarding AVF maturation and compression exercise is significantly low. Furthermore, some patients (32.5%) didn't realize the importance of visiting hospital in case of thrombosis at the AVF site.

A Mann Whitney U test was conducted with pre and post scores of knowledge, **and the result is significant at p <.05 (0.003).**

ASSESSMENT OF ATTITUDE TOWARDS AVF CARE IN HEMODIALYSIS PATIENTS: The attitude of the respondents towards AVF care among hemodialysis patients was assessed by using self-designed questionnaire. Each question was scored as 1 for correct answer and zero for wrong or unclear answer. Total score for each subject and its percentage was calculated.

ASSESSMENT OF ATTITUDE ON AV FISTULA CARE IN PRE-TEST: During pre-test 50% of the subjects had Positive Attitude while others had Neutral Attitude at 31.25% and Negative Attitude at 18.75%.

Table 8: Distribution of subjects based on attitude level in pre- test.		
ATTITUDE	**NO OF SUBJECTS**	**PERCENTAGE**
Positive attitude (80-100%)	40	50.00%
Neutral attitude (60-79%)	25	31.25%
Negative attitude (<60%)	15	18.75%

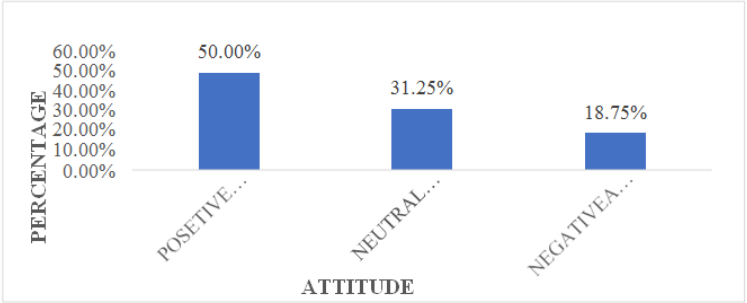


Figure 7: Distribution of subjects according to attitude level in pre-test.

ASSESSMENT OF ATTITUDE ON AV FISTULA CARE IN POST-TEST: After post-test 68 (85%) subjects had positive attitude while 12 (15%) had neutral attitude noneof them had negative attitude.

Table 9: Distribution of subjects based on attitude level in post- test.			
ATTITUDE	**CATEGORY**	**NO OF SUBJECTS**	**PERCENTAGE**
Positive attitude	80-100%	68	85
Neutral attitude	60-79%	12	15
Negative attitude	<70%	105	0

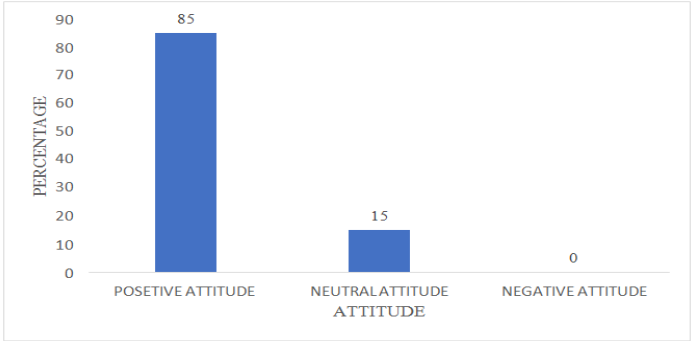


Figure 8: Distribution of subjects according to attitude level in post-test.

A Mann Whitney U test was conducted with pre and post scores of attitude **and the result issignificant at p <.05 (0.0088).**

ASSESSMENT OF PRACTICE OF AVF CARE IN HEMODIALYSIS PATIENTS: The practice of the subjects towards AVF care was assessed by using self-designedquestionnaire.

ASSESSMENT OF PRACTICE OF AV FISTULA CARE IN PRE-TEST: Out of 80 subjects 53 (66.25%) had high level practice while 22 (27.50%) had moderate level practice in pre-test. Only 4 (5%) subjects had low level practice.

Table 10: Distribution of subjects according to practice level in pre-test.

