

A Study to Assess the Effectiveness of Structured Teaching Program (STP) on Knowledge Regarding Arteriovenous Fistula (AVF) Care among Patients Admitted in Dialysis Units of Selected Hospitals of District Mohali

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ABSTRACT

Aim: To enhance the knowledge regarding self-care of AV Fistula among hemodialysis patients.

Method: A pre-experimental research design was adopted. Purposive sampling technique was used and 60 patients were collected in dialysis unit of IVY hospital, Mohali. Descriptive and inferential statistics was used to analyses the data.

Result: The study finding where as 60% respondents has excellent knowledge, 40% were having good knowledge in post-test. In case of pre-test, the knowledge score of study shows that 70% were having average knowledge and 30% were having good knowledge. After structured teaching program maximum patients had excellent knowledge. So structured teaching program was highly effective.

Conclusion: The study concludes that hemodialysis patients had excellent knowledge regarding AV Fistula care. After structured teaching program maximum patients had excellent knowledge. So structured teaching program was highly effective at the level of 1%.

KEYWORDS: Arteriovenous fistula, Structured teaching program, Hemodialysis, Vascular assess

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INTRODUCTION:

The kidneys are pair of bean-shaped, brownish-red structures located retroperitoneally (behind and outside the peritoneal cavity) on the posterior wall of the abdomen from the 12th thoracic vertebra to the third lumbar vertebra in the adult. Each kidney has 1 million nephrons that are located within the renal parenchyma

Acute and Chronic Kidney Disease (ACKD) is a growing public health problem worldwide, which is characterized by progressive deterioration in renal function. Chronic kidney disease (CKD) is a decrease in the glomerular filtration rate (GFR) for 3 or more months. Untreated CKD can result in end-stage renal

disease (ESRD) and necessitate renal replacement therapy (Dialysis or kidney transplantation).¹

The use of renal replacement therapies becomes necessary when the kidneys can no longer remove wastes, maintain electrolytes, and regulate fluid balance. This can occur rapidly or over a long period of time and the need for replacement therapy can be acute (short term) or chronic (long term). The main renal replacement therapies include the various types of dialysis and kidney transplantation.¹

Dialysis is a procedure for cleaning and filtering the blood. It substitutes for kidney function when the kidneys cannot remove the nitrogenous waste

products and maintain adequate fluid, electrolyte, and acid-base balances. Dialysis is performed by hemodialysis and peritoneal dialysis.

Hemodialysis requires transporting blood from the client to the dialysis machine which consists of a dialyzer, which has a semi permeable membrane filter.²

Two accesses more commonly used for clients with end stage renal failure (ESRF) are (1) arteriovenous (AV) fistula and (2) AV graft. An arteriovenous fistula is commonly used for hemodialysis patients.

An arteriovenous fistula is a surgical anastomosis (connection) of an artery and vein lying in close proximity. The vessels usually joined are the cephalic vein and the radial artery or the cephalic vein and brachial artery.³

Additional measures beyond the dialysis unit consists of, avoid carrying weight by the arm in which fistula is created, not sleeping on the arm with arteriovenous fistula, not to allow blood pressure (BP) monitoring and blood sample collection through the arm with fistula, do not remove crusts formed by punctures (done during dialysis) in the region, perform daily exercises with the arm with arteriovenous fistula. Inspect the fistula daily for the presence of thrill, look for any changes at the site of the arteriovenous fistula. Among other types of care considers knowledge of this information essential in maintenance of access as proper knowledge also influences the attitude and the proper practices to care for patients with arteriovenous fistula.⁴

AV fistulas provide good blood flow to the dialyzer, and may reduce the prescribed dialysis treatment time.⁵

In this article, I intend to enhance the knowledge about kidney, its functions, dialysis, types of dialysis and AV fistula

Objectives of the study

1. To assess the level of knowledge regarding AV Fistula care before the administration of structured teaching program among patients admitted in dialysis units.
2. To assess the level of knowledge regarding AV Fistula care after the administration of structured teaching program among patients admitted in dialysis units.
3. To compare the level of knowledge before and after the administration of structured teaching program among patients admitted in dialysis units.
4. To determine the association between the level of knowledge after administration of structured

teaching program with the selected demographic variables

Material and methods

Research approach and design: Quantitative approach and pre - experimental study (one group pre and post-test design) without control group was used to assess the effectiveness of structural teaching programme on AV Fistula care among hemodialysis patients. The present study was conducted in the dialysis unit of selected IVY hospital of district Mohali.

