



(RESEARCH ARTICLE)



A study to assess the effectiveness of planned teaching programme in reduction of anxiety among patients posted for cardiac catheterization

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Abstract

Background of the study: The purpose of the study was to provide more information about cardiac catheterization, so as to reduce the anxiety of the patient before the procedure. It is necessary that everyone should be aware of the cardiac catheterization procedure.

Objectives of the study

- To assess the anxiety level of patients posted for cardiac catheterization before and after the administration of planned teaching programme.
- To evaluate the effectiveness of planned teaching programme in terms of reduction in anxiety
- To associate posttest values with selected demographic variables like age, sex, marital status, occupation, personal habits, previous history of hospitalization etc.

Methodology: An evaluative approach was used for this study to test the effectiveness of planned teaching program in reduction of anxiety among patient posted for cardiac catheterization in a selected hospital, Bangalore. In the view of the nature of the problem and to accomplish the objectives of the study, a modified structured anxiety scale was prepared which focuses on level of anxiety on cardiac catheterization.

Reliability of the tool was tested and validity was ensured in consultation with guides and experts in the fields of medicine, and nursing. The study was carried out in Trinity Hospital; Bangalore and 60 cardiac patients were selected by non-probability purposive sampling technique. Data collected was analyzed by using the descriptive and inferential statistics.

Results: The overall pretest mean knowledge score is 55.3 % and the post test score found to be 34.8 %. The mean reduction of anxiety between pretest and posttest is 18.4% and the obtained paired "t" value 9.33 which is significant at p,0.051 level.

Conclusion: The most important role of the health personal is to provide essential information to the public regarding cardiac catheterization. The planned teaching program was significantly effective in decreasing the anxiety of cardiac patients.

Keywords: Cardiac Patients; Cardiac Catheterization; Planned Teaching Programmed; Anxiety Reduction; Effectiveness of Teaching

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1. Introduction

Cardiac catheterization is a critical invasive procedure widely used in the diagnosis and treatment of various cardiac conditions. Despite its routine nature in modern cardiology, it often evokes considerable anxiety in patients due to fear of the unknown, anticipated pain, procedural risks, and concerns about outcomes. Uncontrolled anxiety can lead to increased sympathetic nervous system activity, resulting in elevated heart rate, blood pressure, and cardiac workload, which may complicate the procedure and impair recovery.

Anxiety prior to cardiac catheterization is a common psychological response that, if left unaddressed, can adversely affect patient cooperation, procedural success, and post-procedure outcomes. Studies have shown that patient education and emotional preparation significantly contribute to reducing pre-procedural anxiety, enhancing psychological comfort, and improving clinical results.

A planned teaching programme (PTP) is a structured educational intervention aimed at informing patients about the procedure, its purpose, potential risks, and post-procedural care. Such programmes not only bridge the knowledge gap but also instil confidence and reduce fear through reassurance.

In this context, the present study aims to evaluate the effectiveness of a planned teaching programme in reducing anxiety levels among patients scheduled for cardiac catheterization. By empowering patients through knowledge and preparation, nurses play a pivotal role in promoting positive health outcomes and holistic care.

1.1. Need for the Study

Cardiac catheterization is a life-saving diagnostic and therapeutic procedure, yet it is often associated with significant psychological stress. Patients scheduled for this procedure commonly experience anxiety due to lack of knowledge, fear of complications, pain, or potential diagnosis. This anxiety may negatively impact hemodynamic stability, increase cardiac workload, and reduce patient cooperation during the procedure.

Research indicates that pre-procedural anxiety can impair recovery, delay healing, and increase hospital stay and healthcare costs. Despite advances in medical technology, the emotional needs of patients are often overlooked. This creates a critical gap in nursing care, where addressing psychological preparedness becomes essential.

A planned teaching programme (PTP) serves as an effective non-pharmacological strategy to reduce anxiety. Educating patients about the procedure, expected sensations, risks, and post-care can demystify the process and instill a sense of control and calmness. Nurses, being closest to patients, are in an ideal position to deliver this intervention and improve patient outcomes.

Given the increasing number of cardiac catheterizations and the emotional burden it brings, there is a pressing need to assess and implement structured educational interventions. This study aims to evaluate the effectiveness of such a programme in reducing anxiety, thereby supporting holistic and patient-centered care in cardiac units.