PRACTICE	CATEGORY	NO OF SUBJECTS	% TOTAL
High level	80-100%	53	66.25%
Moderate level	60-79%	22	27.50%
Low level	<60%	4	5%

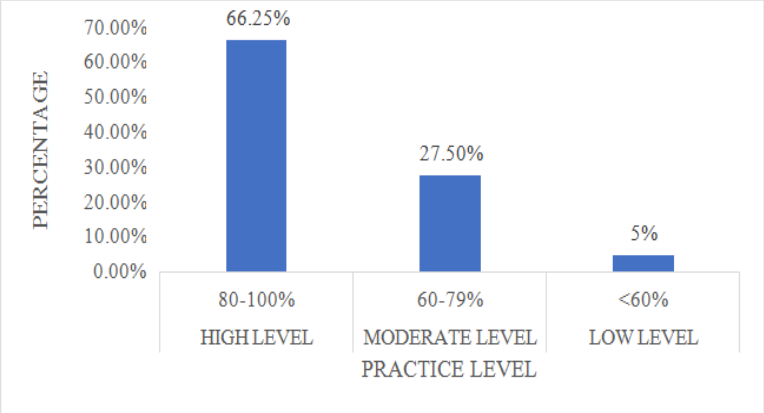


Figure 9: Distribution of subjects according to practice in pre-test.

ASSESSMENT OF PRACTICE ON AV FISTULA CARE IN POST-TEST: Out of 80 subjects 78 (97.50%) had high level practice while 2 (2.50%) had moderate level practice in post- test. No one shows low level practice.

Table 11: Distribution of subjects according to practice level in post-test.

PRACTICE	CATEGORY	NO OF SUBJECTS	% TOTAL
High level	80-100%	78	97.50%
Moderate level	60-79%	2	2.50%
Low level	<60%	0	0%

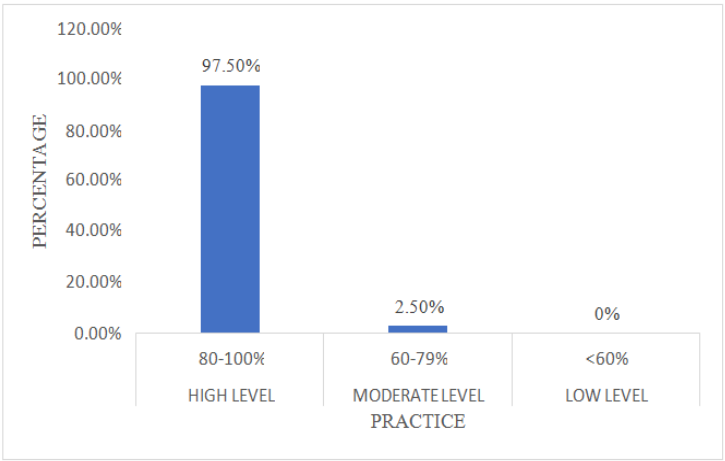


Figure 10: Distribution of subjects according to practice in post-test.

A Mann Whitney U test was conducted with pre and post scores of practice, that **and the resultis significant at p <.05 (<0.00001)**

ASSOCIATION BETWEEN KNOWLEDGE, ATTITUDE AND PRACTICE SCORESIN PRE-TEST

Table no 12: Association between knowledge, attitude and practice scores in pre-test.

Anova: Single Factor						
SUMMARY						
Groups	**Count**	**Sum**	**Average**	**Variance**		
KNOWLEDGE	18	1100	61.11111	163.9869		
ATTITUDE	3	187	62.33333	264.3333		
PRACTICE	10	646	64.6	145.6		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
BetweenGroups	78.25233	2	39.12616	0.236777	0.790731	3.340386
Within Groups	4626.844	28	165.2444			
Total	4705.097	30				

ASSOCIATION BETWEEN KNOWLEDGE, ATTITUDE AND PRACTICE SCORES IN POST TEST

Table no 13: Association between knowledge, attitude and practice scores in post –test.

