ASSESSMENT ON OUTCOME OF FOOT MASSAGE ON PAIN AND ANXIETY AMONG CLIENTS UNDERGONE CORONARY ARTERY BYPASS GRAFT(CABG) SURGERY.

DISSERTATION SUBMITTED TO

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY

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IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF

DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL, 2012

A QUASI EXPERIMENTAL STUDY TO ASSESS THE OUTCOME OF FOOT MASSGAE ON PAIN AND ANXIETY AMONG CLIENTS UNDERGONE CORONARY ARTERY BYPASS GRAFT(CABG) SURGERY IN SELECTED HOSPITAL AT CHENNAI, 2011-2012

Certified that this is bonafide   work of

MS. LOGANAYAGI .P

VEL R.S MEDICAL COLLEGE- COLLEGE OF NURSING,

NO.42, AVADI – ALAMATHI ROAD,

CHENNAI-600 062

COLLEGE SEAL

 SIGNATURE: ……………………………….

M. ANURADHA, R.N.,R.M.,M.SC(N).,

Principal,

 Vel R.S. Medical College – College of Nursing,

 No.42, Avadi – Alamathi Road,

 Chennai- 600 062, Tamil Nadu.

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Approved by Dissertation Committee in December, 2010

PROFESSOR IN NURSING RESEARCH

M.ANURADHA, R.N, R.M., M.Sc.(N).,   _____

Principal,

Vel R.S. Medical College - College of Nursing,

No.42, Avadi - Alamathi Road,

Chennai – 600 062, Tamil Nadu.

CLINICAL SPECIALITY EXPERT

M.K.DHANALAKSHMI, R.N, R.M., M.Sc.(N).,   _____

Reader –Medical and surgical nursing department,

Vel R.S. Medical College - College of Nursing,

No.42, Avadi - Alamathi Road,

Chennai – 600 062, Tamil Nadu.

MEDICAL EXPERT

K.N.REDDY,MD.,D.M.,FCCP.,FICC.,   _____

Vijaya Heart Foundation,

Vadapalani, Chennai- 600 026.

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ABSTRACT

Post-surgical pain is the pain that follows a surgical procedure. It is a natural response to the "trauma" of surgery. Every patient experiences pain differently, which is why it is essential for pain management .Anxiety is a psychological issue where a patient's fear of surgery is so significant that they can begin to have physical symptoms such as a racing heart, nausea, and chest pain.

Foot massage is one of the non-pharmacological methods of reducing pain and anxiety. It is a non-invasive procedure, works via the nervous system, where pressure is applied to the reflex regions in the feet with the fingers by pertissage, friction and kneading which sends to the peripheral nervous system and then the central nervous system where the brain can process the information. It relieves various symptoms in a wide range of patient care setting.

A study was conducted to evaluate the outcome of foot massage on pain and anxiety among clients undergone Coronary Artery Bypass Graft Surgery at Vijaya Heart Foundation, Vadapalani, Chennai during 2011-2012. The main objective of the study was to determine the effectiveness of foot massage on pain and anxiety.

The study was conducted by adopting a Quasi experimental pre test and post test research design. Sixty clients undergone CABG were selected for experimental and control group. The data was collected from post CABG clients who fulfilled inclusive criteria. Numerical pain rating scale and modified trait anxiety scale was used to assess the pain and anxiety level. Ethical aspects were considered throughout the study. The conceptual framework adopted for this study was modified Roy adaptation model.

Analysis revealed that, by comparing the level of pain was a decrease in mean value from 7.30 to 1.30 and decrease in standard deviation from 1.24 to 0.47 respectively the "t" value 27.982*** was found to be highly significant at $p<0.001$. In control group, Mean value from 7.90 to 7.93 and the standard deviation from 0.96 to 0.0.94 respectively the "t" value -0.328 was found to be not significant at $p=0.745$.

The comparison of level of anxiety was a decrease in mean value from 26.67 to 11.23 and decrease in standard deviation from 4.22 to 2.61 respectively the "t" value 33.523*** was found to be highly significant at p<0.001. In control group, Mean value from 27.50 to 27.57 and the standard deviation from 4.60 to 4.55 respectively the "t" value -0.421 was found to be not significant at p=0.677.

Administration of foot massage among clients undergone CABG enhances the reduction of pain and anxiety. Therefore foot massage can be used as safe and effective tool, which helps in reducing the level of pain and anxiety.

CHAPTER - I
INTRODUCTION

The aim of the wise is not to secure pleasure, but to avoid pain.

-Aristotle

Cardiovascular disease (CVD) is the leading cause of death. The deaths due to CVD in India were 32 percentage of all deaths in 2007 and are expected to rise from 1.17 million in 1990 and 1.59 million in 2000 to 2.03 million in 2010. Although a relatively new epidemic in India, it has quickly become a major health issue with deaths due to CVD expected to double during 1985–2015.

800,000 coronary artery bypass graft surgeries are performed worldwide every year. The American Heart Association reports371,000 were performed on men and 148,000 on women. Coronary heart diseases are the most common heart disease which in spite of recent effective medical methods of treatment, many patients may require vessel graft. Coronary artery bypass graft (CABG) is an effective method for decrease cardiac angina.

Chest pain in sternum is one of the most common complications after CABG. The pain after sternotomy is probably because of the nervous fibers' cut in scar and is described as a vague pain around surgery area and in the cut area. Pain can last for 3 months as a chronic pain that starts in first hours after surgery.

After CABG episode of anxiety is distressing the patients and higher levels of anxiety are predictive of poor outcomes. Patients who are more anxious before CABG have more postoperative pain, less long-term relief of cardiac signs and symptoms, more readmission and poorer quality of life. Furthermore, patients with more anxiety after the surgery have worse long-term psychological outcomes.

Foot massage is a simple and none invasive method that can be taken into account as a part of nursing care in intensive units. Because of this, an interventional study was performed

with the goal of evaluating the effect of foot massage on pain decrease in CABG patients after surgery.

BACKGROUND OF THE STUDY

The coronary artery bypass graft is a surgical procedure has been done for decades and is one of the most common types of open heart surgery performed in the United States. The graft procedure is basically designed to take a portion of healthy artery from another point in the body in order to graft it into place over the damaged coronary artery to serve as a bridge, thereby restoring adequate blood flow and function to the heart. The artery graft is stitched onto healthy ends of the coronary artery on either side of blockage.

The incidence of chronic post sternotomy pain is about 35 percentage. Intercostals nerve damage with development of neuropathic pain is considered the main cause, although no therapy has been shown to reduce the incidence of chronic pain.

The American pain society (1999) created the phase pain: The fifth vital sign to increase awareness of pain assessment among health care professional. The relief of pain is always a priority for nursing action .The pain relieving measure in nursing care includes maintaining a comfortable position, administering complementary therapies such as relaxation, aroma therapy, music therapy, guided imagery etc. Among these therapies, foot massage has got greater potential to be used by all the nurses in multidisciplinary pain management programme.

Anxiety is an emotional response (eg apprehension, tension, uneasiness) to anticipation of anger, the source of which is largely unknown. Anxiety may be regarded as pathologic when it interferes with effectiveness in living, achievement of desired goals/ reasonable emotional comfort (Sharoch and Hales 2003).

One of the non-pharmacological method of pain relief is foot massage. Foot massage is a type of body works that involves pressing specific points on the body with the fingers, knuckles and palms to relieve pain, reduce anxiety and promote general health.

It works via the nervous system. Pressure applied to reflexes in the feet which sends a signal to the peripheral nervous system and then enters the CNS where the brain can process

the information . The brain relays messages to internal organs and glands in order to make adjustment such as getting more nutrients and oxygen into the cells.

Inadequately managed pain can lead to adverse physical and psychological patient outcomes for individual patients and their families. Continuous, unrelieved pain activates the pituitary-adrenal axis, which can suppress the immune system and result in postsurgical infection and poor wound healing. Sympathetic activation can have negative effects on the cardiovascular, gastrointestinal, and renal systems, predisposing patients to adverse events such as cardiac ischemia and ileus. Of particular importance to nursing care, unrelieved pain reduces patient mobility, resulting in complications such as deep vein thrombosis, pulmonary embolus, and pneumonia. Postsurgical complications related to inadequate pain management negatively affect the patient's welfare and the hospital performance because of extended lengths of stay and readmissions, both of which increase the cost of care.

Foot massage is easy to learn and can be used to relieve various symptoms .Foot massage is a natural and almost instinctive way to care. By lightly touchy, rubbing of the foot cause comfort both physically and psychologically which motivated the researcher to come out a project on assessment on effectiveness of foot massage on pain and anxiety among clients undergone CABG.

The present study arose from an attempt to identify a safe and effective therapeutic intervention to promote wellbeing, which could be practicably delivered by nurses to patients in the postoperative recovery period following coronary artery bypass graft (CABG) surgery.

NEED FOR THE STUDY

CABG is the most common type of open heart surgery in the united states, with more than 5,00,000 surgeries performed each year . In India where there is a rising incidence of heart disease, the number of CABG surgeries showing an increasing trend (Med India, 2011).

Patients suffer pain and discomfort in ICU following coronary artery bypass grafting (CABG). While the surgical procedure causes pain, it is the psychological state of the individual which influences his perception of the pain. For the patient undergoing cardiac

surgery, several stressors may influence his psychological state, including coronary heart disease (CHD) itself, impending surgery and the intensive care unit (ICU) environment.

The pain causes activation of the nervous system and then the cardiovascular system and the created cycle would increase cardiovascular performance. The heart rate and the blood pressure increase, increases myocardium demand for oxygen and this would hinder the recovery procedure after surgery. The pain also affects the activity rate of patients and increases the surgery complications. Because of this, the effective pain control would lead to decrease of cardio-pulmonary complications after open-heart surgery.

Sternotomy causes considerable postoperative pain and patients with chronic post-sternotomy pain are often referred to pain clinics. Epidemiological studies on chronic post-sternotomy pain are scarce, however. Chronic pain, associated with the sternotomy wound, occurs in 40–50 percentage of patients after cardiac surgery; 33–66 percentage of these patients experience chronic pain lasting more than 3 months and in a 25–33 percentage, it lasts more than 1 year. This pain often has an adverse effect on mood and it impairs activities of daily life for patients. Despite its frequency and importance, the causes of chronic pain are incompletely understood.

