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Effectiveness of SIM on Knowledge of Patients Regarding Prevention of Complications on Dialysis Vascular Access at Selected Hospitals in Erode, Tamilnadu

Manikandan V, Dr. Jasmine J
[1]*Ph. D Scholar, Himalayan University, INDIA*
[2]*Ph. D Guide & Professor, College of Nursing, Mother Theresa Post graduate and research institute of health sciences, Puducherry, India*

Abstract: Background: End-stage renal disease is a worldwide problem that requires highly skilled nursing care. Hemodialysis (HD) is a corner-stone procedure in the management of most patients who require renal replacement therapy. Adequate vascular access is essential for the successful use of HD.
Appropriate knowledge in taking care of vascular access is essential for minimizing complications and accurately recognizing vascular access-related problems.
This study was to evaluate the effect of an educational program for vascular access care on dialysis patient's knowledge at Dialysis Unit, Objectives: To assess the knowledge of patients regarding dialysis vascular access and preventive measures of complication before and after administration of self- instructional module.
To assess the effectiveness of the self-instructional on knowledge of patients by comparing pre-test and post-test knowledge scores.To find out the association between the post-test knowledge scores and the selected socio demographic variables. Methods-This was a Quasi experimental study (pre-and post-test for the same group).
Fifty patients doing dialysis in these HD center were chosen by simple random sampling method. A structured face-to-face interview questionnaire based on the Kidney Dialysis Outcome Quality Initiative (K/DOQI) clinical practice guidelines for vascular access care was used.
Results- From the finding of the study it can be concluded that the highest percentage of patients were in the age group of 20-30 yrs. (50%), most of them were females30(60%).Most of them 30(60%) were diploma holders. Highest percentage 25(50%) have 1-5 yrs. Dialysis experience. Most 20(40%) will get information from TV and internet. most of them were 38(76%) not having family History of CKD.
The overall comparison of pre and posttest mean score shows that in pretest the mean score was 13.02 with SD 4.12 whereas in the post test score shows 23.28 with 2.42 SD. with the mean difference of 33.6 highly significant differences in post test scores of patients. Conclusion-From the findings of the study it can be concluded that the highest percentages of patients were in age grouped of 20-30 yrs.
Most of them were females with diploma qualification with 1-5 yrs. Dialysis Treatment Experience, got information about vascular access from television and internet, with no history of CKD. The SIM was found effective on primary prevention of complication of vascular access among patients. Highly significant effectiveness was found.
Keywords: Evaluate effectiveness, knowledge, preventive measures, patients Dialysis vascular access and self-instructional module.

I. INTRODUCTION

Chronic kidney disease (CKD) is progressive loss in kidney function over a period of months or years. The symptoms of worsening kidney function are not specific, and might include feeling generally unwell and experiencing a reduced appetite. Often, chronic kidney disease is diagnosed as a result of screening of people known to be at risk of kidney problems, such as those with high blood pressure or diabetes and those with a bloodline relative with CKD.

Hemodialysis is the most commonly used method for dialysis. Hemodialysis prevents death but does not cure renal disease and does not compensate for the loss of endocrine or metabolic activities of the kidneys. More than 90% of patient requiring long term renal

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replacement therapy are on chronic Hemodialysis. Most patients receive intermittent hemodialysis that involves treatment three times a week with the average treatment of 3to 4hour in an outpatient setting. The integrity of vascular access for hemodialysis (HD) is closely associated with the outcome of dialysis.

Central venous catheters (CVCs) are less favorable because of the high rate of infections associated with their use for HD. However, a large number of dialysis patients use CVC as access for HD, especially in the early phases of dialysis therapy. In the 2009, US renal data system reported that 82% of 101,688 patients who began HD in 2007 did so using CVC. Initiation of HD with CVC was associated with a two to three-fold increase in the risk of death compared with those using arteriovenous fistula (AVF) and arteriovenous graft (AVG).

A. Need For The Study

Dialysis outcomes and practice pattern study (DOPPS-2018) identified an increasing number of patients starting HD, with either temporary catheters or tunneled cuffed catheters and recognized AVF Failure is more common over the last three decades as patients are older. Patient has diabetes or vascular disease.

The patient should have adequate knowledge to ensure arteriovenous fistula patency. Almost one-third of hospitalizations were because of access interventions and complications, with catheter infection accounting for 10% of admissions. Predictors of non-AVF access usage were older age, female gender, and underlying comorbidities.

