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ASSESSMENT OF SELF-CARE PRACTICE AND KNOWLEDGE OF ARTERIOVENOUS FISTULA IN HEMODIALYSIS PATIENTS AT PUBLIC HOSPITAL LAHORE, PAKISTAN

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Abstract

Introduction: *The chronic kidney disease and hemodialysis status for end stage kidney diseases is a major health problem worldwide. When the question of choice of vascular access in hemodialysis is raised, arteriovenous fistula is the choice point because of the longer duration of survival and reduction in complications associated with its use. But a lack of understanding and the lack of good self-care habits may result in infection, thrombosis, stenosis and failure of the fistula.*

Objective: *To determine the knowledge and self-care practice among hemodialysis patient regarding arteriovenous fistula in a public hospital of Lahore Pakistan.*

Methodology: *A quasi-experimental study was done in the dialysis unit of Sir Ganga Ram Hospital, Lahore. Convenient sampling was used and a total of 78 patients who were undergoing hemodialysis and had arteriovenous fistula were selected. Structured questionnaire that had been adapted was used in data collection. Patients were also pre-assessed and then given the educational guidance via the brochure and re-assessed after 3 weeks. SPSS version 25.0 was used to analyze the data and the Wilcoxon signed-rank test was used ($p < 0.05$ was taken as statistically significant).*

Results: *The average age of the subjects was 48.82 ± 12.40 years. Among 78 patients, 45 (57.7%) were male and 33 (42.3%) were female. Of the 73 respondents, most (93.6%) received hemodialysis three times a week. Knowledge increased following education (post education: awareness of AVF site 100%, sleeping on AVF site 94.9%, avoiding heavy weight lifting 98.7%, and avoiding sleeping on AVF site 78.2%). Self-care practices have also improved particularly in relation to AVF washing which has risen from 20.5% to 94.9% daily washing.*

Conclusion: *The study found that there was a statistically significant increase in patients' knowledge and their self-care practices in caring for their arteriovenous fistula after the education intervention. It is advisable to include health education using a nursing-led protocol to avoid complications, enhance*

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outcomes in hemodialysis, and prevent complications arising from the use of AVFs.

INTRODUCTION

1.1 Background:

The kidneys are among the most vital organs of the human body which are essential for the homeostasis of the body's extracellular fluid. It can be acute (developing in hours or days), kidney diseases can be acute and chronic (longer term) (Muthusamy, Sudha et al. 2021).

Chronic kidney disease is usually caused by a long-term disease, such as high blood pressure or diabetes that slowly damages the kidneys and reduces their function over time. Hemodialysis is the most commonly used treatment in chronic kidney disease (Muthusamy, Sudha et al. 2021).

Millions of people worldwide are impacted by chronic kidney disease, an increasingly serious global health issue. Hemodialysis often is necessary as end-stage renal disease develops in the course of chronic renal disease. What does vascular access mean? The more general method of dialysis exchange is called hemodialysis; the success of this option will depend on creating an appropriate arteriovenous fistula in hemodialysis treatment. A fistula is the name applied to the opening of an artery into a vein. There are a number of vascular access options, the most common of which is the removal of the artery and forming an arteriovenous fistula in the non-dominant forearm of the arm or forearm. If there is not enough room in the native veins for this type of access, making punctures into an artery is possible by using a synthetic vascular graft interposed between an artery and vein, and finally, vascular access can be obtained by using central venous catheters (Abdel Hakeim, Desoky et al. 2024).

Chronic kidney disease is a common condition all over the world that demands the self-care decision of patients. Now one of the leading causes of death of patients (Khalifa, Ali et al. 2024).

The most widely-used form of treatment for end stage renal disease is hemodialysis (Khalifa, Ali et al. 2024).

Hemodialysis involves filtering of blood using a filter or semipermeable membrane. The filter then eliminates the extra water, poisons and waste materials from the blood. It helps to maintain the homestead of body, protects normal blood pressure and purifies the blood (Khalifa, Ali et al. 2024).

Arteriovenous fistula is a form of access employed in hemodialysis. The fistula is made under the skin and accessed during dialysis for the dialysis itself. Once it's created, an AV fistula won't be able to be used for hemodialysis until it's mature enough, usually in several weeks or months, by strengthening itself. The more access arm exercises the stronger it becomes and as soon as possible will be able to use fistula. These exercises will be based on the location of the fistula, and certain arm and finger exercises will strengthen the fistula. Typically this is found either on the forearm or in the upper arm (Atalla, Soliman et al).

Despite the fact that the arteriovenous fistula is the most desirable form of access for dialysis, it has a number of complications such as stenosis, thrombosis, infection, formation of aneurysm, steal phenomenon and cardiac overload. To avoid these complications, these factors must be attended to by the health care personnel and patients themselves (Iqbal, Shareef et al).When receiving hemodialysis treatment, the person may have a series of complications during treatment. A frequent problem associated with the process of hemodialysis is hypotension (low blood pressure) that results from the rapid decrease in blood flow during the treatment by the process of ultrafiltration. In addition, the "patients" may complain of abdominal cramps, abdominal pain, indigestion, nausea and vomiting, low back pain, chest pain, or shortness of breath. When levels of potassium are increased, then the cardiac changes can happen which result in bradycardia or arrhythmias. Dramatic fall in hematocrit seen with rupture of the red blood cells (Ibrahim, Abdelaal Badawi et al. 2022).

A variety of complications in vascular access such as infection, thrombosis and stenosis, contribute to major risks regarding the welfare of each patient undergoing maintenance hemodialysis. They decrease the efficiency of hemodialysis and are responsible for morbidity and health care costs. To meet these challenges requires a multifaceted approach both through patient education and self-care using vascular

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access care guidelines (Abdel Hakeim, Desoky et al. 2024).

Basically, the research identified interventions for the patients who have arteriovenous venous fistula that support their "teaching" for self-care (behavior). More studies are needed, however, about the self-care behaviors that can be espoused to maintain an arteriovenous fistula. To develop educational programs aimed at the audience of renal patients, it is critical to understand the AVF maintenance care that is necessary. These programs should include appropriate self-care tendency to be adopted by patients. Thus, this study aims to find the renal patients' behaviors related to AVF maintenance self-care (Pessoa, Lima et al. 2020).

International practice varied greatly in the way that vascular access is done. While most patients have an AV fistula for hemodialysis, country-specific rates of AV fistula use in those undergoing maintenance hemodialysis had a wide range from 49% to 92%, and TC-CVC had a wide range from 1% to 45% according to data from the Dialysis Outcomes and Practice Patterns Study. The maturation time of the arteriovenous fistula (AVF) and AVF patency are also different internationally (Murakami, Fujii et al. 2023).

If a patient is being treated by hemodialysis, she must have an arteriovenous fistula. Because of the low morbidity and mortality, the arteriovenous fistula is believed to be the best hemodialysis access for the dialysis therapy, due to its long lifespan, allowing for a safe and continuous lesion (AVL) (less than AVG and catheter). AVF dysfunction can account for as much as one-third of all hospital admissions, and significantly increase the patients' medical expenses (Khalifa, Ali et al. 2024).

Dialysis patients need the skills of home care management. A set of practices that is provided to patient with chronic renal failure to improve their well-being and daily functioning at home by family members and/or caregivers. Investigator thus decided to examine the caregiver's behavior when delivering home hemodialysis for the patient over the course of his entire career (Pandey, Kaur et al).

Poor health literacy puts a person at a higher risk for being sick, and also means that they may not get diagnosed when they need to be and may not receive the appropriate care and thus have poor outcomes. If there's a need for positive changes in lifestyle, then literacy is of the essence (Khalifa, Ali et al. 2024). Thus, proper education of hemodialysis patients on self-care techniques and stressing the importance of self-care behaviors and ways of life to prevent the progression of chronic kidney disease is necessary. It is therefore important that patients are strongly involved in the self-care strategy (Khalifa, Ali et al. 2024).

Once dialysis starts patients will have to make changes in their day-to-day life, as there may be physical and psychological side effects. So, to have the highest results from kidney dialysis it is essential to manage itself (Atalla, Soliman et al.)

Researcher's clinical experience indicated that the hemodialysis patients had not known information on how to manage AV fistulas properly. This study aims to provide patients with brochures that contain information regarding the self-care practices in AVF. To achieve effective support plans and improve self-care, a situation requires a greater understanding of the patient's life. Thus, it is important to determine patients' level of health literacy and self-care activities to assist them in better achieve outcomes and reducing complications from their HD. The purpose of the present study was to evaluate the knowledge about arteriovenous fistula (AVF) and its care and practice among the dialysis patients.

1.2 Problem statement:

Individuals with low health literacy are more likely to come in with more severe symptoms, resulting in delays in diagnosis and treatment, and poor outcomes. Accessing the vascular system is a lifeline for any hemodialysis patient, enabling a patient to receive a life sustaining treatment, and is considered to be an important aspect of a hemodialysis patient's management. To avoid complications and ensure the long-life of the access, vascular access must be kept in good condition. Patients' knowledge and self-care practices with vascular access care guidelines are an important element toward achieving optimal outcomes.

