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Original Research Article

The knowledge of cardiac catheterization among the staff nurses working in a cardiac unit

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ABSTRACT

Introduction: Cardiac catheterization is performed to evaluate coronary artery disease, valvular heart disease, congestive heart failure, and/or certain congenital (present at birth) heart conditions, such as atrial, septal defect or ventricular septal defect, when other less invasive types of diagnostic tests indicate the presence of one of these conditions. Many of the studies and researcher's own experience reveal an inadequate knowledge among the staff nurses. Hence the researcher wants to improve the knowledge of staff nurses regarding cardiac catheterization by using a Structured Teaching Programme.
Materials and Methods: research approach: For the present study, evaluative research approach. research design : For the present study, research design selected is one group pre -test and post- test design.
Result: In pre-test the level of the knowledge score 50% of the staff nurses have average knowledge, 32% of the staff nurses have good knowledge, 18% of the staff nurses have poor knowledge about the cardiac catheterization And in post test the level of the knowledge score of the staff nurses that is 80% of the staff nurses have excellent knowledge and 20% have good knowledge about cardiac catheterization. Area-wise analysis of the knowledge score of pre test level Analysis reveals that the total mean score was 18.5 which were 54.4%of the maximum score. Area-wise analysis of the knowledge score of post test level Analysis reveals that the total mean score was 28.42 which were 83.6% of the maximum score.
Conclusion: There is a significant association between the post-test knowledge with the demographic variables like Years of experience in clinical field and cardiac unit.

1. Introduction

Cardiovascular disease is the primary cause of mortality and morbidity all over the world. In the United States, it affects more than one in five people. Recent studies have shown a high prevalence of cardiovascular death among developing countries. [1–8]

It is a common medical procedure that rarely causes serious problems. But complications can include bleeding, infection, pain where the catheter was inserted, and damage to blood vessels. .Other less common complications of the procedure include an arrhythmia ,damage to the kidneys, blood clots, heart attacks and low B.P.

Although coronary heart disease cannot be cured completely, it can be managed much more effective today than in the past. Treatment consists mainly of lifestyle changes, and perhaps some medical procedures and medications. Recently the cardiologists all over the world are engaged in discovering new diagnostic and therapeutic methods for cardiovascular diseases. Even though a lot of complications detected after cardiac catheterization, the cardiac catheterization positions as the key procedure with diagnostic as well as therapeutic properties. [9]

Coronary heart disease (CHD), also known as coronary artery disease is a narrowing of the blood vessels (coronary arteries) that supply oxygen and blood to

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the heart. Coronary heart disease is generally caused by atherosclerosis- when plaque (cholesterol substances) accumulates on the artery walls, causing them to narrow, resulting in less blood flow to the heart. Sometimes a clot may form which can obstruct the flow of blood to heart muscle. Coronary heart disease commonly causes angina pectoris (chest pain), shortness of breath, heart attackand other symptoms.[6]

2. Need For The Study

Cardiac catheterization has been and currently remains the gold standard for the diagnosis of coronary artery disease. It may also reveal the presence of other conditions, including enlargement of the left ventricle; ventricular aneurysms (abnormal dilation of a blood vessel); narrowing of the aortic valve; insufficiency of the aortic or mitral valve; and septal defects that allow an abnormal flow of blood from one side of the heart to the other. The procedure shows the overall shape of the heart, the four heart chambers, and accessory structures inside it which will help to plan for treatment.

During the investigator's clinical experience, it was found that even highly educated patients also have little knowledge about heart disease and cardiac catheterization, and many were having excessive anxiety, and developed uncontrolled hypertension in catheterization laboratory.[10–20] Many patients were found restless and they experienced palpitation, when they were about to undergo the procedure. In order to control their anxiety symptoms, they were given extra dose of sedation, and this motivated the investigator to undertake this study. The investigator was also interested to find out the relationship between knowledge and anxiety with age, educational status and previous experience of cardiac catheterization etc.[5]

3. Objectives

1. To assess the pre-test knowledge of staff nurses regarding cardiac catheterization.
2. To assess the effectiveness of structured teaching program regarding the knowledge of Cardiac Catheterization among the staff nurses.

