EFFECTIVENESS OF BACK MASSAGE ON THE LEVEL OF ANXIETY AMONG PATIENTS POSTED FOR CARDIAC CATHETERIZATION IN CARDIOLOGY WARD AT GOVERNMENT RAJAJI HOSPITAL, MADURAI.

M. Sc (NURSING) DEGREE EXAMINATION

BRANCH – I MEDICAL SURGICAL NURSING

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MADURAI MEDICALCOLLEGE, MADURAI -20.

A dissertation submitted to

THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY,

CHENNAI – 600 032.

In partial fulfillment of requirement for the degree of

MASTER OF SCIENCE IN NURSING

APRIL – 2016

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ABSTRACT

Title: Effectiveness of Back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward, Government Rajaji Hospital ,Madurai.**Objectives:** Effectiveness of Back massage on level of anxiety in experimental group among patients posted for cardiac catheterization in cardiology ward,Government Rajaji Hospital,Madurai.**Hypotheses :**There is a significant difference between pretest and post-test level of anxiety among patients posted for cardiac catheterization in experimental group in cardiology ward , Government Rajaji Hospital, Madurai. There is a Significant difference between posttest level of anxiety among patients posted for cardiac catheterization in experimental group and control group in cardiology ward,Government Rajaji Hospital,Madurai.There is a significant association between the level of anxiety among patients posted for cardiac catheterization in cardiology ward with their selected socio demographic and clinical variables.**Conceptual frame work**: Modified Wiedenbachs Helping art of clinical nursing theory. **Methodology:** Quantitative approach,True experimental-Pretest and post test control Group design.60 subject selected by simple random sampling method,Conducted in Cardiology ward,Government Rajaji Hospital,Madurai.Pretest conducted by standardized tool.After obtaining consent from all the subjects back massage was given 20 minutes to interventional group. Post test was conducted20 minutes after the intervention for both group.**Results:**Findings revealed, their was significant decrease in level of anxiety after intervention which was confirmed by Paired ‘t’test(t=12.26), Unpaired‘t’test(t=10.32),tested at 0.001 level.Significant association was noted between post test score of Anxiety and socio demographic variables such as age,educational status,Family income,Duration of illness .**Conclusion:**This study shows,Back massage was significantly Reduce the Level of Anxiety Among patients posted for cardiac catheterization.

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Introduction

CHAPTER-I

INTRODUCTION

“Worrying is carrying tomorrow's load with today's strength carrying two days at once. It is moving into tomorrow ahead of time. Worrying doesn't empty tomorrow of its sorrow, it empties today of its strength.

— CORRIE TEN BOOM

“When health is absent……Wisdom cannot reveal itself, art cannot become Manifest, Strength cannot be exerted, Wealth is useless and Reason is powerless. The majority of people who have some illness also experience symptoms of anxiety. There is evidence that those to share similar disturbance in brain chemical function.

Coronary artery disease is a type of blood vessel disorder that is included in the general category of atherosclerosis. The term atherosclerosis is derived from two Greek words: athere, meaning “fatty mush,” and skleros, meaning “hard.” This combination indicates that atherosclerosis begins as soft deposits of fat that harden with age. Atherosclerosis is often referred to as “hardening of the arteries.” Although this condition can occur in any artery in the body, the atheromas have a preference for the coronary arteries. Arteriosclerotic heart disease, cardiovascular heart disease, Ischemic heart disease, coronary heart disease are all terms used to describe this disease process.

Cardiovascular disease is the major cause of death in the United States. Death accounts for 80%. Sudden cardiac death is unexpected death from cardiac causes. Its accounts for approximately 300,000 deaths a year in the United States and 45,000 deaths a year in the Canada. Of these deaths, 56% occur out of the hospital only 20%

are discharged from the hospital without neurologic impairment. Patients with Coronary Artery Disease can be asymptomatic or develop chronic stable angina. Unstable angina and Myocardial infarction are more serious manifestations of Coronary Artery Disease. The American Heart Association estimates that 1.2 million Americans will have Myocardial Infarction annually and about one fourth of these will die in an emergency department or before reaching a hospital. Although the mortality rate from Myocardial Infarction decreased by 26.3% between 1999 and 2002 due to advances in treatment, it remains the leading cause of all cardiovascular disease deaths.

Many risk factors have been associated with Coronary Artery Disease. Risk factors in different populations may vary. For example, major risk factors for Coronary Artery Disease in the United States, such as high serum cholesterol and hypertension, are less prevalent in Japanese and Puerto Rican populations. Risk factors can be categorized as Nonmodifiable and modifiable. Nonmodifiable risk factors are age, gender, ethnicity, family history, and genetic inheritance. Modifiable risk factors include elevated serum lipids, hypertension, tobacco use, physical inactivity, obesity, diabetes, metabolic syndrome, psychologic states, and homocysteine level.

Data on risk factors have been obtained in several major studies. In the Framingham study, 5209 men and women were observed for 20 years. Over time, it was noted that elevated serum cholesterol 240 mg/dl, elevated systolic blood pressure 160 mm Hg, and tobacco use one or more packs a day were positively correlated with an increased incidence of Coronary Artery Disease. Risk screening involves obtaining personal and family health histories. The presence of any cardiovascular symptoms

should be noted Environmental factors, such as eating habits, type of diet, and level of exercise, are assessed to elicit lifestyle patterns. A psychosocial history is included to determine tobacco use, alcohol ingestion, behaviors, recent life stressing events, and the presence of any negative psychologic states e.g., anxiety, depression, hopelessness. This information can give some indication of how disease and lifestyle changes may affect the patient about heart disease

People with coronary artery disease often have hypertension, chest pain, dyspnea, profuse sweating, extreme fatigue, anxiety, Shortness of breath, especially when it feels localized to the middle of the chest, nausea, vomiting, Weakness and tiredness, Faintness or dizziness or other symptoms that may be caused by a life-threatening medical crisis needs to be seen in an emergency room and evaluated immediately. (AHA, 2012).

When a patient has a history of Coronary Artery Disease or Coronary Artery Disease is suspected, the physician will order a variety of studies. After a detailed health history and physical examination, a chest x-ray is usually taken to look for cardiac enlargement, aortic calcifications, and pulmonary congestion. For patients with known Coronary Artery Disease and chronic stable angina, common diagnostic studies include 12-lead ECG, echocardiogram, exercise stress testing, pharmacologic nuclear imaging, and cardiac catheterization.

One of the invasive procedures used in coronary artery disease is cardiac catheterization is to estimate the cardiac output, the amount of blood pumped by the heart per minute.

The history of cardiac catheterization dates back to Claude Bernard (1813-1878), who used it on animal models. Clinical application of cardiac catheterization begins with Werner Forssmann in the 1930s, who inserted a catheter into the vein of his own forearm, guided it fluoroscopically into his right atrium, and took an X-ray picture of it. Forssmann won the Nobel Prize in Physiology or Medicine for this achievement. During World War II, André Frédéric Cournand, a professor at Columbia University College of Physicians and Surgeons who also shared the Nobel Prize, and his colleagues developed techniques for left and right heart catheterization.

Cardiac catheterization uses x-rays to follow dye injected into the heart or the coronary arteries. Coronary arteriography gives as definitive a diagnosis of arterial narrowing and blockage as is possible without major surgery. Nonetheless, its high cost, mortality rate (about 0.1%), and morbidity rate (1%–5%) limit its use as a routine diagnostic tool. Currently, coronary arteriography is most often used in coronary artery disease patients when preparing them for possible bypass grafts or other heart operations. Cardiac catheterization is also used when other tests cannot determine the cause of debilitating cardiac symptoms of ischemia.

Actually, hospitalization and the waiting period for an invasive test or surgery is difficult for all the patients and some research showed that waiting for surgery impairs the quality of life for patients . Knowledge of the patient's educational background is helpful in deciding at what extend the anxiety level. (Caulin-Glaser et al., 2007).Anxiety is a perceived or actual threat of death, pain, possible lifestyle changes, concern over lifestyle changes and prognosis as substantiated by patient's statement of “What is going to happen. The nurse's role is to identify the source of anxiety and assist the patient in reducing it.

If anxiety is caused by lack of information, should provide appropriate instruction to the patients posted for cardiac catheterization. They should answer the patient's questions with clear, simple explanations sufficient to reduce the patient's anxiety. The State Anxiety Inventory was used to measure anxiety.

Reducing level of Anxiety,Complementary therapy is a type of treatment that does not involve medication and surgery, which aims to reduce or eliminate imbalances in the body through a mind, body and spirit approach. There are many effective complementary therapies available for Anxiety.

One of the complementary therapy is Massage therapy, it includes a range of techniques that manipulate the soft tissues and joints of the body. Involving touch and movement, massage is typically delivered with the hands, although elbows, forearms, or feet may be used. Massage also positively affects mental and emotional states. Massage therapy continues to grow in popularity, with most people using massage therapy as a means to reduce anxiety.

Anxiety level was reduced with massage therapy. The authors conducted an experimental study were to examined the effects of massage therapy on anxiety levels. Sixty-three adolescents were enrolled in this study shortly after admission (mean days = 3 +/- 0.48) at a cardiology unit in a large university hospital from February 2008 to June 2009. The authors observed that massage therapy reduced anxiety of this study ($P < .001$). In most cultures, massage treatments are used to alleviate a wide range of symptoms. Although health professionals agree on the use of Nonpharmacologic method for patients with diagnostic procedure. Akçay, M.N. (2010).

Massage causes physiological changes in your body through, there are various forms of therapeutic manipulation of soft tissue have been practiced across cultures for thousands of years. Swedish massage was developed in the 19th century by Per Henrik Ling and introduced as a health care modality in the United States (US) in the 1850s by George and Charles Taylor, two physicians who had studied in Sweden.

Swedish massage has the most extensive evidence based and is the baseline training in most massage schools. Its most recognizable hallmarks are the familiar long, flowing or gliding strokes of effleurage, and the strokes of petrissage that lift, roll, or knead the tissue. Other common Swedish techniques include friction, vibration, and tapotement (percussion or tapping).

Therapeutic touch and massage are of the oldest anxiolytic methods. Bray et al., reported that massage is advantageous for relaxation and pain reduction. However, it is recommended that more researches should be done about how to reduce anxiety in patients with critical care problem admitted in cardiac care units.

Research has proven that massage can reduce stress hormones and physiological reactions, and stimulate the parasympathetic activity of the autonomic nervous system (Ferrell-Torry & Glick 1993, Hulme et al. 1999, Schachner et al. 1998). Massage not only reduces nervous emotions, but also maintains a nice balance of vagus nerve and sympathetic activities; it is good for preventing stress by reducing the anxiety.

1.1 Need For the Study:

"Life is like a game of chess.
To win you have to make a move.
Knowing which move to make comes with IN-SIGHT
and knowledge, and by learning the lessons that are
acculated along the way.
We become each and every piece within the game called life!"

— ALLAN RUFUS

Coronary artery disease is the number one killer in the developed world (WHO, 2007). In the United States, it is estimated that nearly half of today's healthy 40-year-old men and a third of today's healthy 40-year-old women will eventually develop coronary artery disease (Lloyd-Jones et al., 2010).

The proportion of deaths in the United States that are due to coronary artery disease has been decreasing slowly but continuously over the past half-century. Nonetheless, coronary artery disease remains the single most common cause of death in the United States. One fifth of all American deaths are attributed to coronary artery disease, and four fifths of the deaths of people 65 years and older result from the disease (Boudi, 2012; Lloyd-Jones, 2010).

Coronary artery disease is not just an American problems developed throughout the world, its causes more deaths and disabilities and is responsible for more economic costs than any other single illness. Moreover, it is predicted that by the year 2020 coronary artery disease will have become the leading cause of death in the developing world Boutayeb, 2005.

All over the world, more than 150 million patients are suffering from one or more form of coronary heart disease. Approximately 3.8 million men and 3.4 million women worldwide die each year in coronary heart disease. According to global burden of disease, the developing countries contributed 3.5 million to 7.2 million global deaths that occur from coronary heart disease.

Coronary heart disease rates have ranged from 1.6% to 7.4% rural population and 1% to 13.2% in urban populations. It affects the Indian with greater frequency at a younger age than their counterpart in developed countries as well as developing countries. Age standardised Coronary artery disease death rate in people of 30-69 years of 180 per 10,000 in britain, 280 per 100000 in china, and 405 per 10,000 in India. Also 50% coronary heart disease related death in India occur in people less than 70 years of age, where only 22% coronary heart disease death in western countries occur in the age group. Disability adjusted life years lost secondary to coronary heart disease in India have been predicted to increase to 14.4 million in men and 7.7 million in women by 2020.

In 1994, '10% of Cardiac Catheterization were performed in patients with acute MI .Although this is only a small percentage of those patients studied by coronary angiography, the infarction subgroup has been well characterized. The frequency of its use is growing in this group of patients: from 1987 to 1990, the proportion of Medicare patients with infarction who had Cardiac Catheterization increased from 24% to 33%. Infarction patients admitted to hospitals with cardiac Catheterization laboratories are '3 times more likely to undergo angiography than are patients admitted to hospitals without such facilities. Patients treated for MI by invasive cardiologists have a similar likelihood of undergoing angiography as patients

treated by noninvasive cardiologists (68% vs. 59% at Massachusetts General Hospital), but the likelihood of having angioplasty or surgery is higher for patients treated by invasive cardiologists.

Coronary heart disease burden is the states of Tamilnadu accounts more than 6-7 million. There is an estimated 5% death, that is 3-3.5 death are predicted to die Coronary heart disease by 2020.At the institutional level ,around 28,000 patients were treated for coronary heart disease as both inpatient and outpatient every year at Government Rajaji Hospital, Madurai. On an average of Cardiac Catheterization are performed each day with the annual census of 1270.

Admission to the hospital for a diagnostic Cardiac Catheterization can be perceived as a threat to one's health status. Autonomic nervous system arousal, particularly the sympathetic division, can elicit negative physiological and psychological human responses as a reaction to this threat. Main outcome measures: Heart rate, heart rate variability, blood pressure, respiration, peripheral skin temperature, pain perception, and psychological state varies because of anxiety.

Invasive tests like Cardiac Catheterization cause anxiety, fear, that lead to a decrease in quality of life while awaiting the procedure and an increase in complication rates during and after the test. Cardiac Catheterization is the most common test for the diagnosis of cardiovascular diseases, which are the major cause of death in the developed countries and in many developing countries. This test was carried out on more than 1 million people in the United States in 1993 and it is estimated that this number reached 3 million in 2010.

In order to evaluate anxiety before posted for Cardiac Catheterization, questionnaires are filled Using State Trait Anxiety Inventory (STAI), Heikkila et al. reported that 80% of the 243 patients had anxiety because of Cardiac Catheterization. Most carried out a similar study on 30 patients using STAI test and concluded that Cardiac Catheterization causes anxiety and psychological preparation is beneficial in reducing patients' anxiety before Cardiac Catheterization. Same findings were obtained on 60 adult patients scheduled for Cardiac Catheterization by Anderson and Masur.

20-minute back massage appeared to reduce systolic blood pressure in patient's awaiting a diagnostic Cardiac Catheterization, Data collected by state anxiety inventory. There was a significant difference between subject effect for group, with a reduction in systolic blood pressure in the treatment group ($F = 8.6$, $P < .05$). In addition, main effects were noted for time for diastolic blood pressure ($F = 5.44$; $P < .006$), respiration ($F = 10.6$; $P < .005$), total Profile of Mood States score ($F = 5.9$; $P < .001$) and pain perception ($F = 4.09$; $P < .04$) in both groups.

Moyer, C.A., Rounds, J., , J.W. (2004). A Meta-Analysis of Massage Therapy Research. Massage therapy is an ancient form of treatment that is now gaining popularity as part of the Complementary and Alternative Medical Therapy. A meta-analysis was conducted of studies that used Random assignment to test the effectiveness of Massage Therapy. Single applications of Massage therapy reduced state anxiety, blood pressure, and heart rate but not negative mood, immediate assessment of pain, and cortisol level.

Wentworth, L.J., Briese,et al (2009). Massage therapy reduces tension, anxiety, and pain in patients awaiting invasive cardiovascular procedures. 20 minute massage therapy session on pain, anxiety, and tension in patients before an invasive cardiovascular procedure. Experimental Pretest Posttest design through Randomisation. Medical cardiology progressive care units at a Midwestern Academic Medical Center. Patients (N=130) undergoing Invasive CardioVascular procedures. The intervention group received 20 minutes of massage at least 30 minutes before an invasive cardiovascular procedure. Control group patient's received standard Preproceduralcare. Visual Analogue Scales were used to collect verbal numeric responses measuring pain, anxiety, and tension Pre procedure Score for , anxiety, and tension were identified along with an increase in satisfaction for patients who received a 20-minute massage before procedure compared with those receiving standard care.

Studies have shown that massage can reduce pain, BP, heart rate, Cortisol, and Promote sleep and immune function. Patients who are undergoing Cardiac Catheterization and who received a back massage had better moods and lower levels of Perceived anxiety than those who did not. Back massage appeared to reduce Diastolic Blood Pressure, respiration, perceived psychological distress, and pain in the preparatory time for Cardiac Catheterization. Several studies have also reported that massage therapy reduced anxiety of patients with ScapuloCostalSyndrome, Stroke, Hand pain and Constipation. It has also been shown that massage therapy reduces Pain and Anxiety and Improves sleep quality of patient's.

A recent study has reported that massage therapy reduces the Pain and Myofascial tension in patients with Fibromyalgia and improves their mobility, Physical functioning and quality of sleep. Another study has reported that back

massage significantly reduced anxiety in patients with congestive heart failure. Massage seems to relax the muscles and decreases Nor-epinephrine that consequently will result in reduced anxiety.

From the experience of working knowledge in various health care setting,the investigator observed that when the patients are posted for Cardiac Catheterization ,they become anxious, negative thought about the outcome of the procedure as well as future. The Physical symptom of anxiety such as Tachycardia, Palpitations,Tachypnea and Increased blood pressure further increase the workload of the already ailing heart which will hinder the prognosis of the client. Many research found that Back massage has beneficial effects in reducing the anxiety of the clients in a variety of settings and is inexpensive. Being a Non –pharmacological and Non-invasive modality, the investigator felt that it comes within the scope of nursing and wanted to conduct the study to evaluate the effectiveness of Back massage on the level of anxiety among patients posted for Cardiac Catheterization.

1.2 Statement of the Problem:

"A Study to evaluate the effectiveness of Back Massage on the Level of anxiety among patients posted for Cardiac Catheterization in Cardiology ward at Government Rajaji Hospital, Madurai".

1.3 Objectives:

- To assess the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.
- To evaluate the effectiveness of Back massage on level of anxiety in experimental group among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.
- To associate the level of anxiety among patients posted for cardiac catheterization with their selected socio demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai.

1.4 Hypotheses:

- **H_1**-There is a significant difference between pre-test and post-test level of anxiety among patients posted for cardiac catheterization in experimental group in cardiology ward at Government Rajaji Hospital, Madurai.
- **H_2**-There is a Significant difference between posttest level of anxiety among patients posted for cardiac catheterization in experimental group and control group in cardiology ward at Government Rajaji Hospital, Madurai.
- **H_3**-There is a significant association between the level of anxiety among patients posted for cardiac catheterization with their selected demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai.

1.5 Operational Definitions:

Effectiveness:

- In this study, it refers to the outcome of back massage on reducing the level of anxiety among patients posted for Cardiac Catheterization measured by state anxiety inventory scale.

***Back massage*:**

In this study, it refers to Back massage from Sacral area to cervical area delivered 20 Minutes. It includes Effleurage, a slow, gentle, circular and long stroke movement over the back from the palm of the hands. Petrissage-During kneading, the hand should be Moulded movement should be slow. It is performed with the padded palmar surface of the hands .Vibration, a small shaking movement that done with fingertips along the length of the spine which is rapid to create vibration.

Anxiety:

- In this study, it refers to an unpleasant emotional arousal or state of apprehension in anticipation of threatening situations, demands, dangers and outcome is measured by State Anxiety Inventory Scale.

Patients posted for cardiac catheterization:

- In this study, it refers to an invasive diagnostic procedure to diagnose the function of the heart for patients suspected with complaints of cardiac problem.

Cardiology ward:

- In this study, it refers to a ward which is equipped with all necessary equipment and supplies to diagnose the patients with heart problem.

1.6 Assumption:

- Patients posted for Cardiac Catheterization may have varying level of anxiety.
- Patients with Cardiac problem may undergo cardiac catheterization.

1.7 Delimitation:

- The study limited to Patients posted for Cardiac Catheterization in Cardiology ward at Government Rajaji Hospital, Madurai.
- The study period was 4 to 6 weeks.
- Sample size was 60.

1.8 Projected Outcome:

- Backmassage will reduce the level of anxiety among patients posted for Cardiac Catheterization in Cardiology ward at Government Rajaji Hospital Madurai.

Review of Literature

CHAPTER –II

REVIEW OF LITERATURE

A literature review is a "Critical analysis of a segment of a published body of knowledge through summary, Classification and comparison of prior research studies, Review of literature, and theoretical articles," (Wisconsin 2004)

This chapter deals with the information collected in relation to the present study through published and unpublished materials, which provided the foundation to carryout this study.

PART-I

The related literature review for the study is divided in to following heading:

2.1. Literature review related to Cardiac Catheterization related anxiety

2.2. Literature review related to Back massage on anxiety

2.3. Literature review related to use of back massage on anxiety among patients posted for Cardiac Catheterization.

PART-II

2.4. Conceptual Frame Work

2.1 Literature review related to Cardiac Catheterization related anxiety:

Zohreh Khayyam Nekouei et al. (2011). Conducted A Prospective study in Cardiology Hospital at Cham ran for 53 cardiac patients, Non cardiac patient 56 to compared the anxiety among cardiac patients. Subject including109. Data were collected by Cattle anxiety scale. Independent t-test showed a significant difference between the anxiety of cardiac patient's and non-cardiac people ($P < 0.001$).The differences between the amount of obvious anxiety and hidden anxiety in the two groups was significant ($P < 0.001$ for both Group).The study revealed that Angiography, causes anxiety.

Trotter, R. et al. (2011). Conducted A descriptive study performed in Adventist Hospital at Australia to evaluate the effectiveness of Cardiac Catheterization related anxiety among patient's undergoing Percutaneous Coronary intervention. Subject including100. Data collected by spielberger state Anxiety Inventory immediately before the Percutaneous Coronary Intervention. Anxiety score was highest pre procedure (35.72, standard deviation (SD) 11.75), decrease after post procedure time (31.8, SD 10.20) (ANOVA):F=39.72,P <.001).The study concluded that symptoms of anxiety were common, particularly before PCI.