Current trends of CVD in India 21 percentage. It was estimated that there will be a rise by the year 2015, 26 percentage. Recent studies shows that CVD danger is a disease among population. In United states 95 percentage patients are hospitalized with Myocardial infarction in that 75 percentage are required CABG. In Tamil Nadu 36 percentage of people are affected with CVD in that 25 percentage required CABG.

TITLE

Assessment of outcome of foot massage on pain and anxiety among client undergone Coronary Artery Bypass Graft Surgery (CABG).

STATEMENT OF THE PROBLEM

A quasi experimental study to assess the outcome of foot massage on pain and anxiety among client undergone Coronary Artery Bypass Graft Surgery (CABG) in Vijaya Hospital, Vadapalani, 2011 – 2012.

OBJECTIVES

1. To assess the pretest level of pain among post CABG clients in the experimental and control group .
2. To assess the pretest level of anxiety among post CABG clients in the experimental and control group.
3. To assess the post test level of pain among post CABG clients in the experimental and control group.
4. To assess the post test level of anxiety among post CABG clients in the experimental and control group.
5. To assess the outcome of foot massage on the level of pain and anxiety in the experimental group & control group.
6. To associate the post test level of pain and anxiety in the experimental group with the selected demographic variables.

VARIABLES OF THE STUDY

Independent variable

Foot massage

Dependent variable

Pain and anxiety.

OPERATIONAL DEFINITIONS

Outcome

Refers to the impact of foot massage on pain and anxiety among post CABG clients.

Pain

Refers to unpleasant sensory and emotional feelings over the sternotomy area elicited by numerical pain rating scale.

Anxiety

Refers to feeling of apprehension, worry and uneasiness elicited by trait anxiety scale.

Foot Massage

Refers to giving massage using the method such as pertissage, friction,& kneading by applying manual pressure on right foot for 10mts twice a day for 3 consecutive days from third post operative day to sixth post operative day.

Post CABG Clients

Refers to clients those who have undergone coronary artery bypass graft surgery from 3rd post operative day to 6th post operative day.

ASSUMPTIONS

1. Clients undergone CABG may have pain and anxiety.
2. Foot massage may have some effects on pain management and anxiety among CABG patient.

RESEARCH HYPOTHESIS

H_1: There is significant relationship between the pre test and post test level of pain in the experimental and control group.

H_2: There is significant relationship between the post test level of anxiety in the experimental and control group.

DELIMITATIONS

1. The duration of the study would be delimited to one month of data collection.
2. The study would be delimited to selected setting.

PROJECTED OUTCOME

This study found that who were receiving foot massage after CABG to have pain and anxiety reduction.

Administration of foot massage found that to help in cost effective and to reduce side effect.

SUMMARY

This chapter dealt with the background of the study significant and need for the study , title, statement of the problem, objectives, variables of the study, assumption, hypothesis of the study, operational definition, delimitation, projected outcome and organization of the report.

ORGANIZATION OF THE REPORT

The following chapter contains,

Chapter II → Review of literature

Chapter III → Methodology

Chapter IV → Analysis and interpretation of data

Chapter V → Discussion

Chapter VI → Summary and conclusion

(this is followed by reference and appendices)

CHAPTER – II
REVIEW OF LITERATURE

Through the literature review, researcher generates a picture of what is known about a particular situation and the knowledge gap that exists between the problem statement and the research subject problem and lays a foundation for the research plan. It provides the background for the current knowledge on the topic and illuminates the significance for the new study.

The present literature review was based on extensive surveys of journals, books and international Nursing indicates. A relevant to the study was undertaken, which helped the investigator to develop deep insight into the problem and gain information on what has been done in the past. An extensive review of literature was done by the investigator to lay a broad foundation for the study and a conceptual framework to proceed with the study under the following heading.

Part-I: Literature review

Section A: General information related to foot massage

Section B: Studies related to foot massage

Section C: Studies related to CABG

Section D: Studies related to pain and anxiety with CABG

Section E: Studies related to effect of foot massage on pain and anxiety

Part-II: Conceptual framework

Section A: General information related to foot massage

Foot massage is an important part of medicine, according to more than 2000 years ago, this classic treatment of body meridians and acupoints, many of which are the points of foot, but also detailed the meridians, acupuncture points and the relationship between the organs, said: sick organs can be reflected through the meridian points to the surface, according to the different acupuncture points may be inferred that the symptoms related to organ function problems (Huang Di NeiJing).

Hansen & Sawatzky, (2008) The physiological effects of emotional stress are well known to almost everyone. People can feel their muscles tense, and respirations and heartbeat increase, when encountered by a stressful situation . The extent to which stress affects the body depends on the personal meaning attached to the stressful situation (Lewis & Shaw, 2007). Stress, whether real or perceived, alters the body's ability to maintain homeostasis. Unresolved stress has been shown to have numerous adverse effects on the body. Some examples include immunocompromise, migraine headaches, obesity, and hypertension .

Dr.Ron Roberts, (2004) The art of foot reflexology is to apply pressure with the edge of the thumb or fingers with a circular movement, massaging the area for some minutes. Therapist sessions last 10 minutes but you can massage your feet as often as you like throughout the day. Approximately 10 minutes of therapy on each foot is usually sufficient to induce effective stimulation. A foot massage is heaven for some people. They find it so soothing, enjoyable and relaxing that they fall asleep. Yet others have such sensitive feet they become quite hysterical when their feet are touched.

Hattan et al., (2002) There is little consistent evidence of any benefit for the use of massage in the treatment of postoperative pain. Foot massage and guided relaxation did not lower pain scores after cardiac surgery. Similarly, massage after abdominal or thoracic (via a sternotomy) surgery did not reduce pain scores or analgesic use, although a significant reduction in the unpleasantness of pain (the affective component of pain) was reported.

Margo Mccaffery, (2001) says that hand and foot massage as an alternative to back or body massage. The duration of massage varies from 5 to 20 minutes. It concludes that beneficial effect on anxiety and tension, depression and stress hormones.

FOOTMASSAGE TECHNIQUE

Swedish massage therapy is comprised by a number of different techniques. It is designed to relax and heal your muscles. Rubbing and pressure techniques are applied to the muscles in order to achieve this. A Swedish doctor, Per Henrik Ling developed this technique in the 1700s. This massage does many things including increasing the oxygen to the blood .

Benefits

It is especially beneficial for use after strenuous exercise, as it gets rid of metabolic waste in the tissues. Circulation is improved, without putting undue strain on the heart. Tendons and ligaments are kept suppler by stretching them with this technique. The skin and nervous system are stimulated with this method and your nerves are soothed and relaxed.

The massager washed hands with warm water and used softening cream that did not have any treatment value, for slipping and massage ease and pressed the point with his 2 thumbs through pertissage, friction, & kneading by applying manual pressure on right foot for 10mts

1. Effleurage

This is made up of smooth gliding strokes using thumbs, fingertips. Massage oil is sometimes used for enhancing this experience.

Light method is used as a calming treatment for different ailments but especially for use when beginning therapy for healing. It is also good for reliving tension and stress.

Deep therapy applies firmer pressure on the soft tissue, plus increases circulation and lymphatic flow. This technique is used for healing injuries, and is especially good for athletes.

2. Petrissage

This technique uses hands, thumbs and fingertips to knead the muscles. With gentle rolling the muscles , then they are rolled and squeezed. This method increases the blood circulation and releases toxins from the muscles.

3. Friction

This massage uses palms, thumbs and fingers to make deep circular movements. This therapy will break down adhesions and promote flexibility in muscles.

Effects of foot massage

It induce deep relaxation

It improves circulation

It revitalizes energy

It works to balance the body as a whole unit.

Other effects

It relieves pain

It lowers blood sugar levels

It reduces the premenstrual symptoms

It helps to relieve the anxiety and depression

It improves kidney function

Section B: Studies related to foot massage

Cronflakes et al., (2010) conducted a study on the existential experiences of receiving soft tissue massage in palliative care for the relief of anxiety and pain as intervention. 22 patients received soft tissue massage (foot) 9 times over a period of 2 weeks. Each session lasted for 25 minutes. Following the last massage session a qualitative interview was conducted. The findings of the study were soft tissue(foot massage) generates feelings of existential respite perceptions of being released from illness for a while.

Hiller.VF et al.,(2009) conducted a study to examined the effects of foot massage on patients' perception of care received following surgery in England. They selected sample of 59 women who underwent laparoscopic sterilization as day case patients were randomly allocated into two groups. The experimental group received a foot massage and analgesia post-operatively, whilst the control group received only analgesia post-operatively. The 76% response rate was comparable with other patient satisfaction studies following day-case surgery. The mean pain scores recorded following surgery showed a significantly different pattern over time, such that the experimental group consistently reported less pain following a foot massage than the control group.

Hsiao et al.,(2008) conducted a study to assess the of foot massage in relieving pain and anxiety in postoperative patients with gastric cancer and hepatocellular cancer in Taiwan.They selected   Sixty-one patients who had received surgery for gastric cancer or

hepatocellular carcinoma were randomly allocated to an intervention (n = 30) or control (n = 31) group. Patients in the intervention group received the usual pain management plus 20 minutes of foot reflex therapy during postoperative days 2, 3, and 4. Patients in the control group received usual pain management. They used short-form McGill Pain Questionnaire, visual analog scale for pain, and the Hospital Anxiety and Depression Scale. Results shows that patients in the intervention group received significantly less opioid analgesics than the control group ($P < .05$).

Weinrich.S (2007), conducted a study to test the effects of foot massage on anxiety and pain in patients with breast and lung cancer. Quasi experimental crossover research design was used. An oncology unit in a 314-bed hospital in the southern united states and for twenty- three inpatients with breast or lung cancer. Procedure included an intervention condition(foot massage to both feet for 30 minutes) and a control condition for each patient (with at least two day break). Results showed that patients with breast and lung cancer experienced a significant decrease in anxiety at $p<0.0001$ level of significance.

Kummer B. et al., (2006) conducted a study to assess the effectiveness of touch, music and imagery among patients undergoing open heart surgery, measuring heart rate, blood pressure, pain and tension in Abbott Northwestern Hospital. They selected 104 clients by random sampling method. complementary therapies (preoperative guided imagery training with light massage and postoperative music light massage and guided imagery) were given. Heart rate, systolic and diastolic blood pressure, and pain and tension were measured preoperatively and as pre-tests and post-tests during the postoperative period. The result shows that Pretreatment and post treatment pain and tension scores decreased significantly in the complementary alternative medical therapies group on postoperative days 1 ($p < 0.01$) and 2 ($p < 0.038$).