SUMMARY						
Groups	***Count***	***Sum***	***Average***	***Variance***		
K2	18	1268	70.44444	108.732		
A2	3	216	72	49		
P2	10	734	73.4	20.71111		
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
BetweenGroups	56.83297	2	28.41649	0.373052	0.692001	3.340386
WithinGroups	2132.844	28	76.17302			
Total	2189.677	30				

The result is insignificant at P value <0.05

CORELATION BETWEEN KNOWLEDGE, ATTITUDE, AND PRACTICE IN PRE- TEST

Column1	***Knowledge***	***Attitude***	***Practice***
Knowledge	1		
Attitude	0.113126	1	
Practice	0.179631	0.274378	1

Table no 14: correlation between knowledge, attitude and practice scores in pre-test.

R VALUE	0.274
R^2 VALUE	0.075
R PERCENTAGE	7.5%

CORELATION BETWEEN KNOWLEDGE, ATTITUDE, AND PRACTICE IN POST-TEST

Table no 15: correlation between knowledge, attitude and practice scores in post-test.

Column1	***Knowledge***	***Attitude***	***Practice***
Knowledge	1		
Attitude	0.0691486	1	
Practice	0.080464851	0.1237222	1

R VALUE	0.1237222
R^2 VALUE	0.015
R PERCENTAGE	1.5%

Pearson's coefficient test show that there is positive linear relationship between the three variables in both pre and posttest (r= 0.274 and r= 0.124 respectively)

DISCUSSION

For the treatment of ESRD, hemodialysis is the most preferred approach. For vascular access intravenous catheter, Arteriovenous Fistula or Arteriovenous Graft can be used. The Arteriovenous Fistula (AVF) is recommended in clinical practice guidelines as the ideal vascular access for hemodialysis (HD). Knowledge, attitudes, and practices are crucial to the success of a patient's longterm treatments, such as hemodialysis through an AVF access site, and to limiting complic ations. Patients motivated by counseling and proper knowledge practice precautionary measure more often resulting in decreased rate of complication and increased period of patency and functioning of fistula.

An educational interventional study was performed in Nephroplus dialysis unit ESIC MC PGIMSR & Model Hospital, Rajajinagar, Bengaluru by enrolling 80 study subjects conducted fora period of 6 months. Respondents were interviewed using a self-designed questionnaire about their knowledge, attitude and practice on self-care of AVF in hemodialysis patients. The KAP questionnaire consisted of 33 questions divided into four domains – Knowledge, Attitude, Practice and self-care. For each question correct answer was scored as 1 and the wrong or unclear answer given as zero. There were 18 questions in knowledge domain. The respondent's knowledge aboutArteriovenous Fistula and its self-care management was assessed and improved based on their responses. Total score for each patient is calculated out of eighteen and categorized into three groups (High level knowledge >80%, moderate level knowledge 60-79%, Low level knowledge <60%) according to their respective total percentage score. There were three general questions to assess the attitude of the respondents regarding AVF and its self-care and categorized patients according to their score into positive attitude (>80%), neutral attitude (60-79%) and negative attitude (<60%). There were 10 questions in practice domain to assess practice on how well they maintain AVF, and how well they assure hygiene practices regarding AVF and categorized subjects according their score into High level Practice (>80%), moderate level practice (60-79%),and low level Practice (<60%). It also evaluates the ability of subject to manage complications related to AVF.

Out of the 80 subjects included in the study most of them belonged to the age group of 56-65 yearsand the average age of the study subjects was 51.9 years which is divergent to the mean age of theparticipants in the study conducted by **Pessoa NRC *et al*.**,[9] which was 55.4 years. In the Currentstudy out of the 80 patients 61 were males and 19 were females. This result is in line with the studyconducted by **W.D.M.G. Amarasinghe *et al.*,**[10] in that majority of the patient population weremales. In this study most of the study population were undergoing hemodialysis for 3 times for week which is contrary to the study done by **Misha Javid *et al.*,[11]** in that most of them undergoing hemdialysis foe twice a week. Regarding education, 66.25y% had either secondary or higher education which is in line with study done by **W.D.M.G. Amarasinghe *et al.*,**[10] which was 62.5%.