Gallagher, R. et al. (2010). Conducted A Cross sectional study in University Hospital, at Sydney to evaluate the effectiveness of Cardiac Catheterization related anxiety. Subject including 159. Data collected by spielberger state Anxiety Inventory and Faces Anxiety Scale (FAS) and asked to identify their major concern. Anxiety was low to moderate (SAI men 36.44, SD 11.23; FAS median 2, range 1-5) and there was a moderate correlation between the score (r=.521,p=or<.001). Patients most common concern (37%) was Uncertainty about the outcome from the procedure. The

study concluded that many patients have moderate anxiety before Cardiac Catheterization.

Uzun, B. et.al. (2008). Conducted a Cross sectional, Consecutive study in Gulhane Military Medical Academy at Turkey to evaluate the effectiveness of Cardiac Catheterization related anxiety. Subject including 88. Data collected by Spielberger State –Trait Anxiety Inventory scale. Both trait and state anxiety levels were found to be moderate (age = 46, SD = 9, age = 40, SD = 10) and there was a significant relation between state and trait anxiety levels ($r = 0.56$, $p<0.001$). The study recommended that to prevent high level of Cardiac catheterization related anxiety, those patients with trait anxiety score >48 and time on waiting list > 7 days should be managed specifically. The study concluded that reduce score of anxiety encountered patients with Cardiac Catheterization.

Marcia M.Schmidt. et al. (2008). Conducted A Randamised clinical trial study in University of cardiology at Brazil to evaluate the effectiveness of Cardiac Catheterization Related anxiety. Subject including 137. Data collected by Beck Anxiety Inventory Scale. The study found that 29 % presented anxiety. In relation to psychological characteristics their was statistical difference in anxiety (33 % vs. 23% $p=0.03$).The study concluded that in patients undergoing Cardiac Catheterization the level of anxiety were low.

De Jung-Watt WJ. et.al. (2007). Conducted A prospective, observational cohort study in tertiary community Cardiac centre at Toronto to evaluate the effectiveness of Cardiac Catheterization related Anxiety. Subject 120 with Pre-test and post test design. Data collected by Beck anxiety inventory scale. Paired t tests comparing mean anxiety level statistically significant decrease in anxiety level at

(p=.001). The study concluded that waiting for Cardiac Catheterization might have positive impact on Anxiety.

Zhong and Long (2006). Conducted A quasi-experimental study in cardiology ward at southern Taiwan to evaluate the effectiveness of Cardiac Catheterization related Anxiety. Design was one group pre test and post-test (without a control group) using convenience sampling. Data collected by modified State Anxiety Inventory with 4-point Likert scale. The maximum score was 80 points, and the minimum 20; the higher the score, the higher the anxiety. The original version of the SAI had Cronbach α of approximately 0.83–0.92. The Cronbach α for the Chinese version of the modified SAI was 0.90, and test–retest reliability was 0.74. The study concluded that patient's undergoing cardiac catheterization the level of anxiety were high.

2.2 Literature related to Back massage related anxiety:

Emine., Kahve et al (2013).Conducted A Quasi-experimental and cross-sectional study in cancer ward to evaluate the effectiveness of back massage on reducing anxiety among patients receiving chemotherapy. Subject including 40 .Data collected by State Anxiety part of Spielberger State-Trait Anxiety Inventory. The mean anxiety scores decreased in the intervention group patients after chemotherapy (p = .109; effect size = 0.37).The study revealed that, effective use of back massage reduced**.**

Chen WL (2013). Conducted A quasi-experimental study in Graduate Institute of Nursing, at Taiwan to evaluate the effectiveness of back massage on anxiety among congestive heart failure patients. Subject was 64 with one group pretest and posttest design. Data collected by modified State Anxiety Inventory. Male participants revealed a more significant reduction in anxiety than the female participants (F (1, 50)=7.27, p=0.01). Those with severe heart failure reduce the level of anxiety significantly greater responses to back massage. The study concluded that Back massage significantly reduced anxiety in the study population.

Chungnam (2012). Conducted A non-synchronized non-equivalent control group study in National University Hospital at Korea to evaluate the effectiveness of Back Massage among postoperative patient. Subject including 54 with pre and post-test design .Data collected by State-Anxiety Inventory. Twenty-nine patients in the experimental group had a 10 minutes manual back massage stimulation for 5 days from the 1st day to the 5th day after their operation, and 25 patients in the control group did not. The results showed the level of anxiety before back massage (p <0.5),

After massage ($p < .025$).The study concluded that back massage significantly decreased anxiety level associated post operative patient.

Sanying Peng1. (2012). Conducted A randomized clinical trial study in Taiwan, to evaluate the effectiveness of massage on reducing anxiety. Subject including 50. Data collected by State-Trait Anxiety Inventory scale. The scores of the intervention and control groups were both high. The difference within the control group was not statistically significant (P=0.332).whereas the difference in the intervention group was Stastically significant (P=0.022).The study revealed that back massage will not reduced anxiety.

Flavia BaggioNerbasset et al (2011). Conducted A Randamised Clinical trail study in Intensive care unit at Institute of Corçao to evaluate the effectiveness of massage therapy on anxiety among coronary artery bypass graft surgery patient following discharge. Subject including 57. Data collected by state anxiety inventory scale. 40 participants (male: 67.5%, age: 61.9 years ± 8.9 years, body mass index: 27.2 kg/m^2 ± 3.7 kg/m^2) were randomized into control (n = 20) and massage therapy (n = 20) groups. The participants in the massage therapy group had fewer complaints of Anxiety on Day 1 (p=0.006) and Day 2 (p=0.028) in addition, they reported a more effective sleep during all three days (p=0.019) when compared with the participants in the control group. The study concluded that Massage therapy was effective technique, it improved patient recovery from coronary artery bypass graft surgery because it reduced anxiety.

FundaBüyükyılmaz et al. (2011). Conducted A Randamised clinical trail study in Florence Nightingale School of Nursing at Turkey to evaluate the effectiveness of Back Massage on Anxiety among Total Hip or Knee Arthroplasty

Patients. Subject including 60.Data collected by State Anxiety Inventory (SAI). Statistically significant differences in anxiety level (F = 19.13; p = .000). The study concluded that use of back massage decreased anxiety.

Mina Jouzi. (2009). Conducted A Quasi experimental study at Iran to evaluate the effectiveness of massage therapy among stroke patient. Subject including 50 with pre-post design by using Convenience method and patients were divided randomly into two groups. In intervention group massage the patient body 7 times per day. Control group received only the routine management. Data collected by Cattle test, anxiety were evaluated before and the end of study ($p<0.05$).The study concluded that positive effect of massage was decreased anxiety level.

Ebnemcinhar. et. al. (2009). Conducted A Experimental study in elder staying at rest home to evaluate the effectiveness of back massage on anxiety. Data collected by "State-Trait Anxiety Inventory". Back massage was given to the older people at their beds between 18-20 pm three days long for 10 minutes by the researcher. The study revealed that there was statistically significant decreased in level of anxiety after the back massage ($p<0.05$).

Jane, S.W., Wilkie, et al (2009). Conducted A quasi-experimental study in cancer ward at Taiwanese to evaluate the effectiveness of Massage therapy on anxiety among cancer patients with bone metastases with one-group, pretest-posttest design. Data collected by state anxiety inventory. Massage Therapy was shown to have effective immediate [t(29)=16.5, P=0.000; t(29)=8.9, P=0.000], short-term (20-30 minutes) [t(29)=9.3, P=0.000; t(29)=10.1, P=0.000], intermediate (1-2.5 hours) [t(29)=7.9, P=0.000; t(29)=8.9, P=0.000], and long-term benefits (16-18 hours) [t(29)=4.0, P=0.000; t(29)=5.7, P=0.000] on anxiety. The most significant impact

occurred 15 [F=11.5(1,29), P<0.002] or 20 [F=20.4(1,29), P<0.000] minutes after the intervention. The study concluded that statistically significant decreased in level of anxiety after the back massage (p<0.05).

Brent.A. et.al. (2008). Conducted A Randamised quasi experimental study in Rehabilitation centre at south eastern North Carolina to evaluate the effectiveness of back massage on anxiety among cardiac patients after cardiac surgery. Sampling technique was convenience method. The intervention was slow stroke back massage for 30 minutes for 3 days or to have quiet relaxation time (control).Anxiety were assessed following the intervention. The study concluded that Patients in the experimental group were highly satisfied with the intervention.

Garner, B., Phillips et al. (2008). Conducted A prospective, non-randomized study in psychiatric hospital to evaluate the effectiveness of 20 minutes massage therapy on anxiety among young adult admitted inpatient unit. Subject including 60 with pre and post test design. Data collected by The State-Trait Anxiety Inventory were used .There was a significant reduction in self-reported anxiety ($p < 0.001$), immediately following the initial and final massage therapy sessions. Significant improvements in Anxiety scores ($p < 0.001$). The study concluded that anxiety level was decreased after massage young adult psychiatric inpatient unit during their period of hospitalization.

Jean.Kutnern et.al. (2008). Conducted A Randomized clinical trial study in Research Network at Florida to evaluate the efficacy of massage among cancer patients reducing anxiety. Subject including 380 with moderate-to-severe anxiety; 90% were enrolled in the study.30-minute massage or simple-touch sessions over 2 weeks. Immediate outcomes were obtained just before and after each treatment

session. Both groups demonstrated immediate improvement in massage, -1.87 points [95% CI, -2.07 to -1.67 points]; control, -0.97 point [CI, -1.18 to -0.76 points]) and anxiety (massage, 1.58points [CI,1.40 to 1.76 points]; control, 0,97 point [CI,0.78 to 1.16 points]). Massage was superior for both immediate anxiety mean differences. The study concluded that massage had immediately beneficial effects on reduction in anxiety patients with advanced cancer.

Allison et.al. (2007). Conducted A Randomized control trial study in Department of Veterans Affairs Medical Centre at Michigan to evaluate the effectiveness of slow stroke back massage among patients with acute Postoperative Pain.Subject including 605.The control group patients received routine care; individualized attention from a massage therapist for 20 minutes but no massage; or a 20-minute Effleurage back massage each evening by a massage therapist. All patients received the usual access to pharmacological therapies. The massage group had significantly greater improvements in all 3 variables (pain intensity, pain unpleasantness, and anxiety measurements). The study concluded that massage was reduced patients' perception of pain as well as anxiety.

Ezzo J. J Altern (2007). Conducted A descriptive study in community hospital, acute care setting at Flagstaff Medical Center Arizona to evaluate the effectiveness of massage therapy on Anxiety. Technique was convenience sample, sessions averaged 30 minutes .Before massage, the mean anxiety level recorded by the patients was 5.18 [standard deviation (SD): 2.01]. After massage, the mean anxiety level was 2.33 (SD: 2.10). The observed reduction in anxiety was statistically significant: paired samples $t_{52} = 12.43$, $r = .67$, $d = 1.38$, $p < .001$.The study revealed that massage reduced anxiety.

Bazrafzan. (2007). **C**onducted A Randamised clinical trial study in two clinics at Shiraz to evaluate the effectiveness of slow stroke back massages on anxiety among primigravida womens are allocated in intervention and control groups. In this 80 primigravid women aged 15-35 who were in the 3rd trimester of pregnancy were enrolled. The intervention group received slow stroke back massage for 10 minutes in three consecutive mornings. Anxiety level was measured before and immediately after the intervention in both groups. Data were gathered using the state anxiety Spielberger questionnaire. The means of the anxiety level were 51=6.6 and 49.90=6.6 at baseline in the intervention and control groups, respectively (p=0.460). After the intervention, the means of anxiety level were 48.18=6.52 and 51.50=7.39 in the intervention and control groups, respectively (p=0.036).The study concluded that, slow stroke back massage was effective nursing intervention for anxiety relief in primigravida women.

Imanishi, J., Kuriyama, H.et.al. (2007). Conducted A Experimental study in Evidenced Based Complementary Alternative Medicine to evaluate the effectiveness of Aromatherapy Massage on Anxiety among patients with Breast Cancer used pre test ,post test design. The intervention group received a 30 minutes aromatherapy massage twice a week for 4 weeks. Data collected by State-Trait Anxiety Inventory .The study concluded that anxiety was reduced in 30 minutes after given aromatherapy massage.

Prof. sebnem. (2007). Conducted A Experimental study in university hospital at Turkey to evaluate the effectiveness of back massage on anxiety among older people. Subject including 60 .Data collected by State-Trait Anxiety Inventory". Back massage was applied to the older people at their beds between 18-20 pm three days

long for 10 minutes by the researcher. Data conducted by using Repeated Measures one-way ANOVA and paired samples t test. The study concluded that, statistically significant decreased in level of anxiety after the back massage.

Mohsen Adib Hajbaghery. (2007). Conducted A Randomized controlled trial study in coronary care unit to evaluate the back massage on anxiety. Subject including 120. The intervention group received a session of whole body massage and the control group received routine care. Data collected by State, Trait anxiety. Independent sample t-test, paired t-test, Chi-square and Fischer exact tests were used for data analysis. The baseline overall mean score of anxiety was 79.43±29.34 in the intervention group and was decreased to 50.38±20.35 after massage therapy (p=0.001). However, no significant changes were occurred in the overall mean anxiety in the control group during the study. The study concluded that, back massage was effective in reducing anxiety for intervention group.

Wei-Ling Chen. (2007). Conducted A Quasi-experimental study cardiology ward at southern Taiwan to evaluate the effectiveness of back massage on anxiety among patients with congestive heart failure. Subject including 64 with one group pretest and posttest design. The participants' systolic BP (F (3, 189)=18.91, p<0.01), diastolic BP (F (3, 189)=13.40, p<0.01), heart rate (F (3, 189)=26.28, p<0.01), and respiratory rates (F (3, 189)=5.77, p<0.01) were significantly decreased after back massage. The study concluded that, Back massage significantly reduced anxiety in the study population.

Karen.et.al. (2007) Conducted A Quasi experimental study at Bowling Green University to evaluate the effectiveness of on- site chair massage therapy on reducing the anxiety level. Subject including 18 with pre test / post test control group design. Data collected by state trait Anxiety inventory self assessment questionnaire. This

measure was administered twice during pre test, post test and delayed post test to achieve stable measures. The study concluded that there was Significant reduction in anxiety levels.

Walach, H., Güthlin, et al. (2006).Conducted A pragmatic randomized trial study in medical ward at Germany to evaluate the effectiveness of massage therapy on anxiety. Subject including 30.Pragmatic classic massage compared to standard medical care in anxiety rating (nine-point Likert scale; predefined main outcome criterion) at pre treatment, post-treatment, and 3 month follow-up, anxiety. Anxiety reduced significantly in both groups. The participants' Anxiety score (F (3, 189)=18.91, $p<0.05$), after intervention (3, 189)=13.40, $p<0.01$, were significantly decreased after back massage. The study concluded that Anxiety reduced Significantly in both group after back massage.

Smith, M., Reeder, J. (2006). Conducted A Randamised study at Alternative Therapies in Health and Medicine to evaluate the effectiveness of massage therapy on anxiety among patient's with bone marrow transplantation. Subject including 61 assigned by Stratified Technique. Data collected by State anxiety inventory scale, Subjects in the intervention group received a 30-minute standardized Swedish massage. The study concluded that Massage reduced anxiety during bone marrow transplantation.

Hernandez Reif, M., Field, et al. (2006). Conducted A randomized study at Norway to evaluate the effectiveness of massage on anxiety for 24 adults. Data collected by state anxiety inventory scale. (M age=39.6 years). Adults (M age=39.6 years) received two 30 minutes massage or relaxation therapy sessions per week for 5 weeks. The study concluded that Subjects receiving massage therapy reported that anxiety were reduced.

2.3 Literature related to use of back massage on anxiety among Patients Posted for Cardiac Catheterization:

Sanying Peng1 et al. (2014). Conducted A Randamised design study in Lishui University of Public Health at China to evaluate the effectiveness of massage on anxiety among patients receiving Percutaneous Coronary Intervention (PCI). Subject including was117. Percutaneous Coronary Intervention were divided into two groups (59 in the intervention group and 58 in the control group. The patients in the control group received routine care, whereas the patients in the observation group were given massage intervention. Data collected by state anxiety inventory. The study concluded that Massage treatments reduced the emergency response and level of anxiety of cardiovascular patients before Percutaneous Coronary Intervention (PCI).

MitraZolfaghari. (2012). Conducted A Randamized quasi-experimental study in Shiraz University of Medical Sciences at Iran to evaluate the effectiveness of back massage on anxiety among Cardiac dysrhythmias patients women undergoing Cardiac Catheterization. Subject including 56assigned by intervention group (n = 23; received 10-15 minutes therapeutic touch), a placebo group (n = 23; received 10-15 minutes simulated touch), and a control group (n = 23; did not receive any therapy). Data were collected using Spielberger's anxiety scale. Statistical analyses were considered to be significant at $\alpha = .05$ levels. Significantly decreased state anxiety $p < 0.0001$ but not trait anxiety ($p = .88$), decreased the incidence of all cardiac dysrhythmias $p < 0.0001$.The study concluded that back massage is an effective approached for decreased Anxiety for cardiac dysrhythmia patient's during stressful situations, such as cardiac catheterization.

Bauer et al. (2010). Conducted A Randamized study in post operative unit cardiology ward to evaluate the effectiveness of massage therapy on anxiety among cardiac surgery patients. Subject including 40.Data collected by state anxiety inventory.P value (0.005). The study concluded that patients receiving massage therapy had significantly decreased anxiety and patients were highly satisfied with massage therapy.

McNamara ME et .al. (2010) Conducted A randomized clinical trial study in Massachusetts General Hospital at Boston, USA to evaluate the effectiveness of 20-minute back massage on patients admitted for a diagnostic Cardiac Catheterization. Subject including 46.Data collected by state anxiety inventory scale. There was a significant difference between reduction in psychological distress in the treatment group ($F = 8.6$, $P < .05$). In experimental Group ($F = 10.6$; $P < .005$), total Profile of Mood States score ($F = 5.9$; $P < .001$) .The study concluded that 20-minute back massage appeared to reduced Anxiety for patients awaiting a diagnostic Cardiac Catheterization.

Bauer, B.A., Cutshall, et al (2010). Conducted A randomized study to evaluate the effectiveness of massage therapy on anxiety among cardiac surgery patients. Subject including 113.(massage, n=62; control, n=51). Data collected by state anxiety inventory. Cardiac surgery patients undergo long procedures and commonly have postoperative anxiety. The study concluded that Patients receiving massage therapy had significantly decreased anxiety, Patients were highly satisfied with Massage therapy.

Wentworth, L.J., Briese, et al. **(2009).** Conducted A randomized Experimental study at cardiology ward to evaluate the effectiveness of Massage

therapy for 20 minutes reduced anxiety among patients awaiting invasive cardiovascular procedures. Subject including (N=130) with l pretest-posttest design. The intervention group received 20 minutes massage at least 30 minutes before an invasive cardiovascular procedure. Control group patients received standard Preprocedural care. Data collected by anxiety scale. The differences between pre- and post-procedure scores were compared between the massage and standard therapy groups using the Mann-Whitney Wilcoxon's test. The study concluded that anxiety score were identified along with an increased in satisfaction for patients who received a 20-minute massage before procedure compared with those receiving standard care.

Bie Ying, Yi Chen et al. (2009). Conducted A Randamized study in Coronary Care Unit at Kashan University of Medical Sciences to evaluate the effectiveness of massage therapy among patients undergoing Cardiac Catheterization. Subject including 60 with each group. Data collected by state anxiety inventory scale. The estimated number of samples for each group was estimated to be 52 patients (α= 0.05, 1-β=0.80, μ_1-μ_2= 4.84 and σ 2 1 +σ 2 2 =252.41).The study concluded that improvement was there in effectiveness of back massage patient undergone cardiac catheterization.

Carr et al. (2009). Conducted A Randamized study in Kaiser Permanent hospitals at New York to evaluate the effectiveness of Back massage on anxiety among patient's waiting preoperative invasive procedures with pre and post test design. Data collected by State Anxiety Inventory. The study concluded that anxiety scores in the two group showed insignificant differences before intervention (P>0.05).

McCaffrey, Taylor.et.al (2007). Conducted A Randomized Clinical Trial design study in Mayo Clinic at Rochester, Minnesota to evaluate the effectiveness of 20 minutes back massage reducing Anxiety among patients during Cardiac Catheterization. Subject including 46. Data collected by State Anxiety Inventory. The mean score before massage was 5.18 [standard deviation (SD): 2.01] after massage was 2.33 (SD: 2.10). The observed reduction in anxiety was statistically significant: paired samples $t_{52} = 12.43$, $r = .67$, $d = 1.38$, $p < .001$.The study concluded that a 20-minute back massage successfully reduced Anxiety before Cardiac Catheterization.

Abolhasani . (2006).Conducted A Randomized Clinical Trial design study in coronary care unit at Kurdistan University to evaluate the effectiveness of a 20-minute back massage on the physiological and psychological human responses among patients admitted for a diagnostic cardiac catheterization. Subject including 46. Data collected by State anxiety inventory. There was a significant treatment group ($P < .05$).The study concluded that 20-minute back massage appeared to reduced Anxiety for patients awaiting a diagnostic Cardiac Catheterization.

Windsor; Namerow, et.al (2006). Conducted A randomized clinical trial design in large urban academic medical center to evaluate the effectiveness of 20-minute back massage therapy among patients undergoing Cardiac Catheterization. Subject including Forty-six .Data were compared with repeated measures design before massage (T1), immediately following the back massage or standard care (T2), and 10 minutes later (T3). There was a significant difference between subject effect for group, with a reduction in Anxiety score ($F = 5.9$; $P < .001$) .The study concluded that a 20-minute back massage successfully reduced Anxiety before Cardiac Catheterization.

2.4 Conceptual Framework:

The conceptual frame work for research study serves as a measure on which the purpose of the study is based. It is also serves as a spring board for theory development. The frame work provides the prospective from which the researcher views the problem under investigation.

This study was based on the concept that Back massage reduces the level of anxiety patients posted for Cardiac Catheterization. The investigator adopted the Wiedenbach's Helping Art Of Clinical Nursing Theory (1964) as a base for developing the Conceptual frame work. This theory directs an action towards an explicit goal. It has 3 factors

1. Central purpose
2. Prescription
3. Realities

1.Central purpose

It refers to that reduction of anxiety level among patients posted for Cardiac Catheterization.

The Conceptualization of Nursing Practice According to this theory consists of 3 steps as follows:

Step-1:Identifying the need for help

Step -2:Ministering the needed help

Step-3:Validating the help

Step-1:Identifying the need for help:

This step involves determining the need for help. The patients posted for Cardiac Catheterization are selected and presence of anxiety assessed through Demographic and clinical variable along with assess the level of anxiety by using state anxiety inventory scale.