1.3 Significance of Study:

This study could be useful to address this issue. The study can be beneficial to give insight for administration/policy maker to focus on

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knowledge or self-care practice of patients about arteriovenous fistula. This research might also be beneficial to the nurses in understanding the significance of patient's selfcare practice in regard to their health when it comes to the AV fistulas. Hence, the present study is designed to be undertaken to assess self-care practice and knowledge of AV fistula with hemodialysis patients in public hospital Lahore, Pakistan.

1.4 Objectives:

- To assess patient's knowledge on arteriovenous fistula.
- To assess the self-care practices of the patients about Arteriovenous fistula.

1.5 Research question:

Q: Why was it necessary to assess patient's knowledge about AVF?

Q: Why it was important to evaluate patient's self-care practice in relation to AVF?

1.6 Operational definition:

Knowledge: Knowledge is gained through experience, learning or insight into a particular fact or facts.

Self-care: It's performing some actions on your own behalf to live a healthy life.

LITERATURE REVIEW

2.1 Background:

Nowadays, the kidney disease is a non-communicable disease and it affects 8 million people in the world. Kidney diseases are in the large majority, "silent diseases", meaning that most of the time people are not aware that their kidneys are not working properly and usually do not have obvious symptoms of kidney disease. One of these chronic kidney diseases is a burgeoning public health challenge in international and is estimated to affect 11% of the adult population; the global renal burden is projected to increase and will be the 5th leading cause of years of life lost worldwide by 2040 (Buddannavar, Peerapur et al. 2024).

Chronic kidney Diseases are the most prevalent type of kidney diseases and prevalence is estimated at approximately 10.4% (males) and 11.8% (females) worldwide. It's estimated that there are 20,000 new patients with end-stage kidney failure each year in India. It is Dr Willem Kolff who is called the father of Dialysis. In 1943 this young Dutch doctor, built the first dialyzer or 'artificial kidney'. The first successful dialysis was done in 1943 (Buddannavar, Peerapur et al. 2024).

Chronic kidney disease is largely considered as an important health problem across the world and requires self-care in terms of treatment. Now it has become one important cause of death of the patients. Patients who are to receive hemodialysis should do the conventional self-care practices to minimize the chances of AVF related problems. But many patients aren't able to use an AVF effectively, in part because they aren't aware of the type of maintenance the AVF needs (Khalifa, Ali et al. 2024).

Health literacy is the ability to access, understand and use health information (Khalifa, Ali et al. 2024).

Health literacy focuses on reducing the risk of people getting more seriously ill due to lower levels of health literacy, is delayed in finding out and receiving treatment, which leads to poor results. Health literacy is important to reinforce positive health choices. Thus, it is important to ensure that the hemodialysis patient is adequately instructed in the skills of self-care and self-care behavior and lifestyle change are important in slowing the deterioration of BEC. For this purpose, the patient should be engaged in the patient's self-care plan (Khalifa, Ali et al. 2024).

In 2017, there were estimated to be 843.6 million people with chronic kidney disease (CKD) in the world. Health literacy can be vital to preventing complications amongst chronic kidney disease sufferers, such as metabolic and cardiovascular disease. The health literacy level of patient with renal illness was associated with better self-care practices such as smoking cessation and medication adherence to prescription (Khalifa, Ali et al. 2024).

In order to create effective support measures and to improve self-care behaviors, it is important to first develop a better knowledge of the patient's daily life. Hence, health literacy and self-care practice should be measured in patients to help them enhance their health outcomes and avoid potential complications of hemodialysis (Khalifa, Ali et al. 2024).

Compression of AVF should be avoided while the patient is in the hemodialysis (HD). The patient on HD should practice the same

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conventional self-care measures as others to prevent problems with AVF. However, many of the patients do not know the care that the arteriovenous fistula requires and thus they are not able to make the best of their fistula (Khalifa, Ali et al. 2024).

Globally, the end-stage kidney disease (ESKD) remains a severe public health problem. Worldwide, there are already over 2.6 million persons receiving kidney replacement therapy (KRT) and this number is projected to rise to 5.4 million by 2030. Most of these patients are hemodialysis patients. The most commonly used and preferred vascular access is arteriovenous fistula because there are less complications associated with it. Kidney Disease Outcomes Quality Initiative guidelines for vascular access have been cautious of using the central venous catheter as a long-term hemodialysis access (Murakami, Fujii et al. 2023).

Kidney failure is still a critical challenge in public health worldwide. The term chronic kidney disease is used to describe loss of kidney function that occurs over a longer time period than three months in patients who have raised blood urea and raised blood urea nitrogen and/or raised blood creatinine throughout worldwide. Chronic kidney disease (CKD) is usually classified into 5 stages, depending on the level of the estimated glomerular filtration rate (eGFR). As per Singh (2008) the range of eGFR in stage one is 90 mls/min/1.73 m2 or higher and in stage two is 60 to 89 mls/min/1.73 m2. Stage three usually is divided in to two stages of 3a and 3b where estimated glomerular filtration rate is (45-59) mls/min/1.73 m2 and (30-44) mls/min/1.73 m2, respectively. Kidney functions of a significantly lower level are typically considered to be in stage four and have an EFGE of 15.29 ml/min/1.73 m2. Kidney replacement therapy has currently reached just over 2.6 million, and is predicted to quadruple to 5.4 million by 2030, with an eGFR<15 mls/min/1.73 m2 being the threshold for starting replacement therapy, which is called stage five, or end stage kidney disease. Most of these patients are treated by hemodialysis. Arteriovenous fistula is considered the most commonly used and best type of vascular access, because it has the least complications. Guidelines for vascular access as provided by KDIGO strongly oppose using a central venous catheter as it relates to long-term hemodialysis access (Nyarara 2023).

In 2017, an estimated 700 million suffer from chronic kidney disease globally and 9.1% of people were found to have it in the country. In 1990, the prevalence of chronic kidney disease was 17.9% which was unchanged from the age standardized prevalence (-1.1 to 3.5% or 1.2%) (Pandey, Kaur et al.).

In 2017 saw 1.4 million fatalities from cardiovascular disease as a result of kidney failure, representing 7.6% of deaths from heart-related conditions. Cardiovascular diseases and decreased kidney function (chronic kidney disease) were the second leading cause of death, accounting for 4.5% of deaths (Pandey, Kaur et al.).

The prevalence of stages 1, 2, 3, 4 and 5 chronic kidney disease (CKD) is 3.5%, 3.9%, 7.6% and 0.4% and 0.1% in the world respectively. Today it is estimated that some 800 million people worldwide are affected and the number will grow in the future. Chronic renal diseases and kidney failure, which was one of the top 10 causes of death, have been observed to increase by 41.5% between 1990 and 2017 (Nyarara 2023).

Patients with chronic kidney disease are usually cared for by their General Practitioner who will refer them to specialists if changes in the disease occur. Persistent decline in eGFR, 5 ml/min per 1.73 m2/year and increased serum creatinine level above the baseline measures are among the markers of progression of chronic kidney disease. The patients should go to a nephrologist where they should participate in a multi-disciplinary (MD) pre-dialysis treatment program, so they are ready for kidney replacement therapy (Nyarara 2023).

All the studies on chronic kidney disease prevalence in the selected tertiary hospitals in Kenya showed the prevalence to be 38.6%. 85.2% of total patients assessed were found to be in chronic kidney disease stages 3-5 while 69.1% of them were found to have hemoglobin uptake less than 10g/dl (Nyarara 2023).

In three clinics, renal, diabetic and hypertensive, 57.7%, 81.3% and 76.9% initiated dialysis as an emergency life-saving technique, respectively, Kabinga said. A transient vascular access was used for dialysis in 70% of them. Based on unpublished data at Kenyatta national hospital renal information

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records (KENIR) above 50% of the patients were initiated into dialysis and required a temporary vascular access from June 2022 to December 2022. One in four (25%) started dialysis having chronic kidney disease (CKD) that had progressed to end stage renal disease. Curtailing the cost of disease management for handling chronic kidney disease (end stage renal disease) is essential given that the number of patients with end stage renal disease is expected to grow (Nyarara 2023).

There is no national registry and it is unclear whether chronic kidney disease (CKD) occurs frequently in Pakistan either in terms of incidence or prevalence (Rashid, Aamer et al. 2018).

End stage renal disease (ESRD) is an increasing health issue in the country of Pakistan. A local study conducted in 2015 revealed an incidence of 17 to 35% of end stage renal disease in Pakistan and it is increasing every year (Iqbal, Shareef et al.).

Many evidences were found in the above-mentioned literature about the need of this particular issue in context of Pakistan. Thus, in this study Self-care Practice and Knowledge of about AV Fistula in HD patients of public hospital Lahore, Pakistan is being assessed.

METHODOLOGY

3.1. Study Design:

The Quasi-experimental study design was used.

3.2. Study Setting:

Study was done in dialysis unit, Sir Ganga Ram Hospital in Lahore.

3.3. Duration of study:

Duration of study was 9 months after approval date of research project.

3.4. Target Population:

Those who have chronic kidney disease.

3.5. Sample size:

The study sample was 108 calculated with the help of Taro Yamane's formula.

Where:

$n = N/1+N(e)^2$

N = Population size (108)

e = Margin of error =6%=0.06

n = Sample size

$= 108/1+108(0.06)^2$

$= 108/1+108(0.0036)$

$= 108/1+0.3888$

$=108/1.3888$

$=77.76 = 78$ patients

3.6. Selection criteria:

3.6.1 Inclusion criteria:

- Hemodialysis with AV fistula.
- Adult patient (both sex) > 18 years old.
- Willing to participate in the study.
- Ready upon data collecting.