In this study only 38.75% had High level knowledge which is contrary with research done by **Rashid *et al.*,**[11] but comparable with research conducted by **Pesoa NRC *et al.*,**[9] Only 62.5% of subjects knew why they needed AVF. The assessment of the subject's knowledge about fistulacare revealed that 90% of the subjects knew that to avoid lifting excessive weight from AVF site. 91.25% of subjects knew that to avoid sleeping over AVF access site and to avoid wearing jewelry, a watch, or tight clothing on the AVF access site. A significant deficiency of knowledge (60%) was observed regarding the benefit of AVF access over dialysis catheters. Furthermore, speaking of knowledge, it was shown that half of the study participants were unaware of AVF maturation and manual compression exercises for AVF maturation. However, some patients (18.75%), did not understand the significance of checking pulse/thrill at the AVF site every day. The majority were knowledgeable about avoiding holding heavy weights on the access arm (90%), and not sleeping over AVF access arm (91.25%).

This study described feeling motivated, prepared and feeling beneficial of AVF selfcare as adequate attitudes. Only 50% revealed positive this attitude towards AVF self-care in the current analysis. Contrary with Rashid et al and Iqbal et al[11] showed positive attitudes towards AVF carein majority of the study population. But Post-test Evaluation of attitude about AV Fistula care showed improvement with 68 (85%) subjects having positive attitude.

The AVF care practiced by ESRD patients was categorized as sufficient in 66.25% of population which is contrary with research done by **Pesoa NRC**[9], which is improved to 97.5% after post- test which is comparable with study conducted by **W.D.M.G. Amarasinghe *et al.*[10]**

The study employed the Mann- Whitney U test to compare post-knowledge with pre knowledge, post attitude with pre attitude and post-practice with pre practice, which revealed highly significant differences between the variables. However, the study found a significant correlation between knowledge, attitude, and practice in pre-test as well as post-test. Additionally, the study employed the One- way ANOVA test to compare variation in knowledge, attitude and practice in pre and post-test and found that there is no significant variation between knowledge, attitude and practicein both pre and posttest.

CONCLUSION

Knowledge about AVF care is essential for limiting complications and ensure the medication adherence. The participants had comparatively favorable attitude towards AVF self-care, but their knowledge needs considerable improvement. The study demonstrates overall good knowledge, positive attitudes leading to adequate practices towards AVF self-care at the access site after intervention. Few inconsistencies are present in a couple of practices e.g., routine AVF thrill check-up, cleaning and decontamination before haemodialysis. So, we suggest that consistent cues and scheduled assessment should be provided by health providers on practical parts of AVF self-care patients of ESRD coming on haemodialysis.

This study found that clinical pharmacist can increase knowledge about AVF care thereby improve positive attitude and adequate practice regarding AVF care and selfcare management. Training programs targeting the health care providers are recommended which will

ultimately transfer the knowledge of the importance of AVF self- care to the patients. In addition, continuous program of health education should be encouraged with use of written material which allow later reference to solve doubts that may appear. Periodic evaluation of the patient's knowledge, attitudes and practices will aid in developing future educational strategies towards achievement of necessary care.

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LIST OF ABBREVATIONS

ABBREVIATION	EXPANSION
AKD	Acute Kidney Disease
AV	Arteriovenous
AVF	Arteriovenous Fistula
AVG	Arteriovenous Graft
CKD	Chronic Kidney Disease
CVA	Cerebral Vascular Accident
CVC	Central Venous Catheter
ESRD	End Stage Renal Disease
GFR	Glomerular Filtration Rate
HD	Hemodialysis
K/DOQI	Kidney Disease Quality Outcome Initiative
KAP	Knowledge, Attitude And Practice
NKF-KQOQI	National Kidney Foundation's Kidney DiseaseOutcomes Quality Initiative

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