Chanokporn Jitpanya (2005), conducted a study to assess the effect of preoperative information combined with foot reflexology with aromatherapy on unpleasant symptoms in post CABG patients in Chulalongkorn memorial hospital. They selected 45 samples by purposive sampling method. The subjects were arranged into a control group, and two experimental groups. After intervention data were analysed by descriptive statistics, one way analysis of variance (ANOVA), and pair wise comparison. The result shows that mean of unpleasant symptoms score in the group receiving preoperative information combined with foot reflexology with aromatherapy was the lowest.

Jenniffer Hattan (2002), conducted a study to assess the impact of foot massage and guided relaxation on the wellbeing of patients who had undergone CABG in London. 25 samples were selected by random sampling method. Psychological and physical variables were measured before and after intervention by using self administered questionnaire. The result revealed that significant effect of the intervention on the calm scores (ANOVA p=.014).

Section C: Studies related to CABG

Geraldo Lorenzi-Filho et al.,(2010) conducted an experimental study to assess massage therapy is an effective technique for improving sleep quality in patients following cardiopulmonary artery bypass graft surgery. : Participants included cardiopulmonary artery bypass graft surgery patients who were randomized into a control group n=20 and a massage therapy group n=20. The control group and the massage therapy group comprised participants who were subjected to three nights without massage and three nights with massage therapy, respectively. They used a visual analogue scale for pain in the chest, back and shoulders, in addition to fatigue and sleep. Participants kept a sleep diary during the study period. The participants in the massage therapy group had fewer complaints of fatigue 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 result shows that Massage therapy is an effective technique for improving patient recovery from cardiopulmonary artery bypass graft surgery because it reduces fatigue and improves sleep.

Mark F. Newman et al.,(2006) Conducted a qualitative study to evaluate gender-related differences in quality of life (QOL) and cognitive function 1 year after coronary artery bypass surgery (CABG) after adjusting for known baseline differences. They selected Two hundred eighty patients (96 women and 184 men) underwent neurocognitive and QOL evaluation at baseline (preoperatively) and at 1 year after CABG. Multivariable linear regression was used to assess the relationship of gender to follow-up QOL and cognitive function. Measures used to evaluate QOL were IADL, DASI, work activities (SF-36), social activities, social support, general health perception (SF-36), CESD, STAI, and symptom limitations. Cognitive function was measured with a battery of performance-based neuropsychological tests, reduced to a four-cognitive domain scores with factor analysis, and a self-report measure of cognitive difficulties. After adjusting for baseline differences,

women are at greater risk for increased cognitive difficulties (p= 0.04) and anxiety (p= 0.03), as well as impaired DASI (p= 0.02), IADL (p= 0.03), and work activities (p= 0.02). Cognitive squeal attributable to bypass surgery were similar between men and women. The result revealed that Female patients showed significantly worse outcome than male patients at 1 year follow-up in several key areas of QOL.

Caidahl. K et al., (2001) conducted a qualitative study to describe limitation of physical activity, cause of limitation of physical activity and symptoms of dyspnea and chest pain in relation to age before and 2 years after coronary artery bypass grafting (CABG) in western Sweden. Patients were divided into 3 age groups of equal size i.e. 32-59 years, 60-67 years and > or = 68 years. In total, 2121 patients participated in the evaluation. The overall 2 year mortality in the 3 age groups was 3.8%, 6.8% and 12.2% (p<0.001). Limitation of physical activity was significantly associated with age prior to surgery but not thereafter. The result shows that the physical activity improved similarly in all age groups after CABG. Attacks of chest pain, although significantly reduced in all age groups, seemed more effectively reduced in the elderly.

Section D: Studies related to pain and anxiety with CABG

Nezihat et al., (2010) conducted a study to assess the effect of listening to personal choice of music on self report pain intensity and the physiologic parameters in patients who have undergone CABG in university hospital. They selected n=87(study group=44, control group=43). Music therapy was given to the study group for 30mts. After intervention there was significant increase in saturation (p=.001) and alower pain score(p=.001). They concluded as music might be a effective method.

Robert J. M. Klautz (2010), Conducted a retrospective study on pain symptoms accompany chronic post sternotomy pain in Leiden University Medical Centre. A cohort of patients who underwent open heart surgery by median sternotomy between January 1, 2004 and January 1, 2006. A questionnaire was completed by 631 patients, and a selected sample of 277 patients was examined for pain of the head, neck, back, and chest and upper extremities. . All pain locations were compared in two groups: 189 patients with sternal pain and 88 patients without sternal pain. Found that pain and muscular tenderness in the investigated areas unrelated to the chest wall incision were significantly more common in

patients with sternal pain compared to the non sterna pain group. The result shows that CPSP is an extensive pain syndrome. Sternal pain is frequently accompanied by pain of the head, neck, back, and upper extremities.

May Solveig Fagermoen et al., (2008) conducted a qualitative study to assess the patients' key experiences after coronary artery bypass grafting in Europe hospital. Electronic searches were carried out in four databases using search terms for CABG combined with key search terms associated with qualitative research. Nineteen of 45 qualitative studies identified met the inclusion criteria. The included studies were appraised by a reading guide. The following key concepts described patients' experiences after CABG: The paradox of surviving alone with supportive relations, sense of self-disrupted, losses, fears and getting on with life. Thus, the synthesis revealed that patients' postoperative experiences influence their existential aspects of lifelong after surgery. Surprisingly, few studies treated suffering from postoperative pain as a specific topic. This underlines the need for more qualitative research exploring specific postsurgical experiences such as postoperative pain.

Olaf Elert et al., (2007) conducted a study to evaluate the presence of clinically relevant anxiety and depression in patients before and after coronary artery bypass grafting (CABG). They selected 140 patients who underwent CABG were asked to fill in the "Hospital Anxiety and Depression Scale German Version (HADS)" to measure depression and anxiety scores two days before and ten days after CABG surgery. 25.8% of the patients were clinically depressed before and 17.5% after surgery; 34.0% of the patients were clinically anxious before and 24.7% after surgery. They found a significant negative correlation between age and the difference between the two time points for anxiety (Spearman rho = -.218; p = 0.03), but not for depression (Spearman rho = -.128; p = 0.21). Younger patients are more anxious before CABG surgery than older ones and show a decline in symptoms while elderly patients show hardly any change.

Jonsdottir.H et al., (2007) conducted a study to assess the effectiveness of reflexology on anxiety among CABG patients in Iceland. They selected 9 samples by randomization(study group, n=5; control, n=4). Foot reflexology was given to the study group for 30 minutes for 5 days. It was concluded that foot reflexology was effective as mean reducing anxiety.

Fredericks et al., (2006) conducted a study to evaluate the effect of anxiety on learning outcomes post CABG .The purpose of this study was to examine the relationship between anxiety and achievement of knowledge, use of self care behaviours and management of symptoms. Result indicate that provision of educational interventions at times when anxiety levels are low.

Br.J.Anaesth (2005), conducted a quasi-experimental study to investigate the effect of foot reflexology on sternotomy pain of patients undergone CABG surgery. 90 patients randomly divided into three groups of case, control and placebo. The reflexology group received a 10-minute left foot massage in desired location, twice a day with 6-hours interval for 2 consecutive days. The placebo group undertook a 10-minute right foot massage and the control group receiving no intervention, only at the time mentioned, the amount of visual analogue scale measured. The mean of pain intensity before and after intervention in three groups had a significant difference (p<0.001). Foot reflexology appears to be a useful method for reducing sternotomy pain in patients after CABG surgery.

Shirely (2005), conducted a study to evaluate the recovery symptoms and mood states in CABG patients. They selected 91 samples by convenient sampling method. The most common recovery symptom were chest and leg ,incision pain have trouble sleeping and neck , shoulder or back discomfort. The most common mood states were confusion, anxiety and angry respectively. CABG patients who had more frequent recovery symptoms also had greater negative mood disturbances.

Mc Crone et al., (2001) conducted a longitudinal study to assess the patients of anxiety and depression among post CABG clients with age and sex differences. The result revealed that higher state of anxiety in younger patients than older (p<.05),younger patients were more depressed than older(p<.05), women experience higher state of anxiety than men, no significant difference in depression between men and women.

Yaron Bar et al.,(2000) conducted a retrospective cohort study was aimed to investigate the prevalence and characteristics of the post-CABG pain (PCP) syndrome in Israel. They selected 80 PCP patients were available for a detailed evaluation. Left-sided chest wall pain was noted by 53 subjects, midline scar pain by 47, and right-sided pain by nine subjects. Pain intensity (VAS) was 35±22 (mean ± SD), MPQ score was 4.9±3.7, PDI score was 2.0±0.7, and BDI score was 9.3±7.3. The result shows that PCP is a group of pain

syndromes with a high prevalence, and with a negative effect on mood and performance of daily activities.

Myra et al., (1996) conducted an experimental study to assess the effects of music intervention on post operative pain and sleep in CABG patients. They selected 96 patients and divided into 3 groups. The Verbal Rating Scale scores obtained before and after each 30-minute session showed that pain decreased over time for all three groups with no difference across groups. The McGill Pain Questionnaire (MPQ) was administered before session 1 and after session 2, and results indicated that Sensory, Affective, and Present Pain Intensity subscales showed no group difference for pain; however, pain decreased from Day 2 to Day 3 for all three groups. For the evaluative component of pain, those in the music group had significantly (F [2,93] = 4.74, p < .05) lower scores on postoperative Day 2 than the rest period control group. Effects of the intervention on sleep as measured by the Richard Sleep Questionnaire indicated that the video group had significantly (F [2, 92] = 3.18, p < .05) better sleep scores than the control group on the third morning.

Janet A. Ferguson, (1992) Patients suffer pain and discomfort following coronary artery bypass grafting (CABG). While the surgical procedure causes pain, it is the psychological state of the individual which influences his perception of the pain. For the patient undergoing cardiac surgery, several stressors may influence his psychological state, including coronary heart disease (CHD) itself, impending surgery and the intensive care unit (ICU) environment. The types of pain caused by the surgical procedure are discussed. Each of these aspects are brought together in an attempt to gain a better understanding of the patient's perspective of cardiac surgery, and any pain experienced as a result. Given the major influence of the patient's mind in pain perception, there is a need for nurses to consider alternative methods of pain relief in addition to drug therapy.