3.6.2 Exclusion criteria:

- Neurologic complications including mental disorder.
- Self-neglect (inability to provide self-care).
- Hemodialysis (without fistula).
- Patient who is not a patient with chronic kidney disease.

3.7 Sampling technique:

Convenient sampling technique was used in this study.

3.8 Data collection tools:

The main source that was used to create the adopted questionnaire was from the guidelines provided by the National Kidney Foundation Kidney Disease Outcome Quality Initiative (KDOQI) for hemodialysis access. After an extensive review of related literature so as to achieve the aim of the study two tools were used.

Section A:

The demographic variables are the basic data of the patients such as identification, number of dialyses per week.

Section B:

1. Structured questionnaire about the knowledge about the care of arteriovenous fistula; the researcher designed this questionnaire to estimate the patients' knowledge consisting of 10 items.
2. Structured question about self-care practice for arteriovenous fistula which contains 07 items. This study was done to determine the specific self-care behavior in relation to disease process performed by the patient (Rashid,2018).

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3.9 Validity and Reliability:

The tool was adopted so, the validity and reliability were calculated by 1st author Cronbach alpha 0.860 and P value was significant ($p < 0.05$).

3.10 Data collection procedure:

Data was taken from Sir Ganga Ram Hospital Lahore, Nephrology (Dialysis Unit) by permission of Principal Ittefaq College of Nursing, Nursing Superintendent and Head of Department to get information on this topic. Patients with end stage renal disease (ESRD) who were attending hemodialysis with arteriovenous fistula (A-V fistula) three times a week were the data donors. Firstly, written consent slips were signed and stamped by patients, followed by a questionnaire to reveal knowledge and self-management practices of the patients regarding arteriovenous fistula. We were able to give them education through our brochure. After three weeks again we assessed their knowledge by questionnaire.

3.11 Data analysis:

Data have been analyzed using Statistical Packet for Social Science (SPSS) 25.0, where the initial analysis of the data was carried out using frequency distribution and calculating the descriptive statistics. The descriptive statistic of Name, Age, gender, MR no, Weight, HD session per / week were provided. The mean and the standard deviation were used for quantitative data. The qualitative data was presented by descriptive, frequency and percentage. The Statistical Package for Social Sciences (SPSS) was used for applying the Wilcoxon signed rank test. Data were displayed in tables, charts and graphs etc. P value of < 0.05 was considered significant.

3.12 Ethical consideration:

The rules and regulations followed while conducting the study and the rights of the research project participants were respected. All the participants gave their written informed consent. All information was kept confidential. The role played by the participants was kept confidential during the study. The subjects informed that they are no disadvantages or risks on the procedure of the study. They were told that they can withdraw anytime in the study process. Data undertaken in black and white was kept under lock. On laptop it was safe in password.

DATA ANALYSIS

4.1. Analysis and interpretation of results:

To achieve good results, researcher provide clear, up-to-date and valid information in the form of questionnaire. The questionnaire was brief, valid and comprehensible to all the participants as a letter of consent was attached to it. All the acquired data was analyzed with SPSS 25.0. Descriptive data as mean and standard deviation were calculated for quantitative variables and frequency and percentages were calculated for categorical variables using SPSS.

Demographic results:

Descriptive Statistics (Age)		
N	Valid	78
	Missing	0
Mean		48.8192
Std. Deviation		12.40741
Minimum		21.00
Maximum		78.40

Table 4.1: Frequency distribution According to Age Groups

		No. of patients	Percent
	20-30	11	14.1
	31-40	7	9.0
	41-50	20	25.6

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Age Groups (in Years)	51-60	29	37.2
	Above 60	11	14.1
	Total	78	100.0

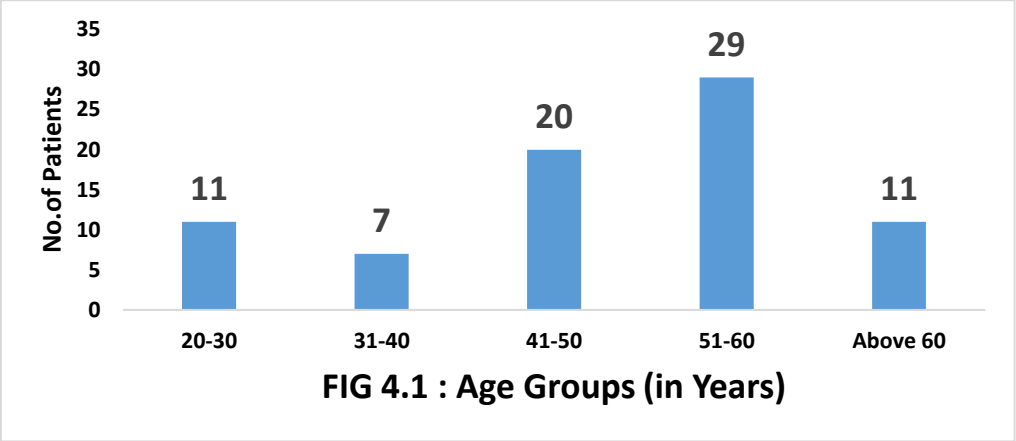

FIG 4.1 : Age Groups (in Years)

Explanation:
Table-4.1 and figure4.1 represents the frequency distribution according to age groups of dialysis patients. mean age and standard deviation were found to be 48.82 and12.40 respectively. Minimum age was found to be 21 years and the maximum age was 78.40 years. It was found that out of total 78 patients,29(37.2%) patients fall between age groups 51-60 years and 20(25.6%) patients falls between age groups 41-50 years.

Table -4.2: Frequency distribution in gender of patients

		No of Patients	Percent
Gender	Male	45	57.7
	Female	33	42.3
	Total	78	100.0

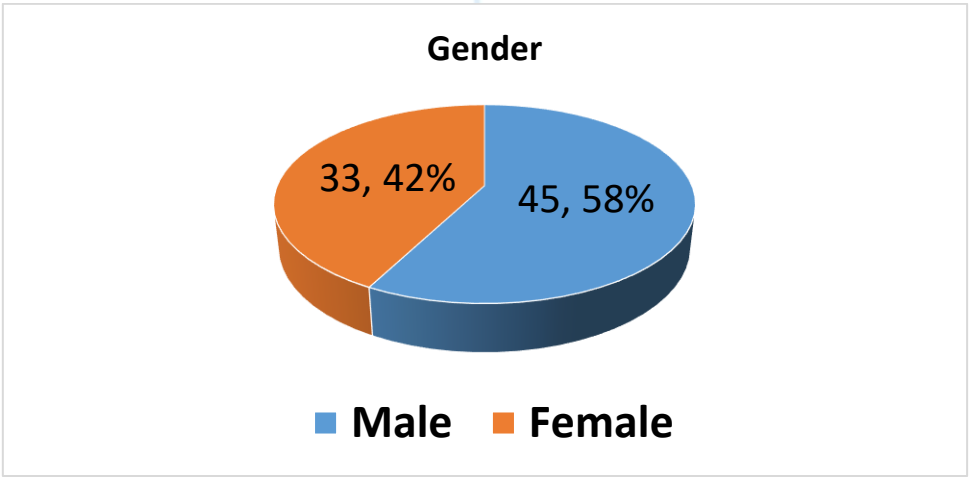

Figure 4.2: Gender

Explanation: Table 4.2 and Figure 4.2 show the frequency distribution according to gender of hemodialysis patients. It was found that out of total 78 patients, there were 45 (57.7%) males whereas 33 (42.3%) were females.

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Weights

Statistics		
Weights (in KGs)		
N	Patients	78
	Missing	0
Mean		60.1487
Std. Deviation		12.43271
Minimum		31.00
Maximum		90.00

Table 4.3: frequency distribution in weights of patients

		No of patients	Percent
Weights (in kgs)	30-50	21	26.9
	51-70	42	53.8
	71-90	15	19.2
	Total	78	100.0

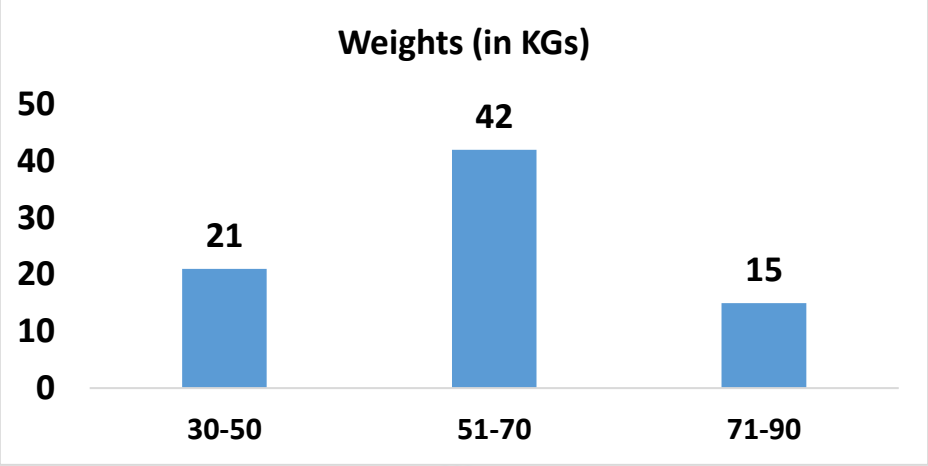

Figure-4.3 Weights in kg

Explanation:

Table-4.3 and figure-4.3 represents the frequency distribution according to weights of dialysis patients. mean weight and standard deviation were found to be 60.14 and 12.43 respectively. Minimum weight was found to be 31kg and the maximum weight was 90kg. It was found that out of total 78 patients,42(53.8%) patients fall between weights 51-70kg and 21(26.9%) patients fall between weights 30-50kg.