2. Material and methodology

- **Research Approach:** Evaluative approach
- **Research design:** One group pretest and posttest design.
- **Setting of the study:** The Study was conducted at Trinity Hospital and Heart foundation, Basavanagudi, Bangalore
- **Study Sample:** Patients posted for cardiac catheterization.
- **Sample size:** 60 cardiac patients posted for cardiac catheterization
- **Sampling technique:** Non probability convenient sampling technique

2.1. Criteria for sample collection

2.1.1. Inclusion Criteria

- Patients posted for cardiac catheterization who are willing to participate in this study
- The patients who are available during the study period.
- Patient between 30-80 years
- Patients who are not seriously ill

2.1.2. Exclusion Criteria

- Patients who are seriously ill

2.2. Development and description of the tool

The tool was developed on the basis of non-research review of literature, review of research, discussion with the experts and from personal experience of the researcher. The tool consists of 2 sections.

2.2.1. Section-A

It deals with demographic variables such as age, sex, marital status, occupation. education, family income, place of residences, dietary pattern, personal habits, family history of heart disease, duration of health problem, family history of heart disease, previous history of hospitalization

2.2.2. Section-B

Modified Hamilton anxiety scale to assess the anxiety level of patient on cardiac catheterization. Scoring technique; The anxiety scale consisted of 25 items and each statement has four options and scores are as follows Not present (1), mild (2), moderate (3), severe (4). The scale has four aspects of anxiety Emotional, Intellectual, Physical, and Autonomic.

Table 1 Score interpretation for section B

Score	Inference
25-50%	Mild anxiety
51-75%	Moderate anxiety
76-100%	Severe anxiety

2.3. Content validity

Validity refers to the degree to which an instrument measures what it is supposed to measure. Content validity refers to the degree to which the items in an instrument adequately represent the universe of content. To ensure content validity, the tool was submitted to 4 Medical experts, (3 cardiologists), 1 statistician and 4 nursing experts' The modifications and suggestions were incorporated in the final preparation of the tool.

2.4. Reliability of the tool

Reliability refers to the degree of consistency of the tool. Reliability of the Anxiety scale was established by the test re-test method. The reliability score obtained for questionnaire was r-0.87. Hence the tool is found to be reliable to proceed for the data collection. The reliability of internal consistency was assessed by split-half method by using Spearman brown prophecy formula.

2.5. Pilot study

Pilot study is a small version (or) trial run, which must be done in preparation for a major study. For the present study the researcher selected Trinity Hospital and Heart foundation, Bangalore. The investigator selected 6 samples by non-probability convenient sampling technique. After a brief self-introduction, the investigator explained the purpose of the study and obtained consent from them and good rapport was established.

2.6. Procedure for data collection

Data was processed daily, and any missing data were promptly identified and rectified within one day..

3. Data analysis

The research study findings were analyzed based on the objectives with the help of descriptive and inferential statistics.

3.1. Descriptive statistics

The data collected was analyzed on the basis of objectives of the study using descriptive statistics.

Frequency and percentage distribution of demographic variables were done. Mean, mean percentage and standard deviation were used to determine the pre-test and post-test level of anxiety of patient on cardiac catheterization. Distribution of scores on level of anxiety of patients regarding cardiac catheterization was interpreted by summarizing into 3 categories such as severe anxiety, moderate anxiety, mild anxiety,

3.2. Inferential statistics

Chi square test was used to find the association between posttest level of anxiety and the selected demographic variables.

3.3. Ethical consideration

For this study the investigator took into consideration the ethical issues. No ethical issues raised by conducting the study. Prior permission was obtained from medical officer to conduct the main as well as the pilot study. Written informed consent was obtained from the study samples and explanation regarding the purpose of the study was given. The subjects were informed that the confidentiality of the data will be maintained and that their participation was purely on the voluntary basis and they can withdraw from the study at any time.

Formal permission was sought to the investigator from the authority. The proposed study was conducted after the approval of dissertation committee of Goldfinch college of Nursing and assurance was given to the study subjects that the anonymity of each individual would be maintained.