3.1. Hypothesis

H $_0$- There is no significant difference between the pre-test knowledge of nursing staff regarding cardiac catheterization.

3.2. Delimitation

1. Samples are from one a hospital in Raipur.
2. Those who are present at the time of the study and are willing to participate in the study.
3. Only one pre and posttest assessment of knowledge.
4. Sample size is limited to 50.

4. Materials and Methods

4.1. Research approach

For the present study, evaluative research approach.

4.2. Research design

For the present study, research design selected is one group pre -test and post- test design.

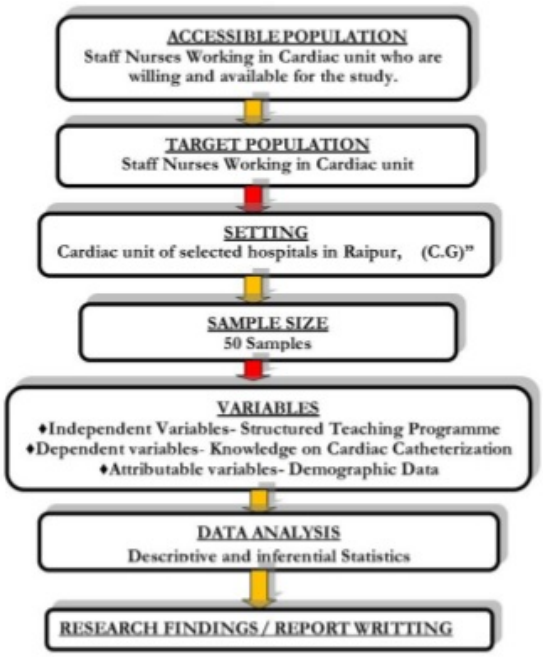

Fig. 1: Schematic representation of research design.

4.3. Setting of the study

The study was conducted in a Cardiac unit of selected hospitals in Raipur, (C.G)".

The reason for the researcher to select the hospital were

1. Familiarity with the setting.
2. Availability of subject.
3. Feasibility for conducting the study.
4. Easy access to subject and economy.
5. Administrative approval and expectation of co-operation for the study.

4.4. Population

The population of the present study comprised of staff nurses working in cardiac unit of the selected hospital of Raipur, (C.G).

4.5. Accessible population

Staff Nurses Working in Cardiac unit who are willing and available for the study.

4.6. Target population

Staff Nurses Working in Cardiac unit.

4.7. Sample and sampling characteristics

The samples of this study are 50 staff nurses from the selected hospital in Raipur, (C.G).

4.8. Sampling technique

Purposive sampling technique was used to select 50 nurses for the study.

4.9. Sample size

Total of 50 staff nurses were taken for the study.

Table 1: Criterion measures for knowledge questionnaire total marks: 34

S.NO	Grade	Marks	Percentage
1	Poor knowledge	0-15 marks	0-25%
2	Average knowledge	15-19 marks	45-59%
3	Good knowledge	20-26 marks	60-79%
4	Excellent knowledge	27-34 marks	80-100%

Table 2: Show that 22(44.0%) of samples were in the age group 22-30 years, 21 (42.0%) were in the age group 31-40 years and 7 (14.0%) were in the age group 41-50 years**.SS**

Sl no.	Demographic variable	Frequency	Percentage
	Age	N	%
A	22 -30 yrs	22	44.0%
B	31 -40 yrs	21	42.0%
C	41 -50 yrs	7	14.0%

Table 3: Shows that 32(64.0%) of samples belonged tochristian religion and 18(36%) of samples beloged to hindu religion.