Sample size and sampling technique: The sample size was 60 patients. Purposive sampling technique was used to collected the samples.

Description of research tool: Research tool used for the study consists of two sections

Section A: The socio- demographic profile. It includes 7 sociodemographic items.

Section B: Self-Structured questionnaire was used to assess the knowledge of patients regarding arteriovenous fistula (AVF) care. It consists of 30 multiple choice questions.

➤ Maximum score= 30

➤ Minimum score= 0

Criterion measurement for the assessment of knowledge is as follows

Level of Knowledge	Score in Percentage	Score in Numbers	Coding
Excellent	>75	>23	1
Good	50-75	15-23	2
Average	<50	<15	3

Reliability of the tool was checked by applying split half method and was calculated by Kerl Pearson's correlation coefficient formula. The reliability of the tool was found $r=0.75$, hence the tool was reliable.

Ethical consideration: A formal written permission was obtained from the medical superintendent, IVY Hospital, Mohali after discussing the purpose and objective of study with them. Also, written consent from the hypertensive patients prior to data collection was taken by explaining the purpose of the study. Establishing rapport took around 5-7 mins. The main study was conducted from 22 February to 14 March 2021. 60 samples were collected using purposive sampling technique. The researcher was adopted pre-experimental one group pre and post-test research design. Data collect was done through structured questionnaire. During pre-test, the patient's knowledge of arteriovenous fistula care was measured by multiple choice questions, which were 30

questions. Then the subjects were received Structured Teaching Programme regarding arteriovenous fistula care for 30 minutes. On 7th day the researcher was took post-test as like pre-test to assess the effectiveness of Structured Teaching Programme on Knowledge regarding arteriovenous fistula care among patients admitted in dialysis unit.

Result

Table I reveals that Socio-demographic Profile of patients admitted in dialysis units of selected hospitals of district Mohali. Total of 60 patients were included in study. According their age most of them 58 (96.7%) were above 45 year and followed by 2 (3.3%) were 36-45 years age.

As per gender; majority of 44 (66.7%) were male and 20 (33.3%) were females.

As per their educational qualification; majority of 40 (66.7%) were had up to secondary one fourth 15 (25%) were had up to primary and only 5 (8.3%) had graduation and above.

As per duration of undergoing hemodialysis among patients; quarter 45 (75%) had more than two years followed by 12 (20%) had one to two years and only 3 (5%) had less than one year.

According to number of hemodialysis/weeks of patient; half of them 30 (50%) had undergone 3 times per week, slightly less than half 29 (48.3%) had undergone 2 times per week and 1 (1.7%) had undergone one in a week.

According to occupation of patients of hemodialysis; slightly less than half 29 (48.3%) were self-employee, just more than one fourth 16 (26.7%) were Govt. employee and one fourth 15 (25%) were home maker.

As per their monthly income; 24 (44%) were having 10,000-20,000 Rs./month, followed by 20 (33.3%) were having 21,000-30,000 Rs/ month , 14 (23.3%) were having less than 10000 Rs/month and only 2 (3.3%) were having 31,000-40,000 Rs./month.