3.3.1. Section I

Table 2 Distribution of samples according to socio-demographic variable N=60

S. No	Demographic Variable	Categories	No. of Patients (f)	Percentage (%)
1	Age	Below 40	10	16.70%
		41–50 years	10	16.70%
		51–60 years	29	48.30%
		More than 60 years	11	18.30%
2	Sex	Male	42	70.00%
		Female	18	30.00%
3	Marital Status	Married	52	86.70%
		Single	-	-
		Widow/Widower	8	13.30%
4	Education Status	Illiterate	2	3.30%
		Primary School Education	6	10.00%
		High School Education	30	50.00%
		Graduate/Postgraduate	22	36.70%
5	Place of Residence	Urban	12	20.00%
		Semi-Urban	24	40.00%
		Rural	24	40.00%
6	Occupation	Employed	35	58.30%
		Unemployed	19	31.70%
		Others	6	10.00%
7	Family Income (per month)	3000–7000	17	28.30%
		7000 above	43	71.70%

8	Dietary Habit	Vegetarian	1	1.70%
		Non-Vegetarian	59	98.30%
9	Personal Habits	Smoking / Alcohol / Betel nut chewing	42	70.00%
		Clean habits	18	30.00%
10	Spending Time in Recreational Activities	Yes	23	38.30%
		No	37	61.70%
11	Family History of Heart Disease	Yes	20	33.30%
		No	40	66.70%
12	Duration of Health Problem	Less than 1 year	45	75.00%
		1-5 years	4	6.70%
		6-10 years	4	6.70%
		10 years and above	7	11.70%
13	History of Previous Cardiac Catheterization	Yes	7	11.70%
		No	53	88.30%

The demographic data reveals several important insights about the patient population undergoing cardiac catheterization. In terms of age, the majority of patients (48.30%) are between 51-60 years, with 16.70% falling below 40 years and 41-50 years, while 18.30% are over 60. This indicates that cardiac catheterization is most common among middle-aged to older adults. Regarding sex, a significant majority (70%) of patients are male, which aligns with the higher prevalence of cardiovascular diseases in men. In terms of marital status, most patients are married (86.70%), and only a small percentage are widowed/widowers (13.30%), with no single patients reported in this study. Educationally, the majority of patients have completed high school (50%), while 36.70% are graduates/postgraduates, and a smaller percentage have primary school education or are illiterate. This suggests that a significant proportion of patients have access to a basic or higher level of education. Geographically, patients are fairly evenly distributed across semi-urban (40%) and rural (40%) areas, with a smaller percentage living in urban areas (20%). Employment-wise, 58.30% are employed, with a smaller portion being unemployed (31.70%) or engaged in other occupations (10%). Most patients (71.70%) report a family income above 7000 per month, reflecting a higher economic status. Dietary habits show that 98.30% of patients are non-vegetarian, with only 1.70% being vegetarian. Regarding personal habits, 70% of patients engage in habits such as smoking, alcohol consumption, or betel nut chewing, indicating a link between lifestyle choices and cardiovascular health. In terms of recreational activity, a larger percentage (61.70%) do not engage in such activities, which could indicate a sedentary lifestyle. Regarding family history of heart disease, 33.30% of patients reported a family history, while the majority (66.70%) did not. The duration of health problems shows that 75% of patients have had health issues for less than 1 year, with smaller proportions having health issues for 1-5 years (6.70%) or more than 10 years (11.70%). Lastly, most patients (88.30%) have no prior history of cardiac catheterization, with only 11.70% having undergone the procedure previously. This demographic breakdown helps provide a clearer understanding of the patient population and can be useful in tailoring health interventions.

3.3.2. section II

Table 3 Distribution of Cardiac Catheterization patients according to level of anxiety before and after PTP

S.NO	Level of Anxiety	Before PTP		After PTP	
		No	%	No	%
1	Mild Anxiety	20	33.30%	57	95.00%
2	Moderate Anxiety	38	63.30%	3	5.00%
3	Severe Anxiety	2	3.30%	0	0.00%
	Total	60	100%	60	100%