Sl no	Demographic variable	frequency	Percentage
	Religion	N	%
A	Hindu	18	36.0%
B	Christian	32	64.0%

Table 4: Shows that In educational status 27 (54.0%) of samples had completed B.Sc nursing degree, 20(40%) of samples had completed G.N.M and 3(6.0%) of samples had other educational qualification.

Sl no.	Demographic variables	Frequency	Percentage
	Education	N	%
A	B.Sc(N)	27	54.0%
B	GNM	20	40.0%
C	Others	3	6.0%

Table 5: Shows that InYears of experience in clinical field, 26(52.0%) of samples had 1-2 years of experience, 9(18%) of samples had less than 1year and more than 1year respectively, 6(12.0%) samples had 2-3 years of experience.

Sl no.	Demographic variables	Frequency	Percentage
	Years of experience in clinical field	N	%
A	< 1 yr	9	18.0%
B	1- 2 yrs	26	52.0%
C	2 -3 yrs	6	12.0%
D	> 3 yrs	9	18.0%

Table 6: Showsthat In Years of experience in cardiac unit, 31(62.0) of samples had less 1year of experience in cardiac unit, 11(22.0%) of samples had 1-2 year of experience in cardiac unit, 1(2.0%) of samples had 2-3 year of experience cardiac unit, 7(14.0%) of samples had more than 3year of experience in cardiac unit.

Sl no.	Demographic variables	Frequency	Percentage
	Years of experience in cardiac unit	N	%
A	< 1 yr	31	62.0%
B	1- 2 yrs	11	22.0%
C	2 -3 yrs	1	2.0%
D	> 3 yrs	7	14.0%

4.10. Pretest level of knowledgeTable 9

5. Sampling Criteria

5.1. Inclusion criteria

Staff nurses who are

1. Working in the cardiac unit.
2. Willing to participate in the study.
3. Available at the time of data collection.

5.1.1. Exclusion criteria

Staff nurses who are not

1. Available during the period of data collection
2. Willing to participate in the study
3. Working in the cardiac unit.

Table 7: Overall pre-test knowledge scores

S.No	Knowledge questionnaires	Pre test Frequency "N"	Pre test Mean score%
1	Cardiac Catheterization can be defined as.	50	100
2	Indication for performing Cardiac Catheterization is.	40	80
3	Cardiac catheterization is an.	32	64
4	Cardiac catheterization is done in patients who complains of .	26	52
5	Part preparation for Cardiac catheterization is done to	33	66
6	Time duration of Cardiac Catheterization is.....	36	72
7	Premedication(Mild sedative) is given to the patients before undergoing Cardiac Catheterization to.....	26	52
8	The risks for Cardiac Catheterization include...	38	76
9	Patient is to be kept NBM for Cardiac Catheterization before	35	70
10	The type of anaesthesia given during Cardiac Catheterization is.....	28	56
11	The artery & valves can be visualized during Cardiac Catheterization by help of....	23	46
12	The feeling of the patient while administration of dye during Cardiac Catheterization is....	26	52
13	Patient need complete bed rest after Cardiac Catheterization for...	26	52
14	After Cardiac Catheterization the puncture affected limb or arm must be kept straight for	29	58
15	Fluid are administrated in post Cardiac Catheterization mainly to...	29	58
16	In post Cardiac Catheterization the vitals are checked for every 15-30 min to....	28	56
17	Normal diet can be taken by the post Cardiac Catheterization patient after.....	36	72
18	Assess the puncture site after Cardiac Catheterization for	24	48
19	The advantage of Cardiac Catheterization is....	31	62
20	The complication of Cardiac Catheterization is....	29	58
21	The procedure which requires Cardiac Catheterization are....	27	54
22	The Cardiac Catheterization is performed in.....	27	54
23	The incidence of Cardiac Catheterization is higher in patients with.....	27	54
24	The Dye used in Cardiac Catheterization may lead to....	22	44
25	If the catheter is inserted through groin in Cardiac Catheterization, Patient head can't be raised more than....	31	62
26	The commonest procedure which involves Cardiac Catheterization is....	25	50
27	Coronary Angeography is perform to....	30	60
28	Cardiac Catheterization procedure done in the disease condition requiring device implantation includes.....	23	46
29	Coronary Angioplasty (PTCA) is perform to.....	27	54
30	Arterial Septal Defect means....	37	74
31	Patent Ductus arteriosis means.....	26	52
32	Ballon Mitral Valvotomy means....	31	62
33	Ballon Septostomy means.....	19	38
34	After Cardiac Catheterization the numbness/ tingling sensation in finger or toe is the sign of...	46	92
	Total	1023	1192