The prevalence of renal failure and hypertension is also increasing. Therefore, health care providers and planners should anticipate an increase in the burden of vascular diseases in the coming decades.

These important areas of shortage need to be addressed in the future. Therefore, it is important to direct vascular research initiatives to fill the research gaps in this field in Indian states. There is a desperate need to conduct community- screening projects. In view of above the investigator is of opinion that to conduct a study among patients to assess the effectiveness of self-instructional module on primary preventive measures of vascular access.

II. OBJECTIVES OF THE STUDY

1) To assess the knowledge of patients regarding dialysis vascular access and preventive measures of complication before and after administration of self- instructional module.
2) To assess the effectiveness of the self-instructional on knowledge of patients by comparing pre-test and post-test knowledge scores.
3) To find out the association between the post-test knowledge scores and the selected socio demographic variables.

A. Research Hypotheses

1) *H1*-There will be a significant change in the knowledge regarding the primary preventive measures of complication of vascular access among dialysis patients.
2) *H2*-There will be a significant association between the knowledge scores of patients on preventive measures of complication of vascular access and selected demographic variables.

B. Delimination

The study is limited to,

1) Patients who are available at the time of study. Sick patients are excluded from the study.
2) The study is limited to 50 patients only.
3) Measurement of knowledge and practice scores of patients once before and once after effectiveness on self-instructional module.
4) The study is limited to 8 weeks of duration
5) Teaching strategy is limited to self-instructional module
6) The study design delimited to pre-experimental one group pre-test, post-test design.

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III. MATERIALS AND METHODS

Pre experimental design was carried on 50 patients with by using purposive sampling technique. Self-administered structured questionnaire was used to identify the knowledge of the patients in relation to primary preventive measures of complication of dialysis vascular access. The data was collected after obtaining the permission from concerned personnel of the Hospital.

A. Population

The population for the present study was the entire patient undergoing dialysis.

B. Sample

Sample for the present study was patient undergoing dialysis who was admitted in selected Hospital.

C. Sample Size

The sample size comprised of 50 patients undergoing dialysis,

D. Sampling Technique

Patient undergoing dialysis and present during the period of data collection were selected as samples. The investigator was selected the group by purposive sampling technique.

IV. CRITERIA FOR THE SELECTION OF SAMPLE

A. Inclusion Criteria

1) Patients who are doing dialysis in Renal Unit only.
2) Patients who are willing to participate and available at the time.
3) Patients who comes under the selected hospital for the study.

B. Exclusion Criteria

1) Patients who are not present at the time of study.
2) Patients who are admitted in ICU and critically ill.
3) Patients who are not given consent for the study.

C. Scoring Procedure

The score was converted to percentage by using this formula.
Percentage= obtained score / Total score **x** 100

D. Scoring Interpretation

Inadequate knowledge = below 50%
Moderate knowledge = 50 to 75%
Adequate knowledge =above 75%

V. RESEARCH ANALYSIS

Education can impart a variety of benefits that improve the health trajectory of the recipient. The most obvious explanations for the association between education and health is that education itself produces benefits that later predispose the recipient to better health outcomes.

A. Patients had moderate knowledge with regards to primary preventive measures of vascular access complication as evident from their overall pre-test mean knowledge which suggested need for development and implementation of self- instructional module for patients.
B. There was significant improvement in the level of knowledge on primary preventive measure of vascular access complication as evident obtained from their post-test mean knowledge. Thus, it can be concluded that self-instructional module was an effective method to improve the knowledge of patients regarding vascular access complication.
C. Post-test results revealed that the majority of the socio-demographic variables have statistical relation with the knowledge and sociodemographic variables of patients.

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Section A-Descriptions of Demographic Variables Of Patients (N = 50)

Demographic variables		No. of patients	Percentage
Age	20-30 years	25	50%
	31-40 years	15	30%
	40-50 years	8	16%
	50-60 years	2	4%
Gender	Male	20	40%
	Female	30	60%
Qualification	SECONDARY	10	20%
	DIPLOMA	30	60%
	POST - GRADUATE	10	20%
Total Years in dialysis treatment	1-5 years	25	50%
	6-10 years	15	30%
	11-15 years	10	20%
	>15 years	0	0
Source of information on vascular access	Television or internet	20	40%
	Health Personnel	10	20%
	News paper	5	10%
	Friends	10	20%
	Others	5	10%
Family history of CKD	Yes	12	24%
	No	38	76%

Section B Assess the level of knowledge among patient undergoing dialysis on prevention of complication regarding dialysis vascular access.

