

A Study to Evaluate the Effectiveness of Audio-Visual Education on Anxiety Among Patients Undergoing Coronary Angiography

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ABSTRACT:

Coronary angiography is the most widely used interventional and diagnostic procedure for coronary artery disease. The patient experiences the pre-procedural anxiety prior to coronary angiography. The main aim of the study was to identify the effectiveness of audio-visual education on anxiety among patients undergoing coronary angiography. Quasi experimental posttest only control group design was adopted in the study. By using Non probability purposive sampling technique 60 participants were selected and 30 were assigned to the experimental and control group respectively. The demographic variables, clinical variables were collected from the patients undergoing coronary angiography. Audio-Visual Education was provided to the patients in the experimental group for 15 minutes. Routine nursing care was provided to patients in the control group. After audio-visual education, Post-test was conducted by using the State anxiety inventory scale for both experimental and control group. It was identified that the calculated mean level of anxiety in the experimental and control group was 34.3 and 61.2 respectively with the mean difference of 26.9. Likewise the standard deviation of the experimental and control group was 10.9 and 7.9 respectively. The calculated 't' value 10.79 was greater than the table value of 1.96 at 0.001 level of significance. Hence, it was concluded that Audio-visual education is an effective method in reducing the anxiety among patients undergoing coronary angiography.

KEYWORDS: Coronary angiography, Audio-visual education, Anxiety.

INTRODUCTION:

The human heart is the central organ of a body which consist of several functions for the entire body. It has the key role to maintain good health by supplying blood supply which enhances good vital oxygen, nutrients and hormones to tissues and removes carbon dioxide and metabolic waste products. Hence heart health is very important for surviving a long-life span. (AHA 2020)

Cardiovascular disease is the term for a variety of conditions that affect the heart and blood vessels. The most common form of heart disease is Coronary artery disease (CAD) caused by atherosclerosis. Coronary artery disease has been defined "as an impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes to heart". (Lewis.2007). It is a chronic disease that can lead to serious events including heart attack and death. According to World Health Organization, Coronary artery disease affects 15.8 million individuals with CAD in 2018, which

is to be expected to increase up to 23 million by 2030. It is a complex syndrome that is associated with profound disease morbidity and mortality which has an adverse impact of quality of life (Cowie, 2003). Coronary angiography is the golden standard most widely used hemodynamic interventional and diagnostic technique performed worldwide more than 1,000,000 annually (22 June 2020). It is a procedure that uses contrast dye, usually containing iodine, x-ray pictures to detect blockages in the coronary arteries that are caused by plaque buildup. (Christopher, 2016). Patients undergoing coronary angiography experience emotional and psychological problems. (Leandro, 2010) Before angiography, patients experience a high level of anxiety. Among that anxiety was prevalence among 42% of patients with cardiac disease, 50% of patients with acute coronary syndrome (ACS) and 63% of patients with heart failure (HF). (Ruffinengo, C., 2009 & Delewi, R., et al 2017).

Anxiety is defined as the psychological opposite reaction of an individual to high inner energy caused by challenging situations (Kierkegaard, S. 2013). In fact it is emotional equivalent of a state of uncertainty. Individuals who experience this situation may feel restless, nervous, or anxious about what to happen next (Adib Hajbaghery., et al 2014). It is a major problem in cardiac patients that can increase heart beat rate and blood pressure and also the risk of cardiac dysrhythmias (Basar C., et al 2015).

NEED FOR THE STUDY:

Coronary Artery Disease (CAD) is one of the most important causes of morbidity and mortality all over the world. According to the World Health Organization, it is estimated that there were 18.2 million individuals with CAD in 2020. The Tamil Nadu state's average of 208 per 1,000 populations affected with CAD. (Times of India, 2021). According to the latest Interventional cardiology procedural Analysis, over 965,000 Angiography are performed each year in the United States (Oct 07, 2020) In India, nearly 4.5 lakh patients undergoes Angiography annually (Nov18, 2019) Over 80% of the patients experience anxiety before angiography and this is a direct consequences of lack of understanding of the procedures and possible outcomes. (Shohani, K et al., 2018). To reduce pre-procedural anxiety prior to coronary angiography, audio- visual education is highly recommended instrument in angiogram day care unit among patients undergoing coronary angiography and it increases the level of satisfaction from the received information (Torrano et al., 2011) Hence the researcher has chosen audio- visual education as one of the effective method to alleviate anxiety among patients undergoing coronary angiography.