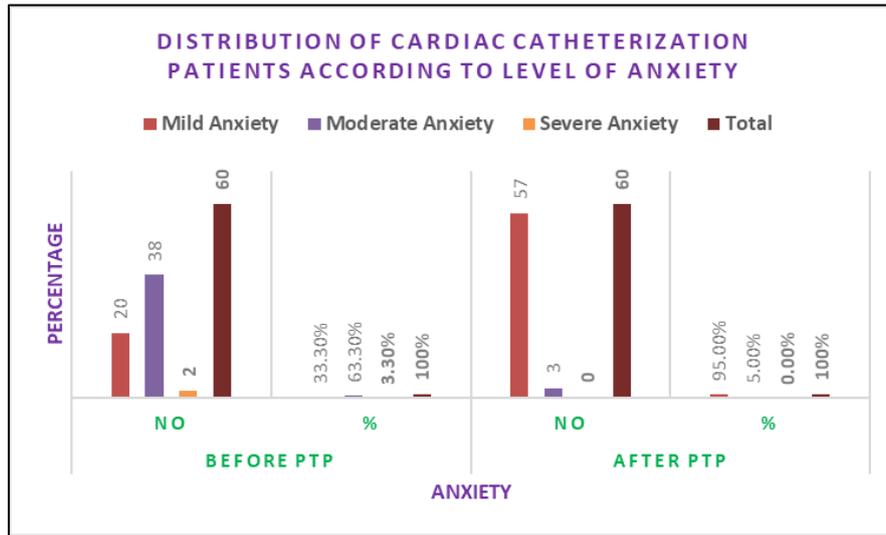


Figure 1 Distribution of Cardiac Catheterization patients according to level of anxiety before and after PTP

Table 4 Reduction of anxiety and Significance on reduction of anxiety among cardiac catheterization patients before and after PTP

S. No	Aspects of Anxiety	Max Score	Before PTP				After PTP			
			Range	Mean	SD	%	Range	Mean	SD	%
1	Emotional	28	8-21	15.93	4.76	56.8	7-16	9.26	2.08	33.1
2	Intellectual	16	4-16	10.78	4.85	67.3	3-12	5.38	1.36	33.6
3	Physical	44	15-31	22.48	3.47	51.1	12-25	16.05	4.79	36.4
4	Autonomic	12	3-10	6.13	1.76	51.1	4-9	4.2	1.2	35
5	Overall Anxiety	100	32-76	55.32	13.41	55.3	27-55	34.89	6.06	34.8

3.3.3. Section IV

Table 5 Association between anxiety and demographic variable of cardiac catheterization patients

S.No	Demographic Variable	Categories	No. of Patients (f)	Percentage (%)	Knowledge ≤ Median No	Knowledge ≤ Median (%)	Knowledge > Median No	Knowledge > Median (%)	Chi-square Value	df	p-value
1	Age	Below 40	10	16.7	4	20	6	15	0.507	3	<0.05 S
		41-50 years	10	16.7	6	30	4	10			
		51-60 years	29	48.3	5	25	24	60			
		More than 60 years	11	18.3	5	25	6	15			
2	Sex	Male	42	70	14	70	28	70	0	1	>0.05 NS
		Female	18	30	6	30	12	30			
3	Marital Status	Married	52	86.7	19	95	33	82.5	1.803	1	>0.05 NS
		Widow/Widower	8	13.3	1	5	7	17.5			

		Single	-	-	-	-	-	-			
4	Education Status	Illiterate	2	3.3	1	5	1	2.5	1.173	3	>0.05 NS
		Primary School Education	6	10	1	5	5	12.5			
		High School Education	3	50	11	55	19	47.5			
		Graduate/Postgraduate	22	36.7	7	35	15	37.5			
5	Place of Residence	Urban	12	20	4	20	8	20	1.5	2	>0.05 NS
		Semi-Urban	24	40	10	50	14	35			
		Rural	24	40	6	30	18	45			
6	Occupation	Employed	35	58.3	10	50	25	62.5	1.212	2	>0.05 NS
		Unemployed	19	31.7	7	35	12	30			
		Others	6	10	3	15	3	7.5			
7	Family Income (per month)	Below 3,000	-	-	-	-	-	-	1.206	1	>0.05 NS
		3,000 – 7,000	17	28.3	4	20	13	32.5			
		7,000 above	43	71.7	16	80	27	67.5			
8	Dietary Habit	Vegetarian	1	1.7	0	0	1	2.5	0.51	1	>0.05 NS
		Non-Vegetarian	59	98.3	20	100	39	97.5			
9	Personal Habits	Clean habits	18	30	6	30	12	30	0	1	>0.05 NS
		Smoking/Alcohol /Betel nut	42	70	14	70	28	70			
10	Spending Time in Recreational Activities	Yes	23	38.3	8	40	15	37.5	0.035	1	<0.05 NS
		No	37	61.7	12	60	25	62.5			
11	Family history of heart disease	Yes	40	66.7	13	65	27	67.5	0.038	1	<0.05 NS
		No	20	33.3	7	35	13	32.5			
12	Duration of health problem	Less than one year	45	75	16	80	29	72.5	1.868	3	<0.05 NS
		1 – 5 years	4	6.7	2	10	2	5			
		6 – 10 years	4	6.7	1	5	3	7.5			
		10 years and above	7	11.7	1	5	6	15			
13	History of previous cardiac catheterization	Yes	7	11.7	3	15	4	10	0.323	1	<0.05 NS
		No	53	88.3	17	85	36	90			

Note: S-significant at 5% level(p<0.05); NS-Not Significant at 5% level(p>0.05)

3.4. Research Hypothesis

H₁ There will be a significant difference between the mean pretest and posttest score of anxiety level of patients regarding cardiac catheterization.