Step -2:Ministering the needed help:

This step involves provision of required help for identified need.It has 2 components

(i)Prescription: In this study the investigator prescribe Back massage for 20 minutes among patient's posted for Cardiac Catheterization in this study.

ii)Realities

It refers to the physical, physiological, emotional and spiritual factors that affect the nursing action. The five realities identified by Wiedenbach's theory areagent, Recipient. Goal, means and activities and framework.

Agent:Investigator

Recipients:Patients posted for Cardiac Catheterization

Goal:Reduction in the level of anxiety.

Means and Activities:

a. To assess the level of anxiety and provide 20 minutes of Back massage for patients posted for Cardiac Catheterization in experimental group.
b. To assess the level of anxiety and do not provide Back massage for patients in control group.

Step-3:Validating the help

The nurse validates the ministered help. It is accomplished by means of post assessment level of anxiety after rendering the selected nursing intervention, that is, Providing back massage for 20 minutes for the patient's posted for Cardiac Catheterization and then the effectiveness of the intervention in reducing anxiety is compared between the experimental and control group. In experimental group there was significant reduction of anxiety. Control group only considerable reduction in anxiety.

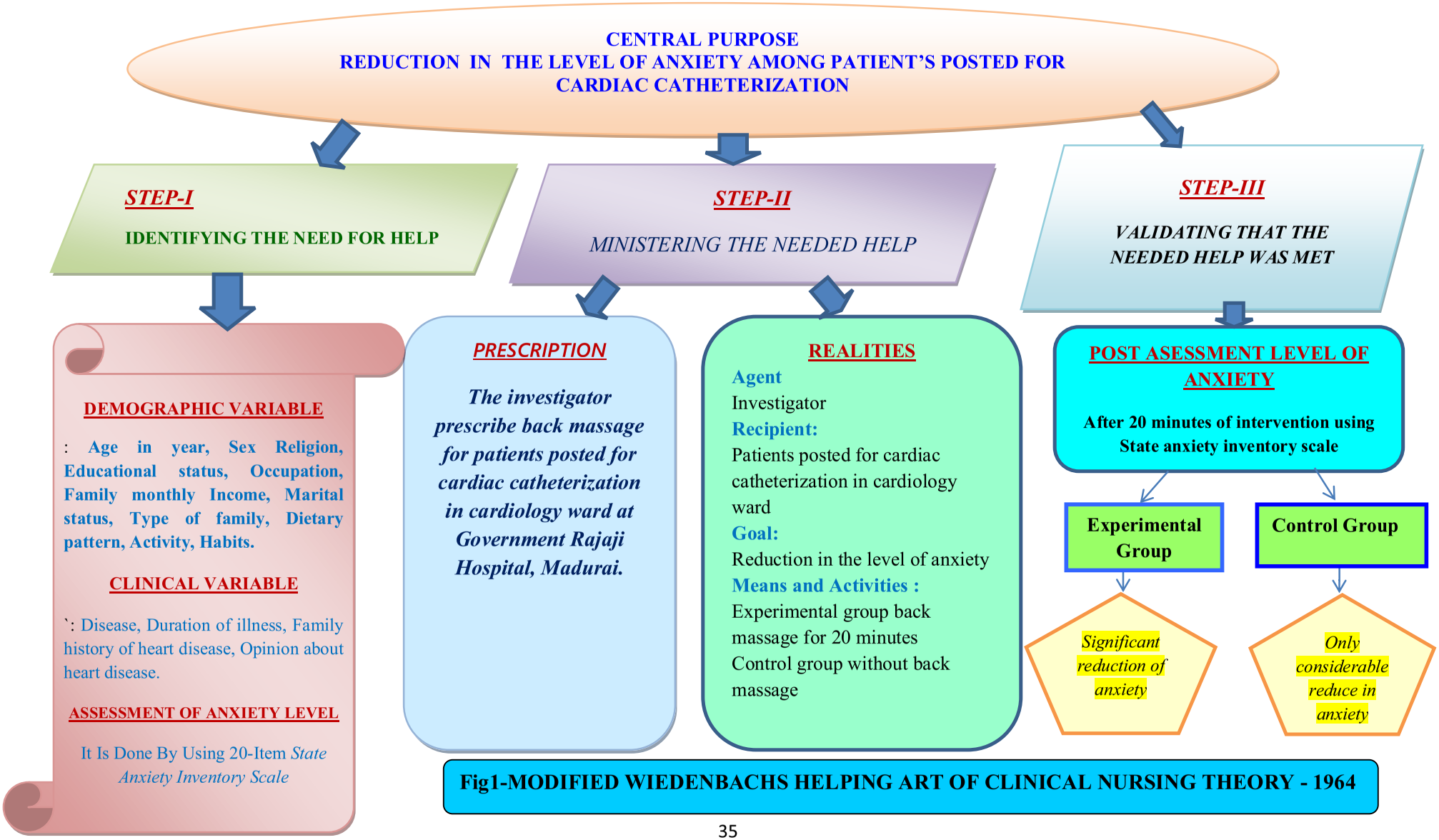


Fig1-MODIFIED WIEDENBACHS HELPING ART OF CLINICAL NURSING THEORY - 1964

Research Methodology

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the science of method; the science dealing with the principles of procedure in a research study. It is the section of a research proposal in which the methods to be used are described, such as the research design, the population to be studied, and the research instruments, or tools, to be used etc.

This chapter describes the methodology adopted for evaluating effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji hospital, Madurai. The methodology includes the research design, setting of the study, population, sample and sample size, sampling technique, description of the tool, method of data collection and plan for data analysis.

3.1 Research Approach:

A quantitative approach was adopted by the researcher to evaluate the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward.

3.2 Research Design:

The research design is the plan, structure and strategy of investigations of answering the research question. It is the overall plan or blueprint the researcher select to carry out the study**.** The research design used for this study was True experimental –pre test post test control group design.

R – Randomization.

O_1- Pre test Assessment in experimental and control Group.

X – Back massage.

O_2-Post test Assessment in experimental and control Group.

3.3 Research Variables:

Independent variable:

Back Massage

Dependent variable:

Level of anxiety

Socio Demographic variable:

Age in year, Sex, Religion, Educational status, Occupation, Family monthly Income, Marital status, Type of family, Dietary pattern, Activity, Habits.

Clinical variable:

Disease, Duration of illness, Family history of heart disease, Opinion about heart disease.

3.4 Setting of the Study:

Setting is the physical location and condition in which data collection takes place. The study was conducted at the cardiology ward of Government Rajaji hospital,

Madurai. It is the second biggest Medical College Hospital in Tamil nadu.it has all speciality departments and caters to the health needs of the people of the southern Tamilnadu. The hospital is equipped with bed strength of 2518 beds with an annual census of 6000 patients. The bed strength in cardiology ward is 40 .The annual census of patients posted for cardiac catheterization is 1070.On an average 4-6 patients are posted for cardiac catheterization per day.

3.5 Population:

Population means all possible elements that could be included in research. It represents the entire group under study.

Target population:

The target populations selected for the study was patients posted for cardiac catheterization.

Accessible population:

The study populations were patients posted for cardiac catheterization in Cardiology Ward, Government Rajaji Hospital, Madurai.

3.6 Sample:

Patients posted for Cardiac Catheterization, who met inclusion criteria admitted in Cardiology Ward, Government Rajaji Hospital, Madurai.

3.7 Sampling Technique:

Sample were selected by Simple Random sampling technique by lottery method.

3.8 Sample Size:

Total Sample size 60 were used .Experimental group 30 and control group 30.

3.9 Criteria for Sample Selection:

Inclusion Criteria:

- Subjects posted for Cardiac Catheterization in Cardiology Ward at Government Rajaji Hospital.
- Subjects included both male and female.
- Subjects came under age group of 31 and above.
- Subjects willing to participate.

Exclusion criteria:

- Subjects with spinal problems
- Subjects critically ill
- Subjects undergone surgery within last one month.
- Subjects who are with back sore

3.10 Description of the Tool:

The tool used in this study consists of two sections:

Section A:

It comprised of demographic variables such as (Age in year, Sex, Religion, Educational status, Occupation, Family monthly Income, Marital status, Type of family, Dietary pattern, Activity, Habits) Clinical variables such as (Disease, Duration of illness, Family history of heart disease, Opinion about heart disease)

Section B:

State anxiety inventory scale consisted of 20 items rating in 4 point likert scale to measure level of anxiety among patients posted for cardiac catheterization.

Scoring and Interpretation:

Section A: No scoring was allotted for demographic and clinical variable.

Section B: State anxiety scale consisted of 20 items rating in 4 point likert scale to measure level of anxiety among patients posted for cardiac catheterization, each item is scored on a scale of

Not at all	Some what	Moderately so	Very much so
1	2	3	4

1, 2,5,8,10,11,15,16,19 and 20 are reversely framed

3,4,6,7,9,12,13,14,17,18 are forwardly framed

Total score=80.

Interpretation:

LEVEL	**SCORE**
MILD	20-40
MODERATE	41-60
SEVERE	61-80

3.11 Content Validity:

In order to measure the content validity, the questionnaire was given to four Expert in the Field of Nursing, that is Medical Surgical Nursing Department and One experts in the Field of Medicine. They were requested to judge the items for clarity,

relatedness, meaningfulness and adequacy of the contents. Suggestions were considered and appropriate changes were made and found to be valid. Tool was translated in Tamil and re translated by experts to confirm language validity.

3.12 Reliability of the Tool:

The reliability of the tool was tested using test-retest method. The 'r' value was 0.74.Hence the score indicate the tool was considered as highly reliable.

3.13 Pilot Study:

A pilot study was conducted to find out the reliability of tool and feasibility of conducting the study. The study was conducted in cardiology ward, Government Rajaji Hospital, Madurai-20 for patients posted for cardiac catheterization in the period of one week from 1/6/15-7/6/15.Initially the patients were explained about the study and informed consent was obtained. According to the inclusion criteria 10 subjects -5 subjects for experimental group and 5 for Control group were selected. Pretest was conducted by using state anxiety inventory scale for both control and experimental group and then back massage was given for 20 minutes in experimental group. After 20 minutes of intervention post test was conducted using the same scales among patients in both experimental and control group. Results shown that there was significant difference in pre assessment scores and post assessment scores among patients posted for cardiac catheterization in Cardiology ward. Pilot study revealed that the study was feasible.

3.14 Data Collection Procedure:

Formal permission was obtained from Institutional Review Board / Independent Ethical Committee of Government Rajaji Hospital, Madurai-20 and Professor and Head of the Department of cardiology, Government Rajaji Hospital,

Madurai. Before conducting the study, a brief self introduction and explanation regarding the nature and purpose of the intervention was given. The investigator explained the purpose of the study and informed written consent was obtained from the subjects. The data has been collected from the subjects who were interested to participate in the study and who met the inclusion criteria among patient posted for cardiac catheterization in cardiology ward. Data collection period was from 3.08.2015 to 13.09.2015 for 6 weeks. Total sample size was 60. The subjects were selected by Simple Randam sampling, using lottery method. Approximately 16 subjects selected per week. pretest was conducted by using state anxiety scale and demographic data, clinical variables were collected by interview method. Then back massage was given to the experimental group for about 20 minutes on the day before posted for cardiac catheterization. After the 20 minutes of intervention post test was conducted using state anxiety scale for experimental and control group.

3.15 Plan For Data Analysis:

The data collected was analyzed by means of descriptive statistics, and inferential statistics.

Descriptive Statistics:

1. Analysis of the baseline data was done by using frequency and percentage.
2. Level of anxiety among patients posted for cardiac catheterization was analyzed by computing frequency, percentage, mean and standard deviation.

Inferential Statistics:

1. Paired “t” test, Unpaired “t” test was used to find out the effectiveness of Back massage on the level of anxiety.

2. Chi-square analysis was used to determine the association between the level of anxiety and selected socio demographic variables among patients posted for cardiac catheterization.

3.16 Protection of Human Right:

The research proposal was approved by the dissertation committee Government Rajaji hospital ethical committee, and from the head of department of cardiology to conduct the main study. Both verbal and written consent obtained from all the study subjects and the data collection was kept confident. Assurance was given that they can withdraw from the study at anytime. Benefit of participating in the study was explained to all the subjects and communication was maintained throughout the study.

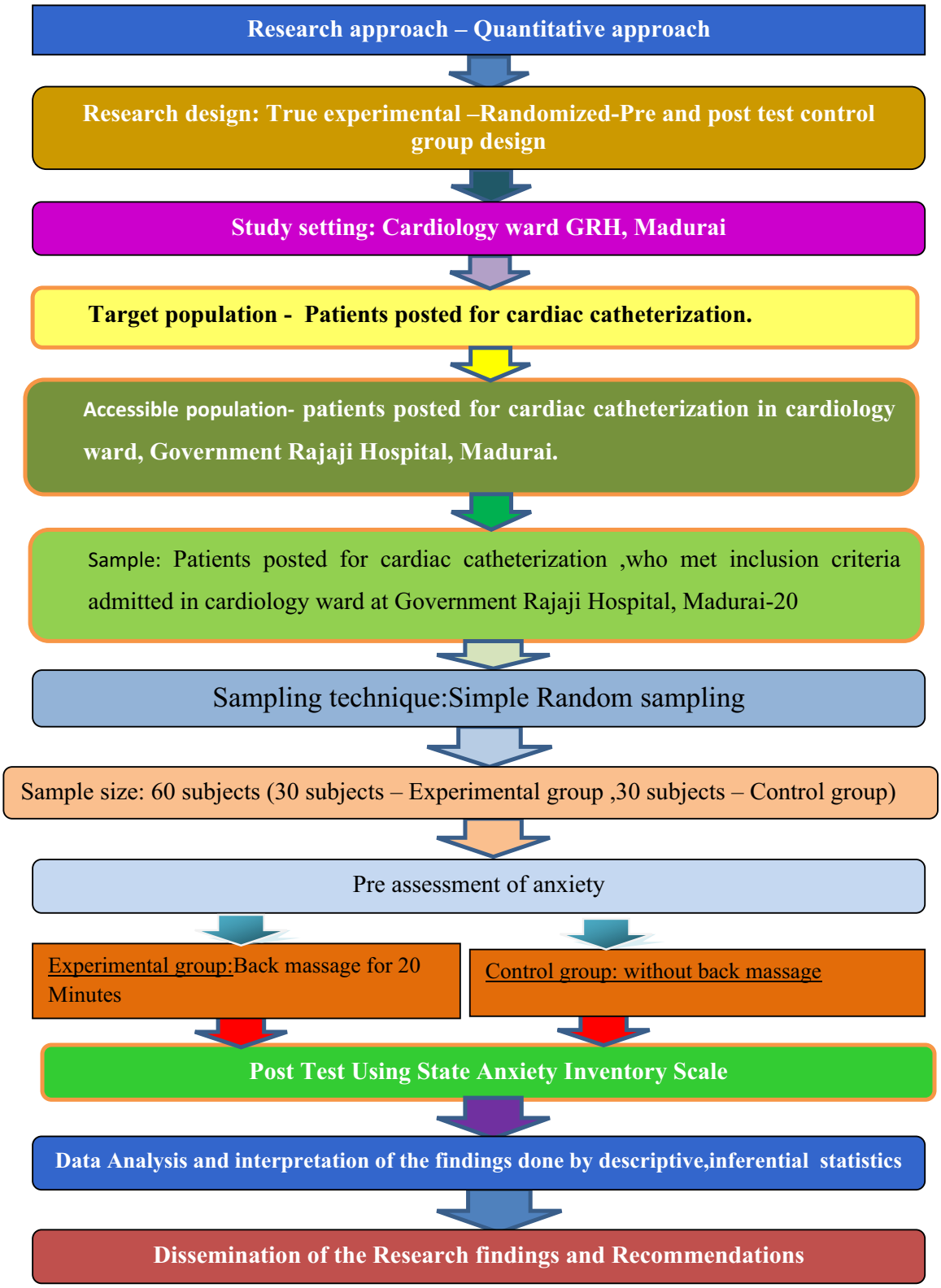


Figure 2 : Schematic Representation of the study

Data Analysis And Interpretation

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

The data analysis and interpretation section deals with what was found by conducting the study. The goal of data analysis is to provide answers to the research questions. The plan for data analysis comes directly from the question, the design, the method of data collection, and the level of measurement of the data. Statistical procedures enable researchers to summarize, organize, evaluate, interpret, and communicate numeric information.

In this chapter the data collected were edited, tabulated, analyzed and interpreted under the following section.

Section-I: Distribution of socio demographic variables and clinical variables among patients posted for cardiac catheterization.

Section-II: Discription of pretest level of anxiety among patients posted for cardiac catheterization.

Section-III: Effectiveness of backmassage on the level of anxiety among patients posted for cardiac catheterization.

Section-IV: Compare the pretest and post test mean anxiety score among patients posted for cardiac catheterization**.**

Section-V: Association of post test level of anxiety with their selected socio demographic variables and clinical variables in experimental group.

Section - I

Distribution of Socio Demographic Variables and Clinical Variables among Patients Posted for Cardiac Catheterization

Table 1

Frequency and percentage distribution of socio demographic variables among patients posted for cardiac catheterization

n=60

Demographic variables		Group				Total
		Experiment		Control		
		f	%	f	%	
Age	31 - 40 yrs	3	10.0	5	16.7	8
	41 - 50 yrs	15	50.0	16	53.3	31
	> 50 yrs	12	40.0	9	30.0	21
Gender	Male	27	90.0	24	80.0	51
	Female	3	10.0	6	20.0	9
Religion	Hindu	25	83.3	20	66.7	45
	Christian	3	10.0	4	13.3	7
	Muslim	2	6.7	6	20.0	8
Educational status	No formal education	3	10.0	2	6.7	5
	Primary education	22	73.3	4	80.0	46
	Higher secondary education	5	16.7	4	13.3	9
Occupation Status	Unemployed	10	33.3	8	26.7	18
	Agriculture	17	56.7	17	56.7	34
	Self employment	2	6.7	4	13.3	6
	Government employee	1	3.3	1	3.3	2

Family Income	Rs.2000-3000	2	6.7	3	10.0	5
	Rs.3001-4000	7	23.3	2	40.0	19
	Rs.4001-5000	18	60.0	3	43.3	31
	> Rs.5000	3	1.0	2	6.7	5
Marital status	Married	30	100.0	0	100.0	60
Type of family system	Nuclear family	28	93.3	7	90.0	55
	Joint family	2	6.7	3	10.0	5
Dietary pattern	Vegetarian	4	13.3	3	10.0	7
	Non vegetarian	26	86.7	7	90.0	53
Activity	Sedentary	4	13.3	3	10.0	7
	Moderate	17	56.7	2	40.0	29
	Heavy	9	30.0	5	50.0	24
Habits	Smoking	2	6.7	2	6.7	4
	Alcohol	25	83.3	0	66.7	45
	Tobacco	2	6.7	4	13.3	6
	Others	1	3.3	4	13.3	5

The above table shows, majority of the study participants in Age 15 (50%) were between 41-50 in experimental group, 12(40%) were between above 51 years and, 3 (10%) were between 31-40 years. In the control group majority of the participants 16(53.3%) were between 41-50 years, 9 (30%) were between above 51 years, 5(16.7%) were between 31-40 years.

Related to sex, the majority of study participants 27(90%) experimental group were male, 3(10%) were Female. In the control group majority of study participant 24(80%) were female, 6 (20%) were male.

With regard to religion, majority of the study participants 25 (83.3%) in the experimental group belonged to Hindu religion, 3(10%) belonged to Christians. 2(6.7%) belonged to Muslim community. In the control group 20(66.7%) of the subjects belonged to Hindu religion, 6(20%) belonged to Muslims, 4 (13.3%) belonged to Christians.

As far as educational status, is concerned majority of the subjects in the experimental group were as 22(73.3%) attained primary education, 5(16.7%) of the subjects attained higher secondary education, 3(10%) of the subjects had no formal education. Majority of the subjects in control group 24(80%) attained primary education, were as 4(13.3%) of the subjects attained higher secondary education, 2(6.7%) of the subjects had no formal education.

In view of occupation in experimental group 17(56.7%) of the subjects were farmers doing agriculture, 10(33.3%) were unemployed, 2(6.7%) of the subjects were self employed and remaining 1(3.3%) were government employees. In the control group majority of the subjects 17(56.7%) were farmers doing agriculture, 4(13.3%)

were self employed, 8(26.7%) were unemployed and remaining1 (3.3%) were government employees.

In the earning perspective in experimental group 18(60%) of the subjects were earning between Rs.4001-5000/, 7(23.3%) of the subjects were earning between Rs.3001-4000 and 3 (10%) of the subject were earning above Rs.5001/, 2(6.7%) of the subjects were earning between Rs.2000-3000/. In the control group majority of the subjects 13(43.3%) of the subjects earned between Rs.4001-5000/,12(40%) of the subjects earned between Rs.3001-4000/, 3(10%) earned between Rs.2000-3000/and the remaining 2 (6.7%) earned more than Rs.5001and above.

Aspect of Mariatal status, Majority of the study participants 30(100%) in experimental group were married. In control group 30(100%) of the population were married.

According to Type of family system, 28(93.3%) in experimental group were between Nuclear family, 2(6.7%) were between Joint Family. In the control group 27(90%) were between joint family, 3(10%) were between joint family.

In aspect of Dietary pattern, 26(86.7) were between Non vegetarian in experimental group, 4(13.3%) were between Vegetarian. In the control group 27(90%) were between Non vegetarian, 3(10) were between Vegetarian.

In view of activity, majority of the study population 17(56.7%) were moderate workers in experimental group, 9(30%) were heavy workers, remaining 4 (13.3%) were doing sedentary activity. In control group majority of the subjects 15(50%) were heavy workers, 12(40%) were Moderate workers and remaining 3(10%) were doing sedentary activity.

Majority of the study participants Habits, experimental group 25(83.3%) were between alcohol, 2(6.7%) were between smoking, 2(6.7%) were between tobacco and remaining 1 (3.3%) were others category. In the control group majority of the subjects 20(66.7%) were between alcohol, 4(13.3%) were between tobacco and remaining 4 (13.3%) were others category, 2(6.7%) were between smoking.

