

**A STUDY TO ASSESS THE IMPACT OF PREOPERATIVE
COMPREHENSIVE NURSING INTERVENTIONS ON POST
OPERATIVE OUTCOME AMONG PATIENTS UNDER
GOING CARDIAC SURGERY AT SELECTED HOSPITAL
IN MADURAI**

**BY
ANGELIN PONMANI .M**

A dissertation submitted to the Tamil Nadu Dr. M.G.R. Medical University, Chennai.



**In partial fulfillment of the requirements for the degree of Master of
Science in
MEDICAL SURGICAL NURSING**

UNDER THE GUIDANCE OF

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**A dissertation submitted to
The Tamil Nadu Dr. M.G.R. Medical University, Chennai.
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Master of Science in Nursing, April – 2017**

CERTIFICATE

This is to certify that the dissertation entitled **“Assess the impact of preoperative comprehensive nursing interventions on post operative outcome among patients undergoing cardiac surgery at selected hospital in Madurai”** is a bonafide work done by **ANGELIN PONMANI.M C.S.I.** Jeyaraj Annapackiam College of Nursing, Madurai, submitted in partial fulfillment for the degree of Master of Science in Nursing.

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“He (GOD) will fill your mouth with laughter; shouts of Joy will come from your lips”

Bible (Job: 8:21)

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ABSTRACT

INTRODUCTION

The WHO estimated that 60% of the World's cardiac patient was Indian by 2010. Recent studies showed that heart disease is a leading cause of morbidity and mortality in India. Significant heart disease has a national prevalence of 2.5% and affects 13% of patients with 75 years old. To estimate the preoperative levels of anxiety and functional ability in patients awaiting heart surgery and to identify the risk factors of post-operative outcome. Pre-operative comprehensive nursing intervention is very essential to improve the postoperative functional ability and the reducing the anxiety level of the patients.

STATEMENTS OF THE PROBLEM

A study to assess the impact of pre-operative comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgery at selected hospitals in Madurai 2017.

OBJECTIVES

1. To assess the post-operative outcome among patients undergoing cardiac surgery in the control and experimental group.
2. To determine the effectiveness of comprehensive nursing intervention on post-operative outcome among patients undergoing cardiac surgery between the control group and experimental group.
3. To associate the post-operative outcome of patient undergoing cardiac surgery with their demographic variable.

METHODOLOGY

The research design adopted for the study was quasi experimental posttest control group design .the study was conducted at Apollo Multispecialty hospital, Madurai as Control Group and Vadamalayan Multispecialty Hospital as Experimental Group. Using Purposive Sampling technique, the samples selected were 60, in which 30 samples were in the experimental group and the remaining 30 were in the control group. The Samples were recognized based on the inclusion criteria. Modified structured scale was a tool for data collection. Selected relaxation technique and exercises was demonstrated to the experimental group for 30 minutes twice a day for week in both morning and evening .The data obtained were analyzed and interpreted using descriptive and inferential statistics.

RESULTS

The present research findings shows that the posttest 2nd mean % score is reduced to 38% from the post operative 3rd mean score of 32% with the mean difference of 6%. Therefore the pre-operative nursing intervention has impact in reducing the postoperative outcome among patients undergoing cardiac surgeries. elucidate the mean score difference between control 3rd and experimental 3rd post test scores in the post -operative outcome. The finding shows that with the mean score difference of 39, the post-test score in experimental 2nd was (47.57± 2.33) and experimental 3rd score was (21.47±1.96) with the difference of 39% post-test mean score. Therefore the pre-operative nursing intervention has impact in reducing the postoperative outcome among patients undergoing cardiac surgeries. Thus the research hypothesis (H₁) is accepted.

The comparison of mean post test scores regarding postoperative outcome between experimental 2nd and 3rd group [$t = 8.49$ $p < 0.001$]. Thus the pre-operative comprehensive nursing interventions were effective among patients undergoing cardiac surgeries in the experimental group. Thus the research hypothesis (H_2) is accepted.

Reveals the comparison of mean post test scores regarding post -operative outcome between control 3rd and experimental 3rd group. The findings showed the obtain overall 't' value 46.95 which is statistically significant at ($p < 0.001$). Thus the research hypothesis (H_2) is accepted.

DISCUSSION

The finding reveals that all over all unpaired 't' values was 46.95, which showed a highly statistical significant at $p < 0.001$ level. Here, it was inferred that the comprehensive nursing intervention highly significant effective in improving the post operative outcome among cardiac undergoing patients in experimental group compared to the control group.

CONCLUSION

This present study concluded that preoperative comprehensive nursing interventions as a holistic care can be used as an effective tool on post -operative outcome to provide holistic care among patients undergoing cardiac surgeries this study recommends that the findings to generalize and to use other alternative educational strategies to improve postoperative outcome among patients undergoing cardiac surgeries.

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Introduction

CHAPTER - I

INTRODUCTION

You can come back from heart surgery

- RONNY TURIAF

BACKGROUND OF THE STUDY

Health is maintained and improved not only through the advancement and application of health sciences, but also through the efforts and intelligent lifestyle choice of the individual and society. A healthy lifestyle can help to prevent diseases and keep it from progressing. A heart-healthy lifestyle includes eating, regular exercise, maintaining a healthy weight, no smoking, moderate drinking, no recreational drugs, controlling hypertension, and managing stress.

In today's world, most of the deaths in the developing and developed countries are attributable to non-communicable diseases and over half of these result in cardiovascular diseases. More than one third of death occur to middle aged adults. Cardiovascular disease is the world's leading killer, accounting for 17.5million or 31% of global death in 2012. 7.4 million were due to coronary artery diseases and 6.7 million were due to stroke .

In India, an estimated 2.27 million people died due to cardio vascular disease during 1990 and the projection of death due to increase of heart disease from 1.17 million to 1.59 million in 2000 and 2.30 million by 2010. The prevalence of coronary valve disease is reported to be 2 to 3 times higher in urban population than in rural population and it is estimated as 96.7 percentage in 1000 adult population in urban and 27.1 percentage in rural population. The American heart association reported a statistics in the basis of 2007 mortality rate which shows that, there were more than 2200 deaths occurring due to CVD in America in each day.

Cardiovascular disease is the broad term that encompasses variety of illnesses includes coronary artery disease, cerebrovascular disease, rheumatic heart disorder, congestive heart failure. Numerous disease and conditions may necessitate the need for cardiac surgery. The most common reason for an adult to undergo cardiac surgery is myocardial revascularization and coronary artery bypass graft. In addition, patients undergoing cardiac surgery for valve replacement, repair of structural defects; acquired or congenital, implantation of devices and cardiac transplantation.

Care of the person undergoing cardiac surgery involves multidisciplinary team approach utilizing the skills of variety of health care professionals. It includes pre-operative, intraoperative and post-operative care. The nursing activities in the pre-operative period include establishing a baseline assessment, carrying out pre-operative interview and preparing the patient for surgery. The value of preoperative teaching has long been recognized. The nursing personnel play an important role in improving the postoperative outcome of patients. Each patient is taught as an individual, with consideration of unique anxiety, needs and hopes. A Programme of instruction based on the individual's needs is planned and implemented at the proper time. Therefore the study is planned to evaluate the effectiveness of pre-operative information booklet on post-operative self-care and recovery of patients undergoing cardiac surgery.

According to Kevin M Sequel, an emphasis has been placed on cardiac care because the medium age of residents is increasing, and more people are showing up with symptoms of heart diseases .The sciences and art of cardiac surgery continue to evolve at unprecedented rate. Rapid and diverse developments in technology and pharmacology have led to this continued expansion of procedures available to patients of all ages suffering from cardiac diseases. In spite of being able to offer a wider spectrum of procedures to older and sick patients, to patients with more advanced

stages of cardiac diseases and to patients with a wider spectrum of non-cardiac multisystem co morbidity ,the morbidity and mortality after cardiac surgery continue to remain at a stable level or to fall.

Preoperative patient –specific risk factors as well as pre-operative process related factors are profiling the spectrum of morbidity and mortality of patients after cardiac surgery. Care of the person undergoing cardiac surgery involves multi-disciplinary team approach utilizing the skills of variety of health care professionals. It includes pre-operative, intra operative and post-operative care. The nursing personnel play an important role in improving the postoperative outcome of patients. Each patient is treated as an individual, with consideration of unique anxiety, needs and hopes. Program of instruction based on the individual’s needs is planned and implemented at the proper time. Therefore the study is planned to evaluate the effectiveness of pre-operative information booklet on post-operative self-care and recovery of patients undergoing cardiac surgery.

The goal of post-operative care is to prevent complications such as infection, to promote healing of the surgical incision, and to return the patient to a state of health. Post-operative care involves assessment, diagnosis, planning, intervention, and outcome evaluation. The extent of post-operative care required depends on the individual’s pre-surgical health status, type of surgery, and whether the surgery was performed in a day –surgery setting or in the hospital. If post anesthesia or postoperative complication occur within these hours, the patient must be admitted to the hospital. Patients who are admitted to the hospital may require days or weeks of post-operative care by hospital.

The concept of nursing is changing fast. Nursing is not only caring for the sick but it involves prevention of illness, and promotion and maintenance of health. The

scope of health promotion goes beyond the prevention and treatment of disease. Health promotion as outlined in American journal of health promotion is the science and art of helping people change their life style to move towards a state of optimal health. Health promotion activities such as routine exercise and good nutrition help the clients to enhance or maintain their present level of health. It can also be affected by physical stressors. Total health programs are directed at individuals changing their lifestyle by developing habits that can improve their level of health. The primary nursing care of the sick is directed towards promoting, maintaining and restoring health. Health promotion in chronically ill patients is possible through life style and behavioral changes by creating awareness. Health education is the major tool of creating awareness among clients to meet their specific health care needs.

Health education is an important nursing care because it can determine how well individuals perform behaviors conducive to optimal self-care. People with chronic illness are the most in need of health education. People with chronic illness need health care information to participate actively in assume responsibility for much of their own care. Health education can help these individuals to adapt illness, and prevent complications. The goal of health education is to teach people to live life to its healthiest.

Nurses are involved in many aspects to assist clients in developing a program of exercise that fits their needs and level of functioning. Increased physical activity appears to benefit individuals with Myocardial Infarction (MI). Angina pectoris or congestive heart failure as well as clients who have Bypass Graft (CABG) or Percutaneous Trans luminal coronary angioplasty (PTCA). Clients with CHD benefit from exercise and activity in terms of reduced mortality and morbidity, improved quality of life, improved left ventricular function, increased functional capacity and

psychological well-being (NIH-1996) Thompson and Bowman (1998) Konardi Anglin (2001).

SIGNIFICANCE NEED FOR THE STUDY

Heart is an efficient durable structure which helps to lead a healthy life. Heart diseases are the leading causes of premature morbidity and mortality. When age increases, individuals become more susceptible to disease especially cardio vascular diseases. Coronary artery disease is one of the most leading diseases, which possess greater risk among Indians. Coronary artery bypass graft is the main surgical treatment for coronary artery disease.

The world health organization estimated that one half of all deaths in developed countries like USA were from heart disease is reaching epidemic proportions. Cardiovascular diseases are more common in India and China than the other economically developed countries in the world together account for over 50% of earth's population, details for 4.5 to 5 million deaths from heart disease every year. WHO estimates that 60% of the world's cardiac patients were Indians By 2010. Nearly 50 % of cardiovascular disease related deaths in India occurred below the age of 70, compared with just 22% in the west.

Cardio Vascular disease (CVD) has become a major killer of mankind. It accounts for over one million deaths each year, with a yearly death of more than 400,000 Americans.

In India, CVD has become a major health issue and expected to be double during 1985 to 2015. Mortality estimates due to CVD vary widely by state, ranging from 10% in Meghalaya (49%) in Punjab (49%), Goa (42%) Tamil Nadu (36%) and Andrapradesh (31%) have the highest CVD related mortality estimates.

In India, more than one billion people, will likely to account for 60 percent of heart disease patients worldwide by 2010. According to WHO by 2015. 20 million people will die from valvular heart disease is exceptionally prevalent in the sub-Indian continent.

The WHO estimated that 60% of the World's cardiac patient was Indian by 2010. Recent studies showed that Valvular heart disease is a leading cause of morbidity and mortality in India. Significant valvular heart disease has a national prevalence of 2.5% and affects 13% of patients with 75 years old.

Study carried out in collaboration with the Registrar General of India (RGI) and the Indian Council of Medical Research (ICMR) called 'Million Deaths Study' which aims to investigate one million deaths by 2014,found that heart diseases have emerged as the number one killer in both urban and rural areas of the country. If all age groups are included, heart diseases account for about 19 per cent of all deaths. It is the leading cause of death among males as well as females. It is also the leading cause of death in all regions. About 25 % of deaths in the age group of 25- 69 years occur because of heart diseases. In urban areas, 32.8% deaths occur because of heart ailments, while this percentage in rural areas is 22.9%. The Global Burden of Diseases (GBD) study reported the estimated mortality from CAD in India at 1.6 million in the year 2000. Extrapolation of this estimate shows the current burden of CAD in India to be more than 32 million patients. Epidemiological studies show a sizeable burden of CAD in rural (3-5%) and urban (7-10%) populations. A conservative estimate indicates that there could be 30 million CAD patients in India of which 14 million are in urban and 16 million in rural areas. Extrapolation of this estimate shows the current burden of CAD in India to be more than 32 million patients.

According to present trends in the United States, half of healthy 40-year-old males will develop CAD in the future, and one in three healthy 40-year-old women. Coronary heart disease was the leading cause of death worldwide in 2004, about 7.2 million deaths (12.2% out of a total of 58.8 million deaths) and 134.0 deaths per 100,000 deaths.

Indians are genetically three times more susceptible than Europeans to have an attack on the heart. Lifestyle modifications and rapid urbanization has led to an epidemic of cardiac disease in India. The incidence of coronary artery disease ranges from 14.8 to 65.4 per 1000 population. Cardiac surgeries and are now spanning into advanced technologies, where innovative methods are introduced to provide distinctive care even for high-risk surgeries. Report from 2005 shows that out of 60,000 open heart surgeries done every year majority are CABGs and Valve replacements. In India, usually the breadwinner of the family is the victim of attack. At Narayana Hrudayalaya 60% of the surgeries carried out are, coronary artery bypass grafting and redo coronary artery bypass grafting

A cross-sectional study was carried out in rural areas of Jawan Block, District Aligarh, Uttar Pradesh, India, covering a total population of 3760 drawn from 11 villages. The total number of confirmed cases of valvular heart disease was 24 with a prevalence rate of 6.4 per 1000 of the general rural population. The prevalence of valvular heart disease increased with age until the age of 25 years. Females were more prone to rheumatic heart disease compared to males. Socio-economic class had a direct impact on the occurrence of rheumatic heart disease.

Coronary artery disease (CAD) is the end result of the accumulation of atheromatous plaques within the walls of the coronary arteries that supply the myocardium (the muscle of the heart) with oxygen and nutrients. The symptoms and

signs of coronary artery disease are noted in the advanced state of disease, most individuals with coronary artery disease show no evidence of disease for decades as the disease progresses before the first onset of symptoms, often a "sudden" heart attack, finally arises. Among Indians, poverty, maternal malnutrition and early life changes provide conditioning effects which enhance an individual's risk to Cardiovascular diseases. The cardiovascular risk factors, which are blood pressure, blood glucose and tobacco use and blood lipids, operate in a continuum Today's unhealthy daily living behaviors are tomorrow's risk factors. These risk factors exert a steadily rising effect on the risk of disease and interact with each other to increase the overall risk.

CABG is rerouting or bypassing of blood around clogged arteries, improving the supply of blood and oxygen to the heart. During this procedure, a surgeon takes one or more blood vessels from other parts of the body and constructs a detour around blocked part of the coronary artery. It is a costly and risky procedure. Every year half a million people undergo CABG procedure to relieve symptoms and prolong their lives. It is often performed on men (4, 20,000) than on women (1, 87,000). Recovery time is usually 5-7 days.

With modernization, a large proportion of Asians are trading health traditional diets for fatty foods, physical jobs for deskbound sloth, the relative calm of the country side for the stressful city. Heart attack victims are just the first heart attacks have declined more than 50% since the 1960s in many industrialized countries,80% of global cardiovascular diseases related deaths now occur in low and middle income nations, which cover most countries in Asia .

Worldwide, roughly 50 million deaths occur annually with cardiovascular diseases and stroke causing about one quarter of these deaths. Of the 50 million, about

32 million deaths are registered in the developing world, 7 million in the group of the least developed countries, 6.8 million in the developed market economics, and 4.2 million in Eastern Europe. Heart disease is a major public health problem in younger age group.

The most recent studies released by the American heart association shows that heart diseases is at the top of the list of the country's most serious health problem and it is the leading cause of death. According to American heart association, at least 64 million people in this country suffer from some form of heart disease. This includes high blood pressure 50 million coronary heart diseases - 13.2 million, stroke - 4.8 million, congenital cardiovascular defects – 1 million, and congestive heart failure - 4.5 million. More than 2,600 American die of cardiovascular disease each day, an average of one death every 34 seconds.

Even though the cardiac surgery is a major surgery, advances in anesthesia and surgical techniques allow client to recover quickly from surgery and return home to productive lives. Careful preparation of clients to recover quickly from surgery and return home to productive lives. Careful preparation of clients undergoing surgery during the preoperative period reduces the operative risk and promotes post – operative recovery. Nurses are the frontline health personnel who provide comprehensive care to the patients to recover fast and minimize hospitalization. Care of person undergoing cardiac surgery involves multidisciplinary team approach utilizing the skills of a variety of health care professionals including nurses, physicians, nutritional and others. The nurse caring for the cardiac surgery patients provide individualized care that is appropriate for the patients' medical conditions. Health history and psychological history. Important goals of preoperative period includes obtaining accurate and complete patient history

Preoperative education is an important component in the client's operative experiences. In teaching about postoperative activities is implemented in the preoperative phase and is the nurse's main responsibility. Clients and families need to know about surgical events, and sensations, how to manage pain and how to perform physical activities necessary to decrease pain; anxiety outcomes are best. Preoperative teaching allays anxiety and encourages clients to participate actively in their own care.

For an adequate respiratory assessment, the nurse needs to evaluate airway patency, chest symmetry, and the depth, rate and character of respirations. The regular monitoring of vital signs permits the nurse to recognize early signs of respiratory distress. During the post anesthesia recovery period, the nurse routinely carries out measures aimed at prevention or detection of possible respiratory problems by nursing interventions (proper positioning, patency of airway. Deep breathing and coughing exercise)

Less is known about post-operative complication risk prediction or prevention than about cardiac complications or their prediction, even though post-operative pulmonary complications occur more frequently.

Surgical complications occur frequently study documented in 17% of surgical patients. Surgical morbidity and mortality generally fall into one of three categories, cardiac, respiratory and infection complication. Infection (14.3%), wound (5.1%) pneumonia (3.6%), urinary tract (3.5%), systemic sepsis (2.1%), Respiratory (9.5%).