H₂. There will be a significant association between the mean posttest anxiety level score and selected demographic variable of cardiac patients regarding cardiac catheterization.

The study findings revealed a significant reduction in anxiety levels following the Planned Teaching Programme (PTP). The mean pre-test anxiety score was 55.32%, which decreased to 34.89% post-intervention, showing a mean reduction of 18.4%. The paired t-test value of 9.33 was statistically significant at the $p < 0.05$ level, confirming the effectiveness of the PTP in alleviating anxiety among patients undergoing cardiac catheterization. Therefore, Hypothesis 1 (H₁) was accepted.

The Chi-square test revealed that among all the demographic variables analyzed, only age showed a statistically significant association with post-test anxiety scores ($p < 0.05$), while other variables such as sex, marital status, education, occupation, and lifestyle factors did not ($p > 0.05$). Therefore, Hypothesis 2 (H₂) was partially accepted, indicating that age has a significant influence on anxiety levels, whereas other demographic variables do not.

4. Discussion

The present study aimed to assess the effectiveness of a Planned Teaching Programme (PTP) in reducing anxiety among patients undergoing cardiac catheterization. The results demonstrated a significant reduction in anxiety following the educational intervention. Prior to the PTP, 63.3% of patients exhibited moderate anxiety and 3.3% had severe anxiety, whereas after the PTP, 95% of patients reported only mild anxiety, and none remained in the severe category. The mean anxiety score decreased from 55.32% to 34.89%, indicating an 18.4% reduction, which was statistically significant ($t = 9.33$, $p < 0.05$). Among the four aspects of anxiety—emotional, intellectual, physical, and autonomic—emotional and intellectual components showed the most notable improvements, suggesting that providing knowledge and clarity about the procedure alleviates fear and uncertainty. The study also explored the association between post-test anxiety levels and demographic variables; a significant association was found with age and recreational activities, while other variables such as sex, marital status, education, and income showed no significant relationship. These findings affirm that PTP is an effective, low-cost, non-pharmacological method to prepare patients psychologically, reduce pre-procedural anxiety, and enhance overall patient satisfaction and cooperation in cardiac care settings.

5. Conclusion

The study findings clearly demonstrate that the Planned Teaching Programme (PTP) was effective in significantly reducing anxiety levels among patients scheduled for cardiac catheterization. The structured education provided before the procedure helped patients better understand the process, thereby minimizing fear and psychological distress. The post-test results showed a marked reduction in anxiety across emotional, intellectual, physical, and autonomic domains. The association of anxiety with selected demographic variables like age and engagement in recreational activities highlights the need for personalized patient education strategies. Overall, the study emphasizes the critical role of nurses in providing pre-procedural education as a simple, cost-effective, and impactful method to improve patient outcomes and promote holistic care in cardiac settings.

Nursing implications

The findings of this study have significant implications for nursing practice, education, administration, and research

- **Nursing Practice:** Nurses play a pivotal role in pre-procedural patient care. Implementing Planned Teaching Programmes (PTPs) as a routine part of nursing care can effectively reduce anxiety and improve patients' psychological readiness before cardiac catheterization. Nurses can use modified anxiety assessment tools to identify high-risk individuals and provide tailored information and emotional support.
- **Nursing Education:** Nurse educators should incorporate training on therapeutic communication, patient education techniques, and anxiety management strategies into the curriculum. Emphasis should be placed on preparing students to address both physical and psychological aspects of patient care.
- **Nursing Administration:** Nursing administrators should facilitate in-service training and workshops for staff nurses on the importance of pre-procedural education. Policies can be developed to integrate PTPs into standard pre-admission and pre-procedure protocols in cardiac units.

- **Nursing Research:** This study highlights the need for further research into non-pharmacological methods for anxiety reduction in various clinical settings. Future studies could explore the long-term effects of PTPs and develop standardized teaching modules for broader use.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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