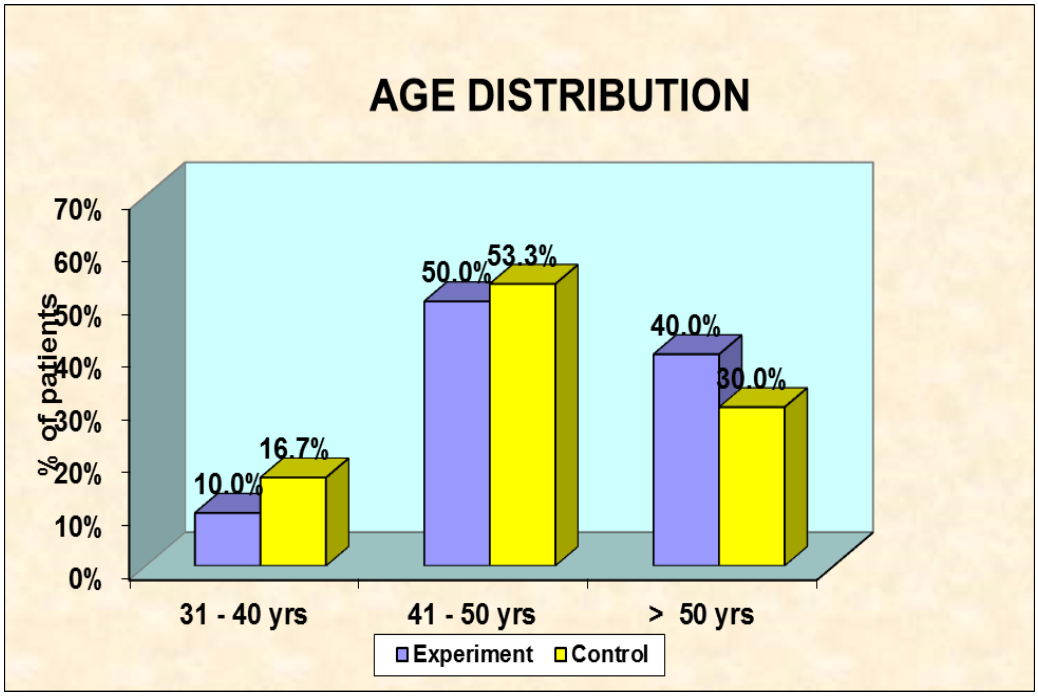


Figure 2:Multiple bar diagram portrays the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their age.

The above figure portrays reveals that the majority of the study participants 15 (50%) were between 41-50 in experimental group, 12(40%) were between above 51 years and 3 (10%) were between 31-40 years. In the control group majority of the participants 16(53.3%) were between 41-50 years, 9 (30%) were between above 51 years, 5(16.7%) were between 31-40 years.

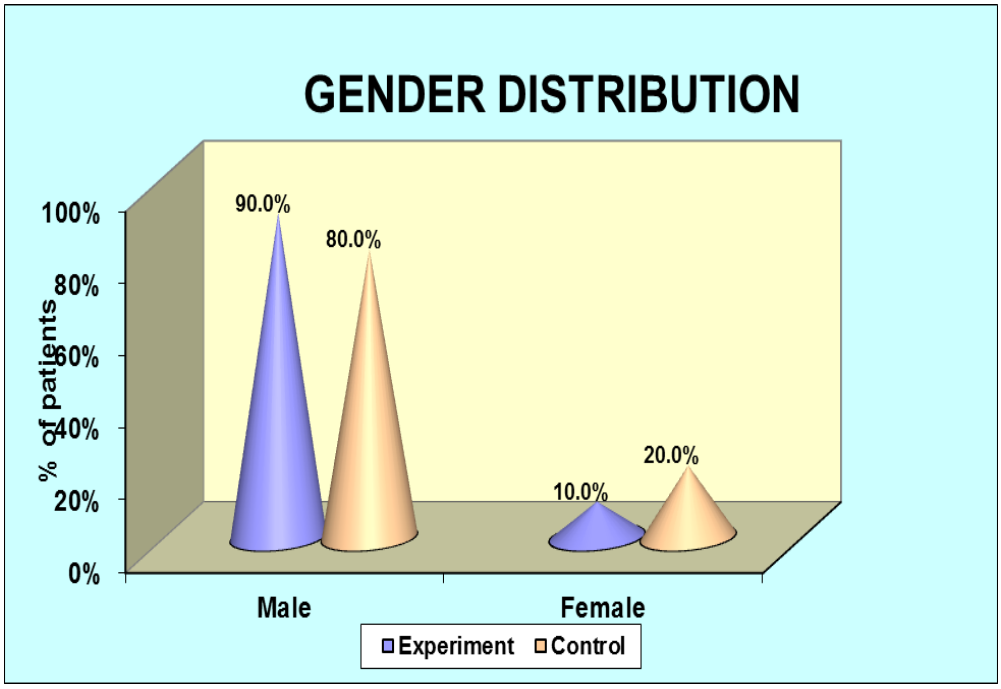


Figure 3:Cone diagram identifies the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their sex.

The above figure reveals that majority of study participants 27(90%) experimental group were male, 3(10%) were Female. In the control group majority of study participant 24(80%) were female, 6 (20%) were male.

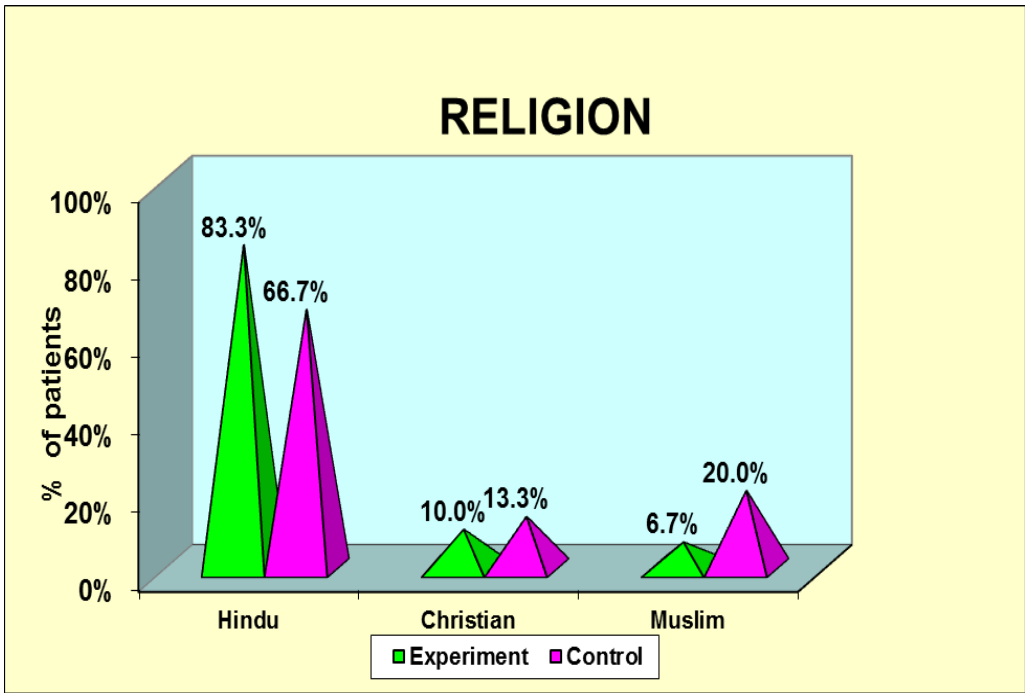


Figure 4:Multiple pyramid diagram states the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their religion.

The above figure shows that regarding religion majority of the study participants 25 (83.3%) in the experimental group belonged to Hindu religion, 3(10%) belonged to Christians. 2(6.7%) belonged to Muslim community. In the control group 20(66.7%) of the subjects belonged to Hindu religion, 6(20%) belonged to Muslims, 4 (13.3%) belonged to Christians.

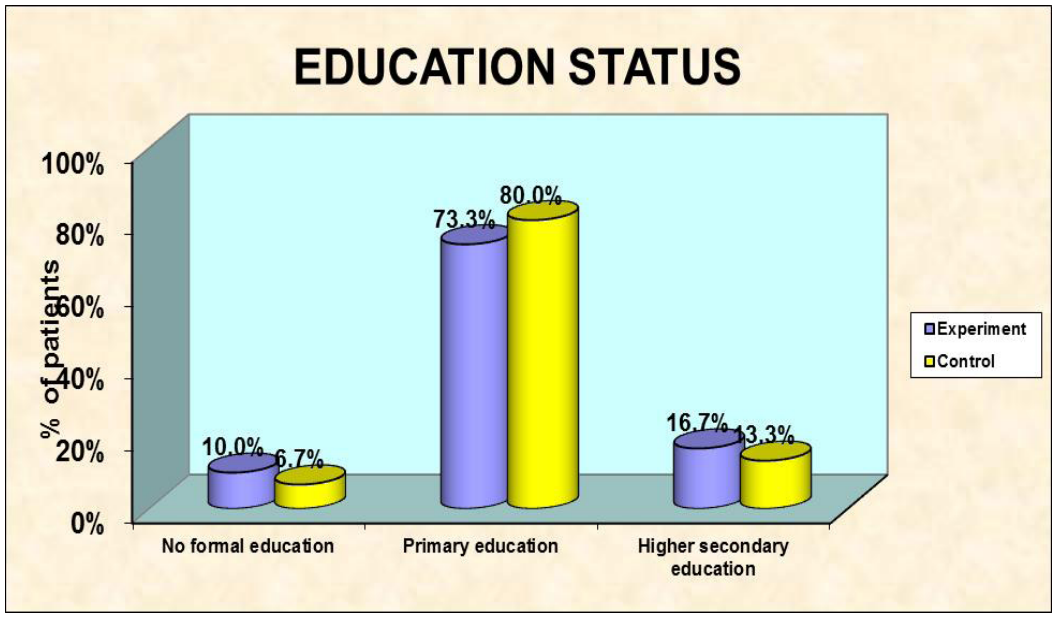


Figure 5:Multiple cylinder diagram states that distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their educational status.

The above figure depict that in education, majority of the subjects in the experimental group were as 22(73.3%) attained primary education, 5(16.7%) of the subjects attained higher secondary education, 3(10%) of the subjects had no formal education. Majority of the subjects in control group 24(80%) attained primary education, were as 4(13.3%) of the subjects attained higher secondary education, 2(6.7%) of the subjects had no formal education.

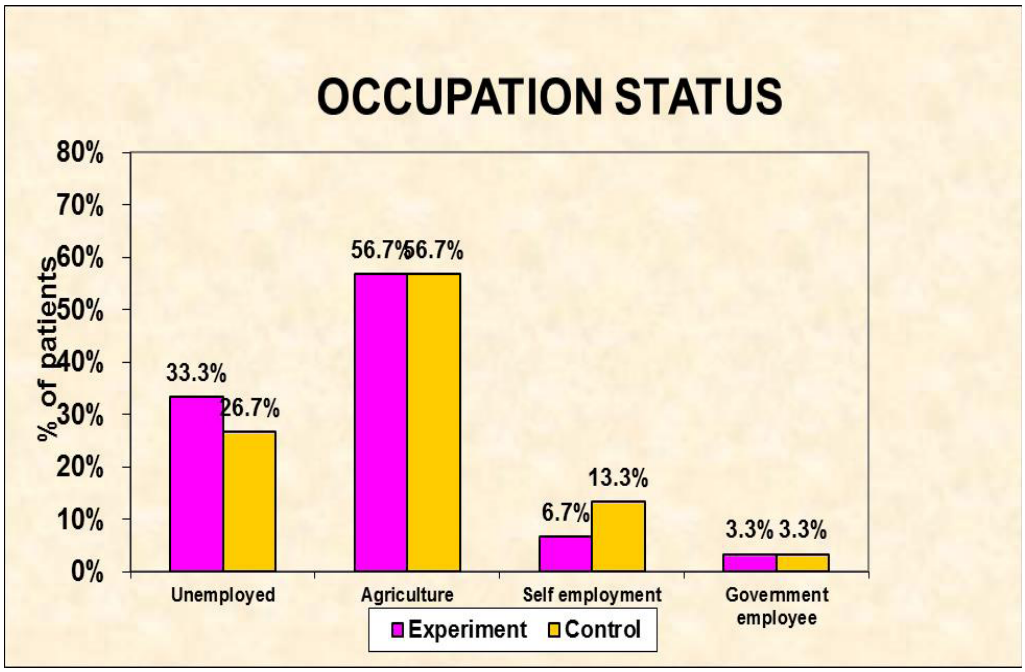


Figure 6:Multiple bar diagram Narrate the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their occupational status.

The above diagram represent that regarding occupation in experimental group 17(56.7%) of the subjects were farmers doing agriculture, 10(33.3%) were unemployed, 2(6.7%) of the subjects were self employed and remaining 1(3.3%) were government employees. In the control group majority of the subjects 17(56.7%) were farmers doing agriculture, 4(13.3%) were self employed, 8(26.7%) were unemployed and remaining1 (3.3%) were government employees.

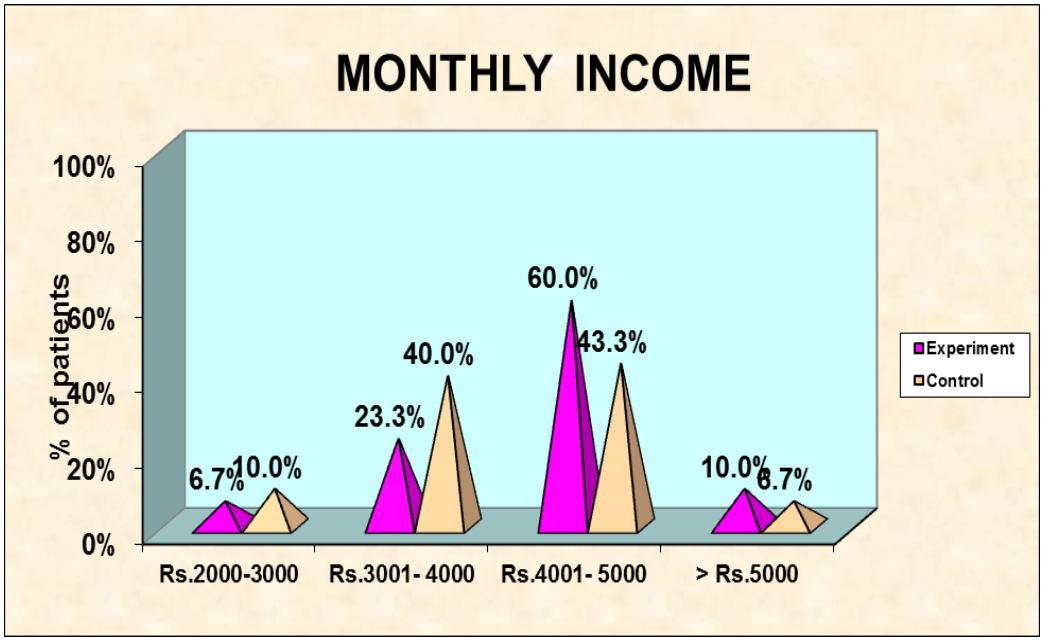


Figure 7:Multiple pyramid diagram depicts the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their monthly income.

The above figure reveals regarding earning perspective in experimental group 18(60%) of the subjects were earning between Rs.4001-5000/, 7(23.3%) of the subjects were earning between Rs.3001-4000 and3 (10%) of the subject were earning above Rs.5001/, 2(6.7%) of the subjects were earning between Rs.2000-3000/.In the control group majority of the subjects 13(43.3%) of the subjects earned between Rs.4001-5000/,12(40%) of the subjects earned between Rs.3001-4000/, 3(10%) earned between Rs.2000-3000/and the remaining 2 (6.7%) earned more than Rs.5001and above.

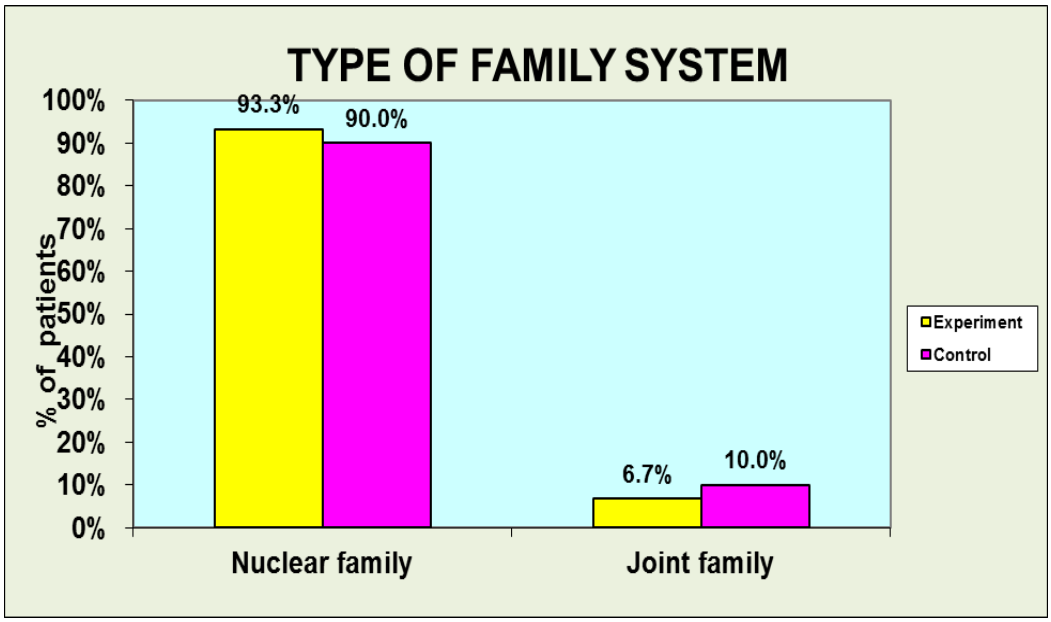


Figure 8:Multiple bar diagram explains the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their type of family system.

The above figure explains in Type of family system 28(93.3%) in experimental group were between Nuclear family, 2(6.7%) were between Joint Family. In the control group 27(90%) were between joint family, 3(10%) were between joint family.

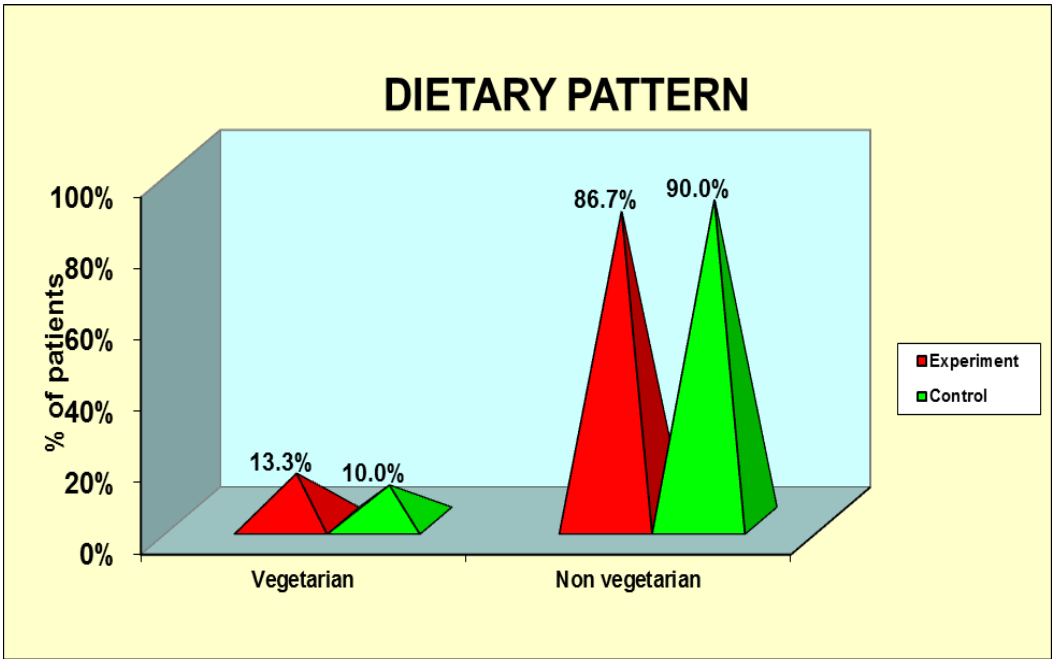


Figure 9:Multiple pyramid diagram shows the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their dietary pattern.

The above figure depict In aspect of Dietary pattern 26(86.7) were between Non vegetarian in experimental group, 4(13.3%) were between Vegetarian. In the control group 27(90%) were between Non vegetarian, 3(10) were between Vegetarian.

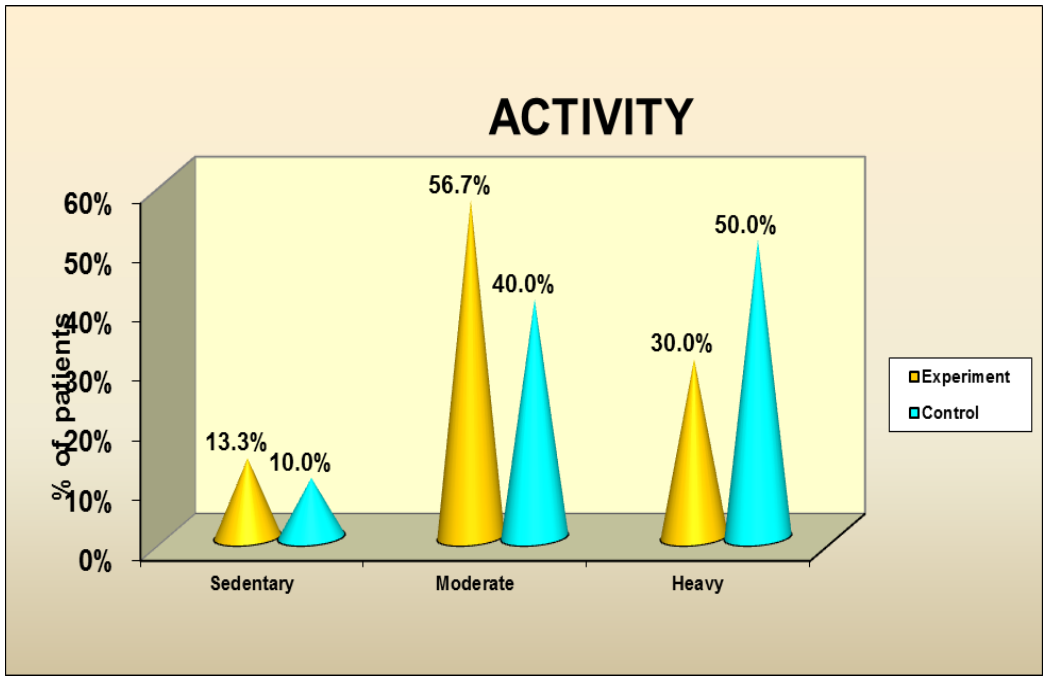


Figure 10:Multiple cone diagram states the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their Activity.

The above figure shows, In view of activity majority of the study population 17(56.7%) were moderate workers in experimental group, 9(30%) were heavy workers, remaining 4(13.3%) were doing sedentary activity. In control group majority of the subjects 15(50%) were heavy workers, 12(40%) were Moderate workers and remaining 3(10%) were doing sedentary activity.