Table -4.4: Frequency disruption According to HD session

		Patients	Percent
HD sessions (in week)	2 Times	5	6.4
	3 Times	73	93.6
	Total	78	100.0

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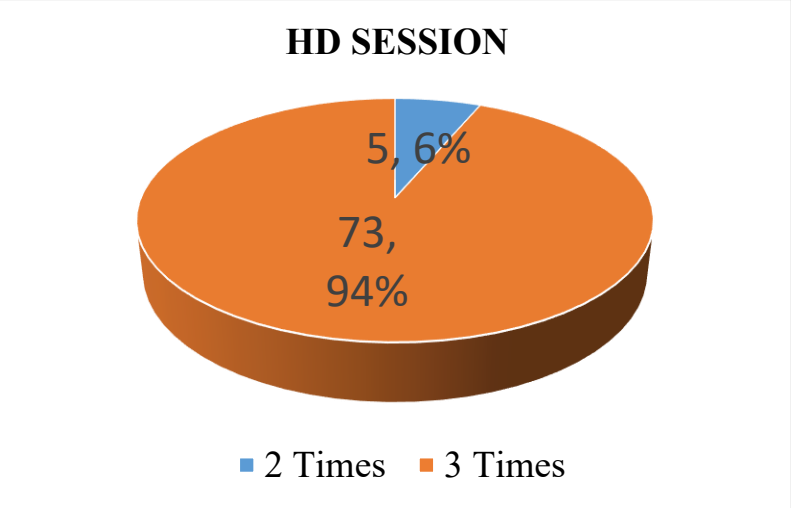

Figure -4.4 HD Sessions

Explanation: Table -4.4 and figure -4.4 shows the frequency distribution of hemodialysis sessions in a week. Out of total 73(93.6%) had thrice dialysis session in a weak whereas 5(6.4%) had only twice dialysis sessions.

Statistical analysis result of patient's knowledge

Sr. No	Parameters	Pre Response knowledge n (%)	Post Response knowledge n (%)	P value
1	What was the need to make AVF access?	71(91%)	78(100%)	.008 (statistically significant)
2	What is the benefit of AVF access over dialysis catheter?	49(68.2%)	58(74.4%)	.139 (statistically non-significant)
3	Are you aware to check pulse / thrill of your AVF site daily?	43(55%)	53(69.9%)	.059 (statistically non-significant)
4	Are you aware to avoid sleeping over AVF access site?	59(75.6%)	74(94.9%)	.001 (statistically significant)
5	Are you aware to avoid lifting excessive weight from AVF site?	65(83.3%)	77(98.7%)	.001 (statistically significant)
6	Are you aware to avoid wearing tight cloths, watch or jewelry etc.?	57(73.1%)	76(97.4%)	.000 (statistically significant)
7	Do you know to clean urinary tract prior to dialysis?	36(46.2%)	72(92.3%)	.000 (statistically significant)

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8	Are you aware to avoid getting a prick at AVF site√ apart from that needed for hemodialysis access?	65(83.35%)	75(96.2%)	.011 (statistically significant)
9	Do you know that there is a possibility not to take the BP in AVF site?	67(85.9%)	78(100%)	.001 (statistically significant)
10	Do you know about access site cleansing / disinfection program before and after dialysis?	17(21.8%)	61(78.2%)	.000 (statistically significant)

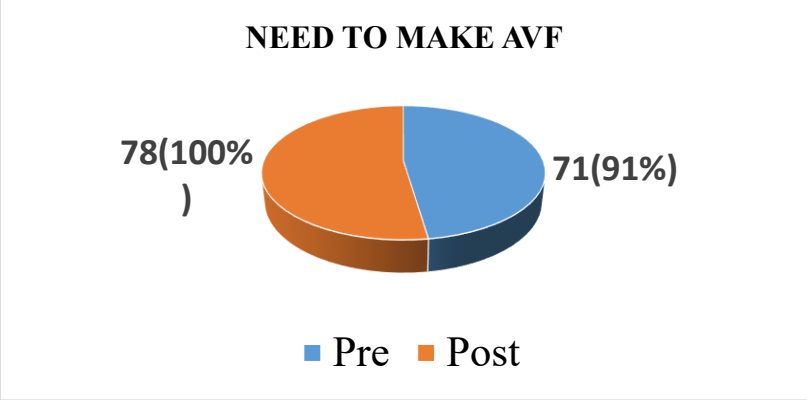

FIG:4.5

Explanation: Figure 4. 5 shows the patients awareness regarding the need for Arteriovenous Fistula access before and after education. 91% were aware the importance of arteriovenous fistula access before the education, while 100% were aware after the education. The p-value 0.008 was found to be statistically significance.

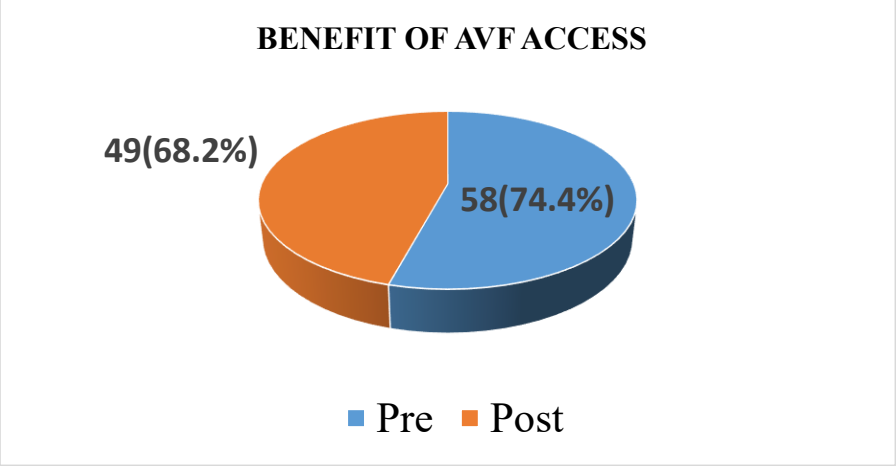

FIG:4.6

Explanation: Figure 4.6 shows the awareness regarding the benefits of AVF access over dialysis catheter. It was observed that 74.4% were aware of the benefits of AVF before the educational, while 68.2% were aware after education. The p-value 0.139 was found to be statistically non-significant.

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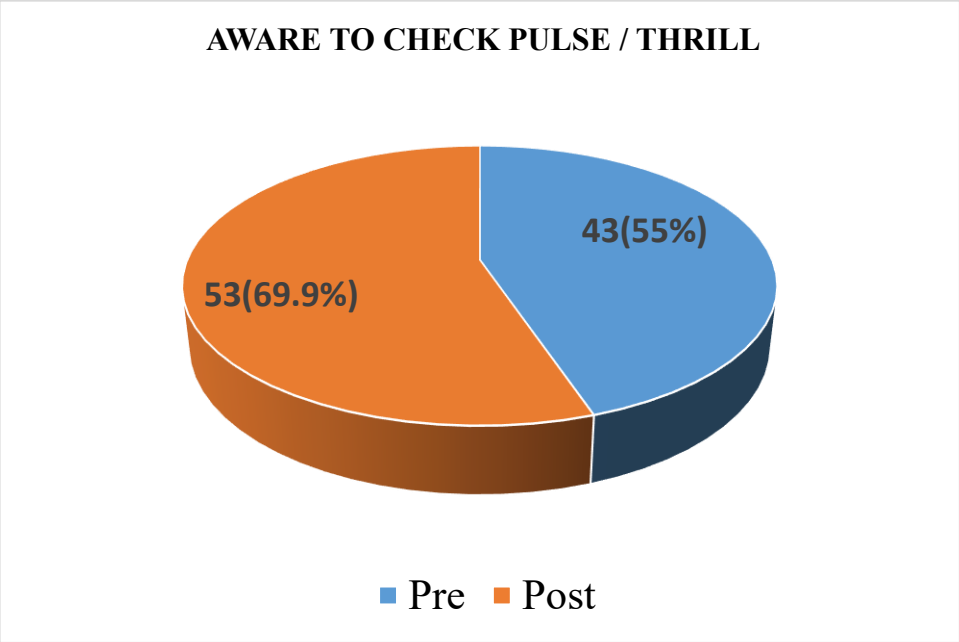

FIG:4.7

Explanation: Figure 4.7 shows the patients awareness regarding checking the AVF thrill daily. 55% were aware the need to check the AVF thrill before the education, while 69.9% were aware after education. The p-value was found to be 0.059 statistically significant.