Table 1 Frequency and percentage distribution of demographic variables

N=60

Sr. No.	Sociodemographic Variables	f	%
1.	Age in years		
	<25years	0	0
	26-35years	0	0
	36-45years	2	3.3
	>45years	58	96.7
2.	Gender		
	Male	40	66.7
	Female	20	33.3
3.	Qualification		
	No formal education	0	0
	Primary	15	25.0
	Secondary	40	66.7
	Graduation and above	5	8.3
4.	Duration of undergoing hemodialysis		
	< 1 year	3	5.0
	1-2 years	12	20.0
	> 2years	45	75.0
5.	Number of hemodialysis/weeks		
	Once a week	1	1.7
	2 times	29	48.3
	3 times	30	50.0
	4 times and more	0	0
6.	Occupation		
	Home maker	15	25.0
	Govt. employee	16	26.7
	Self-employee	29	48.3
	Any others	0	0

7.	Monthly Income		
	<10,000	14	23.3
	10,000-20,000	24	40.0
	21,000-30,000	20	33.3
	31,000-40,000	2	3.3
	>40,000	0	0

Table 2 Frequency, percentage distribution according to knowledge score regarding AV Fistula care before the administration of structured teaching program among patients admitted in dialysis unit.

N=60

Sr. No.	Level of Knowledge	Criterion measure	f	%	Mean \pm SD
1.	Excellent	>75	0	0	9.63 \pm 5.722
2.	Good	50-75	18	30.0	
3.	Average	<50	42	70.0	

This table depicts that level of knowledge regarding AV Fistula care before the administration of structured teaching program among patients admitted in dialysis unit. Out of 60 patients; 42 (70%) were having average knowledge and 18 (30%) were having good knowledge. Overall knowledge score was 9.63 \pm 5.722.

Table 3 Frequency and percentage distribution according to level of knowledge regarding AV Fistula care after the administration of structured teaching program among patients admitted in dialysis unit.

N=60

Sr. No.	Level of Knowledge	Criterion measure	f	%	Mean \pm SD
1.	Excellent	>75	36	60.0	24.88 \pm 3.858
2.	Good	50-75	24	40.0	
3.	Average	<50	0	0	

This table depicts that level of knowledge regarding AV Fistula care after the administration of structured teaching program among patients admitted in dialysis unit. Out of 60 patients; 36 (60%) were having excellent knowledge and 24 (40%) were having good knowledge. After structured teaching program maximum subjects had excellent knowledge. Overall knowledge score was 24.88 \pm 3.858.

Table 4 Compare the level of knowledge before and after the administration of structured teaching program on AV Fistula care among patients admitted in dialysis units.

N=60

Level of Knowledge	Mean	SD	MD	t-value	df	p-value
Before STP administration	9.63	5.722	15.250	18.478	59	0.001 **
After STP administration	24.88	3.858				

**=Significant at 1%

This table shows that comparison the level of knowledge before and after the administration of structured teaching program on AV Fistula care among patients admitted in dialysis units. The mean score is increased after administration STP. The mean difference is 15.250. Though it was seen that the after administration STP knowledge score was more than the before administration STP knowledge score, it is essential to put it under statistical significance. So suitably the paired 't'-test was chosen and worked out. The calculated t-value 18.478, p value 0.001 which is highly significant at 1% level.

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Hence, Null hypothesis is rejected. This indicates that the structured teaching programmed is effective in increasing the knowledge scores AV Fistula care among patients admitted in dialysis unit.

Table 5: Association between the levels of knowledge after administration of structured teaching program on AV Fistula with the selected demographic variables.