According to European society of cardiology by 2011, heart failure was the second most prevalent predisposing condition; present in 27.6% of North Americans. Its prevalence ranged from 17.7% in India to 64.6% in Africa. The proportion of patients with heart failure associated with valvular heart disease was highest in India and Africa and lowest in Western and Eastern Europe.

During my clinical experience among the cardiac patients, very often I realized that cardiac patients were not provided with meticulous practice of health care activities which brought poor outcome in their postoperative period. And also I felt that ultimately the poor practice affects all dimensions like Physical, Social, Psychological, Intellectual and Spiritual aspects, which leads to poor postoperative outcome. Therefore the researcher the need felt to conduct a study related on selected pre-operative comprehensive nursing interventions in order to improve the post-operative outcome among cardiac undergoing surgery patients. These techniques may be most effective when practiced regularly and combined with recommended nutrition, regular exercise, and a strong social support system.

STATEMENTS OF THE PROBLEM

A study to assess the impact of pre-operative comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgery at selected hospitals in Madurai - 2017.

OBJECTIVES OF THE STUDY

1. To assess the post-operative outcome among patients undergoing cardiac surgery in the control and experimental group.
2. To determine the effectiveness of comprehensive nursing intervention on post-operative outcome among patients undergoing cardiac surgery between the control group and experimental group.
3. To associate the post-operative outcome of patient undergoing cardiac surgery with their demographic variable.

HYPOTHESIS

H₁: The mean post-test score on post-operative outcome of experimental group is significantly higher than in mean post test score on postoperative outcome of control group among patients undergoing cardiac surgeries.

H₂: There is a statically significant positive impact of on post-operative outcome among patient those who underwent pre-operative comparing nursing intervention. Then those who were not underwent.

OPERATIONAL DEFINITION

EVALUATE THE IMPACT

In this study it refers to judge or determine the significance of comprehensive nursing interventions, and way to evaluating changes from comprehensive nursing interventions on identifying the post-operative outcome.

PREOPERATIVE COMPREHENSIVE NURSING INTERVENTIONSS

According to this study, it is a well-organized comprehensive nursing interventions and implemented during the per-operative period to the patients admitted for cardiac surgery .The comprehensive nursing interventions was introduced in order to improve the good outcome of functional ability, reduce anxiety, postoperative pain during the post- operative period .The interventions were as follows.

- a. ACBT (ACTIVE CYCLE BREATHING TECHNIQUE)
- b. ROM (RANGE OF MOTION EXERCISES)
- c. MASSAGE THERAPHY

a. ACBT (ACTIVE CYCLE BREATHING TECHNIQUE)

ACBT is an active breathing exercises techniques that performed by the patient to help clear their sputum from lungs.it consists of three phases included as follows;

1. Breathing control for 3 sec.
2. Deep breathing exercises for 5 mts
3. Huffing exercises for 2 sec.

This will be performed twice a day for 5 days.

b. ROM (RANGE OF MOTION EXERCISES)

Range of motion exercised refers to the activity aimed at improving movement of a specific joint. ROM help to decrease pain, strengthen the muscles surrounding the joint .The upper and lower extremities in order to relax and strength the body muscles. This will be done for 10 mts twice a day.

c. MASSAGE THERAPHY

It is the scientific manual manipulation of the soft tissues of the body in order to aid relaxation, relief of stress and pain, and increases the ease and efficiency of movement .this massage therapy consist of longitudinal gliding, kneading, trigger point therapy. It is a technique, in which the particular groups of muscles are systematically tensed and relaxed shoulder to upper and lower extremities in order to relax the body and mind. This will be done for the period of 10 minutes twice a day for 5 days.

POSTOPERATIVE OUTCOME

It refers that it is an expected desired outcome during the postoperative period for the patient those where under cardiac surgery with the impact of comprehensive

nursing interventions. The expected postoperative outcome includes functional ability, anxiety and pain of the patient with cardiac surgeries.

PATIENTS UNDERGOING CARDIAC SURGERIES

In this study, patients who were admitted for cardiac surgeries preoperatively. The surgeries which includes coronary artery Bypass graft, Myocardial Revascularization, Heart Valve Repair or Replacement, Aneurysm Repair, Heart Transplantation, Artificial Ventricular device placements, Total Artificial Heart Replacement, Open Heart Surgery, Off pump Surgery, minimal invasive Heart Surgery etc.....,

ASSUMPTION

1. Cardiac surgery patient may have some knowledge regarding post - operative outcome.
2. Knowledge of the patient will have its influences on practice regarding post -operative outcome.
3. Some of the post- operative outcome practices followed by patients may be healthy while other may unhealthy.
4. The preoperative nursing intervention programme will help the client and care givers to improve the post- operative outcome and to return to their physiological and psychological status sooner.

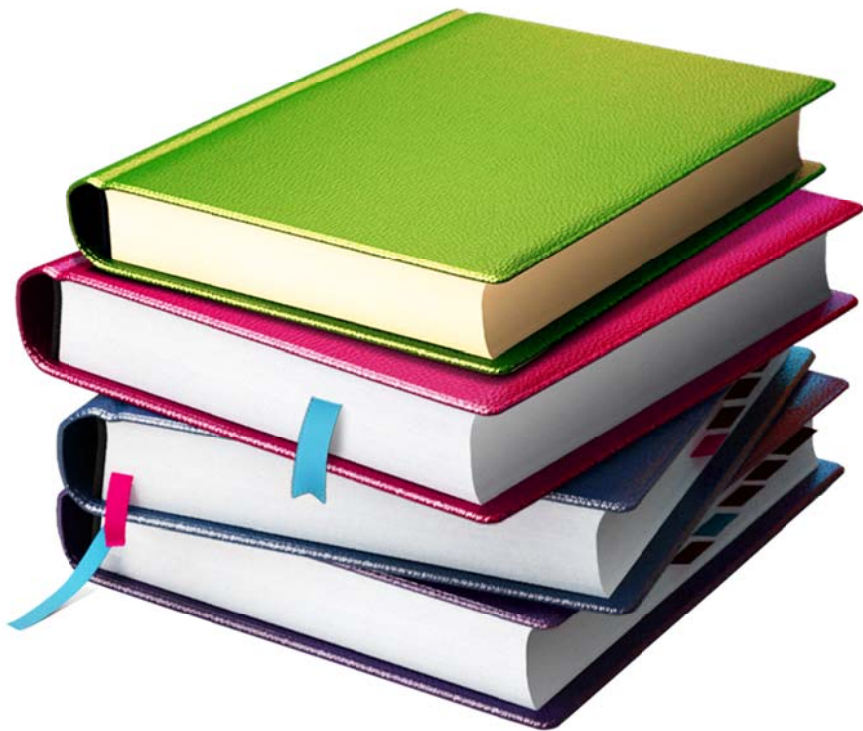
DELIMITATION

1. The period of study was delimited to 6 weeks.
2. Sample size was delimited to 60.
3. The study was delimited to cardiac surgery patients alone.

PROJECTED OUTCOME

The findings of this study will reveal the effects of comprehensive nursing interventions on the postoperative outcome experienced by patients undergoing cardiac surgery.

The preoperative comprehensive nursing interventions is found effective in improving the postoperative outcome.



Review of Literature

CHAPTER - II

REVIEW OF LITERATURE

The review of the research relevant to the study was obtained, and the review is based on an extensive survey of books, journals and international nursing indices electronic nursing journals searches .The review of literature related to the present study has been divided according to the following areas

This chapter deals with the review relevant to the present study. It is presented under the following headings.

1. Reviews related to Cardiac surgery.
2. Reviews related to post-operative outcome of the cardiac surgery patients.
3. Reviews related to efficacy of comprehensive training programme on cardiac surgery patients.

Review related to cardiac surgery

Race (2003) conducted a qualitative study on patients re-admitted in cardiac surgery unit .he considered being a very important factor when examining the risks associated with cardiac surgery . Three studies have compared the re –admission rate of Caucasians and African American patients had both a higher re-admission rate and death rate compared with Caucasian patients following CABG surgery. Specifically, in a study of 53,715 CABG patients, African American patients had a readmission rate of 816 per 1000 live discharge is compared with 626 per 1000 live discharges of Caucasian patients ($p < 0.004$).in addition , the death rate after CABG surgery for African American patients was found to be 13% within 1 year vs.9.6% for Caucasian patients ($p < 0.003$).

Nirmal kaur, Prem verma and Rana Sandip singh , (2006), conducted a quasi-experimental study to evaluate the effectiveness of planned pre-operative teaching on self-care activities among patients undergoing cardiac surgery using structured interview schedule with sample size 40, (20 in experimental group and 20 in control group). It revealed, that experimental groups in both closed and open heart surgery had shown an increased in their posttest performance scores, in their self-care activities.

Leguisamo et al. [2013] verified the effectiveness of a physiotherapy program for pre-operative patients undergoing CABG with regard to reducing the length of hospital stay, prevention of pulmonary complications, changes in pulmonary volumes and inspiratory muscle strength. We conducted a randomized clinical trial with 86 patients divided into intervention group (44 patients) and control group (42 patients). The intervention group was assessed and received physiotherapeutic guidance with written 15 days before surgery. The control group received standard care on the day of hospitalization. A significant reduction in hospital stay ($P < 0.05$) in the intervention group. There was no difference in changes in pulmonary volumes, inspiratory muscle strength and incidence of pulmonary complications between the groups. The authors concluded that patients instructed preoperatively will be better prepared to cooperate with postoperative treatment.

Research was conducted at Utrecht University Medical Center, Netherlands (2013), with the aim of evaluating the effectiveness of prophylaxis with preoperative inspiratory muscle training on the incidence of postoperative pulmonary complications (especially pneumonia and length of postoperative hospital stay) in high-risk patients scheduled for elective coronary artery bypass grafting. Subjects were 279 patients who were followed until hospital discharge and divided into

inspiratory muscle training group preoperatively (n = 140) and usual care group (n = 139). It was found that after surgery, the pulmonary complications were present in 25 (18%) patients, inspiratory muscle training group and 48 (35%) of members of the usual-care group. Pneumonia occurred in nine (6.5%) in the inspiratory muscle training group and 22 (16.1%) in the usual care group. The median length of postoperative hospital stay was 7 days (range 5-41 days) for inspiratory muscle training group versus 8 days (range 60-70 days) in the usual-care group. The inspiratory muscle training before surgery reduced the incidence of postoperative pulmonary complications and length of stay in high-risk patients undergoing CABG.

Bragé et al. (2012) in an observational study involving 263 patients undergoing coronary artery bypass grafting with cardiopulmonary bypass (CPB), wanted to determine whether chest physiotherapy preoperatively reduces the incidence of pulmonary complications after surgery, with 159 of 263 patients received preoperative physiotherapy consisting of a daily session involving incentive spirometer, deep breathing, coughing, and ambulation. The most frequent complications were postoperative hypoventilation (90.7%), pleural effusion (47.5%) and atelectasis (24.7%). The prophylactic therapy was associated with lower incidence of atelectasis (17% vs. 36%). It was concluded that the pre-operative physiotherapy is associated with a lower incidence of atelectasis.

Romanini et al.(2011) Performed a study with 40 patients after coronary artery bypass surgery, divided into two groups: one was submitted to the application of intermittent positive pressure breathing (IPPB) and the other to incentive spirometry (IS). Patients were assessed preoperatively and 24, 48 and 72 hours postoperatively, with resources being applied postoperatively. The following parameters were analyzed: oxygen saturation, respiratory rate, minute volume, tidal

volume, maximal inspiratory pressure (MIP) and maximal expiratory pressure (MEP). The groups were homogeneous in relation to demographic and clinical variables. In the group submitted to IPPB, there was an increase in oxygen saturation 48 (P = 0.007) and 72 hours (P = 0.0001) after surgery, when compared to IR. The respiratory rate, minute volume and tidal volume, there was no statistically significant differences between groups. The group submitted to IS showed a significant increase in MEP 24 (P= 0.02) and 48 hours (P = 0.01) after surgery. With the goal of reversing hypoxemia earlier, IPPB was more efficient compared to the IS, however, the incentive spirometer was more effective in improving respiratory muscle strength

Review related to post –operative outcome of the cardiac surgery patients.

Mary E. Mamish and Herbert Benson 2010 This study evaluated the efficacy of the relaxation response on the postoperative recovery of 27 cardiac surgery patients randomly assigned to one of two groups. Thirteen experimental group patients received educational information and practiced eliciting the relaxation response before and after surgery. The 14 patients in the control group received only information. Experimental and control groups were compared before and after surgery on both physiological and psychological recovery variables. There were no initial differences between experimental and control groups on demographic, physiological, and most psychological variables. The experimental group had lower incidence of postoperative supraventricular tachycardia (SVT) than the control group (p = .04) despite having had the same occurrence previously. Experimental and control groups did not significantly differ over the course of study on any other physiological variables. Patients practicing the relaxation response had greater decreases in psychological tension (p = .04) and anger (p = .04) than those who received only educational information. The decreases in psychological tension may have been a

result of regression to the mean because the experimental group started with elevated tension relative to the control group ($p = .04$). We conclude that practicing the relaxation response before and after surgery may reduce SVT, tension, and anger.

Susan Stengrevics 2007 The present study was designed to investigate whether preoperative anxiety and anger were predictive of postoperative outcome in cardiac surgery patients. A standardized scale measuring state and trait anxiety and anger was completed by 94 patients awaiting cardiac surgery. Dependent measures included length of stay, number of complications, and clinical rating of surgical outcome. Higher levels of preoperative state anxiety and anger were associated with poorer postoperative outcome. These results were obtained after adjusting for medical status, surgical procedure, preoperative length of stay, priority of surgery, gender, and age. These relationships suggest a potential role for interventions aimed at altering presurgical psychological states.

Astin f, Jones k, Thompson DR (2005) conducted a study to describe the levels of anxiety and depression reported by patients pre and post cardiac surgery patients, and to determine associations evident between anxiety and depression and the social-demographic and clinical variables of gender, marital status, history of acute myocardial infarction, and attendance of cardiac rehabilitation. The study findings lend support for the closer surveillance of emotional status in the population. Specialist nurses have the potential to play a greater role in identifying those at risk of developing anxiety and depression. However this unmet need will remain unmet until specialist nurses who spend the most face to face time with patients are equipped with the skills and resources to systematically identify those “at risk”.

Rosanna Maria Nery, (2004) conducted an experimental study to evaluate the frequency changes of physical activity practice in pre and post -operative there

among 55 patients submitted to CABG. It revealed that the patients physically active had shorter hospital strength of stay and lower number of post operative complication with in one year.

A study by **Morsch et al. (2002)** evaluated the ventilatory profile, radiological and clinical data of patients undergoing elective coronary artery bypass graft (CABG) in a cardiology referral hospital in southern Brazil, with a sample of 108 individuals, using spirometry and ventilatory muscle strength (VMS) of manuvacuometry to evaluate lung volumes and capacities, as well as the presence of respiratory disorders. The assessments were conducted preoperatively and at six days after surgery, where there was significant reduction in end-expiratory volume (EEV1), forced vital capacity (FVC) and VMS expressed in maximal inspiratory pressure and pressure maximal expiratory comparing the preoperative period to the sixth postoperative day. The incidence of pulmonary complications was higher in the sixth postoperative day (78%) when compared to the first postoperative day (40%). Patients undergoing CABG surgery have a significant reduction in lung volumes and capacities, as well as the VMS in the postoperative period. This proof demonstrates the necessity of preoperative physiotherapeutic procedures on patients who require CABG surgery.

Barros et al.(2002) sought to highlight the loss of ventilator capacity in the postoperative period in patients undergoing CABG and to test the hypothesis that respiratory muscle training (RMT), performed after surgery, can improve the ventilation in this population through randomized study where 38 patients (age: 65 ± 7 years, 29 male) undergoing CABG with cardiopulmonary bypass were divided into two groups: 23 patients in the TMR group and 15 in the control group (CO). The TMR group performed physical therapy + TMR, the CO group performed only conventional physiotherapy. It was assessed at three time points (preoperative, first

postoperative day and hospital discharge) variables: maximal inspiratory and expiratory pressures (MIP and MEP), pain, dyspnea (Borg), peak of expiratory flow (PEF), tidal volume (VT) and hospital days. The MIP group TMR was higher at discharge, as well as MEP. PEF group TMR was higher after hospitalization. There were no differences between groups with respect to days of hospitalization, dyspnea or pain. It was concluded that there is a loss of respiratory muscle strength in patients undergoing coronary artery bypass grafting. The TMR, performed in the postoperative period, was effective in restoring the following parameters: MIP, MEP and PEF in this population.

Liza et al. (2000) A study was conducted to assess the effect of intermittent positive pressure and incentive spirometry in the post operative of myocardial revascularization. A sample of 40 patients after CABG was selected for study, divided into two groups: one was submitted to the application of intermittent positive pressure breathing (IPPB) and the other to incentive spirometry (IS). Patients were assessed preoperatively and 24, 48 and 72 hours postoperatively, with resources being applied postoperatively. The following parameters were analyzed: oxygen saturation, respiratory rate, minute volume, and tidal volume, maximal inspiratory pressure (MIP) and maximal expiratory pressure (MEP). The groups were homogeneous in relation to demographic and clinical variables. In the group submitted to IPPB, there was an increase in oxygen saturation 48 ($P = 0.007$) and 72 hours ($P = 0.0001$) after surgery, when compared to IR. The respiratory rate, minute volume and tidal volume, there was no statistically significant differences between groups. The group submitted to IS showed a significant increase in MEP 24 ($P = 0.02$) and 48 hours ($P = 0.01$) after surgery. With the goal of reversing hypoxemia earlier, IPPB was more efficient

compared to the IS, however, the incentive spirometer was more effective in improving respiratory muscle strength.

Zahra Sajuei (2000) Current study evaluated the hemodynamic changes caused by PEPA in patients after cardiac surgery monitored by Swan-Ganz catheter. Were included in the study, patients in the first or second postoperative cardiac surgery, including 17 CABG, hemodynamic ally stable. They were evaluated at rest and after the use of 10 cmH₂O PEPA randomly. The variables studied were: oxygen saturation, heart and respiratory rate, mean systemic arterial pressure and pulmonary (PAMP and PAM), central venous pressure (CVP) and pulmonary wedge stick (PWP), cardiac output and cardiac index, and vascular resistances systemic and pulmonary. Patients were divided into subgroups (ejection fraction d" 50% or> 50%) and data were compared by t test and ANOVA. Comparing the PEPA versus rest period, the changes observed were statistically significant increases in PAOP, PAMP and MAP. The PEPA was well tolerated by patients. The study showed that hemodynamic changes results an increase in measures of right ventricular filling pressure and left, as well as mean arterial press.

Review related to efficacy of comprehensive training programme on cardiac surgery patients.