STATEMENT OF THE PROBLEM:

A Study to Evaluate Effectiveness of Audio-Visual Education On Anxiety Among Patients Undergoing Coronary Angiography At Selected Hospital, Coimbatore.

OBJECTIVES:

- To assess the level of Anxiety among patients undergoing coronary angiography.
- To evaluate the effectiveness of Audio-Visual Education among patients undergoing coronary angiography.
- To find out the association between the level of Anxiety with their selected variables among patients undergoing coronary angiography.

OPERATIONAL DEFINITION:

Effectiveness: It refers to changes in the level of anxiety among patients undergoing coronary angiography after audio-visual education and it is measured by the Spielberger's state anxiety inventory scale.

Audio-Visual Education: It is a method of teaching by which information on coronary angiography is provided to the patients with the help of audio- visual education for about 15 minutes.

Anxiety: Anxiety is perceived pre- procedural emotional status of patients before undergoing the procedure of coronary angiography, as measured by the scores obtained using Spielberg's State Anxiety Inventory scale.

Coronary Angiography: Coronary angiography is a procedure used to detect an occlusion in the coronary arteries of the heart, by inserting a catheter into the coronary artery, either using femoral or radial approach in order to view the patency of blood flow through the heart.

HYPOTHESIS:

H₁ There is a significant difference in the level of Anxiety among patients undergoing coronary angiography after audio-visual education in the experimental group.

H₂ There is a significant association between the level of anxiety among patients undergoing coronary angiography with their selected demographic variables.

ASSUMPTIONS:

- Anxiety is inevitable during the preprocedure care and it may cause life threatening conditions for patients in preoperative period.
- Audio-visual education may alleviate the discomfort caused by anxiety.

METHODOLOGY:

Research approach: Quantitative research approach

Research design: Quasi experimental posttest only control group design was adopted in this study.

Research setting: The study was conducted in Angiogram daycare center, of Sri Ramakrishna hospital Coimbatore.

Population: All patients undergoing coronary angiography.

Sampling technique: Non Probability Purposive sampling technique was adopted.

Sample size: 60 patients were selected for this study. Purposive sampling technique is used to select 60 participants. Participants for experimental group (30) and control group (30) were allotted on alternate days. Alternate days were chosen to avoid sample contamination and a feeling of dissatisfaction among the control group.

SAMPLING CRITERIA:**Inclusion criteria:**

- Patients who undergo coronary angiography for the first time.
- Patients who undergo non-emergency coronary angiography.
- Patients who are alert and cooperative.

Exclusion criteria:

- Patients who are critically ill.

- Patients who are having auditory, visual, or speech impairment
- Patients with a history of psychiatric and cognitive disorders.

TOOL USED FOR DATA COLLECTION:

Section A: Demographic variables:

A questionnaire was designed to collect the demographic variables related to age, gender, educational status, occupation, marital status, type of family, personal habits and dietary pattern.

Section B: Clinical variables of the sample:

Clinical variables of the sample includes family history of heart disease, comorbid illness, previous history of hospitalization for chest pain, diagnosis of the patient, symptoms, onset and location, severity, characteristics, radiation, precipitating and relieving factors of chest pain, duration of visit to hospital after chest pain, indications for CAG, ejection fraction of the heart and cardiac enzyme.