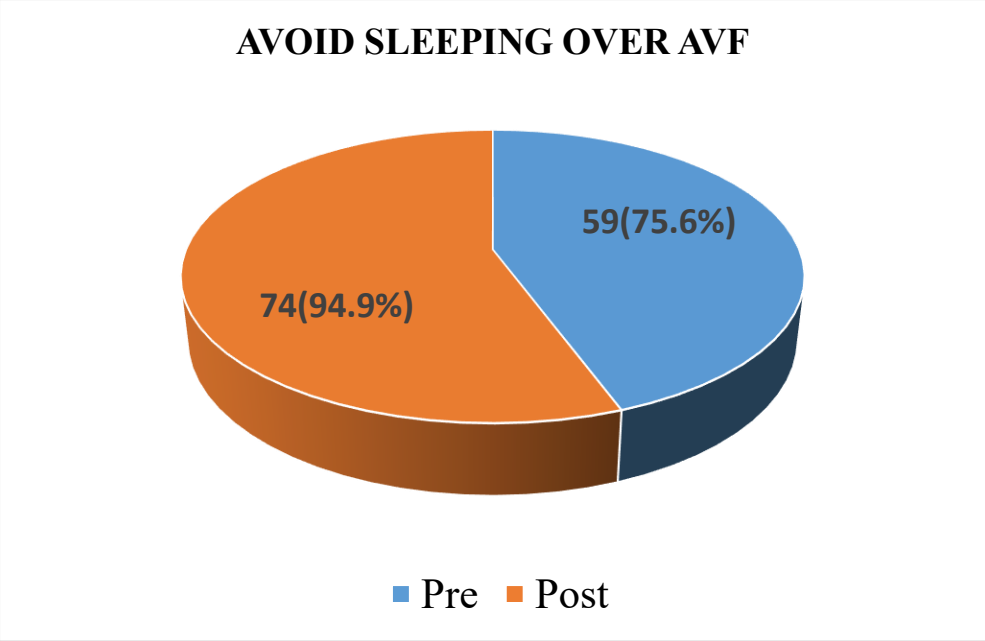

FIG:4.8

Explanation: Figure 4.8 shows patient's awareness regarding avoid sleeping on the AVF site. Before the education 75.6% were aware whereas, 94.9% were aware after education. The p-value was found to be 0.001 statistically significant.

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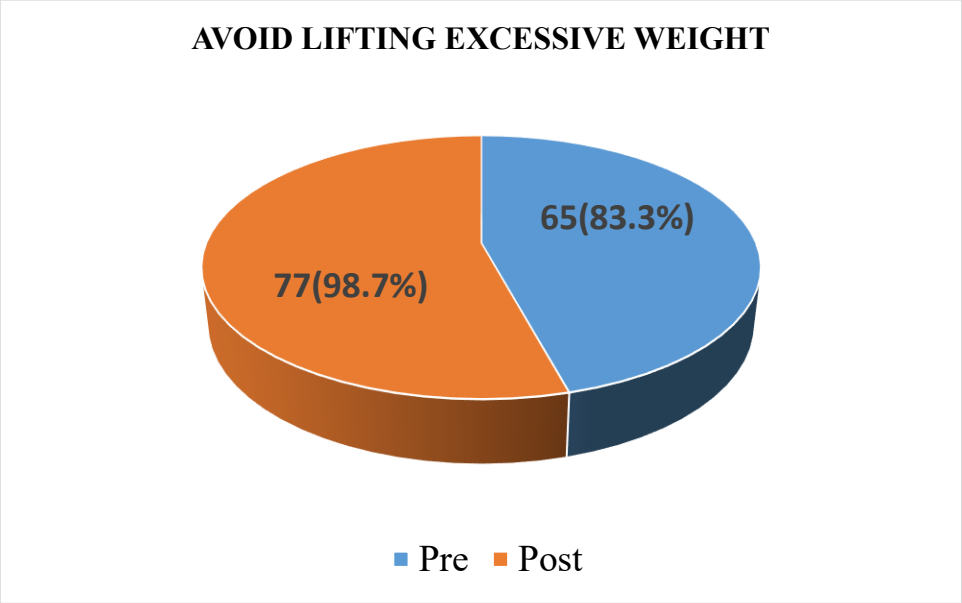

FIG:4.9

Explanation: Figure 4.9 shows the patients awareness about avoid weight lifting on the AVF site. 83.3% were aware before education while 98.7% were aware after education. The p-value was found to be 0.001 statistically significant.

FIG:4.10

Explanation: Figure 4.10 shows patient's awareness about avoiding tight clothes on the AVF site. Before education 73.1% were aware, while 97.4% were aware after education. The p-value was found to be 0.00 statistically significant.

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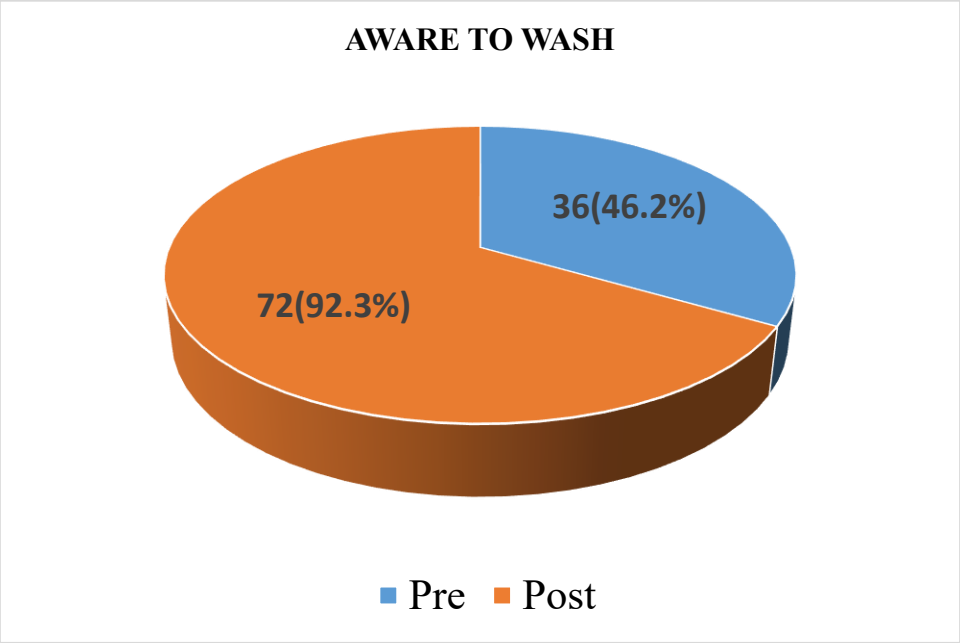

FIG:4.11

Explanation: Figure 4.11 shows patient's awareness about washing the AVF site before dialysis. Before education 46.2% were aware while 92.3% were aware after education. The P-value 0.000 indicates the results were statistically significant.

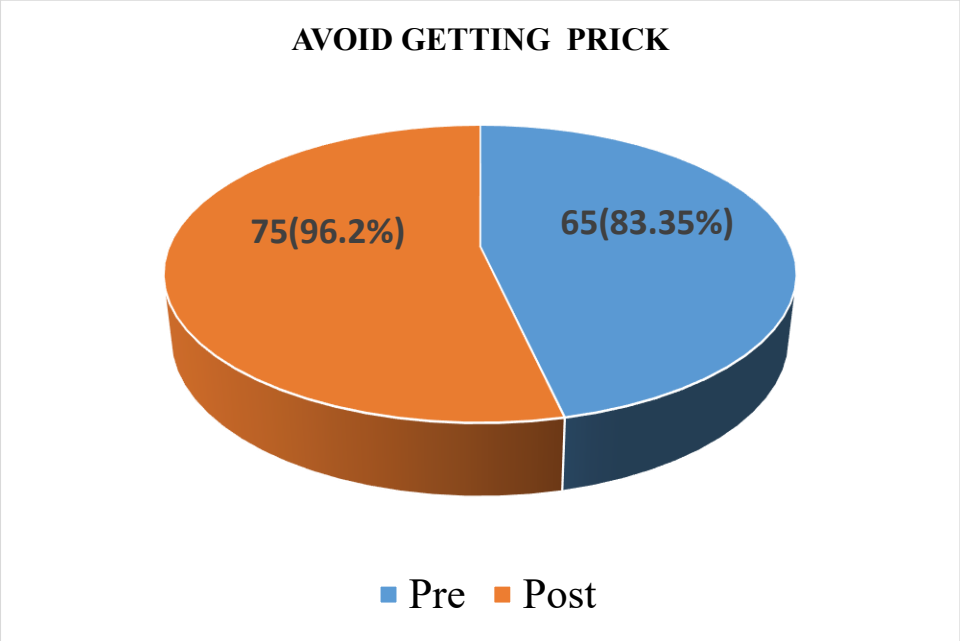

FIG:4.12

Explanation: Figure 4.12 shows patient's awareness about avoiding pricks on the AVF site. Before the study 83.35% were aware and after the study 96.2% were aware. The P-value 0.011 indicates the results were statistically significant.