Naylor et al., (2014) conducted a randomized clinical trial in which comprehensive discharge planning and home follow –up by an 4 weeks after discharge was evaluated in elderly patients (n=202) with medical and surgical cardiac conditions. Data collected from the hospital, the cardiac surgery patient may experiences a variety of common, distressing symptoms. activity intolerance, chest and leg discomfort ,decreased endurance, lack of energy, tiredness, and weakness are symptoms that are universally experienced by patients during the first week following

surgery . However, these symptoms may persist in as many as 50% of patients at 6 weeks. Other symptoms reported at 6 weeks include alterations in sleep patterns (40%), edema (67%), fever (41%) shortness of breath(47%), and wound drainage (57%) . Although these symptoms are common in cardiac surgery patients, and they would not necessarily be causes for readmission unless they persist, increase in severity, or accompany more serious complications. The study showed that comprehensive discharge planning was effective in the post -operative cardiac surgery patients. A nurse directed treatment strategy significantly improves patient's role in discharge planning.

Amir Jalali (2011) A study by evaluated the ventilator profile, radiological and clinical data of patients undergoing elective coronary artery bypass graft (CABG) in a cardiology referral hospital in southern Brazil, with a sample of 108 individuals, using spirometry and ventilatory muscle strength (VMS) of manuvacuometry to evaluate lung volumes and capacities, as well as the presence of respiratory disorders. The assessments were conducted preoperatively and at six days after surgery, where there was significant reduction in end-expiratory volume (EEV1), forced vital capacity (FVC) and VMS expressed in maximal inspiratory pressure and pressure maximal expiratory comparing the preoperative period to the sixth postoperative day. The incidence of pulmonary complications was higher in the sixth postoperative day (78%) when compared to the first postoperative day (40%). Patients undergoing CABG surgery have a significant reduction in lung volumes and capacities, as well as the VMS in the postoperative period. This proof demonstrates the necessity of preoperative physiotherapeutic procedures on patients who require CABG surgery.

Kutzleb J, Reinex D (2006) conducted a study to evaluate the impact of a nurse directed approach to patient education, which focused on life style modification, daily weight management, diet and medication compliance to improve the quality of

life (QOL) and functional capacity in people with heart failure. The study included 23 patient comparing a nurse directed care (NC) group (n=13) which received comprehensive disease management education and weekly telephone follow up and the routine care (RC) group (n=10) that received protocol driven medical management. The study showed that nurse directed patient education was effective in improving quality of life (QOL). A nurse directed treatment strategy significantly improves patient's role in symptom control and disease self-management.

Verdure et al., (2005) conducted a comparative study with patients undergoing cardiac surgeries among 19 Japanese patients. They discovered that pacific Islanders were notably different in their demographic and clinical characteristics. Specifically, gender female patients are at greater risk for re-hospitalization and death following CABG surgery than are their male counterparts. The readmission rate for female patients was 705 per 1000 live discharges compared with men, who had 593 per 1000 ($p > 0.001$) Length of hospital stay (n= 334) found that those patients with a loss of > 5 days were 52 % less likely to be readmitted than those patients with a LOS > 7 days (LOS > 7 DAYS; P = 0.029)

Svensden A (2003) conducted a study to provide a brief overview of consensus guidelines and nursing implication developed by American College of Cardiology/American Heart Association, the Canadian cardiovascular society, the Heart failure society of America, and the European society of cardiology. Nurse's implications include careful assessment of volume status, vital signs, monitoring electrolyte and renal function as well as spacing of medications. The study showed that the nurses play a key role in assisting patients to identify their lifestyle habits that require modifications, ultimately improving their quality of life and decreasing

hospital readmissions. Education focusing on self care activities, diet, rest and exercise enables patients to retain a sense of control in their lives.

Garbossa et al.(2003) Identify found the effects of physiotherapy instructions on the level of anxiety of patients undergoing CABG surgery in the pre-and postoperatively in 51 subjects, 27 in the control group and 24 in the intervention group. The evaluation was done using a questionnaire (Beck Scale for Anxiety) to measure the level of anxiety and a scale (analogue pain), to measure the level of localized pains, where only the second group received instructions on the procedures of surgery and breathing exercises. The lower levels of anxiety were observed in patients who received the intervention in the period before surgery (9.6 ± 7.2 versus 13.4 ± 5.9 , $P = 0.02$). In the control group, the difference between anxiety levels before and after surgery was statistically significant ($P = 0.003$).

Ramachandra C.Goyal (2001) Compared the effects of incentive spirometry and deep breathing exercises in patients undergoing coronary artery bypass grafting on the following variables: forced vital capacity and forced expiratory volume in one second, maximal respiratory pressures and oxygen saturation using a sample of 36 patients who were randomized into two groups as follows: incentive spirometry ($n = 18$) and deep breathing exercises ($n = 18$). Spirometric variables were evaluated in the preoperative period and on the seventh postoperative day. The respiratory muscle strength and oxygen saturation were evaluated in the preoperative period, the first, second and seventh postoperative day. The groups were homogeneous in relation to demographic and surgical variables. There was a reduction in the values of forced vital capacity and forced expiratory volume between the preoperative and postoperative seventh, but no significant differences between groups. Maximal respiratory pressures fell on the first day, but with gradual and partial recovery by the

seventh postoperative day, also without significant differences between groups. Oxygen saturation was the only variable that was fully recovered on the seventh postoperative day, also without significant differences between groups. There were no significant differences in maximal respiratory pressures in Spirometric variables and oxygen saturation in patients undergoing deep breathing exercises and incentive spirometer following CABG.

Ferreira et al. (2000) evaluated a training program for preoperative inspiratory muscle held at home and to improve respiratory function, reduced the morbidity and / or mortality in adult patients undergoing coronary artery bypass grafting and/or plasty. Thirty volunteers of both sexes and aged at least 50 years, while waiting for coronary artery bypass grafting and / or heart valve surgery were randomly divided into two groups. Fifteen patients were enrolled in a home program of at least two weeks of training preoperative inspiratory muscle, using a device with a load of 40% of maximal inspiratory pressure. The other 15 received general guidance and not trained the inspiratory muscles. Spirometry before and after the training program, as well as the evolution of arterial blood gases and inspiratory and expiratory pressure maximum before and after the operation were evaluated in both groups. They observed that inspiratory muscle training increased FVC, maximum voluntary ventilation and EEV. No relationship between the first and second days after surgery. The evolution of arterial blood gases and peak inspiratory and expiratory pressures before and after surgery was similar in both groups, with similar results also. The home program of inspiratory muscle training was safe and improved forced vital capacity and maximal voluntary ventilation, although the clinical benefits of the program was not clear in the study.

J Clin Diagn Res. 1998 Jan conducted a prospective clinical trial , involving 48 individuals doing deep breathing exercises was compared with a control group (n = 42) who did not perform breathing exercises to investigate the effects on lung function, atelectasis, gas levels in the blood and subjective experience of patients in the postoperative period (PO) of CABG. Patients in the group of deep breathing exercises were instructed to perform breathing per hour during the day for the first four postoperative days. The exercises consisted of 30 slow deep breaths performed with a positive expiratory pressure device. Measurements of spirometry, spiral CT (three transverse levels), arterial blood gas analysis and scoring of the subjective experience of breathing exercises were performed at postoperative day 4. Compared with the control group, patients in the deep breathing had a significantly smaller reduction in forced vital capacity (to $71 \pm 12\%$ vs. $64 \pm 13\%$ of preoperative values) and forced expiratory volume in one second (for $71 \pm 11\%$ vs. $65 \pm 13\%$ of preoperative values). In the group of deep breathing, 72% of patients experienced a subjective benefit of the exercises. Patients who performed deep breathing exercises after CABG surgery had significantly less atelectasis areas and better pulmonary function on the fourth postoperative day compared with the control group did not exercise.

Palak Patel (1998) A study was conducted to evaluate a training program for preoperative inspiratory muscle held at home and to improve respiratory function, reduced the morbidity and / or mortality in adult patients undergoing coronary artery bypass grafting and/or plasty. Thirty volunteers of both sexes and aged at least 50 years, while waiting for coronary artery bypass grafting and / or heart valve surgery were randomly divided into two groups. Fifteen patients were enrolled in a home program of at least two weeks of training preoperative inspiratory muscle, using a device with a load of 40% of maximal inspiratory pressure. The other 15 received general guidance and not trained the inspiratory muscles. Spirometer before and after

the training program, as well as the evolution of arterial blood gases and inspiratory and expiratory pressure maximum before and after the operation were evaluated in both groups. They observed that inspiratory muscle training increased FVC, maximum voluntary ventilation and EEV1no relationship between the first and second days after surgery. The study concluded that the home program of inspiratory muscle training was safe and improved forced vital capacity and maximal voluntary ventilation.

Abilio Reig-Ferrer (1996) A randomized study done on 279 patients undergoing coronary artery bypass graft surgery who were at high risk for developing pulmonary complications to either usual care or inspiratory muscle training. The latter intervention involved 20 minutes per day of incentive spirometer, active breathing, and forced expiration techniques for at least 2 weeks prior to surgery. Rates of high-grade postoperative pulmonary complications were cut in half (OR = 0.52; 95% CI,0.30–0.92) and rates of pneumonia were reduced by 60% (OR = 0.40; 95% CI, 0.19–0.84) in patients who received inspiratory muscle training relative to the usual-care group.

Linde BJ, Janz NM, (1979) conducted a study to look at the effect of a comprehensive teaching program on patient knowledge and compliance. Thirty patients who had valve replacement surgery and 18 patients who had had coronary artery bypass surgery were included in this study. Findings included significant changes in knowledge score from the preoperative test to the discharge test and stability in most scores from discharge to both postoperative visits. Compliance percentages were significantly higher than those reported for cardiac patients in a previous study. Patients taught by masters prepared nurses had significantly higher test scores at discharge than did patients taught by nurses with less than masters preparation.

CONCEPTUAL FRAMWORK

This study focused on assessing efficacy of pre operative comprehensive nursing interventions on post- operative outcome among patients undergoing cardiac surgery at vadamalayan multispecialty hospital, Madurai.

This study was based upon J.W.Kenny's open system model is throughput, output and feedback.

In open system theory, Input refers to matter, energy and information that enter into the system through its boundary. Throughput is processing where the system transfer the energy, matter and information that are processed. After processing the input, the system returns the output to the environmental responses 'e to the system. Output used by the system is adjustment, correction and accommodation to the interaction with the environment.

In this study,

Input refers to patient's demographic variables age, gender. religion, educational status, employment status, and personal habits. Include; variables includes family history of cardiac illness. pervious medication, diagnosis and pervious surgery.

Throughput refers to preoperative Comprehensive Nursing Interventions on post preoperative outcome among patients undergoing cardiac surgeries.

Output refers to the effective outcome of patients undergoing cardiac surgeries. That can be accessed through the post-test level of post-operative outcome.

Feedback can be accessed through the statistical measurements of score obtained by the participants through post-test values.

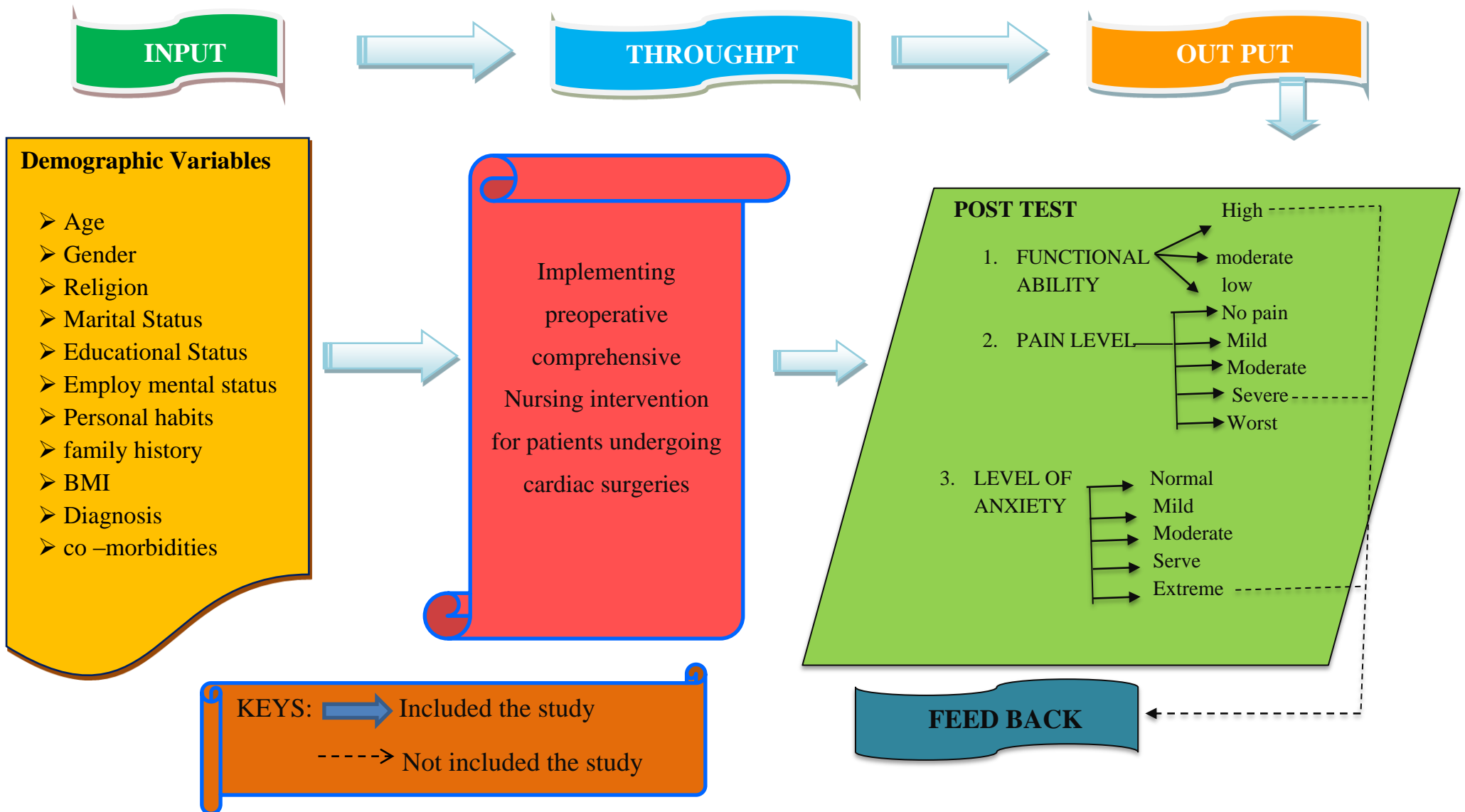


FIGURE NO : 2 CONCEPTUAL FRRAME WORK BASED ON MODIFIED J.WW.KENNEY'S OPEN SYSTEM MODEL (1999)

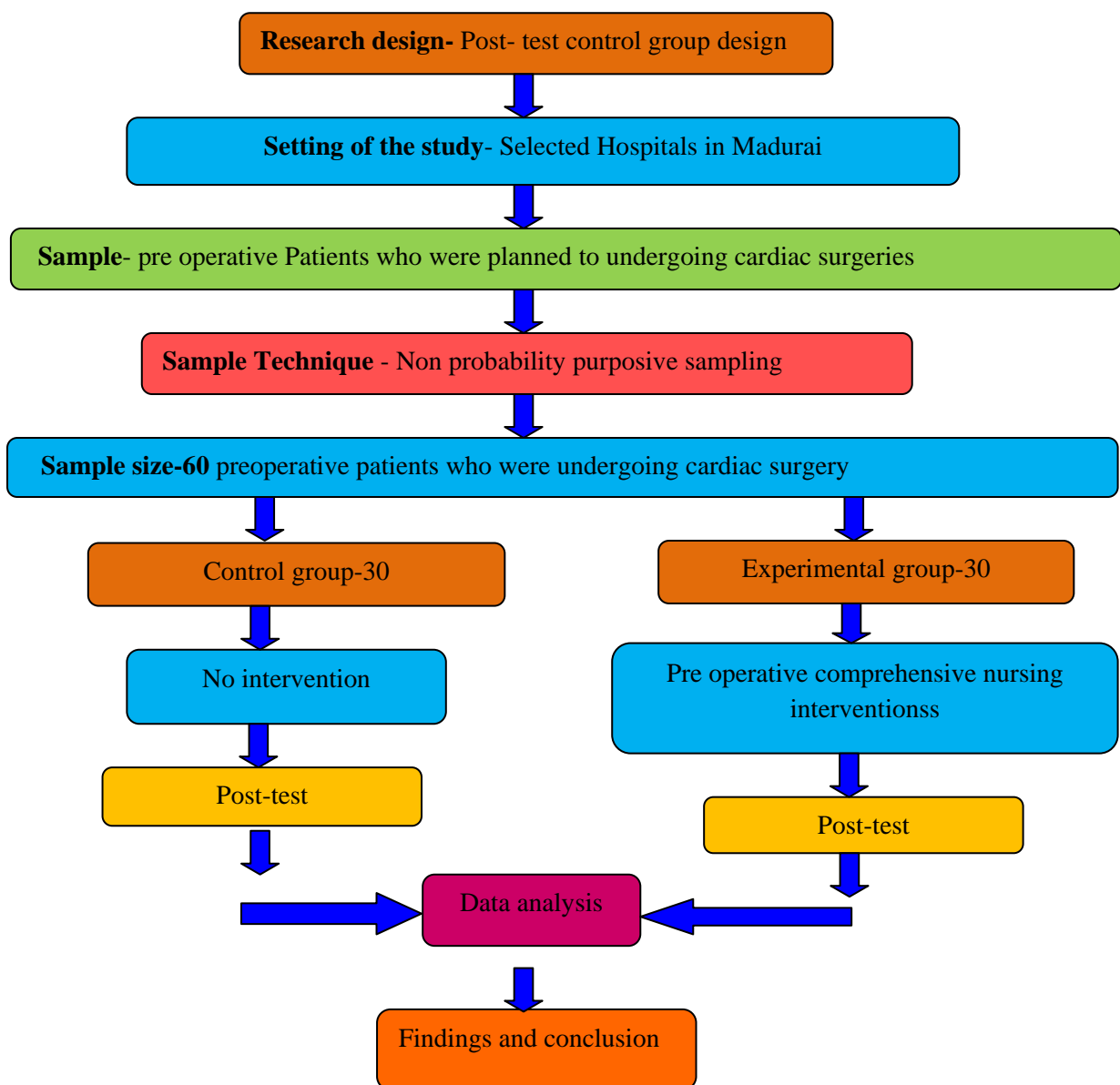


CHAPTER - III

MATERIALS AND METHODS

It includes the research approach, research design, setting of the study, population, sample, sample size, method of sampling, criteria for sample selection, development and description of the tool, validity and reliability of tool, procedure for data collection and plan for data analysis, pilot study and ethical consideration.

SCHEMATIC PRESENTATION OF RESEARCH



RESEARCH APPROACH

In order to accomplish the objectives of this study, quantitative approach was adopted to evaluate the impact of comprehensive nursing interventions on post-operative outcome patients among patient undergoing cardiac surgery in selected hospital Madurai

RESEARCH DESIGN

In this study, quasi experimental post-test control group design was adopted for this study.

GROUP	INTERVENTION	POST -TEST
G ₁	X	O ₁ , O ₂ , O ₃
G ₂	-	O ₁ , O ₂ , O ₃

G₁ - Group 1 control group

G₂ - Group 2 experimental group

X – Comprehensive nursing interventions approach to the interventional group.