Section C: Standardized State Anxiety Inventory Scale:

Speilberger's state anxiety inventory was used to measure the anxiety of the patients undergoing coronary angiography. The state anxiety was first introduced by Catell and Schreier in 1961, 1963 and elaborated by Speil Berger 1966. This is a highly validated scale and being used worldwide to measure anxiety. State anxiety can be defined as fear, nervousness, discomfort, etc. and the arousal of the autonomic nervous system- induced at the preoperative period that is perceived as dangerous. This type of anxiety refers more to how a person is feeling at the time of a perceived threat and is considered temporary. The state anxiety scale is the 4- point rating scale, where it consists of 20, 10 statements were positive and the remaining 10 were negative statements.

DATA COLLECTION PROCEDURE:

The main study was initiated after the expert guidance and acceptance after the pilot study. The validated tool was used for data collection and the main study was conducted over a period of four weeks. The study was conducted at Angiogram daycare center of Sri Ramakrishna hospital, Coimbatore. Non- randomized quasi experimental posttest only control group design was adopted. By using purposive sampling technique 60 study participants were selected in alternative days based on inclusion and exclusion criteria, 30 in experimental and 30 in control group. The intervention for the study was Audio- visual education. Anatomy and physiology of heart, meaning, risk factors, and pathophysiology of Coronary artery disease, coronary angiography procedure followed before, during and after, complications of coronary angiography and lifestyle modifications following coronary angiography. Audio- Visual Education was provided at the preoperative period to patients undergoing coronary angiography in the experimental group for 15 minutes and routine nursing care was provided to patients in the control group. After 15 minutes of education, Post-test was conducted by using the State anxiety scale for both experimental and control group.

DATA ANALYSIS AND INTERPRETATION:

Section I - Demographic variables of patients undergoing coronary angiography.

Section II- Clinical variables among patients undergoing coronary angiography.

Section III- The level of anxiety among patients undergoing coronary angiography after Audio- Visual Education.

Section IV- Effectiveness of audio-visual education on anxiety among patients undergoing coronary angiography.

Section V- Association between the level of anxiety with selected variables among patients undergoing coronary angiography.

SECTION-I

Table1: Demographic variables of the sample
(n=60)

S. No	Demographic variables	Number of patients			
		Experimental group n=30		Control group n=30	
		Frequency	Percentage %	Frequency	Percentage %
1	Age in years				
	30-40	3	10	2	6
	41-50	5	16	12	40%
	51-60	12	40%	11	37
	61-70	10	33	5	17
2	Gender				
	Male	19	64%	19	64%
	Female	11	36	11	36
3	Educational status				
	Illiterate	6	20	9	30
	Schooling	20	67%	15	50%
	Graduate	3	10	5	17
	Postgraduate	1	3	1	3
4.	Occupation				
	Coolie worker	15	50%	12	40%
	Government Jobs	6	20	6	20
	Business	4	13	8	27
	Others	5	17	4	13
5.	Marital status				
	Single	-	-	2	6
	Married	26	87%	25	84%
	Widow/ Widower	4	13	3	10
6.	Type of family				
	Joint	14	47	13	43
	Nuclear	16	53%	17	57%
7.	Personal habits				
	Smoking	5	17	6	20
	Alcohol	7	23	6	20
	Tobacco chewing	2	7	5	17

	Alcohol and smoking	12	40%	9	30%
	No personal habits	4	13	4	13
8.	Diet pattern				
	Vegetarian	6	20	5	17
	Non-vegetarian	24	80%	25	83%

Section II:

Clinical variables of the Sample:

Clinical variables of the sample includes family history of heart disease, comorbid illness, previous history of hospitalization for chest pain, diagnosis of the patient, symptoms, onset and location, severity, characteristics, radiation, precipitating and relieving factors of chest pain, duration of visit to hospital after chest pain, indications for CAG, ECHO findings, biochemical markers. Results of the study shows that majority of them had a family history of heart disease in both the experimental 15(50%) and control group (50%), majority 13(43%) patients had comorbid illness in experimental group and in control group 15(50%). In experimental group 22(73%) of them were not previously hospitalized for chest pain and in control group 23(76%), among them 28(93%) were diagnosed with angina in experimental group and in control group 30(100%).