Section E: Studies related to effect of foot massage on pain and anxiety

Eugene H. Blackstone et al., (2009) conducted a study to determine whether massage therapy improves postoperative mood, pain, anxiety, and physiologic measurements; shortens hospital stay; and decreases occurrence of atrial fibrillation in clevand clinic USA. They selected 252 samples by random sampling method(study group, n=126;control group n=126) The findings shows that Preoperative pain, mood, and affective state scores were

positively associated with postoperative scores; however, there were significant differences between groups .Massage therapy is feasible in cardiac surgical patients.

Rochester (2009), conducted a study to assess the effect of massage therapy on pain, anxiety, and tension after cardiac surgery in mayo hospital. They selected 113 samples by random method(massage, n = 62; control, n = 51).Massage therapy was given to the study group. The findings shows that had significantly decreased pain, anxiety, and tension after intervention.

Brent A. Bauer et al., (2000) Conducted a pilot study to assess effect of massage therapy on pain, and anxiety in cardiac surgical patients (CABG) in Saint Marys Hospital, Mayo Clinic, Rochester, Minnesota. They selected 8 samples by randomization (study group n=4, control group n=4). They used visual analogue scale for pain assessment and halmiton anxiety scale for anxiety. Patients in the intervention group received a 20-minute session of massage therapy intervention between postoperative days 2 and 5. Patients in the control group received standard care. The mean satisfaction score for patients in the control group was 8.6; for patients in the massage therapy group, it was 9.2 (P ¼.08). : Statistically and clinically significant decreases in pain and anxiety scores were observed for patients who received a 20-minute massage compared with those who received standard care. Patient feedback was markedly positive. The result shows that massage may be an effective therapy to consider for inclusion in the management of postoperative recovery of cardiovascular surgical patients.

PART – II

CONCEPTUAL FRAMEWORK

A conceptual framework or a model is made up of concepts , which are the mental images of the phenomenon. It offers framework of prepositions for conducting research. These concepts are linked together to express the relationships between them. A model is used is used to denote symbolic representation of the concepts.

The conceptual framework and model adopted for the study is based on the Callista Roy s adaptation model (1999). This model focuses on the concept of adaptation of a person. The theorist concept of nursing, person, health and environment are all interpreted to thus central concept.

INPUT

Refers to stimuli which can come from the environment or from within a person.

Stimuli classified as focal (immediately confronting the human system) contextual stimuli that are present or residual (non specific such as cultural belief or attitude about illness).

Input also includes person's adaptation level which is constantly changing. Which is made up of focal contextual and residual stimuli which represent the present standard of the range of stimuli, to which one can respond with ordinary adaptive response may be either on adaptive or ineffective response. Adaptive responses were those that promote integrity and help the persons to achieve the goals of adaptation. Ineffective responses are responses that fail to achieve or threatens the goal adaptation.

In this study, the investigator considered clients undergone CABG as a "person" with pain and anxiety. The environment of the clients is the sources variety of stimuli that either threaten or promotes the persons uniqueness. In this study the focal stimuli are considered as the identification of the demographic variables of clients undergone CABG such as age, gender, occupation, family income, education, marital status, co-morbid illness and family support. The contextual stimuli are all other stimuli present in the situation that

investigator considered as the level of pain and anxiety by the clients undergone CABG measured by using pain scale and modified trait anxiety scale.

THROUGHPUT

Throughput makes a person process and effectors process. It refers to the control mechanism that a person uses an adaptive system effectors refers to the physiological function, self concept and role function involved in adaptation. In the present study the investigator provides 10 minutes foot massage on right foot from 3rd post CABG clients for three days.

OUTPUT

Output is the outcome of the system when the system is a person output refers to the person behavior.

In Roy's system output is categorized as adaptive response (those that promote a person's integrity) or ineffective responses (those that do not promote goal achievement).

In the present study it can be either adaptive responses that is reduction in level of pain and anxiety (experimental group) or non adaptive responses that is non reduction in the level of pain and anxiety(control group). On non adaptive response that negative results of incomplete reduction of pain and anxiety.

FEEDBACK

Refers to the analysis of the post test.

In this study it refers to the evaluation of foot massage. It reduces the pain and anxiety.

INPUT

PRE TEST

Demographic variables like age, gender, occupation, family income, educational qualification, marital status, co morbid illness, family support.

Assessing the level of pain (sternotomy) by using numerical rating scale, and anxiety by modified trait anxiety scale

THROUGH PUT

INTERVENTION

Experimental group: Administration of foot massage

Control group: No intervention

OUTPUT

POST TEST

Post test assessment of pain by numerical rating scale, and anxiety by modified trait anxiety scale

Adoptive response in the pain and anxiety level

Non adoptive response in the pain and anxiety level

FEED BACK

Fig i: MODIFIED CALLISTA ROY'S ADAPTATION MODEL

CHAPTER – III
RESEARCH METHODOLOGY

This chapter presents the description of research methodology adopted for the study which includes research approach, research design, research variables, settings, population, sample size, sampling technique and tool for data collection procedure. The present study is aimed to evaluate the effectiveness of foot massage on pain and anxiety among post Coronary Artery Bypass Graft clients.

Research approach

An evaluative research

Research design

A quasi experimental pretest and post test research design was chosen for this study, to assess the effectiveness of foot massage on pain and anxiety among post Coronary Artery Bypass Graft clients.

GROUP	PRE TEST O_1	INTERVENTION X	POST TEST O_2
Experimental group	Numerical pain rating scale and modified trait anxiety scale.	Foot massage	Numerical pain rating scale and modified trait anxiety scale.
Control group	Numerical pain rating scale and modified trait anxiety scale.	Hospital routine intervention	Numerical pain rating scale and modified trait anxiety scale.

VARIABLES UNDERSTUDY

Demographic variables

It includes age, gender, occupation, family income, educational qualification, marital status, co-morbid illness and family support.

SETTING OF THE STUDY

The study was conducted in Vijaya Heart Foundation, Vadapalani, Chennai.

POPULATION

Population refers to the entire set of individuals who have common characteristics and it is important to make a distinction between the target and accessible population.

Target population

The target population of the present study comprised of all post CABG clients in Vijaya Heart Foundation.

Accessible population

Accessible population of the present study comprised of 60 post CABG clients aged between 36-65 years admitted at Vijaya Heart Foundation.

SAMPLE

The study sample is one who fulfilled the inclusive criteria.

SAMPLE SIZE

Sample size consists of 60 clients with post CABG who met the inclusion criteria. 30 samples for study group and 30 for control group.

SAMPLING TECHNIQUE

Non probability purposive sampling technique was used to select the sample. Those who fulfill the inclusion criteria were included as sample.

CRITERIA FOR SELECTION OF THE SAMPLE

Inclusion Criteria:

Clients who were undergone coronary artery bypass graft from 3rd post operative day to sixth post operative day.

1. Age group between 36 to 65 years
2. Clients who were willing to participate in the study.
3. Clients who were able to read and write English or Tamil.

Exclusion Criteria

1. Clients who were undergone IABP insertion.

2. Clients who had foot ulcer and foot deformities.

RESEARCH TOOL AND TECHNIQUE

Research tool consists of three sections.

Section – I:

Demographic Variables

Age, gender, occupation, education, family income, marital status, co morbid illness and family support.

Section – II:

This consists of doing foot massage for assessing the level of pain and anxiety. The pre test and the post test level of pain and anxiety was assessed by using numerical pain rating scale and modified trait anxiety scale.

SCORING PROCEDURE

Numerical pain rating scale was used to assess the level of pain among post CABG client. A score 0 is no pain, 1to 3 mild pain, 4 to 6 moderate pain, and 7 to 10 severe pain. Interpretation of score is as follows:

None   -   0%

Mild Pain   -   <50%

Moderate Pain - 50-75%

Severe Pain   -   >75%

Modified trait anxiety scale used by self administered questionnaires to assess the anxiety level among post CABG client. 10 questionnaires were present. These are related to anxiety after CABG. Each Question has 4 options.   Interpretation of score is as follows:

Mild Anxiety   -   <50%

Moderate Anxiety   -   50 To 75%

Severe Anxiety   -   >75%

Validity

The tools were validated by three medical surgical nursing experts, one cardiologist and one physiotherapist. The expert's suggestion were incorporated and tools were finalized and used for the main study.

Reliability

The inter rater method was used to establish the reliability of the pain to assess the level of pain for client undergone CABG .The reliability value was found to be r=0.8 which was found to be highly reliable.

The split half method was used to establish the reliability of the anxiety to assess the level of anxiety for client undergone CABG .T he reliability value was found to be r=0.9 which was found to be highly reliable.

ETHICAL CONSIDERATION

The study was conducted after the approval of Dissertation Committee. The formal permission was taken from the Director of Vijaya Hospital, Vadapalani, before proceeding the study. The patients were clearly explained about the study purpose and oral consent was obtained. It was assured to the clients that the result would be kept confidential.

PILOT STUDY PROCEDURE

`The pilot study was conducted at Vijaya Heart Foundation, Vadapalani, Chennai from 10.06.2011 to 17.06.2011. The formal permission was obtained from the director, Vijaya Hospital. Six clients who fulfilled the inclusion criteria were selected by non-probability purposive sampling technique. Oral consent was taken from the samples and confidentiality of the responses was assured. A brief introduction about the self and study were given and data was collected from the clients. The data related to the variables were collected. Pre test and post test level of pain was assessed daily for 3rd post operative client which was followed by 3 days foot massage. Pre test level of anxiety was assessed on 3rd post operative day which was followed by 3 days foot massage then post test level of anxiety was assessed on by self administered modified trait anxiety scale. The results were analyzed based on the scores obtained by the samples. The sample size and settings was feasible for further main study.

DATA COLLECTION PROCEDURE

The study was conducted in selected Hospital in Chennai, from 03.06.2011 to 03.07.2011.Formal consent was obtained from the Director, Vijaya Hospital, Chennai.

The 3rd post CABG client who fulfilled the inclusion criteria were selected by non-purposive sampling technique. Based on the selection criteria each of the 60 subjects were selected and 30 subjects were assigned to the experimental and control group respectively by client centered intervention.

A brief introduction about the self and study were given and data was collected from the clients. Oral consent was taken from the samples and confidentiality of the responses was assured.

The investigator, after selection of samples made the clients in a comfortable position and the pre test level of pain and anxiety was assessed for clients in both the experimental and control groups using a numerical pain rating scale and modified trait anxiety scale. Given foot massage using the method such as pertissage, friction & kneading by applying manual pressure on right foot for 10mts twice a day for 3 consecutive days from third post

operative day to sixth post operative day by the investigator for the experimental group and the control group were received no intervention. The post test pain assessment was done daily and post test anxiety assessed in 3rd day by the investigator for the experimental and control groups.