N=60

Sr. No.	Socio-demographic variables	Level of knowledge		Fisher's Exact/2 test value	df	p-value
		Excellent	Good			
1.	Age in years					
	36-45	1	1	.086 [#]	1	1.00 ^{NS}
	>45	35	23			
2.	Gender					
	Male	21	19	2.813	1	.094 ^{NS}
	Female	15	5			
3.	Qualification					
	Primary	8	7	1.528 [#]	2	.451 ^{NS}
	Secondary	26	14			
	Graduation and above	2	3			
4.	Duration of undergoing hemodialysis					
	< 1 year	1	2	5.843 [#]	2	.035 [*]
	1-2 years	4	8			
	> 2years	31	14			
5.	Number of hemodialysis/weeks					
	Once a week	0	1	2.249 [#]	2	.284 ^{NS}
	2 times	16	13			
	3 times	20	10			
6.	Occupation					
	Home maker	11	4	1.486	2	.476 ^{NS}
	Govt. employee	9	7			
	Self-employee	16	13			
7.	Monthly Income					
	<10,000	11	3	5.388 [#]	3	.129 ^{NS}
	10,000-20,000	15	9			
	21,000-30,000	10	10			
	31,000-40,000	0	2			

* = Significant at 5% level

Table 5 presents that association between the levels of knowledge after administration of structured teaching program on AV Fistula with the selected demographic variables. Fisher's/Chi square test was applied; as statistically found that duration of undergoing hemodialysis ($p = 0.035$) was significant at level of 5%. Whereas age ($p = 1.00$), gender ($p = .094$), qualification ($p = .451$), number of hemodialysis/weeks ($p = .284$), occupation ($p = .476$) and monthly income ($p = .129$) were non-significant at level of 5%.

Discussion

In the present study, in case the level of knowledge most of the subjects were having good and average level of knowledge during pre-test. Out of 60 patients; 42 (70%) were having average knowledge and 18 (30%) were having good knowledge. Overall knowledge score was 9.63 ± 5.722 .

Moreover, ill individual has impact in their autonomy. Lack of knowledge will lead to lack of self-care and decreases the level of participation in their own care. Theoretical self-care model of Dorothy Orem also determines that self-care is related to personal care required by people daily, to regulate their own functioning and development as well as the practice of activities which people

personally imitate and do for themselves to maintain life (Basavanthappa, 2009)⁶

In the present study, it was found that most of the subjects were having good and excellent level of knowledge during post-test. Out of 60 patients; 36 (60%) were having excellent knowledge and 24 (40%) were having good knowledge. After structured teaching program maximum subjects had excellent knowledge. Overall knowledge score was 24.88 ± 3.858 .

The mean score is increased after administration STP. The mean difference is 15.250. Though it was seen that the after administration STP knowledge score was more than the before administration STP

knowledge score, it is essential to put it under statistical significance. So suitably the paired 't'-test was chosen and worked out. The calculated t-value 18.478, p value 0.001 which is highly significant at 1% level.

Effectiveness of the instructional module was shown by the increase of the mean score of knowledge related to assessment of AVF function from 2.0 ± 0.38 n pre-test to 2.7 ± 0.29 in post - test with statistically significance improvement $p < 0.05$. Advice regarding the need and method of checking the function of AV fistula were given to the individual patient. This result is supported by the study done in Nepal Medical College and Teaching Hospital which reported a significant difference in mean pre-test and post-test knowledge scores among two groups of 50 hemodialysis patients with and without pre dialysis health teaching respectively in the two groups (Pandit et al., 2017).⁷

The present study findings showed the positive effect of instructional module on self-care guidelines in patients with AV Fistula related to general instruction which includes, keeping the fistula site clean and dry, by washing with soap and water daily, avoid giving injections, checking blood pressure, carrying heavy things and laying on the limb with AV Fistula among the participants as evidenced by increased in mean score from 1.78 ± 0.33 in pre-test to 2.78 ± 0.22 in post -test with statistically significant improvement was observed at p value < 0.05 . This finding confirms H1 and it is agreed with (El Minshawy et al., 2004)⁸

The present study is supported by other studies, which ensures that the Structured Teaching Program was an effective teaching tool used to increase the level of knowledge regarding AV Fistula care among patients admitted in dialysis unit at IVY Hospital, Mohali.

Conclusion

The present study is supported by other studies, which ensures that the Structured Teaching Program was an effective teaching tool used to increase the level of knowledge regarding AV Fistula care among patients admitted in dialysis unit at IVY Hospital, Mohali.

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