Table: 2 Pretest knowledge scores on general aspects, risk factors, signs, symptoms and primary preventive measures of complication of vascular access

Sl.No	Areas	Maximum Score	Obtained score		
			Mean	Mean %	SD
1	General aspects of vascular access	10	3.02	30.2	1.8
2	Risk factors of vascular access	5	2.97	58.8	1.7
3	Signs and symptoms of vascular access and its complications	5	1.48	29.5	0.61
4	Primary preventive measures of vascular access	10	6.82	68.2	4.12
	Over all	30	13.02	43.4	4.12

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Table: 3 Posttest knowledge scores on general aspects, risk factors, signs, symptoms and primary preventive measures of complication of vascular access.

Sl.No	Areas	Maximum Score	Obtained score		
			Mean	Mean %	SD
1	General aspects of vascular access	10	6.1	61	1.61
2	Risk factors of vascular access	5	4.78	95	0.589
3	Signs and symptoms of vascular access and its complications	5	2.58	86	1.01
4	Primary preventive measures of vascular access	10	9.82	98	0.38
	Over all	**30**	**23.28**	**77**	**2.42**

Table 4: Analysis and interpretation of effectiveness of self-instructional module on knowledge of patients regarding primary preventive measures of complication of vascular access by comparing pre-test and post-test knowledge scores.

Paired "t" test value of pre and post test scores of patients

Sl. No.	Areas	't' Value Experimental group	Level of Significant
	General aspects	12.40	P<0.05 significant
	Risk factors	9.64	P<0.05 significant
	Signs & symptoms, complications	8.78	P<0.05 significant
	prevention	12.2	P<0.05 significant
Over all		14.80	P<0.05 significant

Df= 49 P<0.05 significant

When chi square value was computed on professional qualification, Total years of dialysis treatment and family history of CKD the obtained value was higher than the table value at 0.05 level. Hence there was statistically significant association with these selected baseline variables of patients and their overall knowledge scores on primary preventive measures of complications of vascular access. But when chi square value was computed or variables like age, gender and source of information on the vascular access the obtained value was higher than the table value 0.05level. So it is proven that there was no association between these variables with the overall knowledge scores of patients on primary preventive measures of complication of vascular access.

Association between post test score and demographic variables of patients reveals that there is no significant association between osteoarthritis symptoms scores when compared to the age, gender, occupation, education, site of OA problems, duration of illness, family history of OA and practice of home remedies, so accept the null hypothesis in these variables. Hence the differences observed in the mean scores values were only by chance and not true difference. It seems that reflexology was effective to all the patients irrespective of their demographic variables.

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VI. CONCLUSION

A. Majority of patients who participated in the study were between the agegroup of 20-30 yrs. (50%)
B. Majority of patients were female (60%)
C. Regarding professional qualification reveals majority of patientswere Diploma (60%)
D. With reference to years of dialysis treatment experience reveals majorityof patients (50%) have 1-5 yrs. experience.
E. In relation to their source of information majority of the patients (40%)will get information from television or internet.
F. Regarding family history of CKD majority of patients (76%) were nothaving Family history of CKD.
G. The result of this study shows that in the pre-test overall mean of knowledge was 13.02 with 4.12 SD whereas in the post test overall mean of knowledge was 23.28 with 2.42 SD.
H. The comparison of overall pretest and posttest percentage of patients reveals that the total effectiveness of self-instructional module on knowledge regarding primary prevention of complication of vascular access was33.6%.
I. The findings of the study also reveal that during pre-test, majority of the patients 33(66%) had moderate knowledge,17(34%) had inadequate knowledge and none of them had adequate knowledge. After the introduction of self-instructional module, in the post-test there was significant gain in the knowledge. Out of 50 patients, majority of them 29(58%)had moderate knowledge ,21(42%)had adequate knowledge and none of them had inadequate knowledge.
J. The above findings clearly indicated that SIM was an effective method of improving the knowledge of patients regarding primary preventivemeasures of complication of vascular access.
K. Probability values of x2contingency table in pre-test revealed that the knowledge scores and sociodemographic variables were dependent in case of family history of CKD and independent in case of other demographic variables. This means that the knowledge varied according to the family history of CKD. Of patients.