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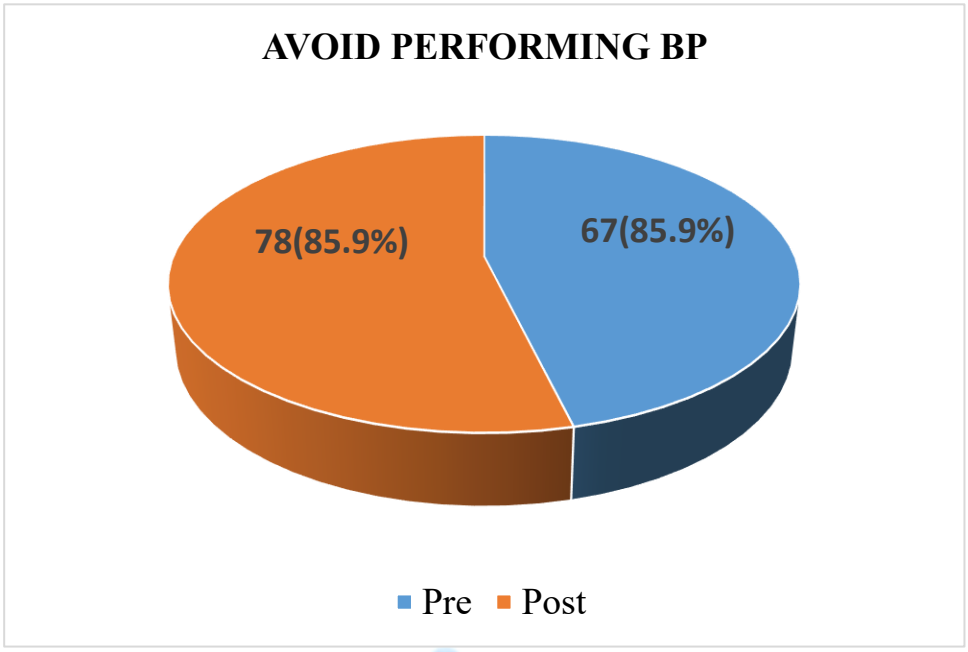

FIG:4.13

Explanation: Figure4.13 shows patient's awareness about checking blood pressure on the AVF site. Before the study 85.9% patients were aware while 100% patients were aware after education. The P-value 0.001 indicates the results were statistically significant.

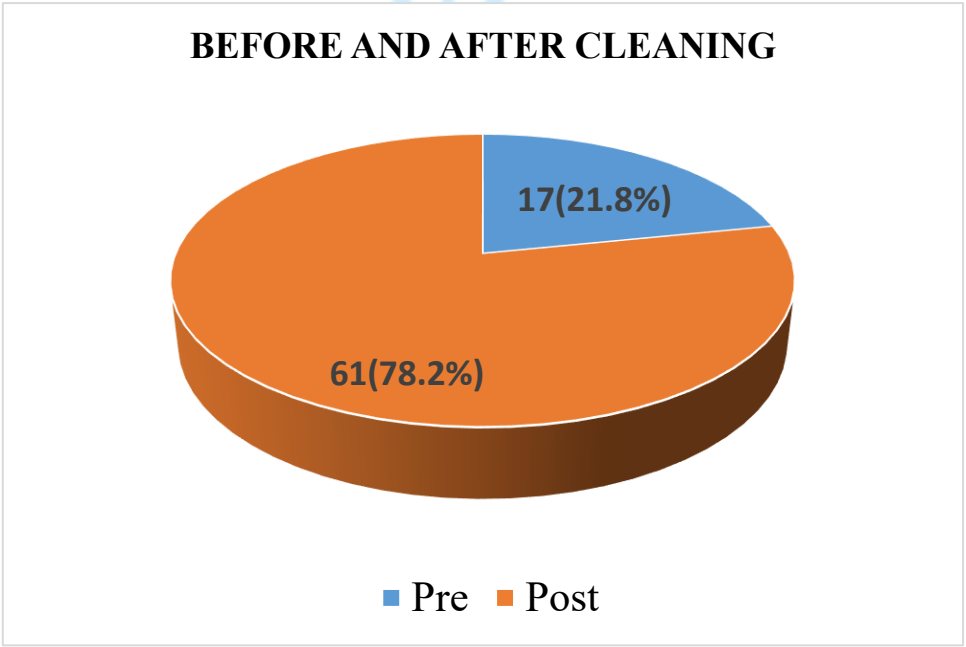

FIG:4.14

Explanation: Figure 4.14 shows patient's awareness about disinfecting AVF site before and after dialysis. Before the study 21.8% were aware while 78.2% were aware after the study. The P-value 0.00 indicates the results were statistically significant.

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Sr. No	Question naire	Pre response patients' self-care practice			Post response patients self-care practice			P value
		Never Practicing %(f)	Always practicing %(f)	Occasionally practicing %(f)	Never practicing%(f)	Always practicing %(f)	Occasionally practicing%(f)	
11	Daily AVF washing	9(11.5%)	16(20.5%)	53(67.9%)	0(0%)	74(94.9%)	4(5.1%)	.000 Statistically significant
12	Daily AVF thrill checkup	12(15.4%)	27(34.6%)	39(50%)	0(0%)	48(61.5%)	30(38.5%)	0.720 Statistical not significant
13	Avoiding sleep over AVF access site	6(7.75%)	52(66.7%)	20(25.6%)	0(0%)	72(92.3%)	6(7.7%)	0.131 Statistical not significant
14	Weight lifting avoidance from AVF access site	7(9.0%)	48(61.5%)	23(29.5%)	0(0%)	38(80.8%)	10(12.8%)	0.170 statistically non-significant
15	Avoiding tight wearing on AVF access site	9(11.5%)	55(70.5%)	14(17.9%)	0(0%)	76(97.4%)	2(2.6%)	0.567 Statistical not significant
16	Pre dialysis AVF cleansing	21(26.9%)	25(32.1%)	32(41%)	0(0%)	77(98.7%)	1(1.3%)	0.175 Statistical not significant
17	Pre and post dialysis disinfection	38(80.8%)	10(12.8%)	30(38.5%)	0(0%)	63(80.8%)	15(19.2%)	0.012 Statistically significant

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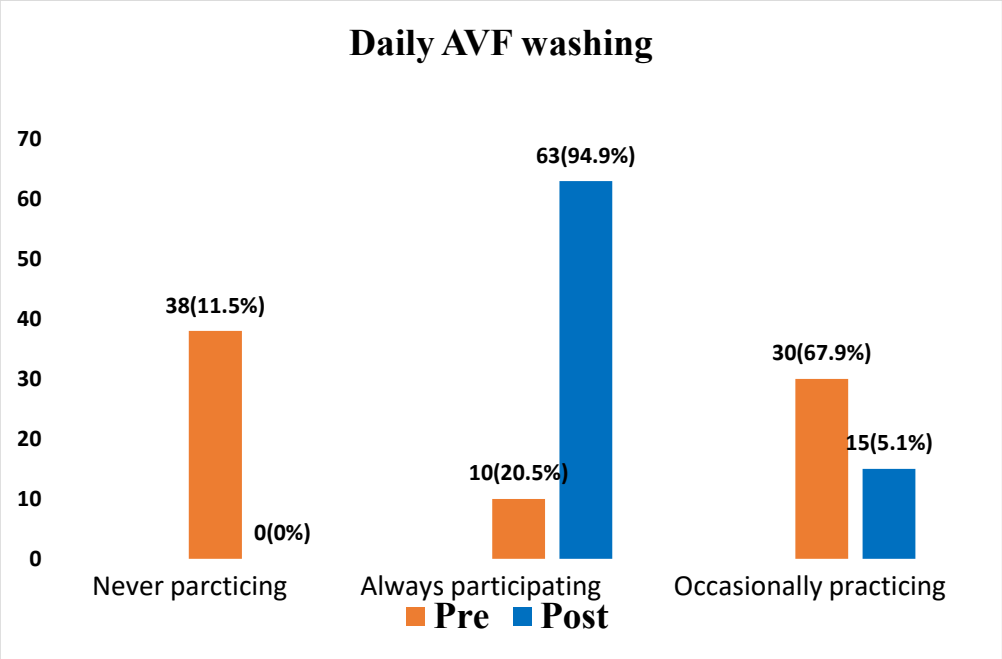

FIG:4.15

Explanation: Figure 4.15 shows patient's awareness about washing the AVF daily. Before education 5%never washed their AVF 20.5% always washed it and 67.9% washed it occasionally, while after the education 94.4% washed their AVF daily 5.1% washed it occasionally. The P-value 0.000 indicates the results were statistically significant.