O₁, O₂, O₃ post -test observation at three time points in both the group.

VARIABLES

The present study has the following variables Independent variable-Pre operative comprehensive nursing interventions programme. Dependent variable - Post operative outcome among patient in cardiac surgery.

SETTINGS OF THE STUDY

The researcher has chosen two Hospitals, which includes Vadamalayan Multispecialty Hospital, Madurai as the experimental group and Apollo multispecialty Hospital, Madurai as the control group for the present study.

Vadamalayan Multispecialty Hospital, Madurai as the experimental group for the study, which is 13 kilometers from C.S.I Jeyaraj Annapackiam College Of Nursing, Pasumalai, Tamil Nadu state, South India. It is 300 bedded multispecialty hospitals and has health facilities such as causality, cardio thoracic surgical intensive care unit (CTS-ICU), cardio thoracic operation theatre (OT), medical and surgical wards, post-operative unit and maternity unit.

Apollo Multi specialty Hospital, Madurai selected as the control group for the present study, which is 15 kilometers away from C.S.I Jeyaraj Annapackiam College of Nursing, Pasumalai, Tamil Nadu state, South India. It is 1000 bedded medical college hospital and has health facilities such as causality, cardio thoracic surgical intensive care unit (CTS-ICU), cardio thoracic operation theatre (OT), medical and surgical wards, post-operative unit and pediatric ward and ICUs and psychiatric ward.

POPULATION

Target population-All the post-operative Cardiac surgery patient at selected Hospital in Madurai district.

Accessible Population- patients undergoing cardiac surgery who were admitted in selected hospitals in Madurai district.

SAMPLE

The samples includes the inclusion criteria for patients at Vadamalayan Multispecialty Hospital as the experimental group and Apollo Multispecialty hospital for control group are selected for the present study in Madurai.

SAMPLE SIZE

The sample comprised of 60 patients who were admitted in Vadamalayan multispecialty hospital in pre-operative period for planned cardiac surgery patients. In

which 30 patients were selected under control group and remaining 30 patients were selected under experimental group.

SAMPLING TECHNIQUE

In this study, samples were selected through non probability of purposive sampling.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

- One who got admitted Pre-Operatively for cardiac surgeries .
- Both genders
- Planned for selected major cardiac surgery like coronary artery Bypass graft, Myocardial Revascularization, Heart Valve Repair or Replacement, Aneurysm Repair, Heart Transplantation, Artificial Ventricular device placements, Total Artificial Heart Replacement, Open Heart Surgery, Off pump Surgery, minimal invasive Heart Surgery etc....,

Exclusion Criteria

- Patients undergoing other than the cardiac surgeries
- Patient with critically ill were excluded.
- Being post-operative cardiac surgery patients from outside hospitals or centers.
- Patients with minor cardiac surgeries.

DESCRIPTION OF THE TOOL

The tool was developed by the investigator with the guidance of the expert's opinion, various resources and review of literature. The tool used for the present study is a structured tool among cardiac surgery patients.

The tool comprised of 2 sections:

Section A

Demographic variables

Section B – It consists of 3 parts as follows

(a) - Rating scale to assess the functional ability

(b) – Rating scale to assess the pain

(C) – Rating scale to scale to assess Anxiety.

SECTION-A

Part-1

In this study, demographic variables were Age, Gender, Educational Status, Occupation, Marital status, Family history, Supportive system, Types of residence's and Income, Personal habits of smoking, habits of alcoholism, diagnosis, co-morbidities, Body Mass Index, types of surgeries.

SECTION-B

Part –A

It consists of 7 statements related to functional ability of patients who has undergone for cardiac surgeries.

Part –B

It consists of 10 statements to assess pain of patients who has undergone for cardiac surgeries.

Part –C

5 point Likert scale was used. The responses include Not at all, A little, neither, very much, and extreme. It contains 10 statements to assess the anxiety level among post-operative outcomes of patients undergoing cardiac surgery

SCORING PROCEDURE

SECTION-B

Part –A

A functional ability of cardiac undergoing surgeries will be measured by modified scale. There are 7 questions allotted in the scale. The maximum score 7 and minimum score 1. The total score was converted into percentage out of 100 and it was classified as follows.

Score	Classification
1-3 (Below 50%)	high functional need
4-5 (51- 75%)	moderate functional need
6-7 (76- 100%)	low functional need

Part –B

A Structured tool to elicit pain of patients undergoing cardiac surgeries. The normal findings were rated “0” and deviated findings were scored up to “10”.

10 -worst possible pain

7-9 severe pain

4-6 moderate pain

1-3 mild pain

0- no pain.

Part –C

The anxiety scale was measured by modified zung anxiety scale. There are 10 questions allotted in the scale. Each question has response were given a maximum score of 10 and minimum score 1. The total score was converted into 100%percentage and it was classified as follows:

SCORE	CLASSIFICATION
0 -10 (100%)	no anxiety
11- 20 (99- 86 %)	mild anxiety
21 -30 (85 - 75 %)	moderate anxiety
31 -40(74 – 50 %)	severe anxiety
41 -50 (Below 50%)	extreme anxiety

VALIDITY AND RELIABILITY OF THE TOOL

Validity:

The content validity of an instrument is essentially based on the adequacy of the content. In the present study, 11 experts including one physician, one cardio thoracic surgeon, 9 nursing experts validated the entire section of the tool. The experts were requested to evaluate the tool for its clarity appropriateness, adequacy, relevance and completeness. Based on the recommendations, a few items were modified. The tool was refined and finalized after establishing the validity. The tool was drafted in Tamil and checked for language validity.

Reliability:

The degree of consistency, stability and accuracy of the tool was assessed by using Cronbach's alpha and found that the tool developed was reliable for the study. The postoperative outcome tool was administered to 6 cardiac surgery patient in Apollo Multispecialty Hospital, Madurai and the score obtained was interpreted with the following formula,

$$\text{Test reliability } r = \frac{k}{k-1} \left[\frac{1 - \sum \sigma^2}{\sigma_y^2} \right]$$

The score obtained was 0.98 which revealed that the reliability of the tool prepared by the researcher was found to be feasible.

PILOT STUDY

The researcher conducted a pilot study in Apollo Multispecialty Hospital, Madurai, to assess the feasibility, practicability, and appropriateness of the study. In this hospital where minimum number of patients were undergoing cardiac surgery. After obtaining approval from the concerned authorities, the researcher clearly explained about the pre-operative Comprehensive nursing interventions to the patients undergoing cardiac surgeries, verbal consent was obtained from the samples. The study was founded to be feasible with regard to time, availability of subjects and cooperation of samples.

The pilot study revealed that the study was feasible, data were analyzed to find out the suitability of statistics and found to be significant.

METHOD OF DATA COLLECTION

The data collected among pre cardiac surgeries patient in Vadamalayan multispecialty Hospital, Madurai and Apollo multispecialty Hospital, Madurai. Written permission was sought and obtained from the authorities concerned. The period of data collection was 6 weeks. 60 patients were selected as per above mentioned criteria with prior informed verbal consent to participate in the study. A brief introduction about the study was given to the samples. Data was collected through functional ability scale, pain scale and anxiety scale

STEPS OF DATA COLLECTION PROCESS

STEP I

- ★ Self-introduction about the researcher to the patients.
- ★ Patients were made comfortable and privacy was provided.
- ★ Good rapport was maintained with the patients.
- ★ Explanation about the purpose of the study and oral consent obtained.

STEP II

- ★ Selection of sample and allotment to control group and experimental group based on the inclusion criteria.

STEP III

- ★ Samples were oriented to pre-operative comprehensive teaching which includes the demonstration of following :

The total demonstration includes 30 minutes

1. ACBT (Active Cycle of Breathing Technique) it was taught to the patients as followed

a)Step 1 Deep Breathing Exercises

- Ask them to keep neck and shoulder relaxed.
- Instruct to take deep breathe and hold it for 3 seconds.
- Then slowly exhale it.
- Repeat this step × 4- 5 times.

b) Step 2 Relaxed breathing / breathing control

- Ask them to place one hand in abdomen so they can feel the rise and fall while on breathing
- Ask them to feel gently by hand rise and lower chest expand.
- Instruct to breathe slowly to relax the shoulder down.

c) Step 3 huff exercises

- Instruct to take short sharp breath out through an open mouth that helps for secretion out.
- Repeat the huff needs to be through an open mouth, using abdominal muscles.

2. ROM (Range of Motion Exercises)for 10 mts

a) Leg and foot exercises

Ask them to lie in semi fowler's position.

- Instruct to bend the knee and raise the foot hold it for few seconds and extend leg and lower it to the bed.
- Repeat it for one leg for 5 times and do for other leg.
- Instruct to trace circle the knee and raise the foot and hold it for few seconds, then extend leg and lower it to bed.
- Repeat it for one leg for 5 times and do for other leg.

b) Hand and wrist exercises

Ask them to lie in semi fowler's or supine position.

- Instruct to extend and flexion the wrist

3. Massage therapy for 10 mts

a) Longitudinal gliding it is a basic but effective massage technique administered in the direction of the blood flow. It aids the fluid dispersion from injury site and thus helps reduce pain, inflammation and swelling .it also relaxing tight muscles.

b) -Kneading can be performed in different ways and is described by the part of a hand used to accomplish the massage, e.g. Thumb kneading and palm kneading.

c) -Trigger point therapy Body work techniques that involve the applying of pressure to tender muscles tissue in order to relieve pain and dysfunction in other parts of the body. The experimental group was directed to practice this intervention for 5 minutes in both morning 9am and evening 6pm and continued for 5 days under the supervision of investigator.

STEP IV

- ★ Post-test was conducted for both the experimental and control groups using the same tool to the 2nd 4th 6th day.
- ★ After the data collection procedure, a selected relaxation technique was introduced to the control group for ethical consideration
- ★ A hearty gratitude was conveyed for the patients for their co-operation and participation.

PLAN FOR DATA ANALYSIS

Data analysis helps the researcher to organize, summarize, evaluate, interpret and communicate the numerical facts. For the present study the collected data from the participants were grouped and analyzed using both descriptive and inferential statistical methods. SPSS 16.0 version was used for data analyses.

Study plan to carry out the following analysis:

- ✓ Gather all responses obtained from the study tool
- ✓ Enter the scores in the spreadsheet
- ✓ Coding the data

Descriptive statistics

Demographic variables were analyzed using frequency distribution, mean and standard deviation.

Inferential statistics

- ✓ Post-test levels scores between the groups were analyzed using independent “t” test.
- ✓ Pearson correlation coefficient(r) was used to find the relationship between pre and post

ETHICAL CONSIDERATION

Beneficence:

The right to freedom from harm

- ✓ Though this study is an experimental design, the intervention used was non-invasive

The right to protection from exploitation

- ✓ Assurance was given to subjects that their participation in the study will in no way influence their results

Respect for human dignity

The right to self-determination

- ✓ Research proposal was approved by specialty HOD and other senior professors.
- ✓ Prior permission was sought from higher authorities in concerned institution before commencing the study.
- ✓ Before consent is sought the research has given details of the nature and purpose of the research and the proposal outcome of the research.
- ✓ Oral consent was formally obtained prior to completion of the data collection from the participants and the confidentiality of their responses was assured.



Analysis and Interpretation

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation data. The present study involves compilation, editing, coding, classification and presentation of the data for statistical calculation in order to draw inferences and conclusions. Using descriptive and inferential statistics, the study objectives were computed.

The data collected from the samples to evaluate the impact of preoperative comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgery in the selected hospitals Madurai were organized, analyzed, tabulated and interpreted based on the objectives:

1. To assess the post-operative outcome among patients undergoing cardiac surgery in the control and experimental group.
2. To determine the effectiveness of comprehensive nursing intervention on post-operative outcome among patients undergoing cardiac surgery between the control group and experimental group.
3. To associate the post-operative outcome of patient undergoing cardiac surgery with their demographic variable.

The findings were presented in the form of tables and diagrams under the following series;

SECTION A: Data on description of demographic variables among patient undergoing cardiac surgery in the control and experimental group.

1. Frequency and percentage distribution of cardiac patients based on their demographic variables in the control and experimental group.

SECTION B: Distribution to assess the impact of preoperative comprehensive nursing interventions on postoperative outcome patients undergoing cardiac surgery patients.

1. Frequency and percentage wise distribution of subjects based on their functional ability level.
2. Frequency and percentage wise distribution of subjects based on their level of pain.
3. Frequency and percentage wise distribution of subjects based on their level of anxiety.

SECTION C: Data of impact of pre-operative comprehensive nursing interventions postoperative outcome among patients undergoing cardiac surgery in the control and experimental group.

1. Mean score difference between control 1st and 2nd post test in post-operative outcome among patients undergoing cardiac surgery.
2. Mean score difference between control 1st and 3rd post test in post-operative outcome among patients undergoing cardiac surgery.
3. Mean score difference between control 2nd and 3rd post test in post-operative outcome among patients undergoing cardiac surgery.
4. Mean score difference between experimental 1st and 2nd post test in post-operative outcome among patients undergoing cardiac surgery.
5. Mean score difference between experimental 1st and 3rd post test in post-operative outcome among patients undergoing cardiac surgery.
6. Mean score difference between experimental 2nd and 3rd post test in post-operative outcome among patients undergoing cardiac surgery.

7. Mean score differences between control 1st and experimental 1st posttest in post-operative outcome among patients undergoing cardiac surgery.
8. Mean score differences between control 2nd and experimental 2nd posttest in post-operative outcome among patients undergoing cardiac surgery.
9. Mean score differences between control 3rd and experimental 3rd post-test in post-operative outcome among patients undergoing cardiac surgery.
10. Paired "t" test on impact of pre-operative comprehensive nursing interventions on post –operative outcome among patients undergoing cardiac surgery patients with in the control and experimental group.
11. Unpaired “t” test for comparison of differences on preoperative comprehensive nursing interventions on postoperative outcome among patients undergoing cardiac surgery patient within the control and experimental group.

SECTION D : Data on association between the postoperative outcome among cardiac surgery patients with selected demographic variables .

1. Association between functional ability level undergoing cardiac surgery patients in selected demographic variables in the control and experimental group.
2. Association between pain level undergoing cardiac surgery patients in selected demographic variables in the control and experimental group.
3. Association between anxiety level undergoing cardiac surgery patients in selected demographic variables in the control and experimental group.

SECTION –A: Data on description of demographic variables among patient undergoing cardiac surgery in control and experimental group

TABLE: 4.A.1: FREQUENCY AND PERCENTAGE WISE DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR DEMOGRAPHIC VARIABLES:

N=60

Demographic variables	Control group (n=30)		Experimental group (n=30)	
	f	%	f	%
1.Age in years :				
1. 30-40	1	3.3	0	0
2. 41-50	18	60	17	56.7
3. Above 51	11	36.7	13	43.3
2.Gender :				
1. Male	23	76.7	19	63.3
2. Female	7	23.3	11	36.7
3.Religion :				
1. Christian	18	60	22	73.3
2. Hindu	2	6.7	2	6.7
3. Muslim	10	33.3	6	20
4.Education of status:				
1. Primary	5	16.7	0	0
2. High	14	46.7	13	43.3
3. College	3	10	14	46.7
4. Uneducated	8	26.7	3	10
5.Marital status:				
1. Married	1	3.3	1	3.3
2. Un married	29	96.7	29	96.7
3. Widow	0	0	0	0

6.Occupation:				
1. Coolie	0	0	0	0
2. Private employee	12	40	10	33.3
3. Government employee	8	26.7	7	23.3
4. House wife	10	33.3	13	43.3
5. Retired	0	0	0	0
7.Income:				
1. 100-4000	6	20	4	13.3
2. 4001-8000	10	33.3	13	43.3
3. 8001-12000	11	36.7	12	40
4. Above 12000	3	10	1	3.3
8.Habit :				
1. Smoking	13	43.3	16	53.3
2. Alcoholism	11	36.7	12	40
3. Both	6	20	2	6.7
9.Family History :				
1. Yes	24	80	29	96.7
2. No	6	20	1	3.3
10.BMI :				
1. Under Weight	0	0	0	0
2. Normal	20	66.7	18	60
3. Over weight	10	33.3	12	40
4. Obese	0	0	0	0
11.Diagnosis :				
1. Coronary artery disease	25	83.3	22	73.3
2. Myocardial infraction	2	6.7	2	6.7
3. Valvular disorder	3	10	6	20
12.Co-morbidities :				
1. Diabetes Mellitus	0	0	0	0
2. Hypertension	30	100	23	76.7
3. BOTH	0	0	7	23.3

Table 4.A.1 divulges that among 60 subjects 18 (60 %) were between the age group 41-50 yrs and 11 (36.7%) were above 51 yrs in control group 17 (56.7%) were 41 -50 yrs in control group and 13 (43.3%) in experimental group.

Regarding the gender ,males were highest numbers in 23 (76.7%) and 19 (63.6%) in both control and experimental groups.

Regarding the religion maximum samples 18 (60%) and 22(73.33%) were Christians in both control and experimental groups.

With regards to educational status 14 (46.7%) samples have completed their primary, high school in the control group. majority 14 (46.7%) of samples were completed their primary, high school and college education in experimental group.

Based on their of occupation majority of the samples were employed in private sectors in 12(40.1%) in control group. 13(43.3%) were house wife in the experimental group.

With regards to type of income 8000-12000 11(36.7%) majority of the samples were employed in private sectors in control group and 13 (43.3%) of the patients were in experimental group.

Considering the habits of smoking, majority were smokers 13 (43.3%) in the control group. 16 (53.3%) in the experimental groups.

Regarding the marital status, majority of the patients were married 29 (96.7%) in both the control group and the experimental groups.

With the regards of family history 24(80%) samples were in the control group. 29(96.7%) were in the experimental group.

Considering the BMI majority 20 (66.7%) of samples were normal weight in the control. 18 (60%) were in experimental group.

With regard to diagnosis, majority of patients has coronary artery diseases 25 (83.3%) in control group and 22 (73.3%) in experimental group.

Regarding the comorbidity most of the patients have diabetes mellitus and hypertension 30 (100%) in the control 23 (76.7%) in the experimental group.

SECTION B: Distribution to assess the impact of preoperative comprehensive nursing interventions on postoperative outcome patients undergoing cardiac surgery patients.

FIGURE 4.B.1: FREQUENCY AND PERCENTAGE WISE DISTRIBUTION OF SUBJECTS BASED ON THEIR FUNCTIONAL ABILITY LEVEL.