Shortness of breath with sweating was present in both the experimental 10 (33%) and control group 11 (37%), 24 (80%) patients had intermittent chest pain in both the experimental and control group 16 (54%). Substernal and retrosternal location of chest pain was found in 10 (33%) patients of experimental group and retrosternal pain in control group. Heavy and pin pricking chest pain was found in both experimental 7 (24%) and control group. In 16 patients (53%) chest pain had radiated to jaw and neck. 12 (40%) patient's chest pain were triggered by doing physical activity like while doing exercise, driving, climbing stairs walking and by lifting heavy objects in both the experimental and control group, 9 patients (30%) had taken rest as temporary relieving factor for chest pain.

Among 60 patients, 40 (67%) of them visited to hospital within one week after chest pain in both the experimental and control group, 11 (36%) of patients had Non- ST segment elevation myocardial infarction (NSTEMI) in the experimental group and in the control group most of them had TMT positive 13 (44%).

In experimental group, most of them had moderate [30-45%] ejection fraction of the heart 14(47%) and mild [45-60%] ejection fraction of the heart in control group 16 (53%). Troponin was found positive in both the experimental 17 (57%) and control group 16 (53%).

Section III

Level of anxiety among patients undergoing coronary angiography after Audio- Visual Education.

Figure 1.1 Level of Anxiety
(n=60)

RESULTS AND DISCUSSION:

Effectiveness of audio-visual education on anxiety among patients undergoing coronary angiography among experimental and control group

Group	Mean	SD	Mean difference	Calculated value	Table value
Experimental group	34.3	10.9	26.9	10.79***	1.96
Control group	61.2	7.9			

Significance at 0.001 level

Hypothesis H1:

“There is a significant difference in the level of anxiety after Audio-Visual Education between the experimental and control group” was accepted. It was concluded that compared to routine care, audiovisual education was effective in reducing anxiety among patients undergoing coronary angiography. Study findings are consistent with study conducted by Basar C., et al(2015) to evaluate the effectiveness of audio-visual education prior to coronary angiography on the state anxiety. The study findings revealed that audio-visual (video) education for CAG applied to the patients before the procedure, could have a more positive effect on anxiety levels.

Association between the level of anxiety with selected variables among patients undergoing coronary angiography:

Association between the level of anxiety with selected demographic and clinical variables such as age, gender, educational status, occupation, marital status, type of family, personal habits and dietary pattern, family history of heart disease, comorbid illness, and previous hospitalization for chest pain was calculated by using chi square test.

The result showed that there was a significant association between the level of anxiety with selected variable such as comorbid illness ($\chi^2=6.45$) and severity of chest pain ($\chi^2=6.45$), at 0.05 level of significance.

However there was no association between anxiety and variables such as age ($\chi^2=0.100$), gender ($\chi^2=0.232$), educational status ($\chi^2=0.201$), occupational status ($\chi^2=0.617$) marital status ($\chi^2=0.734$), type of family ($\chi^2=0.3$), personal habits ($\chi^2=3.76$), and dietary pattern ($\chi^2=0.556$).

SUGGESTIONS:

- All staff nurses have to be trained to implement Audio- Visual education to decrease the level of anxiety among patients undergoing a coronary angiography.
- Audio- visual education can be used as a routine teaching programme in angiogram day care center, so that we can avoid pre-procedural anxiety prior to coronary angiography.

CONCLUSION:

Anxiety is inevitable during the pre-procedure care and it may even lead to life- threatening conditions for patients undergoing coronary angiography. Managing anxiety during the pre-procedural state improves the quality of life of patients undergoing coronary angiography. Audio-visual education is highly cost- effective, which has positive effects on healing and reducing the anxiety among patients undergoing coronary angiography. Hence, the researcher concluded that audio-visual education is an effective method to reduce the anxiety among the patients undergoing coronary angiography.

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