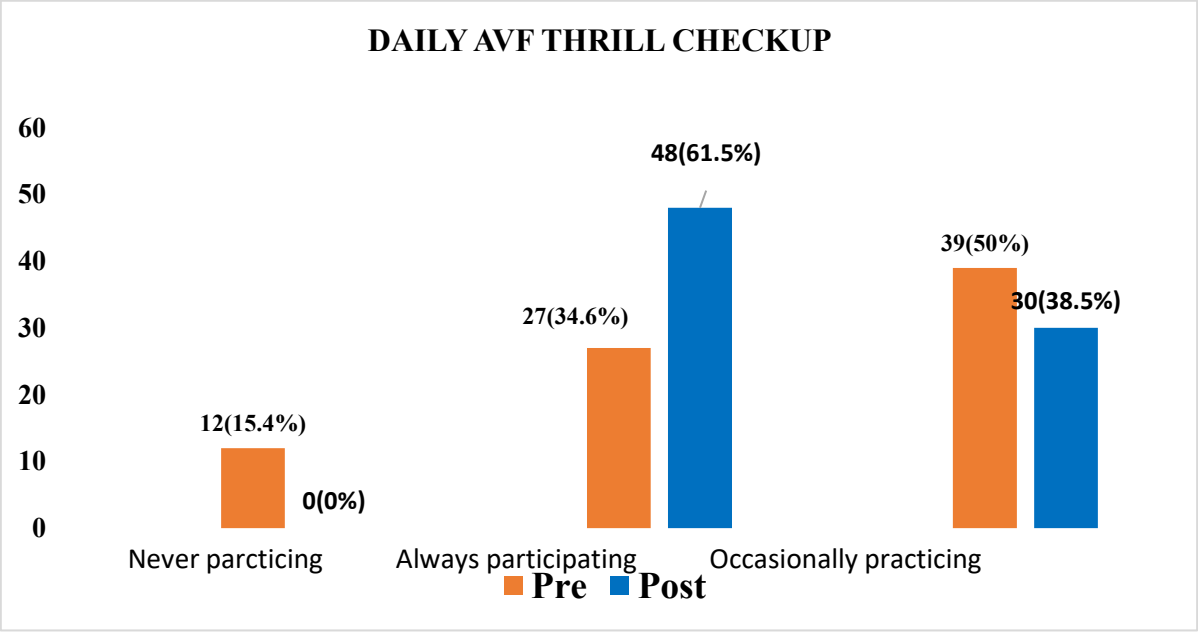

FIG:4.16

Explanation: Figure 4.16 shows patient's knowledge about checking the AVF thrill daily. Before education 15.4% were never checked the thrill 34.6% checked it daily and 50% checked it occasionally. After education 61.5% checked the thrill daily and 38.5% checked it occasionally. The P-value was found to be 0.720 statistically non-significant.

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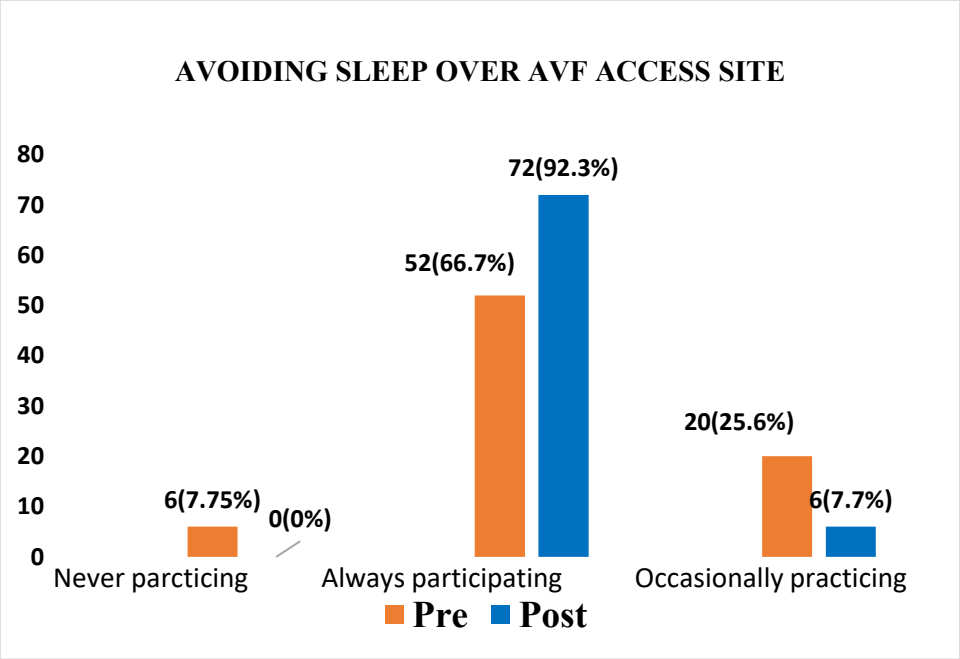

FIG:4.17

Explanation: Figure 4.17shows patient's knowledge regarding avoiding sleeping on the AVF site. Before education 7.75% were never practicing sleeping on the AVF site, 66.7% always practicing and 25.6% occasionally practicing. After education, 92.3% always practicing on the AVF site, while 7.7% occasionally practicing. The P-value was found to be 0.131 statistically non-significant.

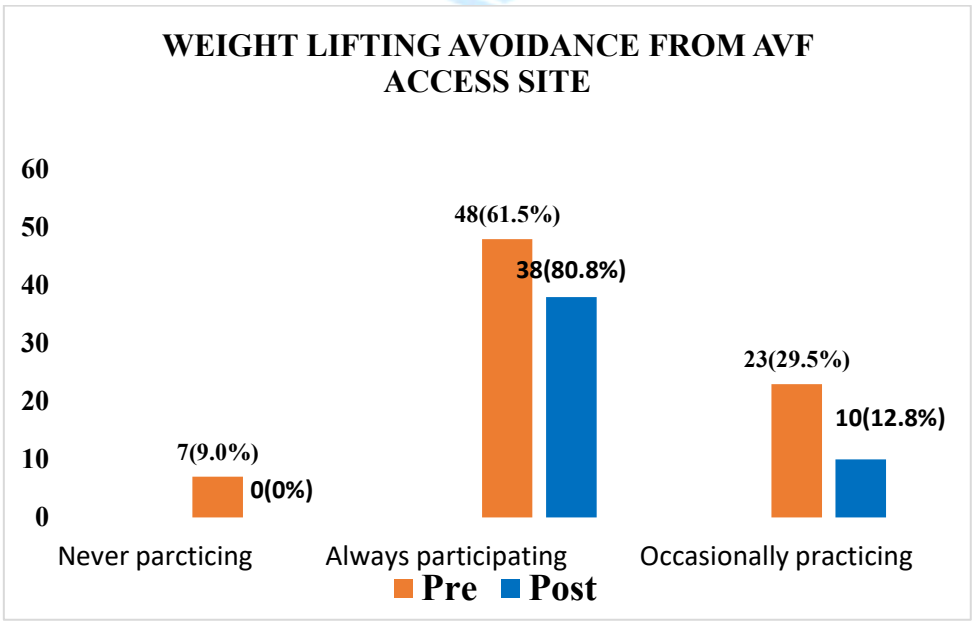

FIG:4.18

Explanation: Figure 4.18 shows patient's awareness about avoiding weight lifting on the AVF site. Before education, 9.0% never practicing lifting weights, 61.5% always practicing and 29.5% occasionally practicing. After education 80.3% always practicing,12.8% occasionally practicing. The P-value 0.170 was statistically non-significant.

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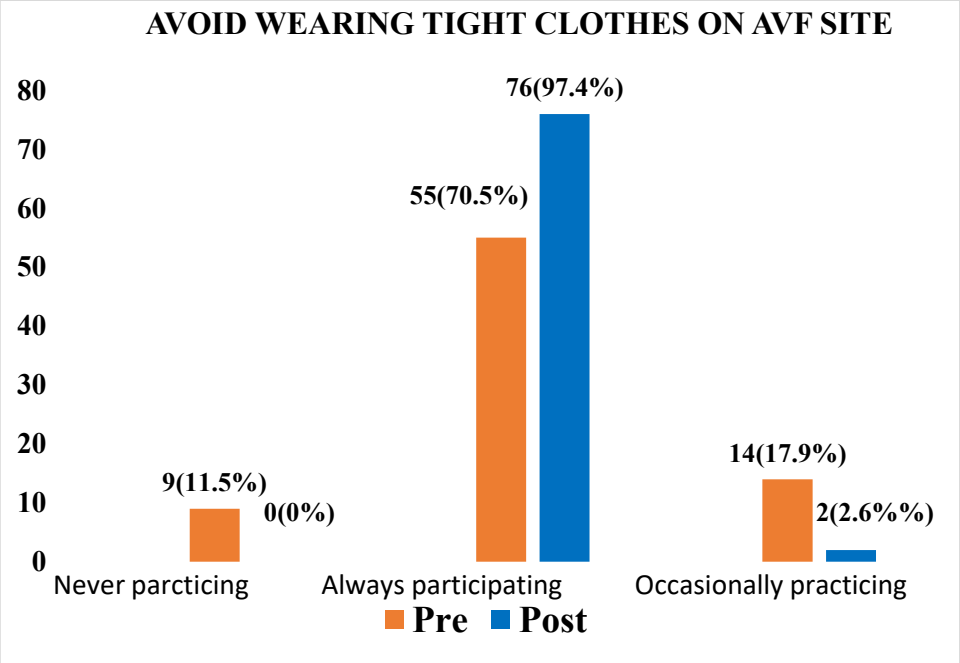

FIG:4.19

Explanation: Figure 4.19 shows patient's knowledge regarding avoiding tight clothes on the AVF site. Before education 11.5% of patients never practicing wearing tight clothes 70.5% always avoided, and17.9% occasionally practicing. After education 97.7% always practicing while 2.6% occasionally practicing. The P-value was statistically non-significant.