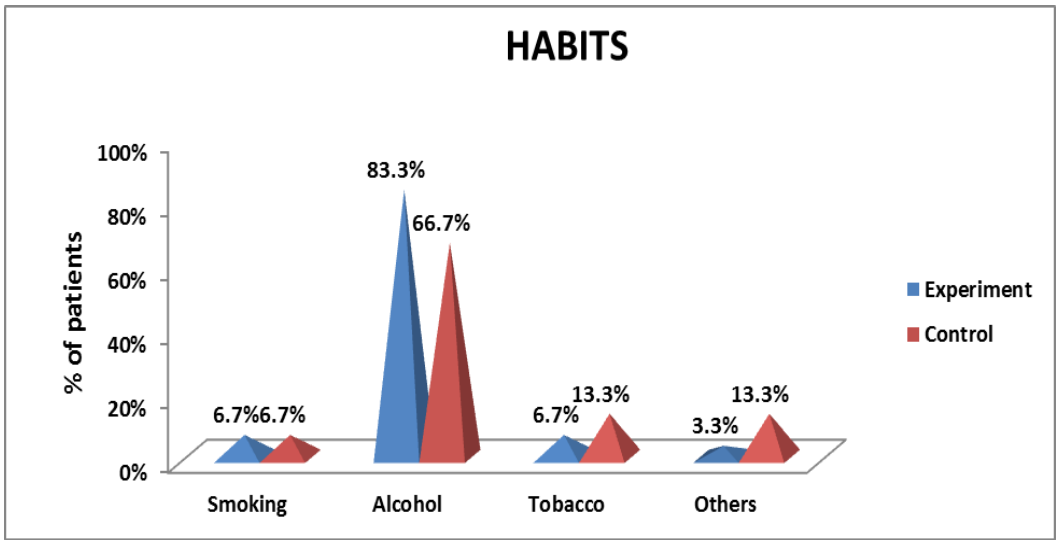


Figure 11:Multiple pyramid diagram explains the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their Habits.

The above figure explain that Majority of the study participants, Habits in the experimental group 25(83.3%) were between alcohol, 2(6.7%) were between smoking, 2(6.7%) were between tobacco and remaining 1 (3.3%) were others category. In the control group majority of the subjects 20(66.7%) were between alcohol, 4(13.3%)were between tobacco and remaining 4 (13.3%) were others category, 2(6.7%) were between smoking.

Table-2

Frequency and percentage distribution of clinical variables among patients posted for cardiac catheterization

Clinical variables		Group				Total
		Experiment		Control		
		f	%	f	%	
Disease	Angina	7	23.3	6	20.0	13
	Coronary heart disease	21	70.0	20	66.7	41
	Hypertension	2	6.7	4	13.3	6
Duration of illness	1-2 year	13	43.3	15	50.0	28
	3-4 years	12	40.0	11	36.7	23
	>5 years	5	16.7	4	13.3	9
Family history of Heart Disease	Sibling	7	23.3	6	20.0	13
	Parents	7	23.3	6	20.0	13
	Grandparents	5	16.7	6	20.0	11
	No history of heart disease	11	36.7	12	40.0	23
Opinion about Heart Disease	Curable	14	467	17	56.7	31
	Not curable	16	53.3	13	43.3	29

The above table shows **regarding Disease,** 21(70%) in the experimental group had Coronary heart disease, 7(23.3%) of the subjects had angina, 2(6.7%) of the subjects had hypertension. In the control group majority of the subjects 20(66.7%) had coronary heart disease, 6(20%) had Angina, 4(13.3%) had hypertension.

Duration of illness, Majority of the subjects in the experimental group 13(43.3%) had 1-2 years of duration, 12(40%) of the subjects had 3-4 years of duration and the remaining 5 (16.7%) of the subjects had >5 years of duration. In the control group 15(50%) of the subjects had 1-2 year of duration, 11(36.7%) of the subjects had 3-4 years of duration and the remaining 4(13.3%) of the subjects had>5years of duration.

Family history of heart disease, in experimental group 11(36.7%) had no history of heart disease,7(23.3%) of the subjects had sibling and 7(23.3%) of the subjects had parents, remaining 5(16.7%) of the subjects had grand parents group. In the control group 12(40%) had no history of heart disease,6(20%) of the subjects had sibling and 6(20%) of the subjects had parents, remaining 6(20%) of the subjects had grand parents group.

Opinion about heart disease, Majority of the study participants in the experimental group 16(53.3%) believed heart disease is not curable, 14(46.7%) of the subjects had curable opinion about heart disease. In the control group 17(56.7%) of the subjects believed heart disease is curable, 13(43.3%) of the subjects had not curable opinion.

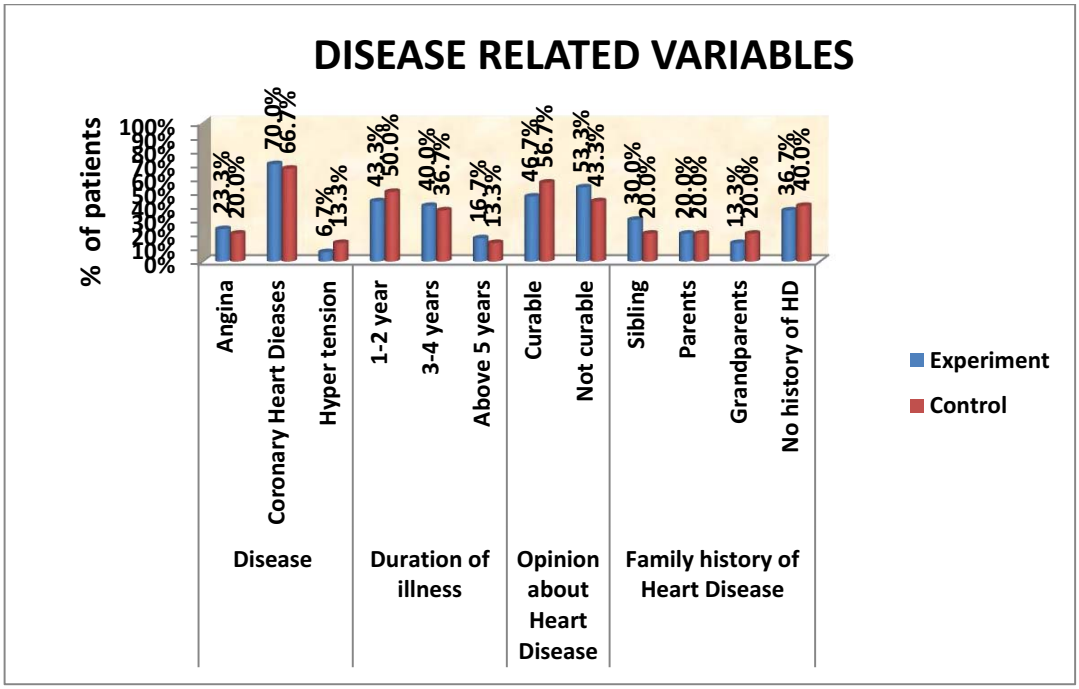


Figure12:Multiple bar diagram explains the distribution of back massage on the level of anxiety among patient posted for cardiac catheterization according to their clinical variables.

The above diagram shows regarding Disease 21(70%) in the experimental group had Coronary heart disease. In the control group majority of the subjects 20(66.7%) were had same.

Majority of the subjects Familly history of heart disease in the experimental group 11(36.7%) had no history of heart disease. In the control group 12(40%) had no history of heart disease.

Opinion about heart disease in the experimental group 16(53.3%) believed heart disease is not curable**.**

Section-II

Description of Pretest Level of Anxiety among Patients Posted for Cardiac Catheterization

Table – 3

Frequency and percentage discription of Pretest level of anxiety among patients posted for cardiac catheterization in experimental and control group

n=60

LEVEL OF ANXIETY	EXPERIMENTAL GROUP		CONTROL GROUP	
	f	%	f	%
Mild	0	0.0	0	0.0
Moderate	10	33.3	11	36.7
Severe	20	66.7	19	63.3
Total	30	100	30	100

The above table explains In Experiment group, In pretest, none of the patients are having mild anxiety, 10(33.3%) of them are having moderate anxiety and 20(66.7%) of them are having severe anxiety. In control group, In pretest, none of the patients are having severe anxiety, 11(36.7%) of them are having moderate anxiety and 19(63.3%) of them are having severe anxiety.

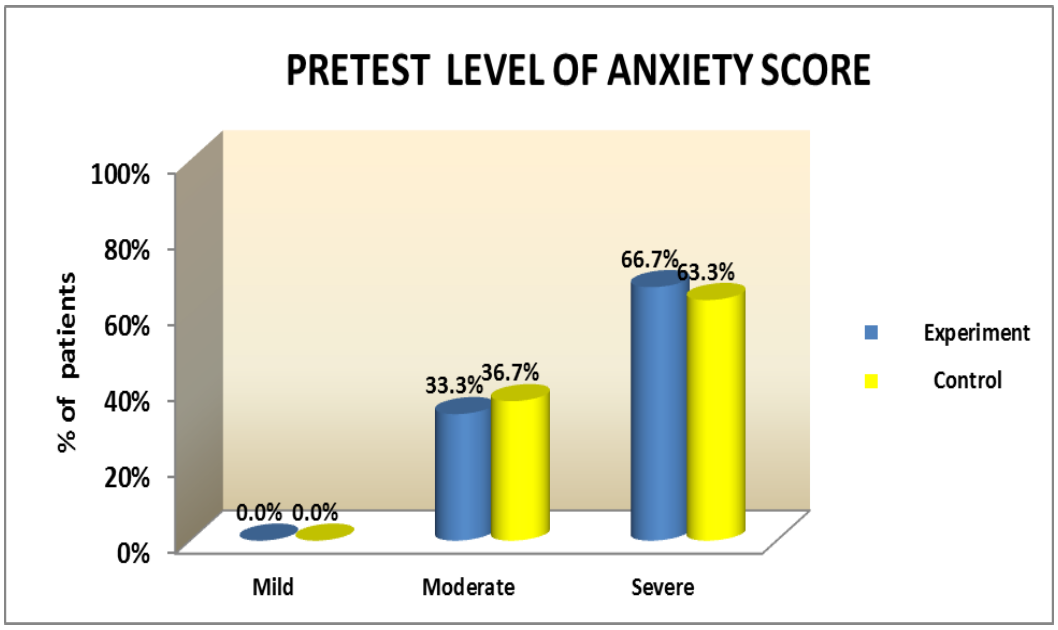


Figure13:Multiple cone diagram quotes the distribution of pretest level of anxiety in experimental and control group

The above diagram shows In Experiment group, In pretest, none of the patients are having mild anxiety, 33.3% of them are having moderate anxiety and 66.7% of them are having severe anxiety. In control group, In posttest, none of the patients are having mild anxiety, 36.7% of them are having moderate anxiety and 63.3% of them are having severe anxiety

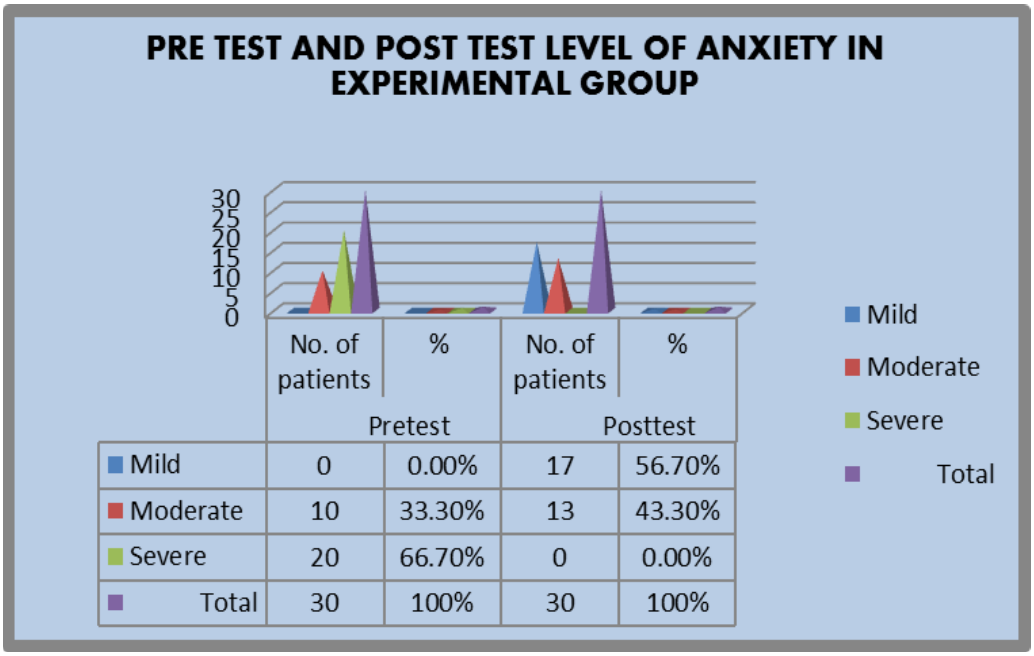
Table – 4

Frequency and percentage distribution of Pre test and post test level of anxiety among patients posted for cardiac catheterization in experimental group

n=60

LEVEL OF ANXIETY	PRETEST		POSTTEST	
	f	%	f	%
Mild	0	0.0	17	56.7
Moderate	10	33.3	13	43.3
Severe	20	66.7	0	0.0
Total	30	100	30	100

The above table shows in pretest none of the patients are having mild anxiety, 33.30% of them are having moderate anxiety and 66.7% of them are having severe anxiety. In posttest 56.7% of the patients are having mild anxiety, 43.3% of them are having moderate anxiety and none of them are having severe anxiety.



	Pretest		Posttest	
	No. of patients	%	No. of patients	%
Mild	0	0.00%	17	56.70%
Moderate	10	33.30%	13	43.30%
Severe	20	66.70%	0	0.00%
Total	30	100%	30	100%

Figure14:Multiple pyramid says comparison of pre test and post test level of anxiety in experimental group among patients posted for cardiac catheterization.

The above diagram shows In pretest none of the patients are having mild anxiety, 33.30% of them are having moderate anxiety and 66.7% of them are having severe anxiety. In posttest 56.7% of the patients are having mild anxiety, 43.3% of them are having moderate anxiety and none of them are having severe anxiety.

Section-III

Effectiveness of Back Massage on the level of Anxiety among patients posted for Cardiac Catheterization

Table – 5

Frequency and percentage distribution of Posttest level of anxiety among patients posted for cardiac catheterization in experimental and control group

n=60

LEVEL OF ANXIETY	EXPERIMENTAL GROUP		CONTROL GROUP	
	f	%	f	%
Mild	17	56.7	0	0.0
Moderate	13	43.3	12	40.0
Severe	0	0.0	18	60.0
Total	30	100	30	100

The above table explains In Experiment group patients, In posttest. 17(56.7%) of the patients are having mild anxiety, 13(43.3%) of them are having moderate anxiety and none of them are having severe anxiety. In control group patients, In posttest, none of the patients are having mild anxiety, 12(40.0%) of them are having moderate anxiety and 18(60.0%) of them are having severe anxiety .

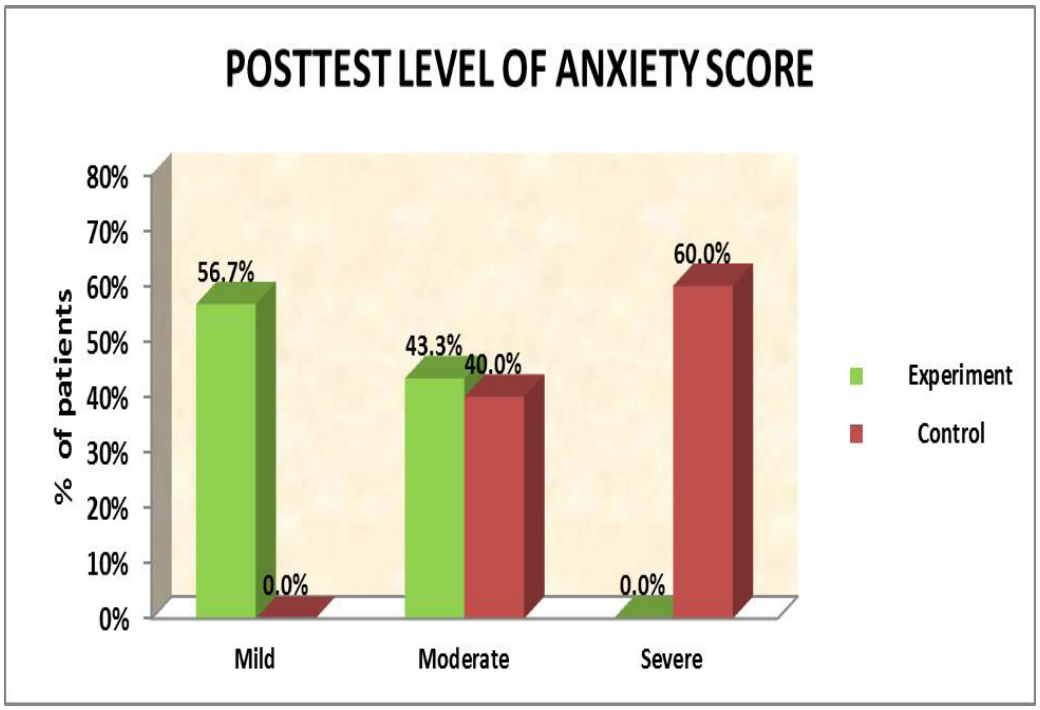


Figure15:Multiple bar diagram depicts the distribution of posttest level of anxiety in experimental and control group

The above figure reveals In Experiment group patients, In posttest. 17(56.7%) of the patients are having mild anxiety, 13(43.3%) of them are having moderate anxiety and none of them are having severe anxiety. In control group patients, In posttest, none of the patients are having mild anxiety,12(40.0%) of them are having moderate anxiety and 18(60.0%) of them are having severe anxiety.

Table – 6

Effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization

Group		Maximum Score	Mean anxiety score	Percentage of anxiety reduction	Mean difference with 95% Confidence interval	Proportion with 95% Confidence interval
Experiment	**Pretest**	80	62.70	78.4%	↓23.03(19.18 - 26.87)	↓28.8%(23.9% -33.6%)
	Posttest	80	39.67	49.6%		
Control	**Pretest**	80	61.90	77.4%	↓2.46(2.17-2.75)	↓3.1%(2.7% - 3.4%)
	Posttest	80	59.43	74.3%		

The above table depict, On an average, experiment group patients are gained 28.8% reduction of anxiety score. **This anxiety decrease shows the effectiveness of the study**. Differences between pretest and posttest score was analysed using mean difference with 95% CI and proportion with 95% confidence interval.

Section-IV

Compare the pretest and post test mean anxiety score among patients posted for cardiac catheterization

Table – 7

Comparison of pretest and post test mean anxiety score in experimental and control group of patients posted for cardiac catheterization

GROUP		Anxiety score		Mean difference	Student's Paired t-test	P value
		Mean	SD			
Experiment	Pretest	62.70	7.56	23.03	**12.26**	**0.001*** significant**
	Posttest	39.67	6.46			
Control	Pretest	61.90	8.17	2.47	1.90	0.06not significant
	Posttest	59.43	8.26			

significant at P≤0.05 **highly significant at P≤0.01very high significant at P≤0.001**

The above table explain In experiment group, in pretest, patients are having 62.70 anxiety score and in posttest they are having 39.67 score, so the difference is 23.03 score after Back massage. This difference is large and it is statistically significant difference. It was calculated using student's paired t-test. In control group, in pretest, patients are having 61.90 anxiety score and in posttest they are having 59.43 score, so the difference is 2.47 score. This difference is small and it is not statistically significant difference. It was calculated using student's paired t-test.

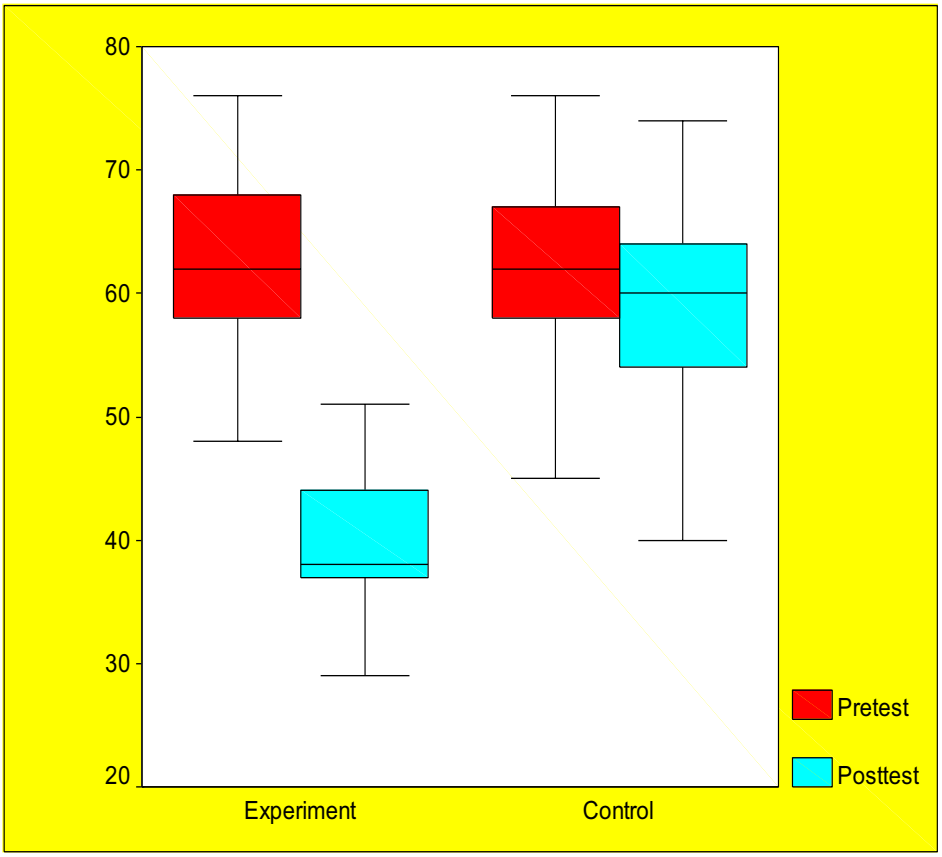


Figure 16: Box plot compares the patients comparison of pretest and posttest mean anxiety score

The above diagram depict In experiment group, in pretest, patients are having 62.70 anxiety score and in posttest they are having 39.67 score, so the difference is 23.03 score after Back massage. This difference is large and it is statistically significant difference. In control group, in pretest, patients are having 61.90 anxiety score and in posttest they are having 59.43 score, so the difference is 2.47 score. This difference is small and it is not statistically significant difference.