Date		No of patients	
From	To	Experimental group Intervention	Control group Routine hospital care
03.06.11	05.06.11	2	2
06.06.11	09.06.11	3	3
09.06.11	11.06.11	3	3
12.06.11	14.06.11	2	3
15.06.11	17.06.11	2	2
18.06.11	20.06.11	4	4
21.06.11	23.06.11	2	2
24.06.11	26.06.11	2	2
27.06.11	29.0611	3	3
29.06.11	01.07.11	4	3
01.07.11	03.07.11	3	3

DATA ANALYSIS PROCEDURE

Descriptive Statistics

Frequency and percentage distribution was used to analyze the variables of the study.

Mean and standard deviation was used to compute the level of pain and anxiety before and after foot massage among clients undergone CABG.

Inferential Statistics

Paired "t" test was used to assess the effectiveness of foot massage on pain and anxiety.

Chi square was used to associate the level of pain and anxiety with demographic variables.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 30 clients in experimental group, 30 clients in control group undergone Coronary Artery Bypass Graft surgery to evaluate the outcome of foot massage on pain anxiety at Vijaya Heart Foundation, vadapalani, Chennai.

ORGANIZATION OF DATA

The findings of the study were grouped and analyzed under the following sections.

Section – A: Frequency and percentage distribution of demographic variable of the clients undergone CABG

Section – B: Assessment of pre test level of pain and anxiety the experimental and control group.

Section – C: Assessment of post test level of pain and anxiety the experimental and control group.

Section – D: Comparison of level of pain and anxiety among clients undergone CABG in the experimental group and control group.

Section – E: Association of post test level of pain and anxiety among clients undergone CABG with demographic variables.

SECTION A

Table I

Frequency and percentage distribution of demographic variables of the clients undergone CABG

n=60

Demographic variables	Experimental Group		Control Group	
	No	%	No	%
Age in years				
36-45	2	6.67	0	0.00
46-55	4	13.33	5	16.67
56-65	24	80.00	25	83.33
Gender				
Male	26	86.67	25	83.33
Female	4	13.33	5	16.67
Occupation				
Unemployed	8	26.67	5	16.67
Self employed	10	33.33	9	30.00
Government employed	8	26.67	10	33.33
Private employed	4	13.33	6	20.00
Family income per month				
<Rs.5,000/-	0	0.00	0	0.00
Rs.5,001-Rs.10,000/-	2	6.67	2	6.67
Rs.10,001-Rs.15,000/-	8	26.67	14	46.67
>Rs.15,000/-	20	66.67	14	46.67
Educational Qualification				
Illiterate	3	10.00	4	13.33
Schooling	12	40.00	10	33.33
Graduate	11	36.67	16	53.33
Post graduate	4	13.33	0	0.00
Marital Status				
Unmarried	0	0.00	0	0.00
Married	30	100.00	30	100.00
Widow/Widower	0	0.00	0	0.00
Divorced	0	0.00	0	0.00
Co-morbid illness				
Diabetes mellitus	22	73.33	23	76.67
Hypertension	8	26.67	7	23.33
Hyper or hypothyroidism	0	0.00	0	0.00
Family support				
Yes	30	100.00	30	100.00
No	0	0.00	0	0.00

The table I shows the frequency and percentage distribution of the demographic variables of the respondents in the experimental and control group.

In the experimental group based on their age, out of 30 clients, 2(6.67%) of them were 36-45 years, 4(13.33%) of them were 46-55 years, and 24(80.00%) of them were 56-65 years. In the control group based on their age, out of 30 clients, 5(16.67%) of them were 46-55 years, and 25(83.33%) of them were 56-65 years.

Regarding the gender In the experimental group, 26(86.67%) of them were males and 4(13.33%) of them were females.   In the control group, 25(83.33%) of them were males and 5(16.67%) of them were females.

Regarding the occupation, in experimental group 8(26.67%) of them were unemployed, 10(33.33%) of them were self employed, 8(26.67%) of them were government employed, 4(13.33%) of them were private employed. In the control group 5(16.67%) of them were unemployed, 9(30.00%) of them were self employed, 10(33.33%) of them were government employed, 6(20.00%) of them were private employed.

Considering the monthly income of family, In the experimental group, 2(6.67%) of them were seeking between Rs 5,000- Rs 10,000, 8(26.67%) of them had Rs 10,001 to Rs 15,000 and 20(66.67%) of them had >Rs 15,000. In the control group, 2(6.67%) of them were seeking between Rs 5,000- Rs 10,000, 14(46.67%) of them had Rs 10,001 to Rs 15,000 and 14(46.67%) of them had >Rs 15,000.

Regarding the educational qualification in the experimental group, 3(10.00%) of them were illiterates, 12(40.00%) of them were schooling, 11(36.67%) of them were graduates, 4(13.33%) of them were postgraduates. In the control group, 4(13.33%) of them were illiterates, 10(33.33%) of them were schooling, 16(53.33%) of them were graduates.

Considering the marital status majority of the clients in the experimental group 30(100.00%) of them were married. In the control group 30(100.00%) of them were married.

Regarding the co-morbid illness majority of the clients in the experimental group, 22(73.33%) of them had diabetes mellitus, 8(26.67%) of them had hypertension. In the control group, 23(76.67%) of them had diabetes mellitus, 7(23.33%) of them had hypertension.

Regarding the family support in the experimental group, 30(100.00%) of them had family support. In the controls group, 30(100.00%) of them had family support.
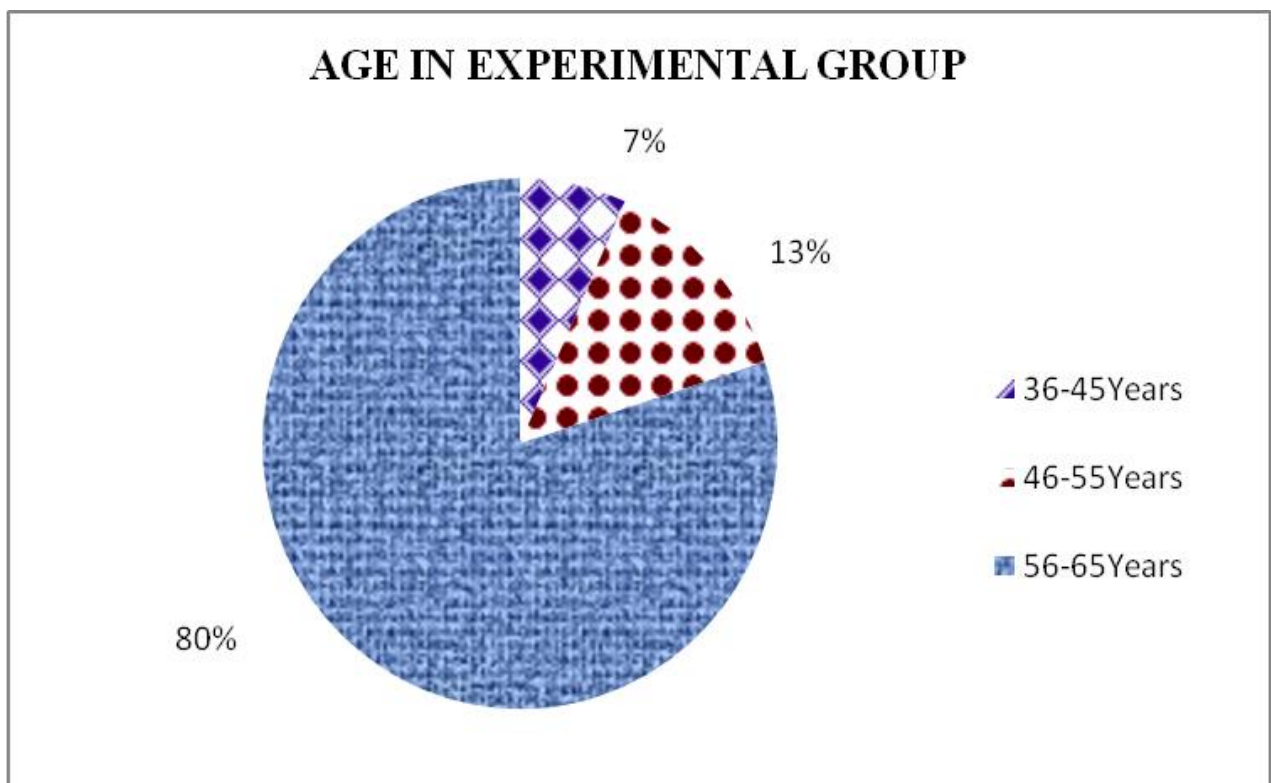
Fig.ii: Percentage distribution of age of the samples in the experimental group