N =60

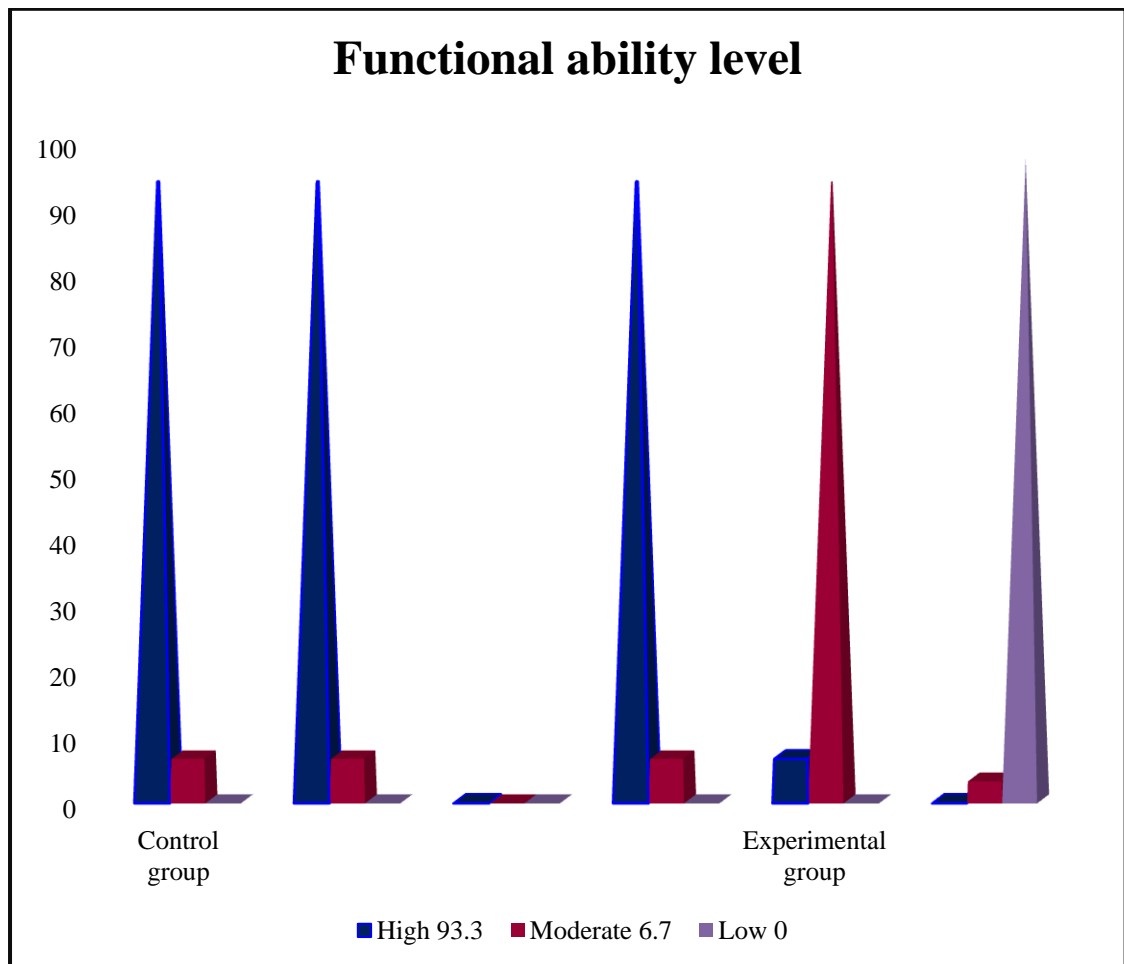


Figure 4.B.1 reveals the frequency and percentage of subjects based on their functional ability 28(93.3%) were high functional ability.

In contrast 29(96.7%) in the experimental group had low functional ability. Thus, the research hypothesis (H1) is accepted.

FIGURE-4.B 2: FREQUENCY AND PERCENTAGE WISE DISTRIBUTION OF SUBJECTS BASED ON THEIR LEVEL OF PAIN

N =60

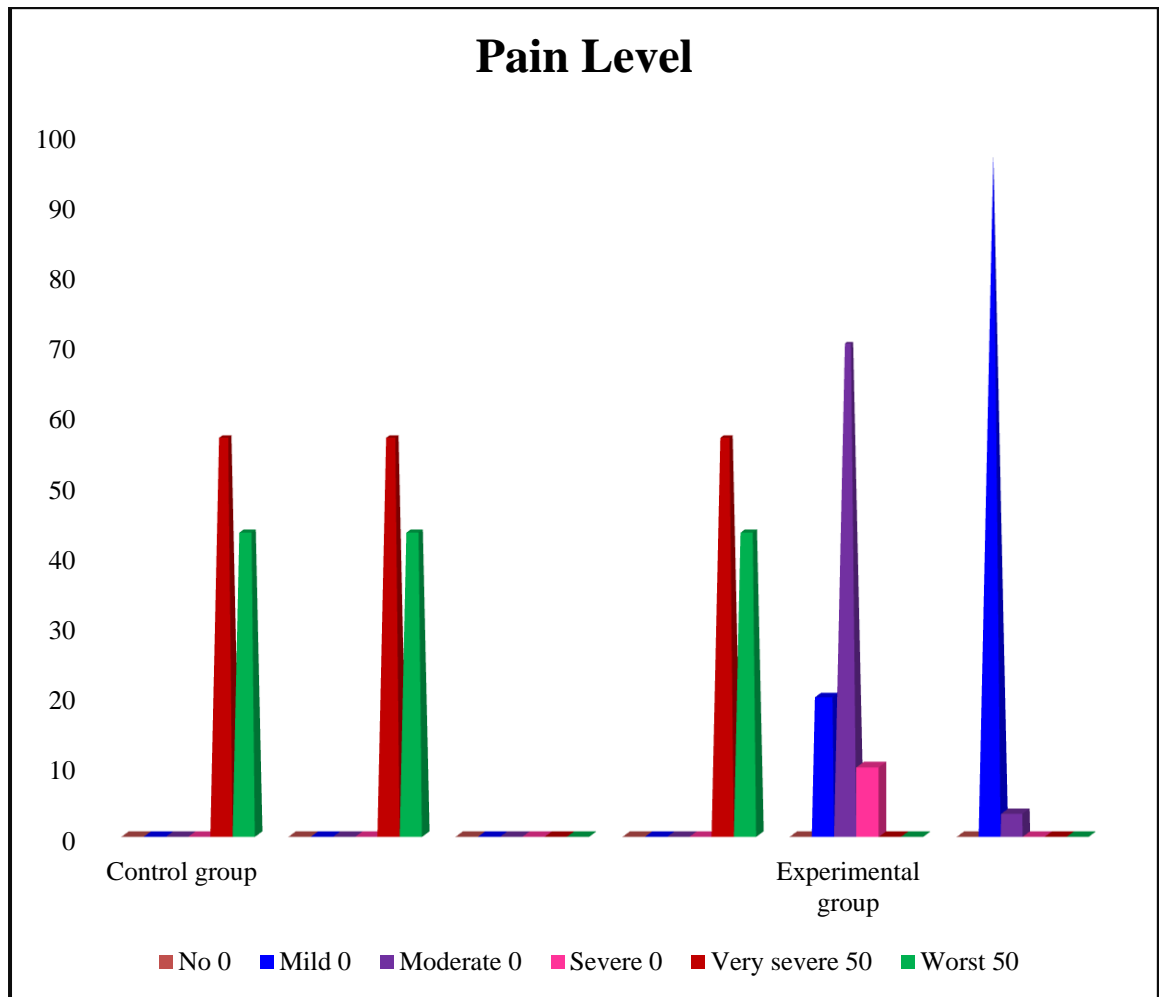


Figure 4.B .2 reveals the frequency and percentage of the based on their level of pain in control group, 17(56.7%) subjects had very severe level of pain.

In contrast 29(96.7%) in experimental group had low level of pain. Thus the research hypothesis (H_1) is accepted.

FIGURE : 4.B.3 : FREQUENCY AND PERCENTAGE WISE DISTRIBUTION OF SUBJECTS BASED ON THEIR LEVEL OF ANXIETY.

N = 60

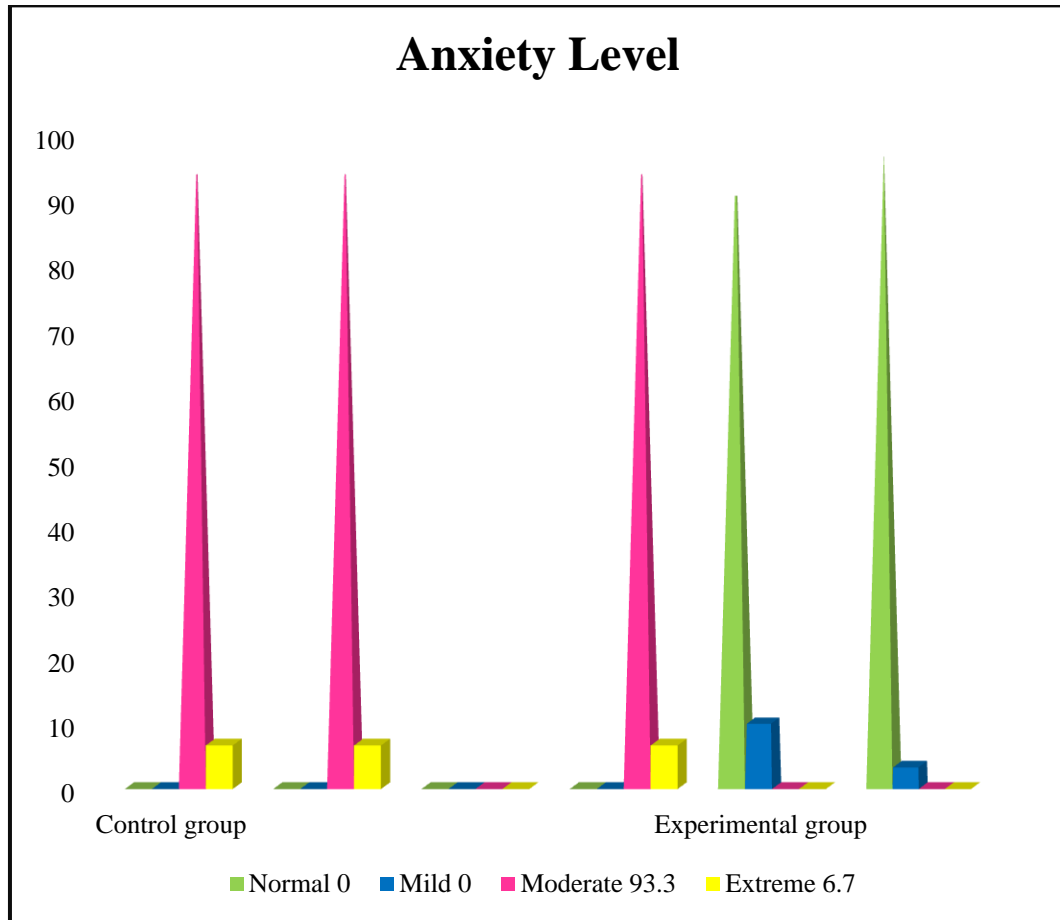


Figure 4.B.3 reveals the frequency and percentage of the based on their level of anxiety in control group, 28(93.3%) subjects had moderate level of pain.

In contrast 29(96.7%) in experimental group had no anxiety in post-operative period. thus the research hypothesis (H_1) is accepted.

SECTION C: Data of impact of pre-operative comprehensive nursing interventions postoperative outcome among patients undergoing cardiac surgery in the control and experimental group.

TABLE-4.C.1: MEAN SCORE DIFFERENCES BETWEEN CONTROL 1st AND 2nd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n = 30

Post-operative outcome	Max score	Control-1 st post test scores			Control- 2 nd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.63	0.93	23	1.67	0.92	24	1
Pain	10	9.47	0.57	95	9.43	0.50	94	1
Anxiety	50	36.3	2.15	73	36.4	2.09	73	0
Overall	67	47.43	2.39	71	47.5	2.47	70.9	0.1

Table - 4.C.1 : elucidate the mean score difference between control 1st and 2nd post test scores in the control group. The finding shows that with the mean score difference of 0 .1,the post-test score in control 1st was(47.43± 2.39) and control 2nd score was (47.57±2.47). Hence, the values remain same in the control 1st and 2nd post mean score.

TABLE-4.C.2: MEAN SCORE DIFFERENCES BETWEEN CONTROL 1st AND 3rd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n = 30

Post-operative outcome	Max score	Control-1 st post test scores			Control- 3 rd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.63	0.93	23	1.73	0.91	25	2
Pain	10	9.47	0.57	95	9.43	0.50	94	1
Anxiety	50	36.3	2.15	73	36.4	2.11	73	0
Overall	67	47.43	2.39	71	47.57	2.33	71	0

Table - 4.C.2 : elucidate the mean score difference between control 1st and 3rd post test scores in the control group. The finding shows that with the mean score difference of 0, the post-test score in control 1st was (47.43± 2.39) and control 3rd score was (47.57±2.33). Hence, the values remain same in the control 1st and 3rd post mean score.

TABLE-4.C.3 MEAN SCORE DIFFERENCES BETWEEN CONTROL 2nd AND 3rd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n = 30

Post-operative outcome	Max score	Control-2 nd post test scores			Control- 3 rd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.67	0.92	24	1.73	0.91	25	1
Pain	10	9.43	0.50	94	9.43	0.50	94	0
Anxiety	50	36.4	2.09	73	36.4	2.11	73	0
Overall	67	47.5	2.47	70.9	47.57	2.33	71	0.1

Table - 4.C.3 : elucidate the mean score difference between control 2nd and 3rd post test scores in the control group. The finding shows that with the mean score difference of 0.1, the post-test score in control 2nd was (47.5± 2.47) and control 3rd score was (47.57±2.33). Hence, the values remain same in the control 2nd and 3rd post mean score.

TABLE-4.C.4: MEAN SCORE DIFFERENCES BETWEEN EXPERIMENTAL 1st AND 2nd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n =30

Post-operative outcome	Max score	Experimental -1 st post test scores			Experimental –2 nd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.73	0.94	25	4.47	0.63	64	41
Pain	10	9.4	0.56	94	4.27	0.91	43	51
Anxiety	50	36.27	2.07	73	16.47	2.26	33	40
Overall	67	47.4	2.42	71	25.2	1.95	38	33

Table 4.C.4: The Findings shows that the posttest 2nd mean % score is reduced to 38% from the post-operative 1st mean score of 71% with the mean difference of 33%. Therefore the Pre-operative comprehensive nursing interventions has impact in reducing the Post – operative outcome among patients undergoing Cardiac Surgery.

TABLE-4.C.5: MEAN SCORE DIFFERENCES BETWEEN EXPERIMENTAL 1st AND 3rd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n =30

Post-operative outcome	Max score	Experimental -1 st post test scores			Experimental – 3 rd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.73	0.94	25	6.5	0.57	93	68
Pain	10	9.4	0.56	94	1.73	0.691	17	77
Anxiety	50	36.27	2.07	73	13.23	1.91	26	47
Overall	67	47.4	2.42	71	21.47	1.96	32	39

Table 4.C.5: The Findings shows that the post-test 3rd mean % score is reduced to 32% from the post-operative 1st mean score of 71% with the mean difference of 39%. Therefore the pre-operative comprehensive nursing interventions has impact in reducing the post-operative outcome among patients undergoing cardiac surgery.

TABLE-4.C.6: MEAN SCORE DIFFERENCES BETWEEN EXPERIMENTAL 2nd AND 3rd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

n = 30

Post-operative outcome	Max score	Experimental -2 nd post test scores			Experimental – 3 rd Post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	4.47	0.63	64	6.5	0.57	93	29
Pain	10	4.27	0.91	43	1.73	0.691	17	26
Anxiety	50	16.47	2.26	33	13.23	1.91	26	7
Overall	67	25.2	1.95	38	21.47	1.96	32	6

Table 4.C.6: The Findings shows that the posttest 2nd mean % score is reduced to 38% from the post operative 3rd mean score of 32% with the mean difference of 6%. Therefore, the pre-operative comprehensive nursing interventions has impact in reducing the postoperative outcome among patients undergoing cardiac surgery.

TABLE-4.C. 7: MEAN SCORE DIFFERENCES BETWEEN CONTROL 1st AND EXPERIMENTAL 1st POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

N= 60

Post-operative outcome	Max score	Control -1 st post test scores			Experimental – 1 st post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.63	0.93	23	1.73	0.94	25	2
Pain	10	9.47	0.57	95	9.4	0.56	94	1
Anxiety	50	36.3	2.15	73	36.27	2.07	73	0
Overall	67	47.43	2.39	71	47.4	2.42	71	0

Table 4.C.7 elucidate the mean score difference between control 1st and experimental 1st post test scores in the post -operative outcome. The finding shows that with the mean score difference of 0, the post-test score in control 1st was (47.43± 2.39) and experimental 1st score was (47.4±2..42).

TABLE-4.C.8: MEAN SCORE DIFFERENCES BETWEEN CONTROL 2nd AND EXPERIMENTAL 2nd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

N =60

Post-operative outcome	Max score	Control -2 nd post test scores			Experimental – 2 nd post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.67	0.92	24	4.47	0.63	64	40
Pain	10	9.43	0.50	94	4.27	0.91	43	51
Anxiety	50	36.4	2.09	73	16.47	2.26	33	40
Overall	67	47.5	2.47	70.9	25.2	1.95	38	33

Table 4.C.8 elucidate the mean score difference between control 2nd and experimental 2nd post test scores in the post -operative outcome. The finding shows that with the mean score difference of 33, the post-test score in control 2nd was (47.5± 2.47) and experimental 2nd score was (25.2 ±1.95). With the difference of 33% post-test mean score. Therefore the pre-operative nursing intervention has impact in reducing the postoperative outcome among patients undergoing cardiac surgery. Thus the research hypothesis (H₁) is accepted.

TABLE-4.C.9: MEAN SCORE DIFFERENCES BETWEEN CONTROL 3rd AND EXPERIMENTAL 3rd POST TEST IN POST –OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY.

N =60

Post-operative outcome	Max score	Control -3 rd post test scores			Experimental – 3 rd post test scores			Difference in Mean%
		Mean	SD	Mean%	Mean	SD	Mean%	
Functional ability	7	1.73	0.91	25	6.5	0.57	93	68
Pain	10	9.43	0.50	94	1.73	0.69	17	77
Anxiety	50	36.4	2.11	73	13.23	1.91	26	47
Overall	67	47.57	2.33	71	21.47	1.96	32	39

Table 4.C.9 elucidate the mean score difference between control 3rd and experimental 3rd post test scores in the post -operative outcome. The finding shows that with the mean score difference of 39, the post-test score in experimental 2nd was (47.57± 2.33) and experimental 3rd score was (21.47±1.96) with the difference of 39% post-test mean score. Therefore, the perioperative nursing intervention has impact in reducing the postoperative outcome among patients undergoing cardiac surgery. Thus the research hypothesis (H₁) is accepted

TABLE-4.C.10: PAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POSTTEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 1st AND 2nd CONTROL GROUP.

n =30

Postoperative outcome Area	Control 1 st post test		Control 2 nd post test		Mean difference	‘t’- value	P- value
	Mean	SD	Mean	SD			
Functional ability	1.63	0.93	1.67	0.92	0.03	0.375	0.712
Pain	9.47	0.57	9.43	0.50	0.03	0.254	0.801
Anxiety	36.3	2.15	36.4	2.09	0.067	0.465	0.645
Overall	47.43	2.39	47.5	2.47	0.06	0.273	0.786

Table 4.C.10: depicts the comparison of mean post test scores regarding postoperative outcome between control 1st and 2nd group. The above findings show that there is no significant between posttest score 1st and 2nd Post – operative outcome the overall ‘t’- value is [t=0.273 p <0.001] level. Thus, the research hypothesis (H₂) is accepted.