TABLE – 8

Comparison of post test mean anxiety score of experimental and control group among patients posted for cardiac catheterization

GROUP	Anxiety score		Mean difference	Student's Independent t-test	P value
	Mean	SD			
Experiment	39.67	6.46	19.76	**10.32**	**0.001*** significant**
Control	59.42	8.25			

***significant at P≤0.05 **highly significant at P≤0.01 ***very high significant at P≤0.001**

The above table explain in experiment group patients are having 39.67 where as control group patients are having 59.42. So the difference is 19.76. This difference is large and it is statistically significant. It was confirmed using student independent t-test.

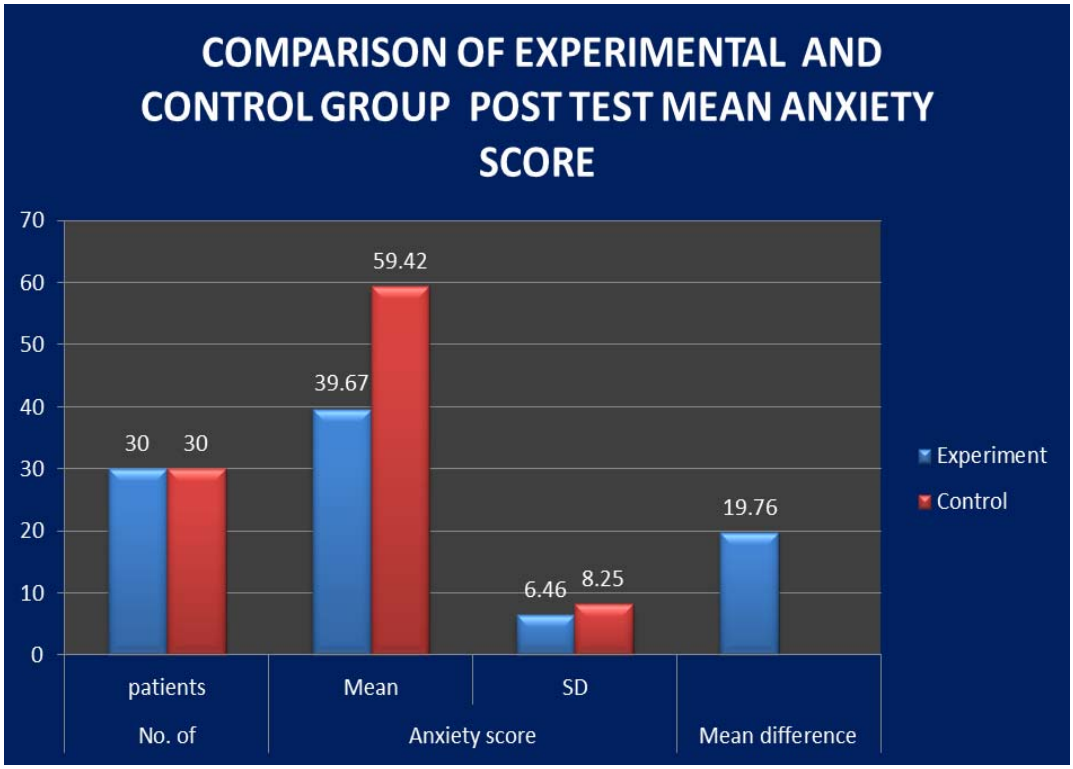


Figure17:Multiple bar diagram narrate frequency and percentage comparison of experimental and control group post test mean anxiety score of patient's posted for cardiac catheterization.

The above figure shows in experiment group patients are having 39.67 where as control group patients are having 59.42. So the difference is 19.76.

Section: V

Association of Post Test Level of anxiety with their selected Socio Demographic Variables and Clinical Variables in Experimental Group

Table -9

Association between level of Anxiety reduction score with their socio demographic variables (Experiment)

n=60

Socio Demographic variables		Level of Anxiety reduction score				Total	χ^2 Value	P Value
		Below average(≤28.8)		Above average(>28.8)				
		f	%	f	%			
Age	31 - 40 yrs	2	66.7	1	33.3	3	**8.93**	**0.01***
	41 - 50 yrs	11	73.3	4	26.7	15	**df=1**	**S**
	> 50 yrs	2	16.7	10	83.3	12		
Sex	Male	14	51.9	13	48.1	27	0.37	0.54
	Female	1	33.3	2	66.7	3	df=1	NS
Religion	Hindu	12	48.0	13	52.0	25	0.37	84
	Christian	2	7	1	3	3	df=1	NS
	Muslim	1	50.0	1	50.0	2		
Educational status	No formal education	2	66.7	1	33.3	3	**6.06**	**0.05***
	Primary education	13	59.1	9	40.9	22	**df=1**	S
	Higher secondary education	0	0.0	5	100	5		
Occupation status	Unemployed	7	70.0	3	30.0	10	6.07	0.10
	Agriculture	6	35.3	11	64.7	7	df=1	NS
	Self employment	2	100.0			2		
	Government employee			1	100	1		

Family Income	Rs.2000-3000	2	100.00	0	0.0	2	**9.00 df=1**	**0.05* S**
	Rs.3001-4000	5	71.4	2	8.6	7		
	Rs.4001-5000	8	44.4	10	55.6	18		
	> Rs.5000	0	0.0	3	100.	3		
Marital status	Married	15	50	15	50.0	0	0.00 df=1	1.00 NS
Type of family system	Nuclear family	13	46.4	15	53.6	8	2.14 df=1	0.15 NS
	Joint family	2	100.0			2		
Dietary pattern	Vegetarian	3	75.0	1	25.0	4	1.15 df=1	0.28 NS
	Non vegetarian	12	46.2	14	53.8	6		
Activity	Sedentary	2	50.0	2	50.0	4	4.24 df=1	0.12 NS
	Moderate	6	35.3	11	64.7	7		
	Heavy	7	77.8	2	22.2	9		
Habits	Smoking	1	50.0	1	50.0	2	1.04 df=1	0.79 NS
	Alcohol	13	52.0	12	48.0	25		
	Tobacco	1	50.0	1	50.0	2		
	Others			1	100.0	1		

Table 9 shows the association between level of Anxiety reduction score and patients demographic variables. Elders, more educated and more income patients are reduced more anxiety than others. Statistical significance was calculated using chi square test.

NS=Not significant

S=Significant

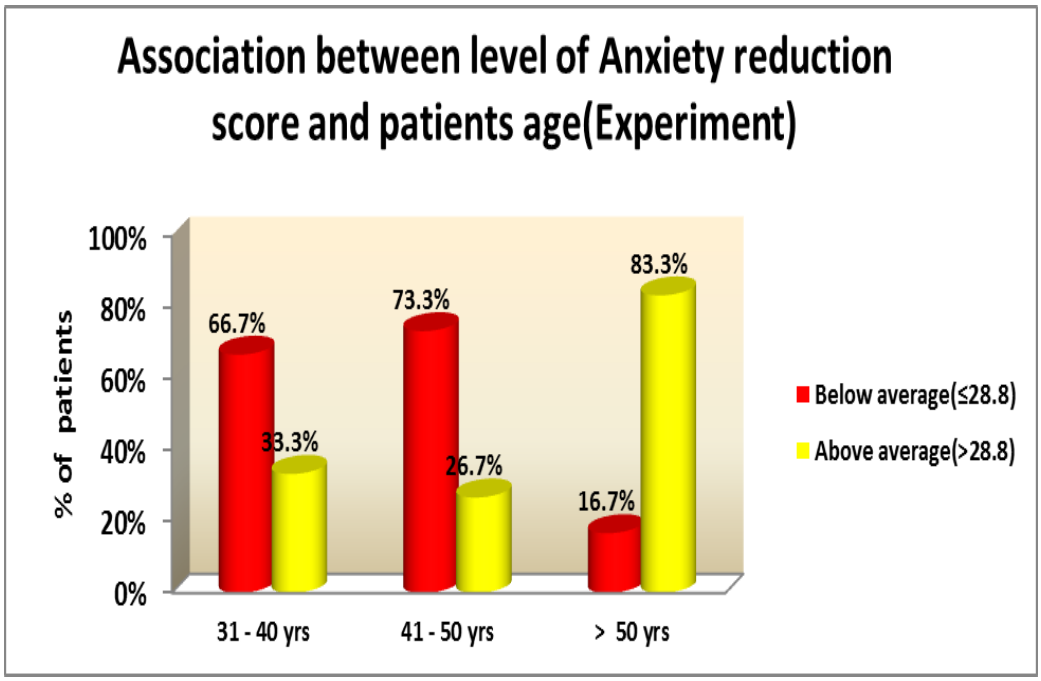


Figure 18:Multiple cylinder diagram explains the Association between level of anxiety reduction score and patients age (Experiment)

The above figure depicts that according to their age, above 50 years age group, the level of anxiety score reduction than other age group. The statistical significance was calculated using chi square test.

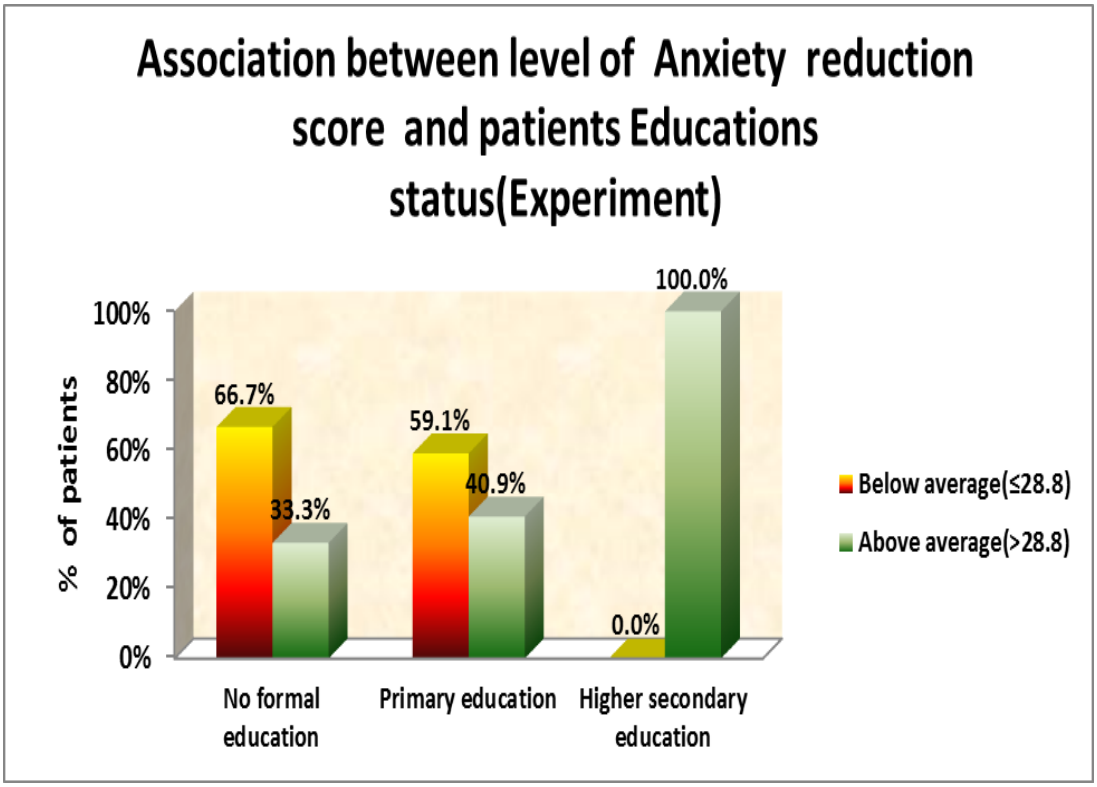


Figure 19:Multiple bar diagram says the Association between level of anxiety reduction score and patients educational status (Experiment)

The above figure says that according to their educational status, higher secondary education more significant reduction in level of anxiety score than others. The statistical significance was calculated using chi square test.

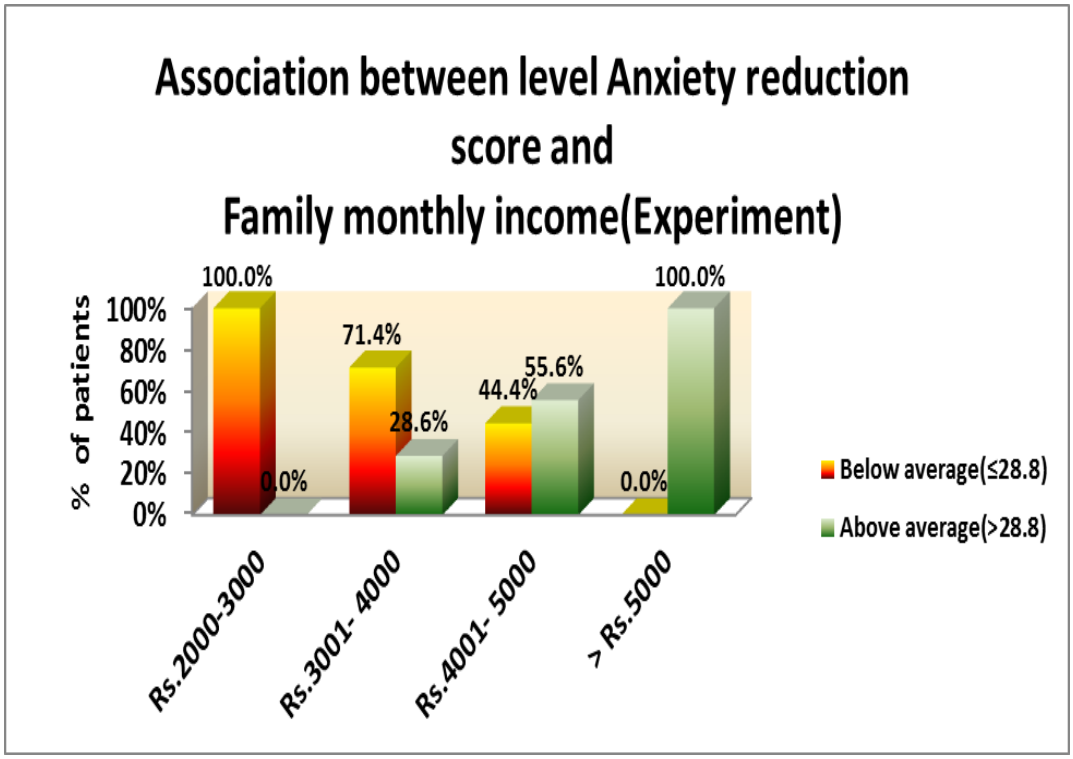


Figure 20:Multiple bar diagram narrate the Association between level of anxiety reduction score and patients Family monthly income(Experiment)

The above figure Narrate that according to their Family monthly income, Rs.5000 and above, had more in level of anxiety reduction score than others. The statistical significance was calculated using chi square test.

Table-10

Association between level of Anxiety reduction score and patients clinical variables (Experiment)

clinical variables		Level of Anxiety reduction score				Total	χ^2 Value	P value
		Below average(≤28.8)		Above average(>28.8)				
		f	%	F	%			
Disease	Angina	1	14.3	6	85.7	7	4.76 df=2	0.09 NS
	Coronary heart disease	13	61.9	8	38.1	21		
	Hypertension	1	50.0	1	50.0	2		
Duration of illness	1-2 year	3	23.1	10	76.9	13	**6.90 df=2**	**0.03* S**
	3-4 years	8	75.0	4	25.0	12		
	>5 years	4	80.0	1	20.0	5		
Family history of Heart Disease	Sibling	4	57.1	3	42.9	7	2.44 df=3	0.49 NS
	Parents	5	71.4	2	28.6	7		
	Grandparents	2	40.0	3	60.0	5		
	No history of heart disease	4	36.4	7	63.6	11		
Opinion about Heart Disease	Curable	8	57.1	6	42.9	14	0.53 df=1	0.46 NS
	Not curable	7	43.8	9	56.3	16		

Table 10 shows the association between level of Anxiety reduction score and patients demographic variables. Less duration of illness patients are reduced more anxiety than others. Statistical significance was calculated using chi square test.

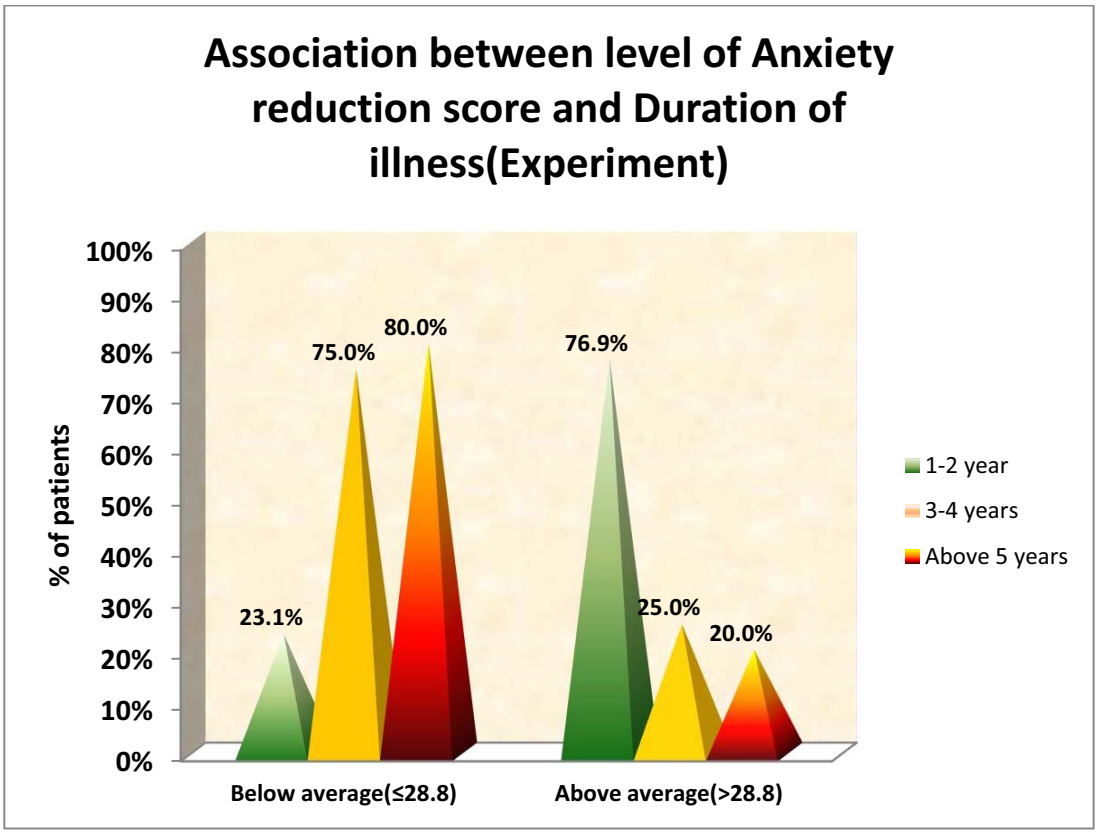


Figure 21:Multiple cone diagram explain the Association between level of anxiety reduction score and patients duration of illness(Experiment)

The above figure shows that according to the duration of illness, More than 5 years the level of anxiety reduction score than others. The statistical significance was calculated using chi square test.

Table-11

Association between level of Anxiety reduction score and patients demographic variables (Control)

Demographic variables		Level of Anxiety reduction score				Total	χ^2 Value	P Value
		Below average(≤2.46)		Above average(>2.46)				
		f	%	f	%			
Age	31 - 40 yrs	4	80.0	1	20.0	5	4.82 df=1	0.09 NS
	41 - 50 yrs	9	56.3	7	43.8	16		
	> 50 yrs	2	22.2	7	77.8	9		
Sex	Male	13	54.2	11	45.8	24	0.83 df=1	0.36 NS
	Female	2	33.3	4	66.7	6		
Religion	Hindu	10	50.0	10	50.0	20	1.66 df=1	0.44 NS
	Christian	3	75.0	1	25.0	4		
	Muslim	2	33.3	4	66.7	6		
Educational status	No formal education			2	100	2	2.16 df=1	0.33 NS
	Primary education	13	54.2	11	45.8	24		
	Higher secondary education	2	50.0	2	50.0	4		
Occupation status	Unemployed	5	62.5	3	37.5	8	1.55 df=1	0.66 NS
	Agriculture	8	47.1	9	52.9	17		
	Self employment	2	50.0	2	50.0	4		
	Government employee	0	0.0	1	100.0	1		
Family Income	Rs.2000-3000	3	100.0	0	0.0	3	7.25 df=1	0.10 NS
	Rs.3001-4000	8	66.7	4	33.3	12		
	Rs.4001-5000	4	30.8	9	69.2	13		
	> Rs.5000	0	0.0	2	100.0	2		
Marital status	Married	15	50.0	15	50.0	30	0.00 df=1	1.00 NS

Type of family system	Nuclear family	13	48.1	14	51.9	27	0.37 df=1	0.54 NS
	Joint family	2	66.7	1	33.3	3		
Dietary pattern	Vegetarian	0	0.0	3	100	3	3.33 df=1	0.06 NS
	Non vegetarian	15	55.6	12	44.4	27		
Activity	Sedentary	2	66.7	1	33.3	3	3.34 df=1	0.19 NS
	Moderate	8	66.7	4	33.3	12		
	Heavy	5	33.3	10	66.7	15		
Habits	Smoking			2	100	2	7.00 df=1	0.07 NS
	Alcohol	10	50.0	10	50	20		
	Tobacco	4	100.0			4		
	Others	1	25.0	3	75.	4		

Table 11 shows the association between level of Anxiety reduction score and patients demographic variables. None of the variables are signficant. Statistical significance was calculated using chi square test.

Table 12:

Association between level of Anxiety reduction score and patients clinical variables (Control)

clinical variables		Level of Anxiety reduction score				Total	χ^2	P value
		Below average(≤2.46)		Above average(>2.46)				
		f	%	f	%			
Disease	Angina	3	50.0	3	50.0	6		0.54
	Coronary heart disease	11	55.0	9	45.0	20	1.20 df=2	NS
	Hypertension	1	25.0	3	75.0	4		
Duration of illness	1-2 year	10	66.7	5	33.3	15		0.17
	3-4 years	4	36.4	7	63.6	11	3.48	
	>5 years	1	25.0	3	75.0	4	df=2	NS
Family history of Heart Disease	Sibling	3	50.0	3	50.0	6	1.00	0.80
	Parents	4	66.7	2	33.3	6	df=3	NS
	Grandparents	3	50.0	3	50.0	6		
	No history of heart disease	5	41.7	7	58.3	12		
Opinion about Heart Disease	Curable	8	47.1	9	52.9	17		
	Not curable	7	53.8	6	46.2	13	0.13 p=0.76 df=1	NS

Table 12: shows the association between level of anxiety reduction score and patients clinical variables. None of the variables are significant. Statistical significance was calculated using chi square test.

NS – Not Significant
S - Significant

Discussion

CHAPTER –V

DISCUSSION

Based on the objectives of the study and hypotheses, this chapter deals with the detailed discussion of the results of the data interpreted from the statistical analysis. The purpose of the study was to evaluate the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.