AGE IN CONTROL GROUP

0%

17%

83%

- 36-45Years
- 46-55Years
- 56-65Years
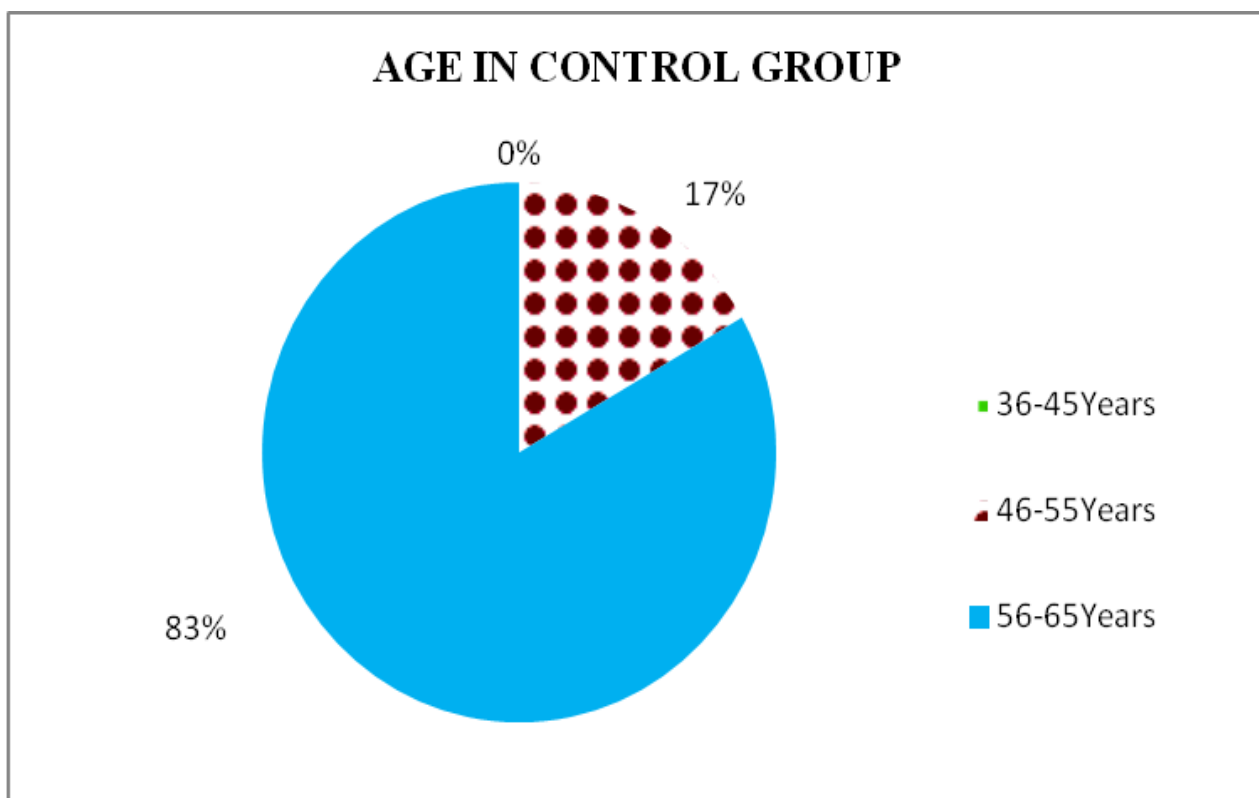
Fig.iii: Percentage distribution of age of the samples in the control group
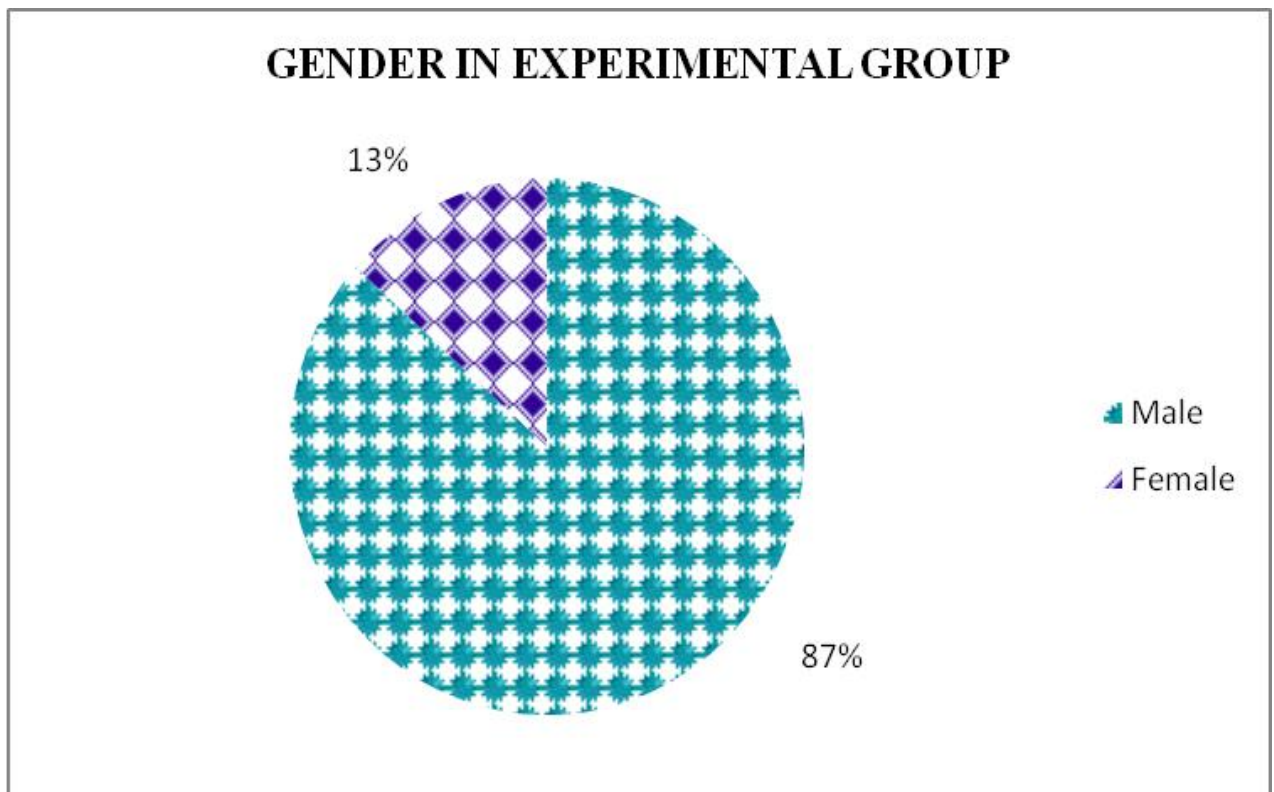
Fig.iv: Percentage distribution of gender in the experimental group
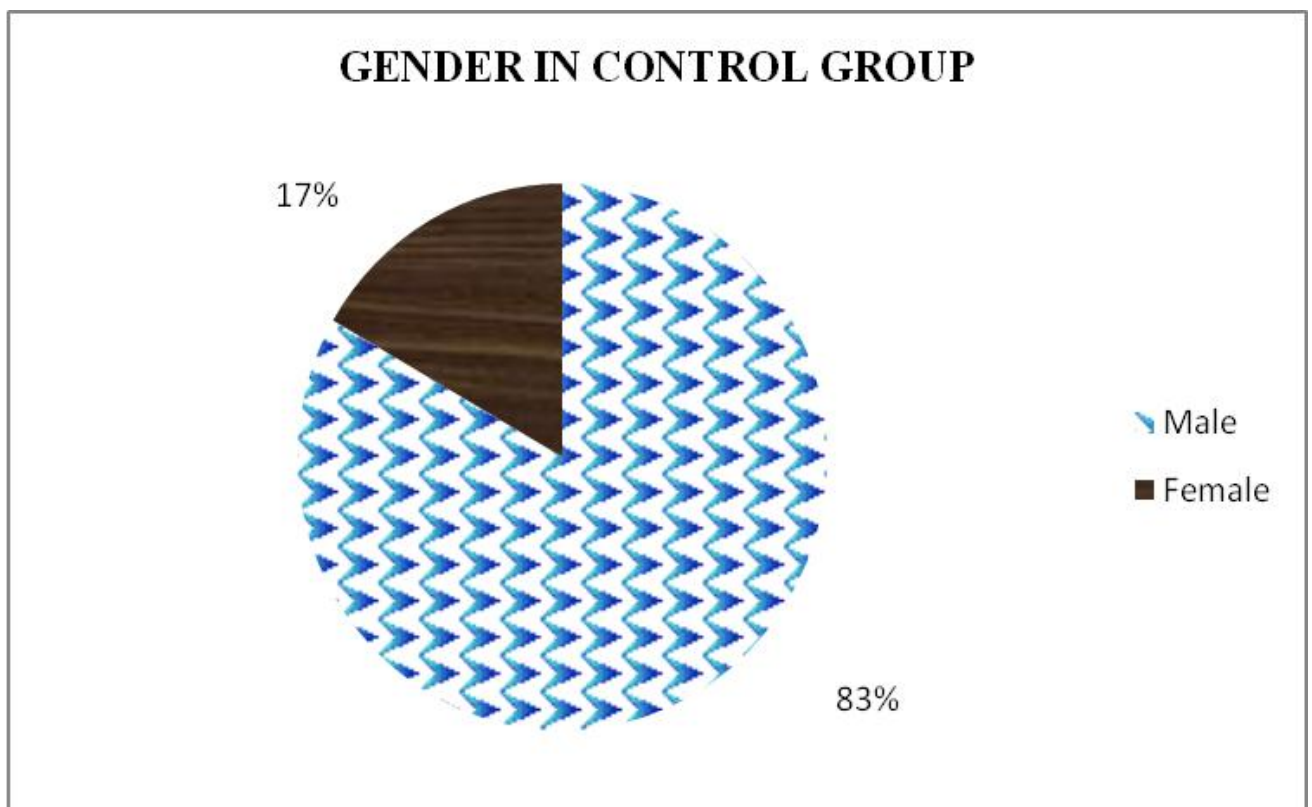
Fig.v: Percentage distribution of gender in the control group
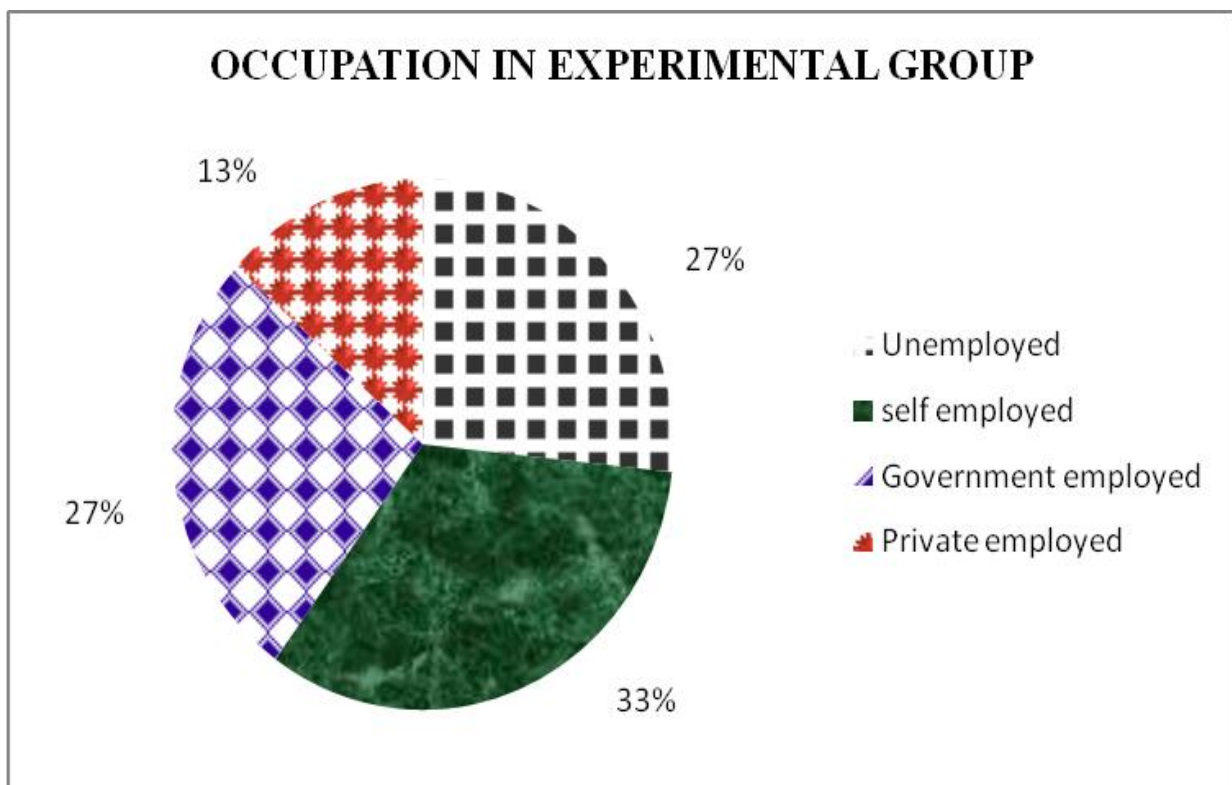
Fig.vi: Percentage distribution of occupation in the experimental group
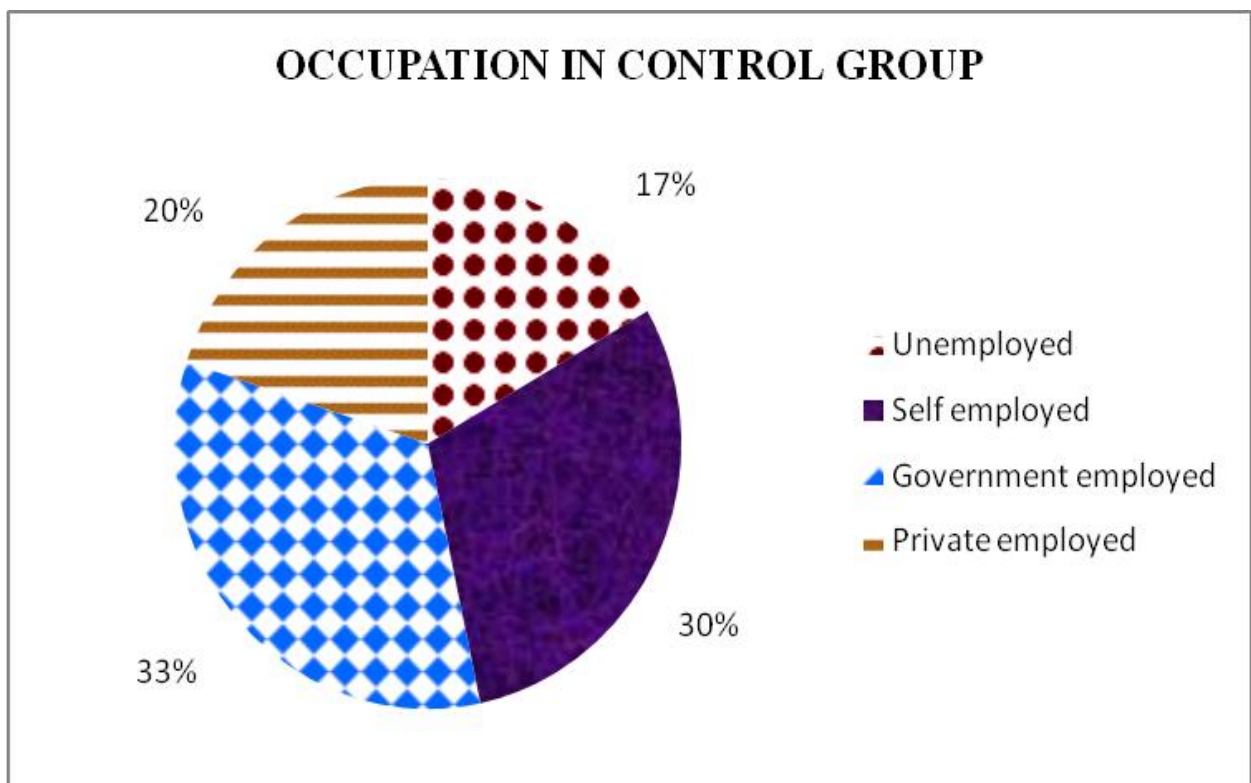
Fig.vii: Percentage distribution of occupation in the control group
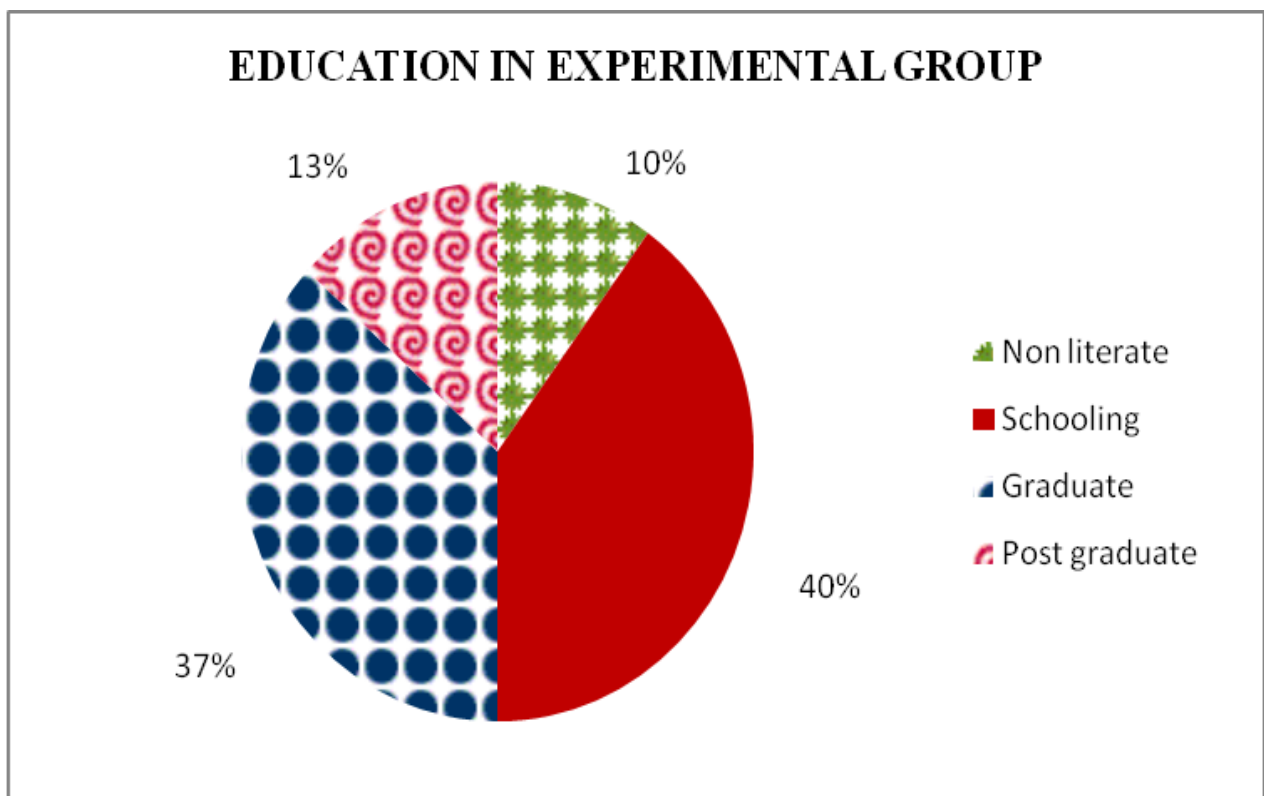
Fig.viii: Percentage distribution of educational qualification in the experimental group