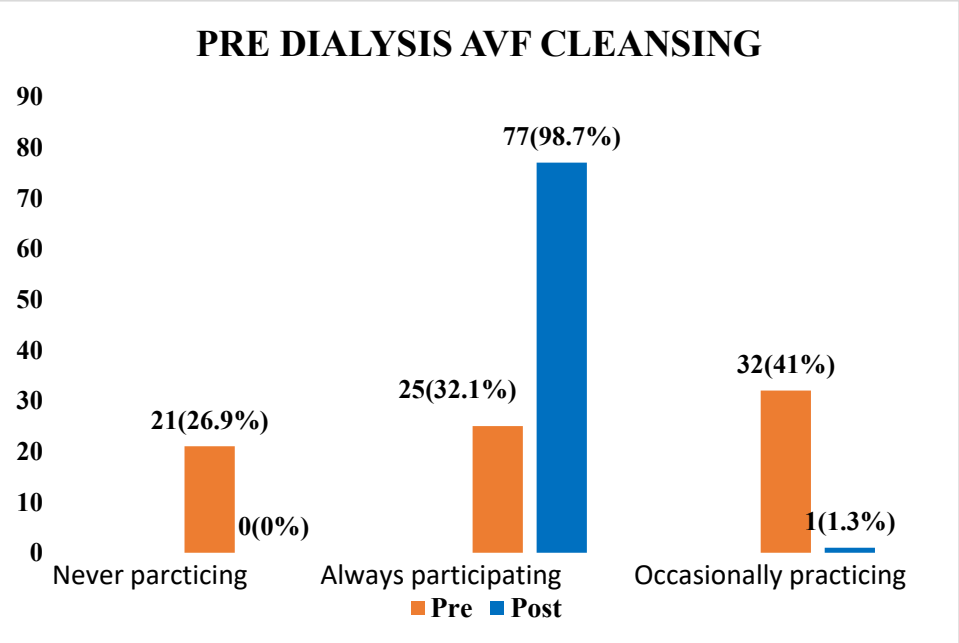

FIG:4.20

Explanation: Figure 4.20 shows patient's awareness regarding pre-dialysis cleaning of the AVF. Before education 26.9% never practicing 32.1% always practicing and 41% occasionally practicing. After education 98.7% of patients always cleaned their AVF, while 1.3% cleaned it occasionally. The P-value was found to be 0.175 statistically non- significant.

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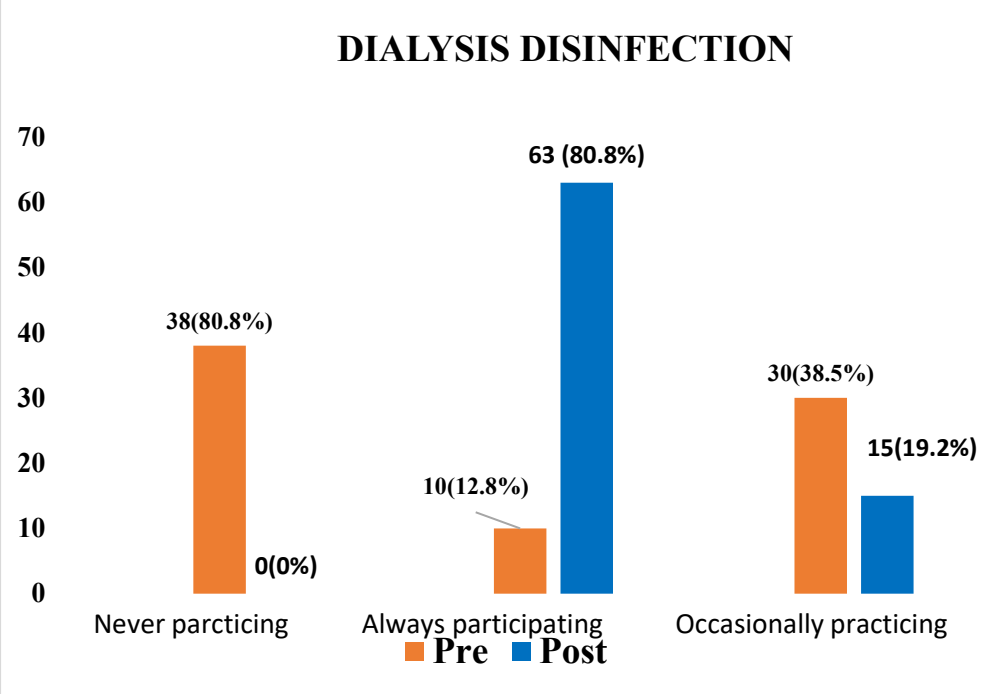

FIG:4.21

Explanation: Figure 4.21 shows patient's awareness regarding disinfecting the AVF (Arteriovenous Fistula) pre and post dialysis. Before education 80.8% never practicing, 12.8% always practicing and 38.5% occasionally practicing. After education 80.8% always practicing 19.2% occasionally practicing. The P-value was 0.012 statistically significant.

DISCUSSION

Resultant studies have shown that, the mean age of patients is 48.82 and the standard deviation is 12.40 of sample size. Current study shows that out of 78 patients, the age of patients ranging between 21- 78.40 years and weight was ranging between 31- 90 kg. However, for the overall knowledge, all age groups had adequate knowledge, and age group 41-50 had a significantly higher knowledge level than other age groups. The knowledge was also different among various age groups during survey conducted on health care practices and we observed the same in the age group 41-50 in our set up.

There are 45 men, 33 women and 78 patients. The minimum age was found to be 21 years and maximum age was 78.40 years. 78 patients are there: 29 of them are in age group 51-60 and 20 of them are in age group 41-50. The average weight was determined to be 60.14kg. The range of minimum of and maximum of weight was identified as 31kg and 90kg respectively. Of the 78 patients, 42 patients were in the range of weight 51-70kg and 21 patients in the range weight 30-50kg was found.

The same study was conducted in a Tertiary Care Hospital with residents of the city of Lahore in Pakistan. The results of this study showed that out of 138 patients,50.7% of patients were male and 49.3% of them were female. All participants' mean age was 24-82 years.

The level of awareness for the need of AVF access before and after education was 91% for pre-education and 100% for post-education of 78 patients. The percentage of patients who knew about the advantages of AVF catheter before education and after education were 68.2% and 74.44% respectively. The study in tertiary hospital revealed that 99.3% and 0.7% of the patients know and do not know the benefits of AVF access instead of dialysis catheter respectively.

In this study 55 % patients knew checking thrill at AVF site daily before education and 69.9 % patients knew checking AVF site daily after education. Before education, 75.6% and after education, 94.9% of the patients were aware about "NO SLEEP ON AVF SITE". On the study of tertiary hospital 94.9% patients were

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aware to check the thrill at the AVF site whereas 5.1% patients were not aware. 89.9% patients were aware to avoid sleeping over AVF site and 10.1% patients were not aware.

In this study 83.3% of patients were aware of following advice of not lifting weight on drier site of AVF and 98.7% developed awareness after. The rate of patients aware of wearing tight cloths were 73.1% before education and 97.4% patients got awareness after education. The knowledge of patients on washing AVF before and after education was 46.2% and 92.3% respectively. It was observed from the study that, 92.8% of the patients knew to avoid lifting weight with AVF site and 7.2% were not aware about it. 87.7% of the patients knew to not wear tight clothes while 12.3% were not aware.

The present study represented that patients were aware of avoiding the prick on the AVF site in 83.35% while 96.2% got aware after. 85. 9% patients knew that they did not check their BP in AVF site and 100% patients became aware after. Out of the total number of patients, in tertiary hospital, 92.0% patients know not to get prick at AVF site, while 8.0% patients didn't know.94.2% patients know to avoid getting BP measured at AVF site, while 5.8% patients don't know.

Based on the study focused on those who were aware of the daily washing of AVF, 5%, 20.5%, and 67.9% of patients never washed, always washed, and sometimes washed AVF before the education respectively. After education 94.4% patients washed daily and 5.11% occasionally washed. The study of tertiary hospital depicted that 81.2% patients were always washing AVF, 18.1% practicing daily AVF washing occasionally and 0.7% patient washing AVF was never.

The results in this study showed that 15.4 % of the patients never checked trill while 34.6 % checked trill daily and 50 % sometimes checked before and after education. The study of tertiary hospital revealed that 77.5% of patients were always, 21.7% of patients were occasionally and only 0.7% of patients were never checking AVF thrill daily.

In the present study there is no significant difference of knowledge in between the age groups and age group 41-50year was found to be significantly more knowledgeable. In the above-mentioned tertiary hospital patient's study, it was found that good knowledge score was demonstrated by higher number of patients aged 45-65 years as compared to other age groups as illustrated in figure.

From the results obtained it was found that our patients had knowledge but didn't want to follow and practice the true spirit of the knowledge namely in certain areas. This avoidance behavior increased more in thrill checkup cleaning daily (before/ after dialysis).

The results in less developed areas might be different where number of patients having in adequate knowledge might be higher than reported here. We believe that high acquirements of knowledge, while in the extension of a community tertiary-care center would be reflected in the patient, and the contact with the health care providers would be higher than what it is at least twice per week, during dialysis.

5.2 Conclusion:

The findings of the study conclude that most of the patients were not aware about the self- care practices and knowledge regarding AVF due to lack of education.

5.3 Recommendations:

- Up size dialysis departments should be established in the hospitals, and highly specialized trained personnel should be hired.
- More equipment and facilities should be provided in Dialysis department by health care commission.
- Make policies to increase awareness of patients in leaning self- care practices.

5.4 Limitations:

- Study was carried out in only one public hospital.
- Results may be biased as patients were not very interested due to communication barrier.

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