Cardiac catheterization is a diagnostic procedure which does a comprehensive examination of how the heart and its blood vessels function. Patients experience physiological and psychological distress before cardiac catheterization. Anxiety is the most common symptom observed inpatients posted for cardiac catheterization. In the cardiology ward, almost half of the cardiac patients verbalize that they feel anxious and are afraid of turning up for diagnostic procedure due to the fear of its complication.

The sample consists of 60 patients posted for cardiac catheterization (30 in experimental and 30 in control) was selected by Simple random sampling. Pretest was assessed by State anxiety inventory scale. Back massage intervention was given. Data analysis and interpretation were done by frequency, percentage, mean, standard deviation, paired, unpaired‘t’ test. The results of the study were discussed based on the objectives on following supportive studies.

5.1 Discussion of Socio Demographic Variables:

Aspect of age, majority of the study participants 15 (50%) were between 41-50 in experimental group, in the control group majority of the participants 16(53.3%) were between 41-50 years . Recent studies have suggested that most frequently performed procedure in patients older than 65 years of age.

Related to sex, the majority of study participants 27(90%) experimental group were male, 3(10%) were Female, same as control group. Study illustrated equally participated.

With regard to religion, majority of the study participants 25 (83.3%) in the experimental group belonged to Hindu religion. In the control group 20(66.7%) were as same religion.

As far as educational status, is concerned majority of the subjects in the experimental group were as 22(73.3%) attained primary education. In control group 24(80%) attained primary education.

In view of occupation in experimental group 17(56.7%) of the subjects were farmers doing agriculture, same as control group. Larger proportion of the subjects in the experimental group (56.7%) and (50%) in the control group doing agriculture because the hospital is the referral center and second biggest medical college hospital in Tamilnadu which has all specialty departments and also covers the chief ministers insurance scheme. Majority of the study participants in the experimental group (70%) and (60%) in control group received support from their spouse because majority of the participants are married.

In the earning perspective in experimental group 18(60%) of the subjects were earning between Rs.4001-5000/. In the control group majority of the subjects 13(43.3%) of the subjects earned between Rs.4001-5000/.

Discussion of Clinical Variables:

The above table shows regarding Disease**,** 21(70%) in the experimental group had coronary heart disease were control group majority of the subjects 20(66.7%) had same.

Duration of illness, Majority of the subjects in the experimental group 13(43.3%) had 1-2 years of duration. In the control group 15(50%) of the subjects had 1-2 year of duration.

Majority of the subjects Family history of heart disease**,** in experimental group 11(36.7%) had no history of heart disease. In the control group 12(40%) had no history of heart disease.

Opinion about heart disease, Majority of the study participants in the experimental group 16(53.3%) believed heart disease is not curable. In the control group 17(56.7%) of the subjects believed heart disease is curable.

Discussion of the study based on its Objectives:

The first objective was to assess the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.

The findings revealed that among the total number of 30 Subjects, the level of anxiety among patients posted for cardiac catheterization. In Experiment group ,In pretest, none of the patients are having mild anxiety, 10(33.3%) of them are having

moderate anxiety and 20(66.7%) of them are having severe anxiety. In control group, In pretest, none of the patients are having mild anxiety, 11(36.7%) of them are having moderate anxiety and19(63.3%) of them are having severe anxiety.

Jaber.S.et al (2007). conducted a cross over randomized experiment study to investigate the effectiveness of back massage and found statistically significant reduction in anxiety. P value <0.05.They concluded that a back massage was effective for decreasing anxiety and promoting relaxation.

Bradt.J. et al (2010), Compared the effects of backmassage intervention with standard care versus standard care alone on anxiety. From a total of 8 trials, they found that giving backmassage was beneficial for anxiety reduction.

The above results showed that there was a statistically significant reduction between the pretest and post test level of anxiety among patients with both group.

The second objective was to evaluate the effectiveness of back massage on level of anxiety in experimental group among patients posted for cardiac catheterization in cardiology ward, Government Rajaji Hospital, Madurai.

In experiment group, in pretest, patients are having 62.70 anxiety score and in posttest they are having 39.67 score , so the difference is 23.03 score after Back massage. This difference is large and it is statistically significant difference. It was calculated using student's paired t-test. In experiment group, in pretest, patients are having 62.70 anxiety score and in posttest they are having 39.67 score , so the difference is 23.03 score after Back massage. **Hence the stated H_1-"There is a significant difference between pretest and post test level of anxiety among**

patients posted for cardiac catheterization in experimental group" was accepted. The results were consistent with the following studies.

The study finding was also consistent with the study conducted by **Kahve E. (2013)** to determine the efficacy of back massage, a nursing intervention in Turkey, on anxiety reduction. The study was conducted on 40 patients. In their study, it was determined that mean anxiety scores decreased in the intervention group patients posted for cardiac catheterization. The level of anxiety in the intervention group decreased statistically significantly (p=.020; effect size=0.84). At the same time, the mean anxiety scores of the patients in the intervention group decreased right after the massage provided (p=.109; effect size=0.37).

Compare the post test level of anxiety in experimental and control group among patients posted for cardiac catheterization.

In experiment group, mean pretest anxiety score 62.70,SD-7.56, t value=0.39, Post test Mean Anxiety Score 39.67,SD-6.46 .The mean difference was 23.03,In control group, pre test Mean Anxiety Score 61.90,SD-8.17, Post test Mean Anxiety Score 59.43,SD-8.26.The mean difference was 8.26. Comparison of pre test mean anxiety score using independant t- test. The P value is 0.69, t=0.39. Comparison of post test mean anxiety score using independent t-test. The P value is 0.001, t=10.32. Hence the stated "**H_2-there is a Significant difference between posttest level of anxiety among patients posted for cardiac catheterization in experimental group and control group in cardiology ward" was accepted.**

The third objective was to associate the level of anxiety among patients posted for cardiac catheterization with their selected socio demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai.

A significant association was noted between the educational status and level of anxiety among clients belonged to post test experimental group. The statistical significance was found using chi-square test (t=6.06 p=0.05*) a significant association was also noted between the family income and level of anxiety among clients belonged to post test experimental group, with a statistical significance of (t=9.00 p=0.05*). a significant association was also noted between the duration of illness and level of anxiety with clinical variable among clients belonged to post test experimental group, with a statistical significance of (t=6.90 p=0.03*).

A highly significant association was noted between age and level of anxiety among patient belonged to post test experimental group. The statistical significance was found using chi-square test (t=8.93 p=0.01**). **Hence the statedH_3-there is a significant association between the level of anxiety among patients posted for cardiac catheterization with their selected demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai was accepted.**

The study was also consistent with **Molradipanah.et al. (2009).** Conducted a randomized controlled trail with pre and post intervention with back massage for patients undergoing cardiac catheterization. Anxiety scores among the back massage were related and statistically significant for anxiety (p=0.006). The author concluded that the group received massage intervention experienced a decrease in anxiety level before undergoing cardiac catheterization.

Summary, Conclusion, Implications & Recommendations

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study and conclusions drawn. It also clarifies the implications for different areas like nursing education, administration, nursing practice, nursing research and recommendations.

6.1 Summary:

The present study was aimed at evaluating the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward.

The objectives of the study were:

- To assess the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.
- To evaluate the effectiveness of Back massage on level of anxiety in experimental group among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital, Madurai.
- To associate the level of anxiety among patients posted for cardiac catheterization with their selected Socio demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai.

The following Hypotheses were tested at 0.001 level

H_1-There is a significant difference between pre-test and post-test level of anxiety among patients posted for cardiac catheterization in experimental group in cardiology ward at Government Rajaji Hospital, Madurai.

H_2-There is a Significant difference between posttest level of anxiety among patients posted for cardiac catheterization in experimental group and control group in cardiology ward at Government Rajaji Hospital, Madurai.

H_3-There is a significant association between the level of anxiety among patients posted for cardiac catheterization with their selected demographic and clinical variables in cardiology ward at Government Rajaji Hospital, Madurai.

The conceptual frame work for this study was based on Modified wiedenbach's helping art clinical nursing theory. True experimental research design was used. The independent variable was back massage and dependent variables were level of anxiety. The accessible population of the study was patients posted for cardiac catheterization in cardiology ward, Government Rajaji Hospital, Madurai.

Assumption of the study :

Patients posted for Cardiac Catheterization may have varying level of anxiety, Patients with cardiac problem may undergo cardiac catheterization.

The study subjects were selected using Probability-Simple Random sampling and were assigned to experimental and control group (30 in each group).The data collected were analyzed by using descriptive and inferential statistics.

6.2 Major findings of the study:

- Aspect of age, majority of the study participants 15 (50%) were between 41-50 in experimental group and control group.
- Sex, the majority of study participants 27(90%) experimental group were male, 3(10%)were Female. In the control group majority of study participant 24(80%) were female.
- Religion, majority of the study participants 25 (83.3%) in the experimental group belonged to Hindu religion. In control group also same.
- As far as educational status, is concerned majority of the subjects in the experimental group were as 22(73.3%) attained primary education, 24(80%) attained primary education in control group.
- In view of occupation in experimental group 17(56.7%) of the subjects were farmers doing agriculture and In the control group majority of the subjects 17(56.7%) were farmers doing agriculture.
- The earning perspective in experimental group 18(60%) of the subjects were earning between Rs.4001-5000. In the control group majority of the subjects 13(43.3%) of the subjects earned between Rs.4001-5000/.
- Aspect of Mariatal status, Majority of the study participants 30(100%) in experimental group were married. In control group 30(100%) of the population were married.
- Type of family system, 28(93.3%) in experimental group were between Nuclear family
- Dietary pattern, 26(86.7) were between Non vegetarian in experimental group, 27(90%) were in control group.

- Activity, majority of the study population 17(56.7%) were moderate workers in experimental group. In control group majority of the subjects 15(50%) were heavy workers
- Majority of the study participants Habits, experimental group 25(83.3%) were between alcohol. In the control group majority of the subjects 20(66.7%) were between alcohol.
- Duration of illness, Majority of the subjects in the experimental group 13(43.3%) had 1-2 years of duration. In the control group 15(50%) of the subjects had 1-2 year of duration.
- In experiment group patients are having 62.70 where as control group patients are having 61.90 So the difference is 0.80. This difference is small and it is not statistically significant. It was confirmed using student independent t-test.* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$ .t=0.39. Using student independent t-test.* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$, t=10.32
- On an average, in pretest, experiment group patients are having 78.4% anxiety score and in posttest they are having 49.6%. On an average, in pretest, control group patients are having 77.4% anxiety score and in posttest they are having 74.3% .
- On an average, experiment group patients are gained 28.8% of anxiety score. **This anxiety decrease shows the effectiveness of the study**. Differences between pretest and posttest score was analysed using mean difference with 95% CI and proportion with 95% confidence interval.

6.3 Conclusion:

The statistical evidence proved that Back massage was effective intervention that reduce the level of anxiety among patients posted for cardiac catheterization .Hence The researcher concluded that it was effective intervention to reduce the level of anxiety in other settings.

6.4 Implications:

- The investigator had drawn implications from this study for various areas such as practice, nursing education, nursing administration and nursing research.
- The finding of the present study supports that, back massage is safe, effective and no cost almost are not harmful to health. It was proved that alternative management was effective to reduce the level of anxiety among patients posted for cardiac catheterization in cardiology ward.

Implications for Nursing Practice:

- The nurses must be trained to assess anxiety level of patients who posted for cardiac catheterization.
- The nurses must have the understanding of the need to provide non pharmacological, cost effective approaches to improve patients experiences and outcomes in invasive procedures.
- In the clinical area, provision can be made to provide Back massage sessions to patients who posted for cardiac catheterization as the findings of this study clearly enlighten its effectiveness in reducing anxiety.
- Nursing personnel can incorporate the provision back massage as a routine part of preparation for cardiac catheterization procedure.

- The nurses should educate the patients about the benefits of back massage and encourage the patients to practice it.

Implications for Nursing Education:

- The concept of back massage should be included in the nursing curriculum.
- A well organised Continuing Nursing Education Programme that focuses on Complementary Alternative Therapies which include Back massage can be conducted as an in service programme for all nursing personnel.

Implications of Nursing Administration:

- The nurse administrators can motivate, supervise and guide the nurses in the assessment of patients anxiety before cardiac catheterization.
- The nurse administrators can recommend giving back massage part of daily routine to reduce the anxiety for patients who posted for cardiac catheterization.
- The nurse administrators can also encourage the nurses to use other safe, cost effective intervention such as transcendental meditation, deep breathing exercise to reduce anxiety.
- Video assisted teaching programme can be arranged to motivate the patients care givers.

Implications for Nursing Research:

- The nurse researcher should motivate the clinical nurses to apply research findings and can bring out new innovative procedures to reduce anxiety of patient who posted for cardiac catheterization.

- The nurse researcher should encourage clinical nurse to conduct further research studies on back massage on other aspect of cardiac catheterization such as post operative pain.
- This study can be used as a baseline for future studies to build upon.
- Study can be done in different settings.

6.5 Recommentations:

This study can be replicated with a large sample size for better generalization.

- A comparative study can be done between back massage and other complementary alternative therapies to evaluate the effectiveness of reducing anxiety before cardiac catheterization.
- A study can be conducted to assess the current knowledge, skill and attitude of nursing staffs on complementary and alternative therapies for the management of anxiety before cardiac catheterization.
- The effect of back massage can be assessed in combination with other relaxation procedures like meditation, progressive muscles relaxation procedures in reducing anxiety before cardiac catheterization.
- The effectiveness of back massage can be tested for other disease conditions.
- Study can be conducted in a different setting such as home.

References

REFERENCES

Books:

1. Basavanthappa.B.T, (2007). *Nursing Research*. (2nd ed). New Delhi: Jaypee Brother Medical Publishers (P) Limited.
2. Basavanthappa.B.T, (2009). *Medical Surgical Nursing*.S (2nd ed). Jaypee brother's medical publishers.
3. Barbara.K.Timby. (2007). *Introductory medical surgical Nursing*. London: Lippincott Williams &Wilkins.
4. CarolTaylor.CarolLillis.Pricilla.Lemone, (2003). *Fundamentals of Nursing.* NewDelhi: Wolters Kluwer Health. Private Limited.
5. Christine Maskenwnshki, (1997). *An essential guide for patient care.* Philadelphia:W.B.Saunders Company.
6. Connie Henke Yarbro. Barbara Holmes Gobel. (2011). *Principles and Practice of Nursing*. (7th ed). Bartlett publishers. United Kingdom.
7. Glencoe. (1996). *Understanding Psychology*. (4thed). California. MC.Grow Hill.
8. Joyce.M.Black. (2005). *Medical-Surgical Nursing*. (7thed). India: Elsevier publication.
9. Kothari.C.R, (2001). *Research Methodology: Methods and Techniques* (2nd ed). NewDelhi: VishvaPrakash Publishers.
10. Kozier, Barbara, et al. (2000). *Fundamentals of Nursing: Concepts, Process, and Practice. (*6th ed). Upper Saddle River, NJ, Prentice Hall Health publishers.
11. Kumar and Clark. (2002). *Clinical Medicine*. (5th ed).W.B. U.K.Saunders Pvt Ltd.

12. Lewis. (2011). *Text book of Medical Surgical Nursing. (*9th ed). Mosby. st.Louin Missouri.
13. Lippincott Williams Wilkins. (2010). *Manual of Nursing Practice*. (9 thed). NewDelhi: Wolters Kluwer (India) Pvt Ltd.
14. Long Phipps. (1993). *Medical Surgical Nursing*.(3rd ed). London: Mosby.
15. Lois White. Gena Duncan. WendyBaule. (2013) *Medical Surgical Nursing-An Integrated Approach.(*3rd ed). Delmar publishers.
16. Mahajan.B.K. (1991). *Methods in Biostatistics*. New Delhi :Jaypee Brothers
17. Marriner-Tomey, Ann, and Alligood, Martha R. (1998). *Nursing Theorists and Their Work. (*4th ed). St. Louis, Mosby publications.
18. Nichola.A.Boon. (2006). *Davidson's Principles and Practice of Medicine*. NewYork: Churchill Livingstone.
19. Polit.Beck.Hungler. (2001). *Essentials of Nursing Research*. (4thed). Philadelphia: Lippincott Raven Publishers.
20. Priscilla Lemone. Karen Burke. (2008). *Critical thinking in Client Care. Medical Surgical Nursing (*4th ed). Pearson Prentice hall publishers.
21. Rose Marie Linda. (2008). *Foundations of Nursing Research*. (5thed). NewDelhi: Pearson Prentice Hall.
22. Shirley.E.Otto. (2001). *Therapeutic Nursing*. (4thed). Missouri: Mosby Publications.
23. Suzanne.C.Smeltzer Brenda G.Bare. (2009). *Textbook of Medical Surgical Nursing. (*9th ed). Lippincott Publications.
24. Snyder, Mariah, and Lindquist, Ruth, *Complementary / Alternative Therapies in Nursing*. (4thed). New York, Springer publications.

Journal Reference:

1. Sanying Peng1, Bie Ying2, Yi Chen. (2014). Effects of Massage on the Anxiety of Patients receiving Percutaneous Coronary Intervention Department of Physical Education, China.
2. Chen WL[1], Liu GJ, Yeh SH, Chiang MC. (2013). Effect of back massage intervention on anxiety, comfort, and physiologic responses in patients with congestive heart failure**:**Journal of Alternative Complementary Medicine.(5).464-70.
3. Nakipoglu-Yuzer, G.F., Dogan-Aslan, M., Dogan, A., Ozgirgin, N., (2010).The effect of the stroke etiology on functional improvement in our geriatric hemiplegic patients:Journal of stroke and cerebrovascular disease. 19(3).204-208.
4. MacNamara, M.E., Burnham, D.C., Smith, C., Caroll, D.L., (2010).The effect of back massage before diagnostic cardiac catheterization.:Journal of Alternative Therapies in Health and medicine.5(2).50-57.
5. Cutshall SM, Wentworth LJ, Engen D, Sundt TM, Kelly RF, Bauer BA.(2010). Effect of massage therapy on pain, anxiety, and tension in cardiac surgical patients:Complementary Therapies in Clinical Practice.(16).92–95.
6. Jane SW, Wilkie DJ, Betty B. Gallucci, Beaton RD, Huang H.(2009). Effects of a Full-Body Massage on Pain Intensity, Anxiety, and Physiological Relaxation in Taiwanese Patients with Metastatic Bone Pain .37(4).754-763.
7. Sahbaee, F., Mahammadzadeh, SH., Ebrahimi, I., Zolfaghari, F.(2009).The effect of Swedish massage in Blood Pressure:Journal of medical science.8 (3). 167-170.

8. Abolhasani S.(2009). Effects of sensuous stimulation on anxiety in the patients hospitalized in coronary care unit.Sci J Kurdistan University:Journal of medicine.(12).44–52.
9. Cambron, J.A., Dexheimer, J., Coe, P., (2009). Changes on Blood Pressure after Various form of Therapeutic Massage.A Preliminary study:Journal of Alternative and Complementary medicine.
10. Cherkin DC, Sherman KJ, Deyo RA, Shekelle PG. (2009).A review of the evidence for the effectiveness, safety, and cost of acupuncture, massage therapy, and spinal manipulation for back pain:International Medicine. 138(11).898-906.
11. Smith MC, Kemp J, Hemphill L, Vojir CP. (2009).Outcomes of therapeutic massage for hospitalized cancer patients.34(3).257–262.
12. Okvat, Heather A.;Oz, Mehmet. (2008). Massage Therapy For Patients Undergoing Cardiac Catheterization.
13. Hollland, B., Polcarney, M.E. (2008). Slow stroke back massage: its effects on patients in rehabilitation setting:Journal of Rehabilitation Nursing.26(5).182-186.
14. Hernandez-Rief, M.J., Krasengor, F., Theakston, H., Hossain, Z., Burman, I., (2008).High Blood pressure and associated symptoms were reduced by massage therapy:Journal of body work and movement therapies.(1).31-38.
15. McCaffrey R, Taylor N. (2008). Effective anxiety treatment prior to diagnostic cardiac catheterization. Holistic Nursing Practice. 19(2).70–73.

16. Mok, E., Woo. (2008). The effect of slow-stroke back massage on anxiety and shoulder pain in elderly stroke patients:Journal of Complementary Therapies in Nursing and Midwifery.10(1). 209-216.
17. RahmaniAnaraki, H., Abdollahi, A.A., Nasiri, H., Vakili, M.A., (2008). The effect of back massage on physiological aspects of critical care unit patients:Journal of Gorgan university of medical science.3(8).53-58.
18. Hernandez-Reif M, Field T, Krasnegor J, Theakston H. (2007). Lower back pain is reduced and range of motion increased after massage therapy: International Journal of Neuroscience. (106).131–145.
19. Baker DB, Karasek RA: Stress. (2007). In Occupational Health - Recognizing and Preventing Work-Related Disease and Injury. Edited by Levy BS, Philadelphia: Lippincott Williams and Wilkins. 419-435.
20. Wiles A, Taylor H, Wade S, Walsh R, (2007). Measuring the sleep of older people: tool development and use in the evaluation of therapeutic massage. Nursing Times Research. 55-64.
21. Ahles, t., Tope, D., Pinkson, B., Walch, S., Hann, D., Whedon, M., (2006). Massage Therapy for Patients Undergoing Autologous Bone Marrow Transplantation: Journal of Pain and Symptom Management.18(3)157-163.
22. Culpepper-Richards K. (2006).Effect of a Back Massage and Relaxation Intervention on Sleep in Critically Ill Patients:American Journal of Critical Care.7(4).288-299.
23. Hulme J, Waterman H, Hillier VF, (2006). The effect of foot massage on patients' perception of care following laparoscopic sterilization as day case patients. Journal of Advanced Nursing. (30).460–468.

24. Eisenberg DM, Davis RB, Ettner SL, et al. (2006). Trends in alternative medicine use in the United States: results of a follow-up national survey:Journal of the American Medical Association.(18).1569-1575.
25. Tirgari, A., Zolfaghari, F., Sohrabi, (2006). Assessment of Effect of Drag therapy and Relxation education on primary Hypertension:Journal of Mazandaran University of Medical Sciences.(16).12.
26. Dunn C, Sleep J, Collett D, (2006) an experimental study to evaluate the use of aromatherapy massage and periods of rest in an intensive care unit:Journal of Advanced Nursing.(21).34-40.
27. Ferrell-Torry AT, Glick OJ. (1993) The use of therapeutic massage as a nursing intervention to modify to modify anxiety and the perception of cancer pain. Cancer Nursing. 16(2).93-101.
28. Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. (1993). Unconventional medicine in the United States. Prevalence, costs, and patterns of use:Nursing England Journal Medicine.328(4).246-52.