EDUCATION IN CONTROL GROUP

0%
13%
54%
33%

- Non literate
- Schooling
- Graduate
- Post graduate
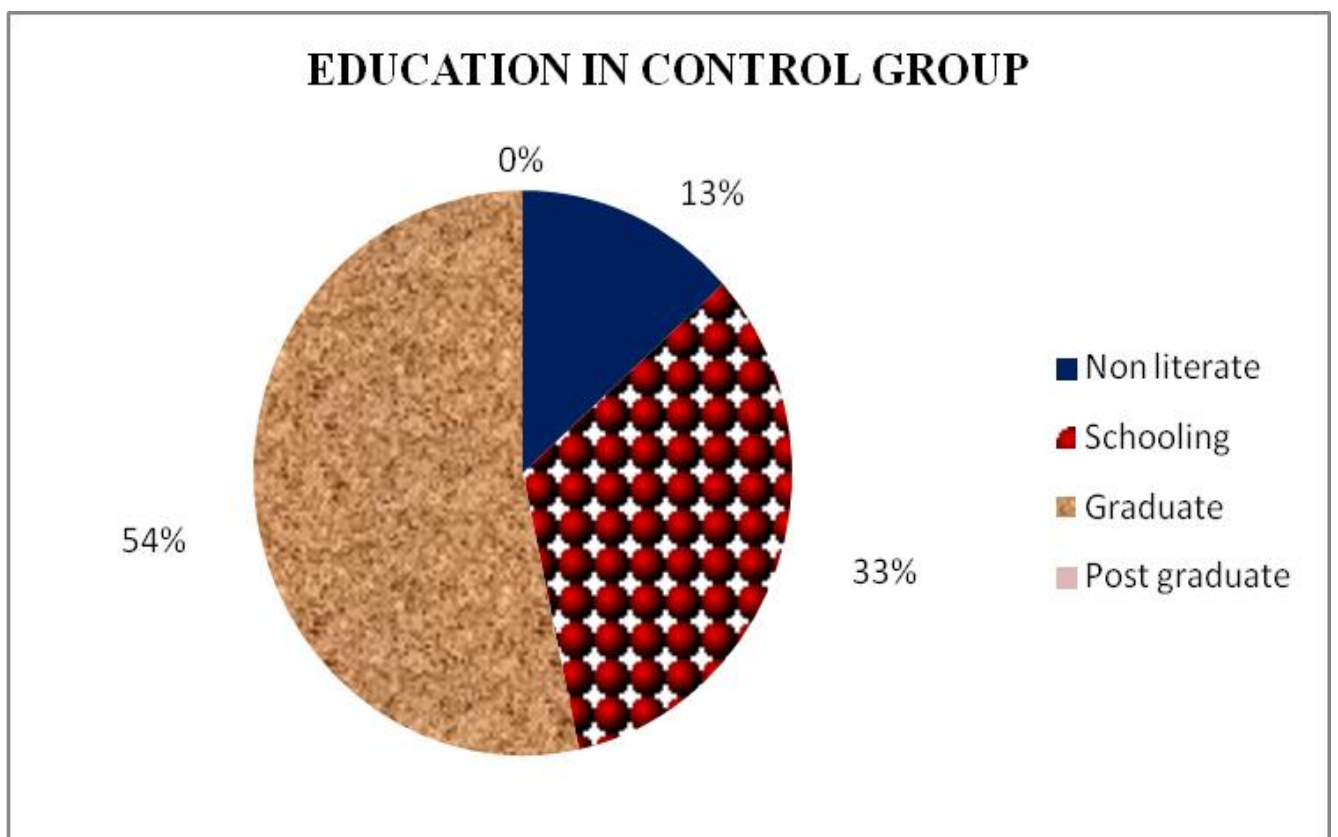
Fig.ix: Percentage distribution of educational qualification in the control group