TABLE-4.C.11 PAIRED ‘T’ TEST SHOWING THE COMPARISON OF MEAN POSTTEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 1st AND 3rd CONTROL GROUP.

n =30

Postoperative outcome Area	Control 1 st post test		Control 3 rd post test		Mean difference	‘t’- value	P- value
	Mean	SD	Mean	SD			
Functional ability	1.63	0.93	1.73	0.91	0.1	0.901	0.374
Pain	9.47	0.57	9.43	0.50	0.03	0.273	0.786
Anxiety	36.3	2.15	36.4	2.11	0.067	1	0.325
Overall	47.43	2.39	47.57	2.33	0.13	0.812	0.423

Table 4.C.11 depicts the comparison of mean post test scores regarding postoperative outcome between control 1st and 3rd group. The above findings show that there is no significant between posttest score 1st and 3rd on Post – operative outcome. The overall ‘t’- value is [t=0.812 p <0.423] level. Thus, the research hypothesis (H₂) is accepted.

TABLE-4.C.12: PAIRED ‘T’ - TEST SHOWING THE COMPARISON OF MEAN POSTTEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 2nd AND 3rdCONTROL GROUP.

n =30

Postoperative outcome	Control 2 nd post test		Control 3 rd post test		Mean difference	‘t’- value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.67	0.92	1.73	0.91	0.067	0.571	0.572
Pain	9.43	0.50	9.43	0.50	0.01	0	1
Anxiety	36.4	2.09	36.4	2.11	0	0	1
Overall	47.5	2.47	47.57	2.33	0.07	0.278	0.78

Table 4.C.12 depicts the comparison of mean post test scores regarding postoperative outcome between control 2nd and 3rd group. The above findings show that there is no significant between posttest score 2nd and 3rd Post – operative outcome the overall ‘t’- value is [t=0.278 p <0.78] level. Thus the research hypothesis (H₂) is accepted.

TABLE-4.C.13: PAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POSTTEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 1st AND 2nd EXPERIMENTAL GROUP.

n =30

Postoperative outcome	Experimental 1 st post test		Experimental 2 nd post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.73	0.94	4.47	0.63	2.73	14.28	P<0.001***
Pain	9.4	0.56	4.27	0.91	5.13	32.67	P<0.001***
Anxiety	36.27	2.07	16.47	2.26	19.8	41.84	P<0.001***
Overall	47.4	2.42	25.2	1.95	22.2	48.69	P<0.001***

Table-4.C.13 depicts the comparison of mean post test scores regarding postoperative outcome between experimental 1st and 2nd group [t =48.69 p < 0.001]. Thus, the preoperative comprehensive nursing interventions were effective among patients undergoing cardiac surgery in the experimental group. Hence, the research hypothesis (H₁) accepted

TABLE-4.C.14: PAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POST-TEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 1st AND 3rd EXPERIMENTAL GROUP.

n = 30

Postoperative outcome	Experimental 1 st post test		Experimental 3 rd post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.73	0.94	6.5	0.57	4.77	24.34	P<0.001***
Pain	9.4	0.56	1.73	0.691	7.67	59.04	P<0.001***
Anxiety	36.27	2.07	13.23	1.91	23.03	45.07	P<0.001***
Overall	47.4	2.42	21.47	1.96	25.93	50.45	P<0.001***

Table 4.C.14 depicts the comparison of mean post test scores regarding postoperative outcome between experimental 1st and 3rd group [t =50.45 p < 0.001]. Thus, the preoperative comprehensive nursing interventions were effective among patients undergoing cardiac surgery in the experimental group. Therefore the research hypothesis (H₂) is accepted.

TABLE-4.C.15: PAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POST-TEST SCORE OF POST- OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 2nd AND 3rd EXPERIMENTAL GROUP.

n =30

Postoperative outcome	Experimental 2 nd post test		Experimental 3 rd post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	4.47	0.63	6.5	0.57	2.03	26.92	P<0.001***
Pain	4.27	0.91	1.73	0.691	2.53	17.87	P<0.001***
Anxiety	16.47	2.26	13.23	1.91	3.23	7.20	P<0.001***
Overall	25.2	1.95	21.4	1.96	3.73	8.49	P<0.001***

Table -4.C.15 depicts the comparison of mean post test scores regarding postoperative outcome between experimental 2nd and 3rd group [t =8.49 p < 0.001]. Thus, the pre-operative comprehensive nursing interventions were effective among patients undergoing cardiac surgery in the experimental group. Hence, the research hypothesis (H₂) is accepted.

TABLE-4.C.16: UNPAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POST TEST SCORE OF POST OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 1st CONTROL AND 1st EXPERIMENTAL GROUP.

N =60

Postoperative outcome	Control 1 st post test		Experimental 1 st post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.63	0.93	1.73	0.94	0.1	0.413	0.681
Pain	9.47	0.57	9.4	0.56	0.67	0.455	0.651
Anxiety	36.3	2.15	36.27	2.07	0.067	0.122	0.903
Overall	47.4	2.39	47.4	2.42	0.03	0.05	0.957

Table 4.C.16 : Reveals the comparison of mean post-test scores regarding post operative outcome between control 1st and experimental 1st group. The findings showed the obtain overall ‘t’ value 0.05 which is statistically significant at ($p < 0.957$). Thus, the research hypothesis (H_2), is accepted.

TABLE-4.C.17: UNPAIRED ‘T’-TEST SHOWING THE COMPARISON OF MEAN POST TEST SCORE OF POST OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 2nd CONTROL AND 2ndEXPERIMENTAL GROUP.

N =60

Postoperative outcome	Control 2 nd post test		Experimental 2 nd post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.67	0.92	4.47	0.63	2.8	13.74	P<0.001***
Pain	9.43	0.50	4.27	0.91	5.17	27.26	P<0.001***
Anxiety	36.4	2.09	16.47	2.26	19.93	35.47	P<0.001***
Overall	47.5	2.47	25.2	1.95	22.3	38.73	P<0.001***

Table 4.C.17: Reveals the comparison of mean post-test scores regarding post operative outcome between control 2nd and experimental 2nd group. The findings showed the obtain overall ‘t’ value 38.73 which is statistically significant at (p< 0.001). Thus the research hypothesis (H₂) is accepted.

TABLE-4.C.18: UNPAIRED ‘T’ - TEST SHOWING THE COMPARISON OF MEAN POST TEST SCORE OF POST OPERATIVE OUTCOME AMONG PATIENTS UNDERGOING CARDIAC SURGERY IN 3rd CONTROL AND 3rd EXPERIMENTAL GROUP.

N= 60

Postoperative outcome	Control 3 rd post test		Experimental 3 rd post test		Mean difference	‘t’-value	P-value
	Mean	SD	Mean	SD			
Functional ability	1.73	0.91	6.5	0.57	4.77	24.34	P<0.001***
Pain	9.43	0.50	1.73	0.691	7.7	49.28	P<0.001***
Anxiety	36.4	2.11	13.23	1.91	23.17	44.62	P<0.001***
Overall	47.57	2.33	21.47	1.96	26.1	46.95	P<0.001***

Table 4.C.18. Reveals the comparison of mean posttest scores regarding post operative outcome between control 3rd and experimental 3rd group. The findings showed the obtain overall ‘t’ value 46.95 which is statistically significant at (p< 0.001). Thus, the research hypothesis (H₂) is accepted.

SECTION D: Data on association between the postoperative outcome among cardiac surgery patients with selected demographic variables

TABLE 4 D.1 ASSOCIATION BETWEEN FUNCTIONAL ABILITY LEVEL IN CONTROL 2nd POST TEST AND SELECTED DEMOGRAPHIC DATA

N= 60

Demographic variables	High		Moderate		Low		χ^2 (df)	p-value
	f	%	f	%	f	%		
1.Age in years :								
1. 30-40	1	3.3	0	0	-	-	0.21	0.900
2. 41-50	17	56.7	1	3.3	-	-	(df=2)	NS
3. Above 51	10	33.3	1	3.3	-	-		
2.Gender :								
1. Male	21	70	2	6.7	-	-	0.65	0.419
2. Female	7	23.3	0	0	-	-	(df=1)	NS
3.Religion :								
1. Christian	16	53.3	2	6.7	-	-	1.45	0.490
2. Hindu	2	6.7	0	0	-	-	(df=2)	NS
3. Muslim	10	33.3	0	0	-	-		
4.Education of status:								
1. Primary	5	16.7	0	0	-	-	2.45	0.485
2. High	12	40	2	6.7	-	-	(df=3)	NS
3. College	3	10	0	0	-	-		
4. Uneducated	8	26.7	0	0	-	-		
5.Marital status:								
1. Married	1	3.3	0	0	-	-		
2. Un married	27	90	2	6.7	-	-	0.073	0.786
3. Widow	0	0	0	0	-	-	(df=2)	NS

6.Occupation:								
1. Coolie	0	0	0	0	-	-	0.804	0.669
2. Private employee	11	36.7	1	3.3	-	-	(df=2)	NS
3. Government employee	8	26.7	0	0	-	-		
4. House wife	9	30	1	3.3	-	-		
5. Retired	0	0	0	0	-	-		
7.Income:								
1. <100-4000	5	16.7	1	3.3	-	-	2.14	0.543
2. 4001-8000	9	30	1	3.3	-	-	(df=3)	NS
3. 8001-12000	11	36.7	0	0	-	-		
4. Above 12000	3	10	0	0	-	-		
8.Habit :								
1. Smoking	13	43.3	0	0	-	-		
2. Alcoholism	11	36.7	0	0	-	-	8.57	0.014*
3. Both	4	13.3	2	6.7	-	-	(df=2)	S
9.Family History :								
1. Yes	23	76.7	1	3.3	-	-	1.205	0.272
2. No	5	16.7	1	3.3	-	-	(df=1)	NS
10.BMI :								
1. Under Weight	0	0	0	0	-	-	0.27	0.605
2. Normal	19	63.3	1	3.3	-	-	(df=1)	NS
3. Over weight	9	30	1	3.3	-	-		
4. Obese	0	0	0	0	-	-		
11.Diagnosis :								
1. Coronary artery disease	23	76.7	2	6.7	-	-	0.43	0.807
2. Myocardial infraction	2	6.7	0	0	-	-	(df=2)	NS
3. Valvular disorder	3	10	0	0	-	-		
12.Co-morbidities :								
1. Diabetes Mellitus	0	0	0	0	-	-	0	1
2. Hypertension	28	93.3	2	6.7	-	-		NS
3. BOTH	0	0	0	0	-	-		

NS-Not significant, S-significant.

Table 4.D1 represents the association between post- operative outcome among undergoing cardiac surgery patients with selected demographic variables in control group.

There was association found between post-operative outcome among undergoing cardiac surgery patients, except with the habit of the clients in the control group. Hence the research hypothesis (H_1) is accepted.

TABLE 4.D.2: ASSOCIATION BETWEEN PAIN LEVEL IN CONTROL 2nd POST TEST AND SELECTED DEMOGRAPHIC DATA

N=60

Demographic variables	Severe		Worst		χ^2 (df)	p-value (N/NS)
	f	%	f	%		
1.Age in years :						
1. 30-40	0	0	1	3.3	5.24	0.073
2. 41-50	8	26.7	10	33.3	(df=2)	NS
3. Above 51	9	30	2	6.7		
2. Gender :						
1. Male	13	43.3	10	33.3	0.008	0.977
2. Female	4	13.3	3	10	(df=1)	NS
3.Religion :						
1. Christian	10	33.3	8	26.7	1.72	0.423
2. Hindu	2	6.7	0	0	(df=2)	NS
3. Muslim	5	16.7	5	16.7		
4.Education of status:						
1. Primary	3	10	2	6.7	2.04	0.565
2. High	7	23.3	7	23.3	(df=3)	NS
3. College	1	3.3	2	6.7		
4. Uneducated	6	20	2	6.7		
5.Marital status:						
1. Married	0	0	1	3.3	1.35	0.245
2. Un married	17	56.7	12	40	(df=1)	NS
3. Widow	0	0	0	0		
6.Occupation:						
1. Coolie	0	0	0	0	5.49	0.064
2. Private employee	7	23.3	5	16.7	(df=2)	NS
3. Government employee	2	6.7	6	20		
4. House wife	8	26.7	2	6.7		
5. Retired	0	0	0	0		

7.Income:						
1. 100-4000	4	13.3	2	6.7	0.567	0.904
2. 4001-8000	5	16.7	5	16.7	(df=3)	NS
3. 8001-12000	6	20	5	16.7		
4. Above 12000	2	6.7	1	3.3		
8.Habit :						
1. Smoking	7	23.3	6	20	0.307	0.858
2. Alcoholism	6	20	5	16.7	(df=2)	NS
3. Both	4	13.3	2	6.7		
9.Family History :						
1. Yes	13	43.3	11	36.7	0.305	0.580
2. No	4	13.3	2	6.7	(df=1)	NS
10.BMI :						
1. Under Weight	0	0	0	0		
2. Normal	11	36.7	9	30	0.07	0.794
3. Over weight	6	20	4	13.3	(df=1)	NS
4. Obese	0	0	0	0		
11.Diagnosis :						
1. Coronary artery disease	12	40	13	43.3	4.59	0.101
2. Myocardial infraction	2	6.7	0	0	(df=2)	NS
3. Valvular disorder	3	10	0	0		
12.Co-morbidities :						
1. Diabetes Mellitus	0	0	0	0		1
2. Hypertension	17	56.7	13	43.6	0	NS
3. BOTH	0	0	0	0		

NS-Not significant, S-significant.

Table 4.D.2 represents the association between level of pain in post- operative outcome among undergoing cardiac surgery patients with selected demographic variables in control group.

There was no association found between level of pain in post –operative outcome among undergoing cardiac surgery patients in control group. Thus the research hypothesis (H_1) is Rejected.

**TABLE 4.D 3: ASSOCIATION BETWEEN ANXIETY LEVEL IN CONTROL
2nd POST TEST AND SELECTED DEMOGRAPHIC DATA**

N=60

Demographic variables	Moderate		Extreme		χ^2 (df)	p-value (N/NS)
	f	%	f	%		
1.Age in years :						
1. 30-40	0	0	1	3.3	15.39	0.001***
2. 41-50	18	60	0	0	(df=2)	S
3. Above 51	10	33.3	1	3.3		
2.Gender :						
1. Male	21	70	2	6.7	0.652	0.419
2. Female	7	23.3	0	0	(df=1)	NS
3.Religion :						
1. Christian	16	53.3	2	6.7	1.45	0.490
2. Hindu	2	6.7	0	0	(df=2)	NS
3. Muslim	10	33.3	0	0		
4.Education of status:						
1. Primary	5	16.7	0	0	1.014	0.798
2. High	13	43.3	1	3.3	(df=3)	NS
3. College	3	10	0	0		
4. Uneducated	7	23.3	1	3.3		
5.Marital status:						
1. Married	1	3.3	0	0	0.07	0.786
2. Un married	27	90	2	6.7	(df=1)	NS
3. Widow	0	0	0	0		
6.Occupation:						
1. Coolie	0	0	0	0	1.47	0.479
2. Private employee	12	40	0	0	(df=2)	NS
3. Government employee	7	23.3	1	3.3		
4. House wife	9	30	1	3.3		
5. Retired	0	0	0	0		

7.Income:						
1. 100-4000	6	20	0	0	4.67	0.197
2. 4001-8000	10	33.3	0	0	(df=3)	NS
3. 8001-12000	10	33.3	1	3.3		
4. Above 12000	2	6.7	1	3.3		
8.Habit :						
1. Smoking	13	43.3	0	0	1.99	0.368
2. Alcoholism	10	33.3	1	3.3	(df=2)	NS
3. Both	5	16.7	1	3.3		
9.Family History :						
1. Yes	23	76.7	1	3.3	1.205	0.272
2. No	5	16.7	1	3.3	(df=1)	NS
10.BMI :						
1. Under Weight	0	0	0	0	0.27	0.605
2. Normal	19	63.3	1	3.3	(df=1)	NS
3. Over weight	9	30	1	3.3		
4. Obese	0	0	0	0		
11.Diagnosis :						
1. Coronary artery disease	23	76.7	2	6.7	0.428	0.807
2. Myocardial infraction	2	6.7	0	0	(df=2)	NS
3. Valvular disorder	3	10	0	0		
12.Co-morbidities :						
1. Diabetes Mellitus	0	0	0	0	0	1
2. Hypertension	28	93.3	2	6.7		NS
3. BOTH	0	0	0	0		

NS-Not significant, S-significant.

Table 4.D.3 represents the association between anxiety level in post- operative outcome among undergoing cardiac surgery patients with selected demographic variables in control group.

There was association found between post –operative outcome among undergoing cardiac surgery patients in control group except with the age of the clients in the control group. Thus the research hypothesis (H_2) is accepted.

**TABLE 4. D.4: ASSOCIATION BETWEEN FUNCTIONAL ABILITY LEVEL
IN EXPERIMENTAL 2nd POST TEST AND SELECTED DEMOGRAPHIC
DATA.**

N=60

Demographic variables	High		Moderate		Low		χ^2 (df)	p-value (N/NS)
	f	%	f	%	f	%		
1.Age in years :								
1. 30-40	-	-	0	0	0	0	0.79	0.374
2. 41-50	-	-	1	3.3	16	53.3	(df=1)	NS
3. Above 51	-	-	0	0	13	43.3		
2.Gender :								
1. Male	-	-	1	3.3	18	60	0.59	0.439
2. Female	-	-	0	0	11	36.7	(df=1)	NS
3.Religion :								
1. Christian	-	-	0	0	22	73.3	4.14	0.126
2. Hindu	-	-	0	0	2	6.7	(df=2)	NS
3. Muslim	-	-	1	3.3	5	16.7		
4.Education of status:								
1. Primary	-	-	0	0	0	0	1.35	0.508
2. High	-	-	1	3.3	12	40	(df=2)	NS
3. College	-	-	0	0	14	46.7		
4. Uneducated	-	-	0	0	3	10		
5.Marital status:								
1. Married	-	-	0	0	1	3.3	0.04	0.850
2. Un married	-	-	1	3.3	28	93.3	(df=1)	NS
3. Widow	-	-	0	0	0	0		
6.Occupation:								
1. Coolie	-	-	0	0	0	0	2.07	0.355
2. Private employee	-	-	1	3.3	9	30	(df=2)	NS
3. Government employee	-	-	0	0	7	23.3		
4. House wife	-	-	0	0	13	43.3		
5. Retired	-	-	0	0	0	0		

7.Income:								
1. <100-4000	-	-	1	3.3	3	10	6.72	0.081
2. 4001-8000	-	-	0	0	13	43.3	(df=3)	NS
3. 8001-12000	-	-	0	0	12	40		
4. Above 12000	-	-	0	0	1	3.3		
8.Habit :								
1. Smoking	-	-	1	3.3	15	50	0.905	0.636
2. Alcoholism	-	-	0	0	12	40	(df=2)	NS
3. Both	-	-	0	0	2	6.7		
9.Family History :								
1. Yes	-	-	1	3.3	28	93.3	0.04	0.850
2. No	-	-	0	0	1	3.3	(df=1)	NS
10.BMI :								
1. Under Weight	-	-	0	0	0	0	0.69	0.406
2. Normal	-	-	1	3.3	17	56.7	(df=1)	NS
3. Over weight	-	-	0	0	12	40		
4. Obese	-	-						
11.Diagnosis :								
1. Coronary artery disease	-	-	0	0	22	73.3	14.48	0.001**
2. Myocardial infraction	-	-	1	3.3	1	3.3	(df=2)	S
3. Valvular disorder	-	-	0	0	6	20		
12.Co-morbidities :								
1. Diabetes Mellitus	-	-	0	0	0	0	0.315	0.75
2. Hypertension	-	-	1	3.3	22	73.3	(df=1)	NS
3. BOTH	-	-	0	0	7	23.3		

NS-Not significant, S-significant.