Net Reference:

1. http://www.bps.medicine.com
2. http://www.medline.com
3. http://www.ask.com
4. http://www.nami.com
5. http://www.alz.org
6. http://www.censusindia.org
7. http://www.therapytimes.com/content
8. http://www.pubmed.com
9. http://www.ncbi.nlm.nih.gov
10. http://www.nursingtimes.net
11. http://www.wikipedia.com
12. http://www.currentnursing.com
13. http://www.supportivecardiology.net

Appendices

APPENDIX-I

PERMISSION LETTER TO CONDUCT STUDY IN GOVERNMENT RAJAJI HOSPITAL,MADURAI.

FROM,

SOPHIA.G

M.SC NURSING 1ST YEAR STUDENT

SPECIALITY:MEDICAL SURGICAL NURSING

COLLEGE OF NURSING

MADURAI MEDICAL COLLEGE.

TO,

THE DEAN

MADURAI MEDICAL COLLEGE

MADURAI-20.

THROUGH PROPER CHANNEL

RESPECTED SIR,

SUB: College Of Nursing , Madurai Medical College ,Madurai-M.SC (N) 1 st Year, Medical and Surgical Nursing Student –Permission For Conducting Study in Cardiology Department at Government Rajaji Hospital-requested-regarding,

I ,Mrs .Sophia. G ,M.sc (N) 1st Year Student, College of Nursing ,Madurai Medical College ,Madurai in fulfilment of M.sc Nursing Course ,have a plan to conduct a study on topic mentioned below at Cardiology department at Government Rajaji Hospital,Madurai-20.I assure that I will not interfere with the routine activity of the department. The topic is "A Study to evaluate the "EFFECTIVENESS OF BACK MASSAGE ON THE LEVEL OF ANXIETY" among patient posted for cardiac catheterization in cardiology department, at Government Rajaji Hospital ,Madurai.

Thanking You,

DATE:

11-9-14

Your's Faithfully,

Sophia.G

Principal
COLLEGE OF NURSING
Madurai Medical College
Madurai-20.

The procedure should not be harmful to the patient. She is permitted to do the study.

Dr. G. BALASUBRAMANIAN, M.D.,D.M.,
Professor of Cardiology
Madurai Medical College
Govt. Rajaji Hospital
Madurai-20
Reg No. 44916

APPENDIX-II

Ethical Committee Approval Letter

Ref.No.10949/E1/5/2014

Madurai Medical College,
Maduai -20. Dated: 22 -12.2014.

Institutional Review Board/Independent Ethics Committee
Dean, Madurai Medical College &
Government Rajaji Hospital, Madurai 625 020 . Convenor
Capt.Dr.B.Santhakumar,MD (FM). deanmdu@gmail.com

Sub: Establishment – Madurai Medical College, Madurai-20 –
Ethics Committee Meeting – Meeting Minutes - for November 2014 –
Approved copy – reg.

The Ethics Committee meeting of the Madurai Medical College, Madurai was held on November 25th 2014 at 10.00 Am to 12.00 Noon at Anaesthesia Seminar Hall at Govt. Rajaji Hospital, Madurai . The following members of the Ethics Committee have attended the meeting.

1.Dr.V.Nagarajan,M.D.,D.M(Neuro) Ph: 0452-2629629 Cell No.9843052029 nag9999@gmail.com.	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2.Dr.Mohan Prasad, MS.M.Ch. Cell.No.9843050822 (Oncology) drbkcmp@gmail.com	Professor & H.O.D of Surgical Oncology (Retired) D.No.32, West Avani Moola Street, Madurai.-1	Member Secretary
3. Dr.L.Santhanalakshmi, MD (Physiology) Cell No.9842593412 dr.l.santhanalakshmi@gmail.com.	Vice Principal, Prof. & H.O.D. Institute of Physiology Madurai Medical College	Member
4.Dr.K.Parameswari, MD(Pharmacology) Cell No.9994026056 drparameswari@yahoo.com.	Director of Pharmacology Madurai Medical College.	Member
5.Dr.S.Vadivel Murugan, MD., (Gen.Medicine) Cell No.9566543048 svadivelmurugan_2007@rediffmail.com.	Professor & H.O.D of Medicine Madurai Medical College	Member
6.Dr.A.Sankaramahalingam, MS., (Gen. Surgery) Cell.No.9443367312 chandrahospitalmdu@gmail.com	Professor & H.O.D. Surgery Madurai Medical College.	Member
7.Mrs.Mercy Immaculate Rubalatha, M.A., Med., Cell.No.9367792650 lathadevadoss86@gmail.com	50/5, Corporation Officer's Quarters, Gandhi Museum Road, Thamukam, Madurai-20.	Member
8.Thiru.Pala.Ramasamy, B.A.,B.L., Cell.No.9842165127 palaramasamy2011@gmail.com	Advocate, D.No.72,Palam Station Road, Sellur, Madurai-20.	Member
9.Thiru.P.K.M.Chelliah, B.A., Cell No.9894349599 pkmandco@gmail.com	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20.	Member

The following Project was approved by the Ethical Committee

Name of P.G.	Course	Name of the Project	Remarks
Mrs.Sophia.G sophiageorge11@gmail.com	MSc (Nursing) Medical Surgical Nursing, Madurai Medical College, Madurai	A study to evaluate the "Effectiveness of back massage on the level of anxiety" among patient posted for cardiac catheterization in cardiology department, at GRH, Madurai.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain it confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government.
2. She/He should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.
3. She/He should not deviate the area of the work for which applied for Ethical clearance. She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/He should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and if any Extension of time is required He/She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the work or on completion.
8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

22/12/14

Member Secretary
Ethical Committee

Chairman
Ethical Committee

22.12.14

DEAN/Convenor
Madurai Medical College &
Govt. Rajaji Hospital, Madurai.

To
The above Applicant
-thro. Head of the Department concerned

22/12/14

APPENDIX III

Training Certificate for Back Massage

THE VALLIAMMAL INSTITUTION (TVI)

2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009.

✆ 98942 49630; 98430 40226 email: ananthibetsy@rediffmail.com

Reg. No. PCC/50/Aug.15/306 Date: 29/05/15

Certificate Course in Basic Counselling Skills and Back Massage

This is to certify that .....G. SOPHIA..... *has completed our* **CERTIFICATE COURSE IN BASIC COUNSELLING SKILLS AND BACK MASSAGE** (*24 hrs Part-time Education Programme designed and offered by experts) by effectively participating in theory & practical classes and successfully completing all the exercises. She has been placed in* **First Class**

THE VALLIAMMAL INSTITUTION (TVI) 2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony, Madurai-625 009 Ph: 4210258

Prof. Dr. S. Jeyapragasam M.Sc.,M.A.,M.A.,Ph.D.,
Director
Rajarajan Institute of Science (RISE)

Dr. B. Ananthavalli M.Sc.,M.A.,M.Phil.,Ph.D.,
Director & Secretary
The Valliammal Institution (TVI)

APPENDIX IV

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- State anxiety inventory

Prepared for data collection by Mrs.Sophia.G II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled "A study to assess the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterisation in cardiology ward at government rajaji hospital madurai-20."has been validated by me.

SIGNATURE OF THE EXPERT

NAME: Prof. Dr. A.S. ARUL, M.D., DNB., D.M
Professor of Cardiology
Govt. Rajaji Hospital &
Madurai Medical College
Madurai-20

DESIGNATION:

ADDRESS:

DATE: 06/05/2015

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- State anxiety inventory

Prepared for data collection by Mrs.Sophia.G II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled "A study to assess the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterisation in cardiology department at government rajaji hospital madurai-20."has been validated by me.

20/7/15

SIGNATURE OF THE EXPERT

NAME: S. CHANDRA KALA.

DESIGNATION: VICE PRINCIPAL

ADDRESS: Prof. S. CHANDRAKALA, MSc. (N)
VICE PRINCIPAL, HOD OF MED. SUR.DEPT,
MADURAI

DATE: 20/7/15

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- State anxiety inventory

Prepared for data collection by Mrs.Sophia.G II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled "A study to evaluate the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterisation in cardiology Ward at government rajaji hospital madurai-20."has been validated by me.

R. Gowri.

SIGNATURE OF THE EXPERT

NAME: Gowri. R

DESIGNATION: ~~Prof~~ Asst. Professor

ADDRESS: Annai college of Nursing

DATE: 24/8/2015

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool

SECTION A- Demographic Data

SECTIONB- State anxiety inventory

Prepared for data collection by Mrs.Sophia.G II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled "A study to assess the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in Cardiology ward at Government Rajaji Hospital ,Madurai-20."has been validated by me.

28/5/15

SIGNATURE OF THE EXPERT

B. PRIYADHARSINI

NAME:

DESIGNATION: ASST. PROFESSOR

ADDRESS: KG College of Nursing, KG Hospital, Coimbatore.

DATE: 28/5/15

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- State anxiety inventory

Prepared for data collection by Mrs.Sophia.G II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled "A study to Evaluate the effectiveness of back massage on the level of anxiety among patients posted for cardiac catheterization in cardiology ward at Government Rajaji Hospital Madurai-20."has been validated by me.

SIGNATURE OF THE EXPERT

NAME: DR.S.SRIDEVY

DESIGNATION: Assistant Professor

ADDRESS: College of Nursing, Mother Theresa PG & RI-HS, Puducherry-6

8/8/15

APPENDIX V

CONSENT FORM

ஒப்புதல் அறிக்கை

பெயர்: **தேதி:**

எனக்கு இந்த ஆய்வைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு பெறுவதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்துகொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன் வந்து பங்குபெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய சிகிச்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுத்திக் கொள்ள அனுமதி அளிக்கின்றேன். என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX VI

Semi structure interview schedule

Section-A

1. Age ( )

a) 31-40 yrs

b) 41 - 50 yrs

c) >50 yrs

2.Gender ( )

a)Male

b)Female

3. Religion ( )

a) Hindu

b) Christian

c) Muslim

4. Educational status ( )

a) No formal education

b) Primary education

c) Higher secondary education

d)Graduation

5. Occupation status ( )

a) Unemployed

b) Agriculture

c) Self employement

d) Government employee

6. Family monthly Income ( )

a)Rs.2000-3000

b) Rs.3001- 4000

c) Rs.4001- 5000

d) >Rs.5000

7.Marital status ( )

a) Married

b)Unmarried

8. Type of family ( )

a) Nuclear family

b) Joint family

9. Dietary pattern ( )

a) vegetarian

b) Non vegetarian

10.Activity ( )

a)Sedentary

b)Moderate

c) Heavy

11.Habits ( )

a) Smoking

b) Alcohol

c) Tabacco

d) Others

Clinical variables

11. Disease ( )

a) Angina

b) Coronary Heart disease

c) Hypertension

12. Duration of illness ( )

a)1-2 year

b)3-4 years

c)>5 years

13. Family History Of Heart Disease ( )

a) Siblings

b) Parents

c) Grand parents

d) No history of heart disease

14.Opinion about Heart disease ( )

a)Curable

b)Not curable

Section-B

State Anxiety Inventory

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now ,that is ,at this moment.

S.No	Questions	Not at all	Some what	Moderately so	very much so
1*	I Feel Calm	1	2	3	4
2*	I Feel Secure	1	2	3	4
3	I Feel Tensed	1	2	3	4
4	I Feel Strained	1	2	3	4
5*	I Feel at Ease	1	2	3	4
6	I Feel Upset	1	2	3	4
7	I am Presently Worrying Over Possible Misfortunes	1	2	3	4
8*	I Feel Satisfied	1	2	3	4
9	I Feel Frightened	1	2	3	4
10*	I Feel Comfortable	1	2	3	4
11*	I Feel Self Confident	1	2	3	4
12	I Feel Nervous	1	2	3	4
13	I am Jittery	1	2	3	4
14	I Feel indecisive	1	2	3	4
15*	I am Relaxed	1	2	3	4
16*	I Feel Concern	1	2	3	4
17	I am Worried	1	2	3	4
18	I Feel Confused	1	2	3	4
19*	I Feel Steady	1	2	3	4
20*	I Feel Pleasant	1	2	3	4

Note:*-Reversed items

தன்னிலை விபரக்குறிப்பு

1. வயது ( )

அ. 31- 40வயது

ஆ. 41 - 50வயது

இ. 50 வயதிற்கு மேற்பட்டவர்

2. பாலினம் ( )

அ. ஆண்

ஆ. பெண்

3. மதம் ( )

அ. இந்து

ஆ. கிறிஸ்தவர்

இ. முஸ்லீம்

4. கல்வித்தகுதி ( )

அ. படிப்பறிவில்லாதவர்

ஆ. தொடக்ககல்வி

இ. மேல்நிலைக்கல்வி

ஈ. பட்டபடிப்பு

5. பணியின் தன்மை ( )

அ. வேலைக்கு செல்லாதவர்

ஆ. விவசாயவேலை

இ. சுயதொழில

ஈ. அரசுபணியாளர்

6. குடும்ப மாதவருமானம் ( )

அ. ரூ.2000 - 3000

ஆ. ரூ.3001 - 4000

இ. ரூ.4001 - 5000

ஈ. ரூ.5001க்கும் மேல்

7. திருமணநிலை ( )

அ. திருமணமானவர்

ஆ. திருமணமாகாதவர்

8.குடும்பவகைகள் (

அ. தனிக்குடும்பம்

ஆ. கூட்டுக் குடும்பம்

9. உணவுபழக்கவழக்கம் ( )

அ. சைவம்

ஆ. அசைவம்

10. செயல்பாடு ( )

அ. உடல் உழைப்புசெயல்பாடில்லாத

ஆ. இயல்பானவேலை

இ. கடினமானவேலை

11. பழக்கவழக்கம் ( )

அ. புகைபிடித்தல்

ஆ. குடிப்பழக்கம்

இ. வெற்றிலைப் போடுதல்

ஈ. மற்றவைகள்

12. நோய் ( )

அ. நெஞ்சுவலி

ஆ. இதயநோய்

இ. இரத்தக் கொதிப்பு

13. நோயின் காலநிலை ( )

அ. 1 முதல் 2 வருடம் வரை

ஆ. 3முதல் 4 வருடம் வரை

இ. 5 முதல் 6 வருடம் வரை

14. இருதயநோய் குடும்பவரலாறு ( )

அ. உடன்பிறப்பு

ஆ. பெற்றோர்கள்

இ. பெற்றோர்கள் வழங்க

ஈ. இருதயநோய் வரலாறு இல்லை

15. இருதயநோய் பற்றி உங்கள் கருத்து ( )

அ. குணபடுத்தக்கூடியது

ஆ. முற்றிலுமாககுணப்படுத்தமுடியாது

படிவம் - இ
மனஉணர்வைமதிப்பிடும் பட்டியல்

பின்வரம் கூற்றுகள் உங்கள் மனஉணர்வைப் பற்றி கேட்கப்பட்டுள்ளன. இதில் சரி,தவறு என்று பதில் கிடையாது. இவற்றில் சரியானது என்று நீங்கள் உணர்வதைவட்டமிடவும்.

வ.எண்	கூற்றுகள்	இல்லை	ஓரளவு	முதமானஅளவு	அதிக அளவு
1.	நான் அமைதிநிலையில் இருக்கிறதாகஉணர்கிறேன்	1	2	3	4
2.	நான் பாதுகாப்பாகஉள்ளதாகஉணர்கிறேன்	1	2	3	4
3.	நான் மன இறுக்கத்துடன் இருக்கிறேன்.	1	2	3	4
4.	நான் மனஅழுத்தம் இருப்பதாகஉணர்கிறேன்	1	2	3	4
5.	ழுஎன் மனம் இலகுவாக இருப்பதாகஉணர்கிறேன்	1	2	3	4
6.	நான் பாதிப்படைந்து இருப்பதாகஉணர்கிறேன்	1	2	3	4
7.	வரப்போகும் துரதிஷ்டங்களைநினைத்துதற்போதுவருத்தப்படுகிறேன்	1	2	3	4
8.	நான் திருப்தியுடன் இருப்பதாகஉணர்கிறேன்.	1	2	3	4
9.	நான் பயப்படுவதாகஉணர்கிறேன்.	1	2	3	4
10.	நான் சௌகரியமாய் இருப்பதாகஉணர்கிறேன்	1	2	3	4
11.	நான் தன்னம்பிக்கையுடன் இருப்பதாகஉணர்கிறேன்.	1	2	3	4
12.	எனக்குநடுக்கம் இருப்பதாகஉணர்கிறேன்.	1	2	3	4
13.	நான் திகைக்கிறேன்.	1	2	3	4
14.	நான் முடிவுஎடுக்கமுடியாதவர் போல் நினைக்கிறேன்.	1	2	3	4
15.	என் மனம் அமைதியாக இருப்பதாகஉணர்கிறேன்.	1	2	3	4
16.	நான் நம்பிக்கையுடன் இருப்பதாகஉணர்கிறேன்.	1	2	3	4
17.	நான் கவலையுடன் இருக்கின்றேன்.	1	2	3	4
18.	நான் மனக்குழப்பத்துடன் இருப்பதாகஉணர்கிறேன்.	1	2	3	4
19.	நான் மனஉறுதியுடன் இருக்கின்றேன்.	1	2	3	4
20.	நான் மகிழ்ச்சியாக இருப்பதாகஉணர்கிறேன்.	1	2	3	4

பின்குறிப்பு: - எதிர்மறைவாக்கியங்கள்
குறைந்தஅளவுபயம் - 20 முதல் 40 வரை
மிதமானஅளவுபயம் - 41 முதல் 60 வரை
அதிகஅளவுபயம் - 61 முதல் 80 வரை

Section c

SCORING KEY:

LEVEL	*SCORE*
MILD	*20-40*
MODERATE	*41-60*
SEVERE	*61-80*

APPENDIX VII

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation by SOPHIA.G II year M.Sc(N) student, College of nursing, Madurai medical college, Madurai, who has undertaken the study field on dissertation entitled**"A STUDY TO EVALUATE THE EFFECTIVENESS OF BACK MASSAGE ON THE LEVEL OF ANXIETY AMONG PATIENTS POSTED FOR CARDIAC CATHETERISATION IN CARDIOLOGY WARD AT GOVERNMENT RAJAJI HOSPITAL, MADURAI''**. Has been edited for English language appropriateness.

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INSTITUTION:

APPENDIX VIII

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation by SOPHIA.G II year M.Sc(N) student, College of nursing, Madurai medical college, Madurai, who has undertaken the study field on dissertation entitled "A STUDY TO EVALUATE THE EFFECTIVENESS OF BACK MASSAGE ON THE LEVEL OF ANXIETY AMONG PATIENTS POSTED FOR CARDIAC CATHETERIZATION IN CARDIOLOGY WARD AT GOVERNMENT RAJAJI HOSPITAL, MADURAI." Has been edited for Tamil language appropriateness.

SIGNATURE: Dr. N. Balasubramani 20/8/15

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DESIGNATION: ASST. PROFESSOR DEPARTMENT OF TAMIL

INSTITUTION: REV. JACOB MEMORIAL CHRISTIAN COLLE SANTHIPURAM, AMBILIKAI - 624 61 DINDIGUL-DIST, TAMILNADU

APPENDIX-IX

PROCEDURE

BACK MASSAGE

INTRODUCTION:

One of the most primal and spontaneous ways in which humans offer support to another who is ill or suffering has been through touch. Florence Nightingale, founder of the modern nursing profession, recognized this and regarded caring touch as an essential ingredient of good nursing care.

While various forms of therapeutic manipulation of soft tissue have been practiced across cultures for thousands of years, Swedish (also referred to as ‘‘classical’’) massage is the most common form in the West and is the core of most massage training programs. Swedish massage was developed in the 19th century by Per Henrik Ling and introduced as a health care modality in the United States (US) in the 1850s by George and Charles Taylor, two physicians who had studied in Sweden Massage is now recognized as an intervention for quality of life of patient’s.

DEFINITION:

Massage therapy (MT) is defined as the intentional and systematic manipulation of the soft tissues of the body to enhance health and healing (Benjamin & Tappan 2004).

BENEFITS OF BACK MASSAGE:

1. Back massage helps in stress reduction, increases comfort, and provides increased relaxation.
2. Back massage reduces symptoms of anxiety, pain, fatigue, and nausea reduces muscle tension and improves quality of life.
3. Back massage increases circulation, stimulates venous and lymphatic drainage improving muscle tissue metabolism and elasticity, and promoting relaxation through enhanced parasympathetic and reduced sympathetic nervous system activity
4. Back massage Reduces stress-related physiological responses such as blood pressure, heart rate, epinephrine, and cortisol and is used for effective symptom management in acute and chronic medical and surgical conditions in adults and children.
5. Increase oxygenation of blood and release metabolic waste such as lactic and uric acids from the tissues of the muscles.

BACK MASSAGE PROCEDURE:

Pre procedure care:

- Explain the procedure and get the consent from the subjects
- Inform the patient that the duration of the procedure is 20 minutes
- Provide privacy to the patient and positioned the subject in a sitting upright position.

Procedure:

Wash the hands and warm up the fingers by rubbing and pour some amount of Gingelly oil in the hands and apply on the posterior aspect of the trunk and the following massage technique is followed.

Steps of back massage:

1. Effleurage

These are the sliding or gliding slow, gentle stroking movement. They are long sweeping strokes that alternate between firm and light pressure and with can be performed using the palm of the hand or the fingertips. The knots and tension in the muscles tend to get broken with this massage technique.

2. Petrissage

This is the technique of kneading the muscles of the body to attain deeper massage penetration. The thumbs and the knuckles of the fingers are used to knead the muscles of the body with the pads of the fingers or thumb. Their main purpose is to stimulate deeper circulation and to relax larger and deeper muscles.

3. **Vibration or Shaking**

This is the one among Swedish massage techniques that helps to **loosen up the muscles** by using a back and forth action of the fingertips or the heel of the hand over the skin. The muscles of the body are literally shaken up to loosen and relax the muscles. The sides of the hand and any part of the hand such as the tips or heel can be used to shake up the muscles of the person.

The intervention was carried out for 20 minutes before posted for cardiac catheterization.

After care:

- Reposition the patient
- Provide psychological support.

After effects of massage:

Therapeutic massages improve local musculoskeletal symptoms and function and can also positively affect mood state and pain threshold. Manipulation of affected muscles and fascia (as in Swedish massage) induces local biochemical changes that modulate local blood flow and oxygenation in muscle. These local effects may influence neural activity at the spinal cord segmental level and could modulate the activities of sub cortical nuclei that influence mood and pain perception. Local changes may influence neural plasticity at the associated segmental level of the spinal cord and the release of neuropeptides (such as calcitonin gene–related peptide) that increase perfusion.

APPENDIX X

PHOTOGRAPHS

Collecting information from the subject

Researcher getting consent from the subject

Researcher providing intervention

Researcher providing intervention