Table 8: Shows the overall pre-test knowledge scores of staff nurses regarding cardiac catheterization. It shows that the staff nurses have an average knowledge 54.4%.

S. no	Knowledge on	No. of Questions	Min – Max Score	Pretest score		
				Mean score	SD	%
1	Introduction	3	0 -3	1.90	.74	63.3%
2	Indication	4	0 -4	2.40	.93	60.0%
3	Pre procedure	5	0 -5	2.92	1.29	58.4%
4	During procedure	3	0 -3	1.54	.84	51.3%
5	Post procedure	6	0 -6	3.06	1.42	51.0%
6	Advantages	2	0 -2	1.16	.77	58.0%
7	Complication	4	0 -4	2.30	1.07	57.5%
8	Conclusion	7	0 -7	3.22	1.98	46.0%
	Total	34	0 -34	18.5	3.86	54.4%

Table 9: Show the pre-test level of knowledge of staff nurses regarding cardiac catheterization. It shows that the staff nurses having an average knowledge are 25[50%], good knowledge are 16[32%] and poor knowledge are 9[18%]**.**

Level of knowledge	Pretest	
	No. of nurses	%
Poor	9	18%
Average	25	50%
Good	16	32%
Excellent	0	0%
Total	50	100

5.2. Preparation of structured teaching programme

A structured teaching programme regarding cardiac catheterization was developed on the basis of review of related research and non research literature and experts group.

The structured teaching programme covered the following about the topic cardiac catheterization.

1. Introduction and indication regarding cardiac catheterization.
2. To explain the care regarding pre procedure, during procedure and post procedure of patient undergoing cardiac catheterization.
3. To detail the steps in preparation of the patient in cardiac catheterization.
4. To describe about the advantages of cardiac catheterization.
5. To brief about complication of cardiac catheterization.
6. To summarize the topic on cardiac catheterization.

5.3. Instruction strategies

Lecture –cum discussion method was adopted for teaching.

6. Data Analysis and Interpretation

1. *Section I:* Frequency and percentage distribution of staff nurses according to age.
2. *Section II:* Analysis of pre-test knowledge regarding cardiac catheterization pre-test item wise percentage of knowledge.

7. Conclusion

In pre-test the level of the knowledge score 50% of the staff nurses have average knowledge, 32% of the staff nurses have good knowledge, 18% of the staff nurses have poor knowledge about the cardiac catheterization And in post test the level of the knowledge score of the staff nurses that is 80% of the staff nurses have excellent knowledge and 20% have good knowledge about cardiac catheterization. Area-wise analysis of the knowledge score of pre test level Analysis reveals that the total mean score was 18.5 which were 54.4%of the maximum score. Area-wise analysis of the knowledge score of post test level Analysis reveals that the total mean score was 28.42 which were 83.6% of the maximum score.

8. Summary

So the results of the study shows that the difference between the pre-test and post-test Knowledge score of the cardiac catheterization is statistically significant and this difference is due to the S.T.P on cardiac catheterization. There is a significant association between the post-test knowledge with the demographic variables like Years of experience in clinical field and cardiac unit.

9. Source of Funding

None.

10. Conflict of Interest

None.

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