Table 4.D.4 represents the association between functional ability of post-operative outcome among undergoing cardiac surgery patients with selected demographic variables in experimental group.

There was association found between post-operative outcome among undergoing cardiac surgery patients in experimental group except with the diagnosis of the clients in the experimental group. Thus the research hypothesis (H₂) is accepted.

TABLE 4.D.5: ASSOCIATION BETWEEN LEVEL OF PAIN IN EXPERIMENTAL 2nd POST TEST AND SELECTED DEMOGRAPHIC DATA.

N=60

Demographic variables	Mild		Moderate		χ^2 (df)	p-value (N/NS)
	f	%	f	%		
1.Age in years :						
1. 30-40	0	0	0	0	1.35	0.245
2. 41-50	17	56.7	1	3.3	(df=1)	NS
3. Above 51	12	40	0	0		
2.Gender :						
1. Male	18	60	1	3.3	0.59	0.439
2. Female	11	36.7	0	0	(df=1)	NS
3.Religion :						
1. Christian	22	73.3	0	0	14.48	0.001**
2. Hindu	1	3.3	1	3.3	(df=2)	S
3. Muslim	6	20	0	0		
4.Education of status:						
1. Primary	0	0	0	0	1.18	0.554
2. High	13	43.3	0	0	(df=2)	NS
3. College	13	43.3	1	3.3		
4. Uneducated	3	10	0	0		
5.Marital status:						
1. Married	1	3.3	0	0	0.04	0.850
2. Un married	28	93.3	1	3.3	(df=1)	NS
3. Widow	0	0	0	0		
6.Occupation:						
1. Coolie	0	0	0	0	1.35	0.508
2. Private employee	10	33.3	0	0	(df=2)	NS
3. Government employee	7	23.3	0	0		
4. House wife	12	40	1	3.3		
5. Retired	0	0	0	0		

7.Income:						
1. 100-4000	4	13.3	0	0	1.35	0.717
2. 4001-8000	12	40	1	3.3	(df=3)	NS
3. 8001-12000	12	40	0	0		
4. Above 12000	1	3.3	0	0		
8.Habit :						
1. Smoking	16	53.3	0	0	1.55	0.460
2. Alcoholism	11	36.7	1	3.3	(df=2)	NS
3. Both	2	6.7	0	0		
9.Family History :						
1. Yes	28	93.3	1	3.3	0.04	0.850
2. No	1	3.3	0	0	(df=1)	NS
10.BMI :						
1. Under Weight	0	0	0	0	1.55	0.213
2. Normal	18	60	0	0	(df=1)	NS
3. Over weight	11	36.7	1	3.3		
4. Obese	0	0	0	0		
11.Diagnosis :						
1. Coronary artery disease	22	73.3	0	0	4.14	0.126
2. Myocardial infraction	2	6.7	0	0	(df=2)	NS
3. Valvular disorder	5	16.7	1	3.3		
12.Co-morbidities :						
1. Diabetes Mellitus	0	0	0	0	0.315	0.575
2. Hypertension	22	73.3	1	3.3	(df=1)	NS
3. BOTH	7	13.3	0	0		

NS-Not significant, S-significant.

Table 4. D.5 represents the association between level of pain in post- operative outcome among undergoing cardiac surgery patients with selected demographic variables in experimental group.

There was association found between level of pain in post –operative outcome among undergoing cardiac surgery patients in experimental group except with the religion of the clients in the experimental group. Thus the research hypothesis (H₂) is accepted.

TABLE 4.D.6: ASSOCIATION BETWEEN ANXIETY LEVEL IN EXPERIMENTAL 2nd POST TEST AND SELECTED DEMOGRAPHIC DATA.

N=60

Demographic variables	Normal		Mild		χ^2 (df)	p-value (N/NS)
	f	%	f	%		
1.Age in years :						
1. 30-40	0	0	0	0	1.35	0.245
2. 41-50	17	56.7	1	3.3	(df=1)	NS
3. Above 51	12	40	0	0		
2.Gender :						
1. Male	18	60	1	3.3	0.59	0.439
2. Female	11	36.7	0	0	(df=1)	NS
3.Religion :						
1. Christian	21	70	1	3.3	0.376	0.829
2. Hindu	2	6.7	0	0	(df=2)	NS
3. Muslim	6	20	0	0		
4.Education of status:						
1. Primary	0	0	0	0	1.35	0.508
2. High	12	40	1	3.3	(df=2)	NS
3. College	14	46.7	0	0		
4. Uneducated	3	10	0	0		
5.Marital status:						
1. Married	1	3.3	0	0	0.04	0.850
2. Un married	28	0	1	3.3	(df=1)	NS
3. Widow	0	0	0	0		
6.Occupation:						
1. Coolie	0	0	0	0	1.35	0.508
2. Private employee	10	33.3	0	0	(df=2)	NS
3. Government employee	7	23.3	0	0		
4. House wife	12	40	1	3.3		
5. Retired	0	0	0	0		

7.Income:						
1. 100-4000	4	13.3	0	0	1.35	0.717
2. 4001-8000	12	40	1	3.3	(df=3)	NS
3. 8001-12000	12	40	0	0		
4. Above 12000	1	3.3	0	0		
8.Habit :						
1. Smoking	15	50	1	3.3	0.905	0.636
2. Alcoholism	12	40	0	0	(df=2)	NS
3. Both	2	6.7	0	0		
9.Family History :						
1. Yes	28	93.3	1	3.3	0.04	0.850
2. No	1	3.3	0	0	(df=1)	NS
10.BMI :						
1. Under Weight	0	0	0	0	1.55	0.213
2. Normal	18	60	0	0	(df=1)	NS
3. Over weight	11	36.7	1	3.3		
4. Obese	0	0	0	0		
11.Diagnosis :						
1. Coronary artery disease	21	70	1	3.3	0.376	0.829
2. Myocardial infraction	2	6.7	0	0	(df=2)	NS
3. Valvular disorder	6	20	0	0		
12.Co-morbidities :						
1. Diabetes Mellitus	0	0	0	0	0.314	0.575
2. Hypertension	22	73.3	1	3.3	(df=3)	NS
3. BOTH	7	23.3	0	0		

NS-Not significant ,S-significant.

Table 4.D.6 represents the association between anxiety level in post- operative outcome among undergoing cardiac surgery patients with selected demographic variables in experimental group.

There was no association found between post –operative outcome among undergoing cardiac surgery patients in experimental group. Thus the research hypothesis (H₂) is Rejected.



Discussion

CHAPTER - V

DISCUSSION

The present study was conducted to assess the impact of pre-operative comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgeries selected hospitals Madurai. After the analysis and interpretation of the data obtained from the samples, the researcher found, there was a significant increase preoperative comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgery.

The discussion was solely based on the objectives and hypotheses specified in this present study.

The first objective of this study was to assess the postoperative outcome among patients undergoing cardiac surgery in the control and experimental group.

Regarding the comparison of mean score difference between experimental and control group, post-test level of post-operative outcome findings showed that the experimental group post- test mean score(21.47 ± 1.96)greater than control group post-test mean score(47.57 ± 2.33)with the mean score difference of 39.

These findings were supported by the study conducted by Ping Guo MSc (2012) on preoperative education program on cardiothoracic unit. A total of 153 patients were recruited to the trial, 77 were randomly allocated to usual care and 76 to preoperative education. Of these, 135 (88.2%) completed the trial. The participants who received preoperative education experienced a greater there was no difference between groups in average pain, current pain, and interference in general activity, mood and walking ability. Patients in the preoperative education group reported less interference from pain in sleeping (mean difference -0.9 points, 95% CI -1.63 to -

0.16: $P=0.02$). There was borderline evidence to suggest a reduced number of hours spent in the ICU among preoperative education patients ($P=0.05$) but no difference in length of postoperative hospital stay ($P=0.17$)

The findings were supported by the study conducted by Wong and Wong and Rice (2007) in studies to assess the effect of preoperative teaching on patient compliance and postoperative exercises were similar to the findings of the present study. These studies have reported that there was a statistically significant ($P<0.001$) increases in the patients' performance of the postoperative activities after preoperative teaching and patients who received preoperative teaching were found to be more satisfied than the patients who did not.

The findings were supported by Klopper, Hanekom and Faure, (2006) studied the effect of a structured teaching and exercise program implemented before CABG surgery. Testing was done on discharge and on follow up 10-14 days later. Functional capacity of subjects in the experimental group was significantly higher than that of those in the control group on discharge ($p =.01$)

Above findings highlight the need for preoperative education program for effective post-operative outcome to holistic care.

The second objective was to determine the effectiveness of comprehensive nursing interventions on post-operative outcome among patients undergoing cardiac surgery between the control group and Experimental groups.

The mean score difference between experimental and control group post- test level of post- operative outcome finding showed that the experimental group post-test mean score(21.47 ± 1.96) was greater than the control group post -test mean score difference of (47.57 ± 2.33) the obtained independent value was 46.95 which showed statistical significance at($p<0.001$) level

The findings were supported by the study conducted by Terry p Haines, Elizabeth H Skinner (2014) to determine the effectiveness of education program on postoperative outcome. Intervention, such as education, delivered prior to surgery to prevent (or) reduce postoperative pulmonary complications and to improve the self care activities.95% have got effective outcome, with the preoperative education and 5% have got in poor outcome overall the patients with the preoperative education program reported higher effectiveness ($p < .001$). Therefore the research hypothesis was accepted.

The findings were supported by the study contacted by C. M. Shuldham, S. Fleming and H. Goodman (2002) to assess the impact of pre-operative education on recovery following coronary artery bypass surgery. Three hundred and fifty-six people were randomized into the study, with 188 in the experimental and 168 in the control groups. Patients in the experimental group received the intervention, a day of education by members of the multidisciplinary team, prior to admission for surgery. Experimental and control subjects had the usual care, which involved education on admission and throughout their stay in hospital. Measurement was conducted on entry to the study, before randomization, and at 3 days, 6 weeks, 3 months and 6 months following operation.

A variety of tools were used: the SF-36 Health Status questionnaire, the Hospital Anxiety and Depression scale, the General Well-Being questionnaire and a pain measurement tool. Analysis was done using the intention-to treat principle and non-parametric statistics. There were no significant differences between groups in the primary outcomes namely anxiety ($P=0.09$) and pain ($P=0.48$). or in depression ($P=0.62$) and wellbeing ('worn out' $P=0.11$); 'tense and uptight' $P=0.29$) 6 months after operation. This was also the case 3 days after coronary artery surgery. There was

a significant difference in length of hospital stay ($P=0.01$) with the experimental group.

The findings were supported by the study was conducted by Fitzsimons et al. (2000), Gallagher & McKinley (2007). who stated that the Patients awaiting for cardiac surgery may experience high levels of anxiety and significant symptoms of depression due to fears, worries and uncertainties in surgery. These can exacerbate symptoms of existing cardiovascular disease; adversely affect physiological parameters before and during anesthesia and result in prolonged recovery, pre-operative education delivered prior to surgeries to reduce postoperative anxiety and depression. To improve the recovery, outcome were 93% and 7% in the patients with the preoperative education program reported higher effectiveness ($p<.001$). Therefore the research hypothesis was accepted.

The findings were supported by the study conducted by Andrew et al.(2000), Pignay-Demaria et al. (2003). The evidence shows that the preoperative education interventions can lead to improved patient experiences and positive postoperative outcomes among a mix of general surgical patients by providing Healthcare-relevant information, coping skills and psychosocial Support before surgery.85% were positive outcome, and 15% were negative outcome. Overall, the patients with the preoperative intervention reported that higher the positive outcome with the preoperative intervention ($p<000.1$) Therefore the research hypothesis was accepted.

The findings were supported by the study conducted by Shuldham (2001) to evaluate the pre-operative education for those undergoing cardiac surgery. It suggested that there was a limited evidence to support the positive impact of preoperative education on patient's recovery from cardiac surgery. 91% were adequate recovery with educational program, 3% were moderately. recovery, and 5% were

inadequate recovery. The result was higher with preoperative education ($p < 0.0001$), Therefore the research Hypothesis (H_1) was accepted.

It is inferred that the preoperative comprehensive nursing interventions was significantly effective in improving the post-operative outcome among patients undergoing cardiac surgeries.

The third objective was to find out the association between the post-test level of post-operative outcome with demographic variables among experimental and control groups.

The obtained chi-square value showed that there was no significant association between the impact of post-operative outcome with selected demographical variables other than the age and habit of the clients. The chi square value is (0.001) (0.014) in the control group.

The obtained chi-square value showed that there was no significant association between the impact of post-operative outcome with selected demographical variables other than religion and diagnosis. The chi square value is 0.001 in the experimental group.

The results showed that the functional ability level on subjects about self-care activities before the teaching was satisfactory. Some of them showed good and very few showed unsatisfactory level of performance.

The findings of this study was consistent with Prodan- Bhalla N, Macka M (2012) who conducted a study on cardio thoracic surgical unit, on post-operative recovery outcome who were receiving pre-operative comprehensive interventions program. The study revealed that the demographic characteristics were similar between groups.



*Summary and
Recommendations*

CHAPTER - VI

SUMMARY AND RECOMMENDATION

The essence of any research project lies on reporting and findings. This chapter gives a brief account of the present study including conclusions drawn from the findings, recommendations, limitations of the study, suggestion for future studies and nursing implication.

SUMMARY

The focus of the study was to assess the impact of preoperative comprehensive nursing intervention on post-operative outcome among patients undergoing cardiac surgery in selected hospitals Madurai 2017.

The objective of this study is

1. To assess the post-operative outcome among patients undergoing cardiac surgery in the control and experimental group.
2. To determine the effectiveness of comprehensive nursing intervention on post-operative outcome among patients undergoing cardiac surgery between the control group and experimental group.
3. To associate the post-operative outcome of patient undergoing cardiac surgery with their demographic variable.

The research hypotheses state that

H₁ : The mean post-test score on post-operative outcome of experimental group is significantly higher than in mean post test score on postoperative outcome of control group among patients undergoing cardiac surgeries.

H₂: There is a statically significant positive impact of on post-operative outcome among patient those who had undergone pre-operative comparing nursing intervention. Then those who not undergone.

MAJOR FINDINGS OF THE STUDY

The finding shows that the over all post test score mean 71% was in control and 32% was is experimental with the mean score difference of 39,which implies that the post operative outcome indulging cardiac surgery were effective.

The paired 't' fest score with in the experimental group regarding post operative outcome of cardiac surgery clients was 8.49 and $p < 0.001$ at $p < 0.000$ level indicates that the difference in considered to be highly significant.

The finding reveals that all over all unpaired "t" values was 46.95, which showed a highly statistical significant at $p < 0.001$ level. Here, it was inferred that the comprehensive nursing intervention highly significant effective in improving the post operative outcome among cardiac undergoing patients in experimental group compared to the control group.

Limitation

1. This study is limited to asses only the patients undergoing for cardiac surgery.
2. The sample size was only 60.
3. The investigator faced difficulty in first few days of data collection to get the cooperation and receptiveness from the sample.

IMPLICATIONS

The findings of this study have several implications in the following field, it can be discussed on four areas are recommended the following implications such as,

- Nursing practice
- Nursing education
- Nursing administration
- Nursing research

Nursing Practice

1. The preoperative comprehensive nursing intervention can be used among patients undergoing cardiac surgeries to improve the post operative outcome.
2. The finding helps the nursing personnel to estimate the impact of preoperative comprehensive nursing intervention.
3. The findings of this study enlighten the fact that a pre -operative comprehensive nursing intervention was effective in promoting post operative outcome for patients undergoing cardiac surgeries.
4. Nurses can utilize the pre -operative comprehensive nursing intervention to have effective post -operative outcome undergoing cardiac surgeries patients in clinical practice.
5. It helps to improve the standard of providing nursing care by implementing evidence based practice.

Nursing Education

1. This study enables the student to compare the efficacy of pre operative education program with other education strategies.
2. This study enhances the nursing student to acquire knowledge about pre operative education program and understands about the need for patients undergoing cardiac surgeries.
3. The nursing curriculum can include evidence based research studies related to post operative outcomes for patients undergoing cardiac surgeries.

4. This study provides the basis for meeting the holistic needs for patients undergoing cardiac surgeries and to receive quality of care.

Nursing Administration

1. The present study helps the nursing administrators to encourage the nurses to implement post operative outcome tool for patients undergoing cardiac surgeries in cardiac surgery unit in clinical settings.
2. The findings of the study helps the administrator to arrange a continuing education program for nurses regarding alternative education techniques for patients undergoing cardiac surgeries.
3. Optimizing the knowledge and practice in using pre operative education program among nurses will develop their professional status, their dignity and will save the lives of people.

Nursing Research

1. The finding of this study helps to expand the scientific body of professional knowledge upon for further research.
2. Large scale studies can be conducted in the consideration of other contributing variables.
3. This study helps the nurse researcher to develop insight in the development of other research methods and set information for various settings towards promotion of healthy life.