1) The Study Findings can be Summarized as.

a) The existing knowledge level of patients on primary preventive measures of complication of Dialysis vascular access was found inadequate.
b) The Self-instructional module was found effective as there was statically significant increase from pre-test and post-test knowledge on primary preventive measures of complication of vascular access after the administration of SIM on the same.

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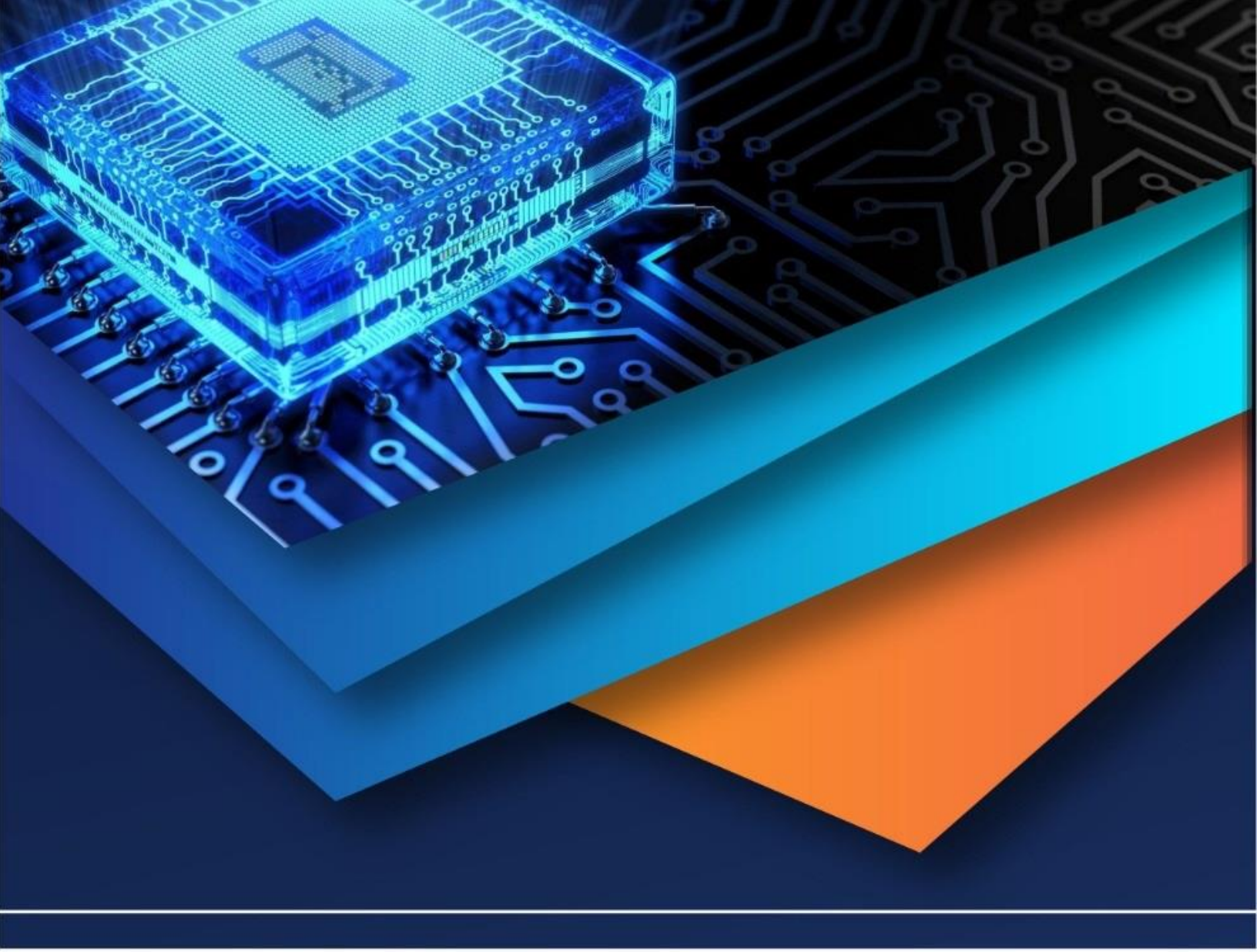
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