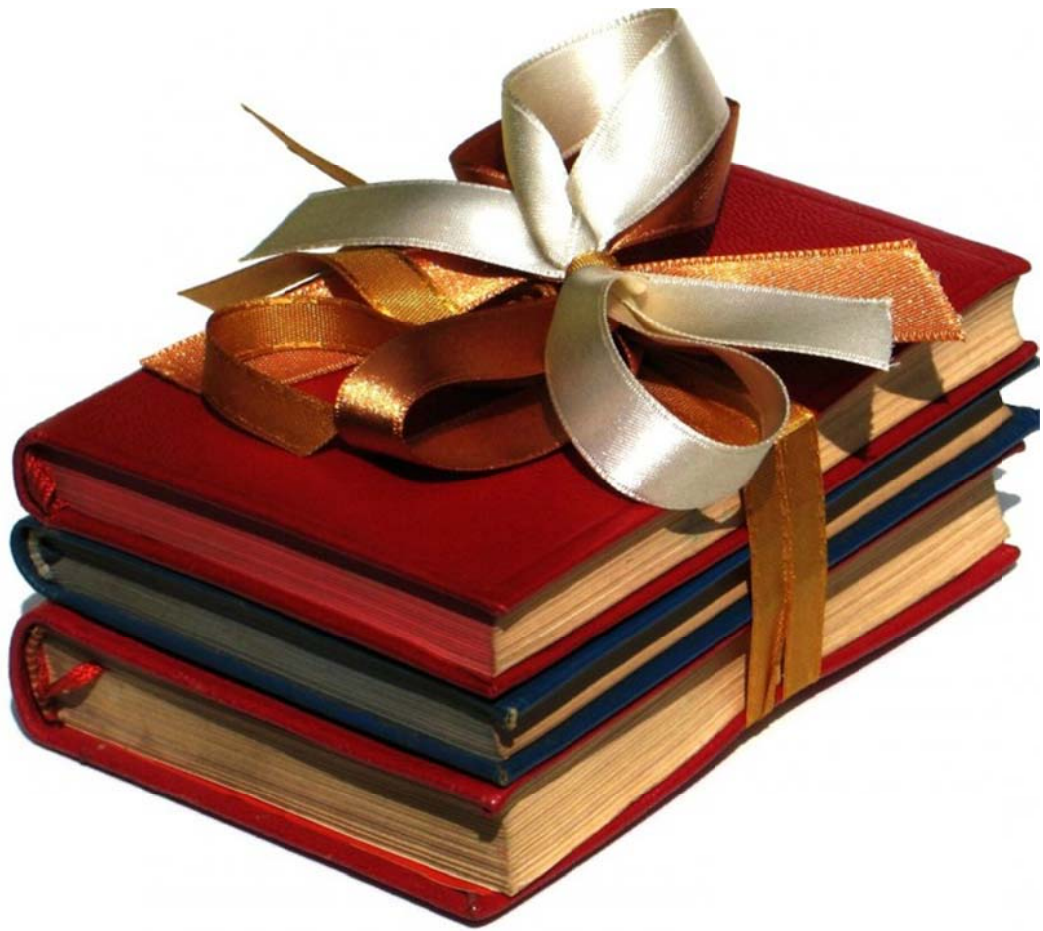
CONCLUSION

The main conclusion of this study showed that the efficacy of post- operative outcome tool is very important for patients undergoing cardiac surgery to receive holistic care. The investigator assures that, every nursing personnel who have been taken part in this study will perform a greater part in using pre- operative education program as effective in better post- operative outcome.

RECOMMENDATIONS

This study recommended the following suggestions:

1. A similar study needs to be conducted in various settings in order to draw generalization of the findings
2. A similar study may be done with larger sample for the generalization of results.
3. A comparative study can be conducted between pre operative education program and other educational techniques.



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Appendices

APPENDIX-A

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

M. Angelin Ponmani,
II Year M.Sc. (Medical Surgical Nursing),
C.S.I. Jeyaraj Annapackiam College of Nursing,
Pasumalai,
Madurai-4.

To

Respected Sir/Madam,

Sub: Requisition for opinion and suggestion of experts for content validity of research tool.

With due regards, I kindly bring to your valuable notice that, I am doing my post-graduation in nursing at C.S.I. Jeyaraj Annapackiam College of Nursing, Pasumalai, Madurai. I have selected the below mentioned topic for dissertation to be submitted to The Tamil Nadu Dr.M.G.R. Medical University, Chennai as a partial fulfillment of Master of Science in Nursing.

A Study to Assess the Impact of Preoperative Comprehensive Nursing Intervention on Post operative outcome among Patients Undergoing Cardiac Surgery at selected hospitals in Madurai.2017

Kindly validate the tool and render your expert opinion in this regard. I am thankful to you for spending valuable time for the validation of this tool. I will be grateful to you.

Thanking You

Place: Pasumalai.

Yours sincerely,

Date:

(M. ANGELIN PONMANI)

APPENDIX-B

LETTER SEEKING PERMISSION TO CONDUCT PILOT STUDY

From

M.Angelin Ponmani,
II Year M.Sc. (Medical Surgical Nursing),
C.S.I. Jeyaraj Annapackiam College of Nursing,
Pasumalai,
Madurai-4.

To

Forwarded through,

The Principal,
Prof.Dr.Mrs.C.Jothi Sophia, M.Sc. (N). Ph.D. (N).
C.S.I.Jeyaraj Annapackiam College of Nursing,
Pasumalai
Madurai-4.

Respected Sir/Madam,

Sub: seeking permission to conduct the pilot study

With due regards, I kindly bring to your valuable notice that, I am doing my post-graduation in nursing at C.S.I. Jeyaraj Annapackiam College of Nursing, Pasumalai, Madurai. I have selected the below mentioned topic for dissertation to be submitted to The Tamil Nadu Dr.M.G.R. Medical University, Chennai as a partial fulfillment of Master of Science in Nursing.

A Study to Assess the Impact of Preoperative Comprehensive Nursing Intervention on Post operative outcome among Patients Undergoing Cardiac Surgery at selected hospitals in Madurai.2017.

I have planned to do my pilot study in your esteemed institution. So I humbly request you to give me permission to conduct the study for which I remain grateful.

Thanking You

Place: Pasumalai.

Yours sincerely,
(M.Angelin ponmani)

APPENDIX-C

LETTER SEEKING PERMISSION TO CONDUCT THE RESEARCH STUDY

From

M.Angelin ponmani
II Year M.Sc. (Medical Surgical Nursing),
C.S.I. Jeyaraj Annapackiam College of Nursing,
Pasumalai,
Madurai-4.

To

Forwarded through,

The Principal,
Prof.Dr.Mrs.C.Jothi Sophia, M.Sc. (N). Ph.D. (N).
C.S.I.Jeyaraj Annapackiam College of Nursing,
Madurai-4.

Respected Sir/Madam,

Sub: seeking permission to conduct the research study.

With due regards, I kindly bring to your valuable notice that, I am doing my post-graduation in nursing at C.S.I.Jeyaraj Annapackiam College of Nursing, Pasumalai, Madurai. I have selected the below mentioned topic for dissertation to be submitted to The Tamil Nadu Dr.M.G.R.Medical University, Chennai as a partial fulfillment of Master of Science in Nursing.

A Study to Assess the Impact of Preoperative Comprehensive Nursing Intervention on Post operative outcome among Patients Undergoing Cardiac Surgery at selected hospitals in Madurai.2017

I have planned to do my research study in your esteemed institution. So I humbly request you to give me permission to conduct the study for which I remain grateful.

Thanking You

Place: Pasumalai.

Date:

Yours sincerely,

M.Angelin ponmani

APPENDIX-D

CERTIFICATE OF VALIDATION

This is to certify that the tool developed by MS. M. ANGELIN PONMANI .M.Sc. (N) IInd year of C.S.I. Jeyaraj Annapackiam College of nursing, Madurai. (Affiliated to Dr.M.G.R. Medical university, Chennai) is validated by the undersigned, can proceed with this tool and conduct the main study for a dissertation entitled,

“A STUDY TO ASSESS THE IMPACT OF PREOPERATIVE COMPREHENSIVE NURSING INTERVENTION ON POST OPERATIVE OUTCOME AMONG PATIENTS UNDER GOING CARDIAC SURGERY SELECTED HOSPITAL IN MADURAI”

PLACE:

SIGNATURE:

DATE:

NAME:

DESIGNATION:

ADDRESS:

APPENDIX- E
LIST OF EXPERTS

- 1. Dr.Mrs. Jaya Thanga Selvi M.Sc. (N), Ph.D.,**
H.O.D of Medical Surgical Nursing department,
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai-4.

- 2. Dr.Prof.Mr.John Sam Arun Prabhu, M.Sc(N),Ph.D.,**
HOD of Community Health Nursing Department,
C.S.I Jeyaraj Annapackiam College of Nursing
Madurai,

- 3. Asst Prof . Mrs.Jeyajothi, M.Sc. (N),**
Medical Surgical Department.
C.S.I Jeyaraj Annapackiam college of Nursing,
Madurai-4

- 4. Prof.Mrs.Priscilla, M.Sc. (N)**
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai.

- 5. Dr.Prof.Mrs. Jancy Rachel, M.Sc (N), Ph.D.,**
HOD of Mental Health Nursing Department,
C.S.I. Jeyaraj Annapackiam College of Nursing

- 6. Prof.Mrs. Shanthi, M.Sc(N),**
H.O.D of Obstetrics and Gynecological Nursing,
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai.

- 7. Prof.Mrs. Jessie Metlida , M.Sc(N), Ph.D,**
H.O.D of Child healthl Nursing,
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai

8. **Mrs.Sasikala M.Sc(N),**
LECTURE,
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai.

9. **Prof. Mr. Edwin Rajkumar M.A (Sociology), MSW,**
Department of Sociology,
C.S.I Jeyaraj Annapackiam College of Nursing,
Madurai.

APPENDIX-F

PART I: DEMOGRAPHIC VARIABLES

Instruction:

Please put a tick ✓ mark in the following options.

This section seeks information regarding the selected factors to you. Kindly read all questions carefully and write the right option in the given box. Your answer will be kept confidential.

1. Age in years

a. 30 -40

b. 41 -50

c. Above 51

2. Gender

a. Male

b. Female

3. Religion

a. Christian

b. Hindu

c. Muslim

4. Educational status

a. Primary

b. High school

c. College

d. Uneducated

5. Marital status

a. married

b. Un married

c. widow

6. Occupation

- a. Coolie
- b. Private employee
- c. Government employee
- d. House wife
- e. Retired

7. Income (per month)

- a. 1000-4000
- b. 4001- 8000
- c. 8001-1200
- d. Above 1200

8. Habit of

- a. smoking
- b. Alcoholism
- c. both smoking and alcoholism

9. Family history

- a. yes
- b. no

10. BMI

- a. Under weight (15 – 18.4 Kg/m²)
- b. Normal (18.5 – 24.9 Kg/m²)
- c. Over weight (25 – 30 Kg/ m²)
- d. Obese (31 – 40 Kg/ m²)

11. Diagnosis

- a. Coronary artery disease
- b. Myocardial infarction
- c. Valvular disorder

10. Co-morbidities

- a. Diabetes mellitus
- b. Hypertension
- c. Diabetes mellitus and Hypertension

Section -2

Part –A Functional ability assessment scale

Please put a tick ✓ mark in the following options.

S. NO	LEVEL OF FUNCTION ABILITY	SCORE
1	COMPLETE INDEPENDENCES. All the task that involves as activity is performed with safety,without modifications or helpful resources ,in reasonable time.	7
2	MODIFIED INDEPENDENCES. Able to perform taks with help,needing more time ,but performing with safety and totally independences.	6
3	SUPERVISION. Individuals needs only supervision or verbal commends or models to make the task without necessisty of touch and help and help in only in the preparation of the talk within necessity.	5
4	MINIMUM ASSISTANCE. Need a minimum quantity of assistances ,a simple touch making a possible the perform the activity .	4
5	MODERATE ASSISTANCE. Need a moderate amount of assistances ,more than simply touching 50% of the effort.	3
6	MAXIMUM ASSISTANCE. Utilises less than 50% of the effort necessary to complete the task, but does not need total help.	2
7	TOTAL ASSISTANCE. Total assistances is necessary or the take is not performed .utilises less than 25 % of the effort necessary to make the task.	1

Score

Classification

1-3 (Below 50%)

high functional need

4-5 (51- 75%)

moderate functional need

6-7 (76- 100%)

low functional need

Part –B Pain Scale Assessment

Please put a tick ✓ mark in the following options.

S.NO	LEVEL OF PAIN	SCORE
1	UNABLE TO MOVE (can't move due to unbearable pain)	10
2	SEVERE (Barely talk or move)	9
3	INTENSE (Talking and listening are difficult.)	8
4	UNMANAGEABLE (It keeps me from doing most activities.)	7
5	DISTRESSING (I give up many activities.)	6
6	DISTRACTING (I cannot do some of the activities.)	5
7	Moderate (I am constantly aware of my pain)	4
8	Uncomfortable (My pain bothers me)	3
9	Mild (i am aware of my pain only when I pay attention to it.)	2
10	Minimal (My pain is hardly noticeable)	1
11	No pain (I have no pain .)	0

10 -worst possible pain

8 -9 very severe pain

6-7 severe pain

4-5 moderate pain

1-3 mild pain

0 - no pain .

PART -C ANXIETY SCALE ASSESSMENT.

INSTRUCTION. Select one level of agreement for each statement to indicate how strong you feel.

Please put a tick ✓ mark in the following options.

S.NO	LEVEL OF ANXIETY	NOT AT ALL	A LITTLE	NEITHER	VERY MUCH	EXTREME
1	I Feel afraid for no reason at all.					
2	I feel more nervous and anxious than usual.					
3	I get upset easily feel panickly.					
4	My arms and legs shake and tremble.					
5	I am bothered by handaches, neck and back pains.					
6	I feel weak and get tired easily.					
7	I feel panickly .					
8	I can feel my heart beating fast.					
9	I have to empty my bladder often.					
10	I have nightmares.					

10- 20 NORMAL ANXIETY

21 – 30 MILD TO MODERATE ANXIETY LEVELS

31 – 40 MODERATE TO SEVERE ANXIETY LEVELS

41 - 50 EXTREME ANXIETY LEVELS

பகுதி - 1 தனி நபர் விபரம்

1. வயது வருடத்தில்

- a. 20 - 40 b. 40 - 60 c. 60 - 80 d. 80 க்கு மேல்

2. பாலினம்

- a. ஆண் b. பெண்

3. மதம்

- a. இந்து b. கிறிஸ்தவர் c. முஸ்லீம் d. மற்றவை

4. கல்வித் தகுதி

- a. தொடக்கப்பள்ளி b. நடுநிலைப்பள்ளி
c. மேல்நிலைப்பள்ளி d. கல்லூரி

5. வேலைத்தகுதி

- a. கூலி b. தனியார் ஊழியர்
c. அரசு ஊழியர் d. இல்லத்தரசி/ஓய்வு பெற்றவர்

6. வருமானம்

- a. 1000 - 4000 b. 4000 - 8000
c. 8000 - 12000 d. 12000க்கு மேல்

7. தனிப்பட்ட பழக்கம்

- a. புகைபிடித்தல் b. மது அருந்துதல்
c. புகையிலை பழக்கம் d. மற்றவை

8. தனிப்பட்ட பழக்கம்

- a. புகைபிடித்தல் b. மது அருந்துதல்
c. புகையிலை பழக்கம் d. மற்றவை

9. உடல் பருமனை அறிய

- a. எடை 15-18.4 கி/m² b. சாதாரணம் 18.5-24.9 கி/m²
c. அதிக எடை 25-30 கி/m² d. மிகவும் குண்டான 31-40 கி/m²

10. **பிற நோய்**

- a. கரோனரி இதய நோய்
- b. பிறப்பின் போது உள்ள இதய குறைபாடு
- c. மையோ கார்டியல் இதய நோய்
- d. ரொமாடிசு இதய நோய்

11. **அறுவை சிகிச்சையின் வகைகள்**

- a. இதய மாற்றம்
- b. கரோனரி இதய பைபாஸ் ஊழல்
- c. மற்ற அறுவை சிகிச்சைகள்

பதட்டத்தின் நிலை

வ. எண்	பதட்டத்தின் நிலை	எந்த நேரமும் இல்லை	சிறிது நேரம்	சில நேரங்கள் மட்டும்	நீண்ட நேரம்	எல்லா நேரங்களிலும்
1	காரணம் இல்லாமல் நான் பயப்படுகிறேன்					
2	வழக்கத்திற்கு மாறாக பதட்டமாகவும் ஆர்வமாகவும் இருக்கிறேன்					
3	நான் எளிதாக பதட்டம் அடைவேன்					
4	நான் எளிதாக வருத்தம் அடைவேன்					
5	என்னுடைய கால்கள் குலுங்கி நடுங்கும்					
6	நான் என்னுடைய தலை வலி, கழுத்து வலி, முதுகு வலி பற்றி கவலைபடுவது உண்டு					
7	எளிமையாக பலவீனமாகவும், சோர்வாகவும் அடைவதை உணர்வேன்					
8	வேகமாக இதய துடிப்பை என்னால் உணர முடியும்					
9	அடிக்கடி என்னுடைய சிறுநீர்ப்பையை காலியாக வைக்க வேண்டும்					
10	எனக்கு கனவு வருவதுண்டு					

பிரிவு 2 செயல்பாட்டு மதிப்பீடு

வ. எண்	செயல் திறனின் அளவுகோல்	மதிப்பெண்
1	<u>முழுமையான சுதந்திரம்</u>	7
2	<u>வளர்ச்சி அடைதல்</u> உதவி செய்யும் நோக்கில் ஒரு செயலை செய்வது	6
3	<u>மேற்பார்வை</u> ஒவ்வொருவருக்கும் ஒரு மேற்பார்வை அல்லது கட்டளை தேவை	5
4	<u>சிறிது உதவி</u> ஓரளவு உதவி தேவை	4
5	<u>ஓரளவு உதவி</u> 50% உதவி தேவை	3
6	<u>அதிக உதவி</u> 50% முயற்சி ஒரு செயலை செய்ய தேவை	2
7	<u>முழுமையான உதவி</u> முழு உதவியும் தேவை	1

பிரிவு - 2

வலி அளவில் மதிப்பீடு

வ. எண்	வலியின் அளவு	மதிப்பெண்
1.	<u>நடக்க முடியாத நிலை</u> (அதிகப்படியான வலியின் காரணமாக நடக்கமுடியவில்லை)	10
2.	<u>கடுமையான</u> (ஒரளவு பேச்சு (அ) நகருதல்)	9
3.	<u>தீவிர / கடுமையான</u> (பேசுதல், கவனித்தல், கஷ்டமாக இருக்கிறது)	8
4.	<u>சமாளிக்க முடியாத</u> (வேலைகள் செய்ய முடியாமல் வைக்கிறது)	7
5.	<u>துயரம் / கடுந்துன்பம்</u> (ஏராளமான வேலைகளை விட்டு விடுகிறேன்)	6
6.	<u>கவனம் சிதற செய்தல்</u> (சில வேலைகளை என்னால் செய்ய முடிவதில்லை)	5
7.	<u>மிதமான</u> (தொடர்ந்து என்னுடைய வேதனையை அறிந்து இருக்கிறேன்)	4
8.	<u>சங்கடமான</u> (அதிகப்படியான தொந்தரவு கொடுக்கிறது)	3
9.	<u>லேசான</u> (வலி வரும் போது கவனம் செலுத்த வேண்டும் என்பதை உணர்கிறேன்)	2

10.	<u>குறைந்த</u> (என்னுடைய வலி கடினமாக குறிப்பிடதக்கவையாக இருக்கும்)	1
11.	<u>வலி இல்லை</u> (எனக்கு வலி இல்லை)	0

- 10 - மோசமான சாத்தியமான வலி
- 8-9 - அதிகமான கடுமையான வேதனை
- 6-7 - கடுமையான வேதனை
- 4-5 - மிதமான வேதனை
- 1-3 - லேசான வலி
- 0 - வலி இல்லை