SECTION B

Table II

Frequency and percentage distribution of pre test level of pain in the experimental and control group

n=60

Pre test	Mild		Moderate		Severe	
	No.	%	No.	%	No.	%
Experimental group	0	0	9	30	21	70
Control group	0	0	3	10	27	90

The table II shows the frequency and percentage distribution of pre test level of pain in the experimental and control group.

The table further reveals that pre test level of pain in the experimental group, 9(30%) were in the moderate level and 21(70%) were in the severe level. In the experimental group, 3(10%) were in the moderate level and 27(90%) were in the severe level of pain.

Fig.x. Frequency and percentage distribution of pre test level of pain in the experimental and control group.

Table III

Frequency and percentage distribution of pre test level of anxiety in the experimental and control group.

n=60

Pre test	Mild		Moderate		Severe	
	No	%	No	%	No	%
Experimental group	2	6.67	23	76.67	5	16.67
Control group	2	6.67	20	66.67	8	26.67

The table III shows that frequency and percentage distribution of pre test level of anxiety in the experimental and control group.

The table further reveals that pre test level of anxiety in the experimental group, 2(6.67%) were in the mild level, 23(76.67%) were in the moderate level and 5(16.67%) were in the severe level. In the control group, 2(6.67%) were in the mild level, 20(66.67%) were in the moderate level and 8(26.67%) were in the severe level of pain.

Fig.xi. Frequency and percentage distribution of pre test level of anxiety in the experimental and control group.

SECTION C

Table IV

Frequency and percentage distribution of post test level of pain in the experimental and control group.

n=60

Post test	Mild		Moderate		Severe	
	No	%	No	%	No	%
Experimental group	27	90	2	6.67	1	3.33
Control group	2	6.67	3	10	25	83.33

The table IV shows the frequency and percentage distribution of post test level of pain in the experimental and control group.

The table further reveals that post test level of pain in the experimental group,27(90%) were in the mild level,2(6.67%)were in the moderate level,1(3.33%) were in the severe level. In the control group2(6.67%) mild level, 3(10%) were in the moderate level and 25(83.33%) were in the severe level of pain.
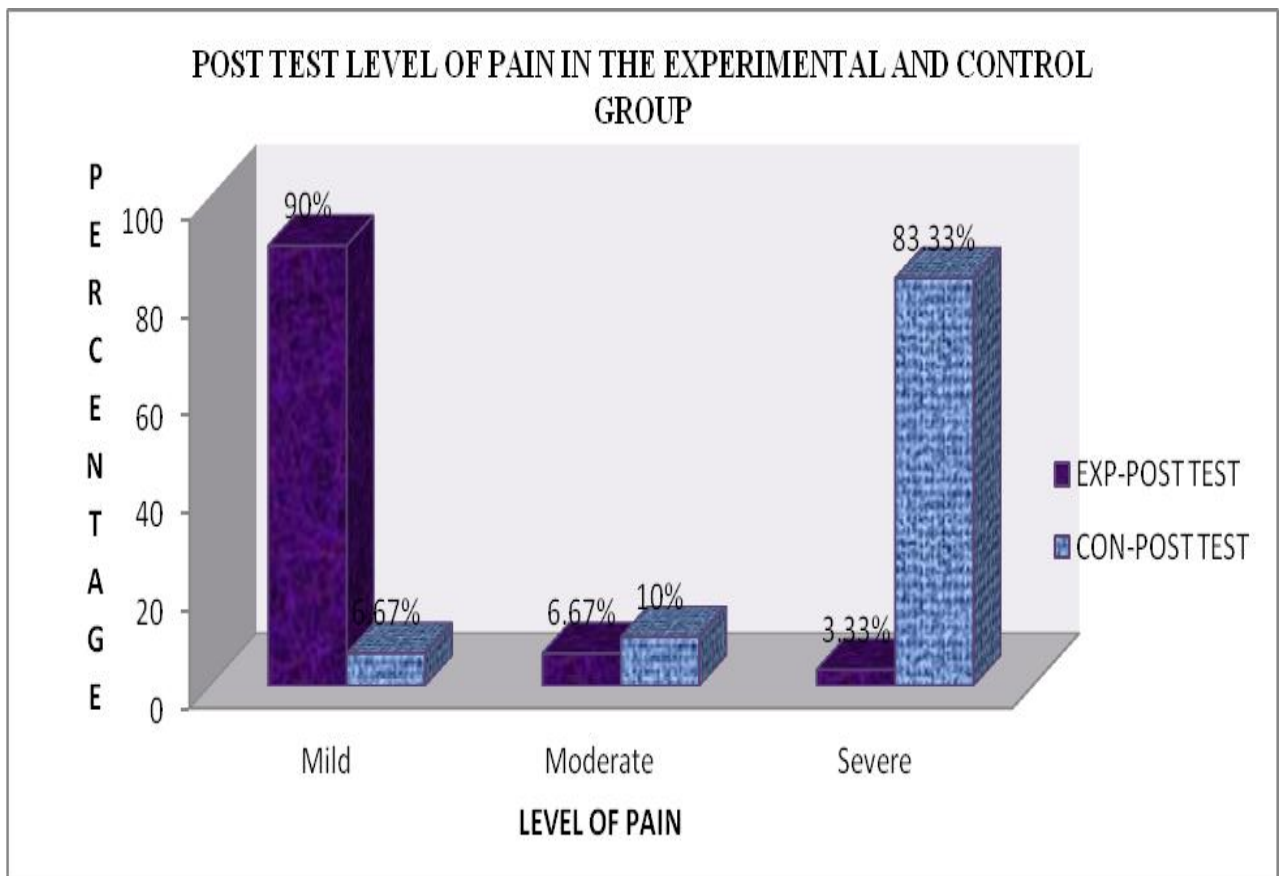
Fig.xii. Frequency and percentage distribution of post test level of pain in the experimental and control group.
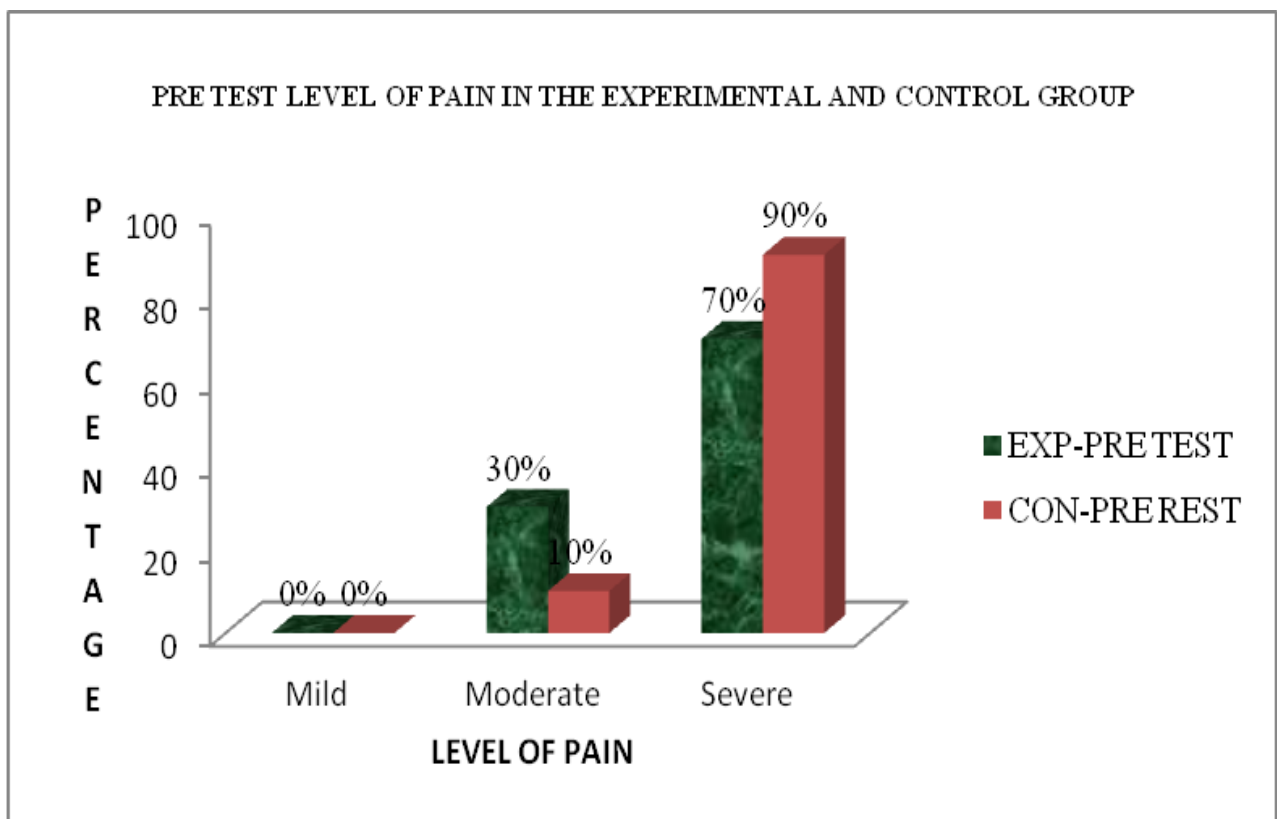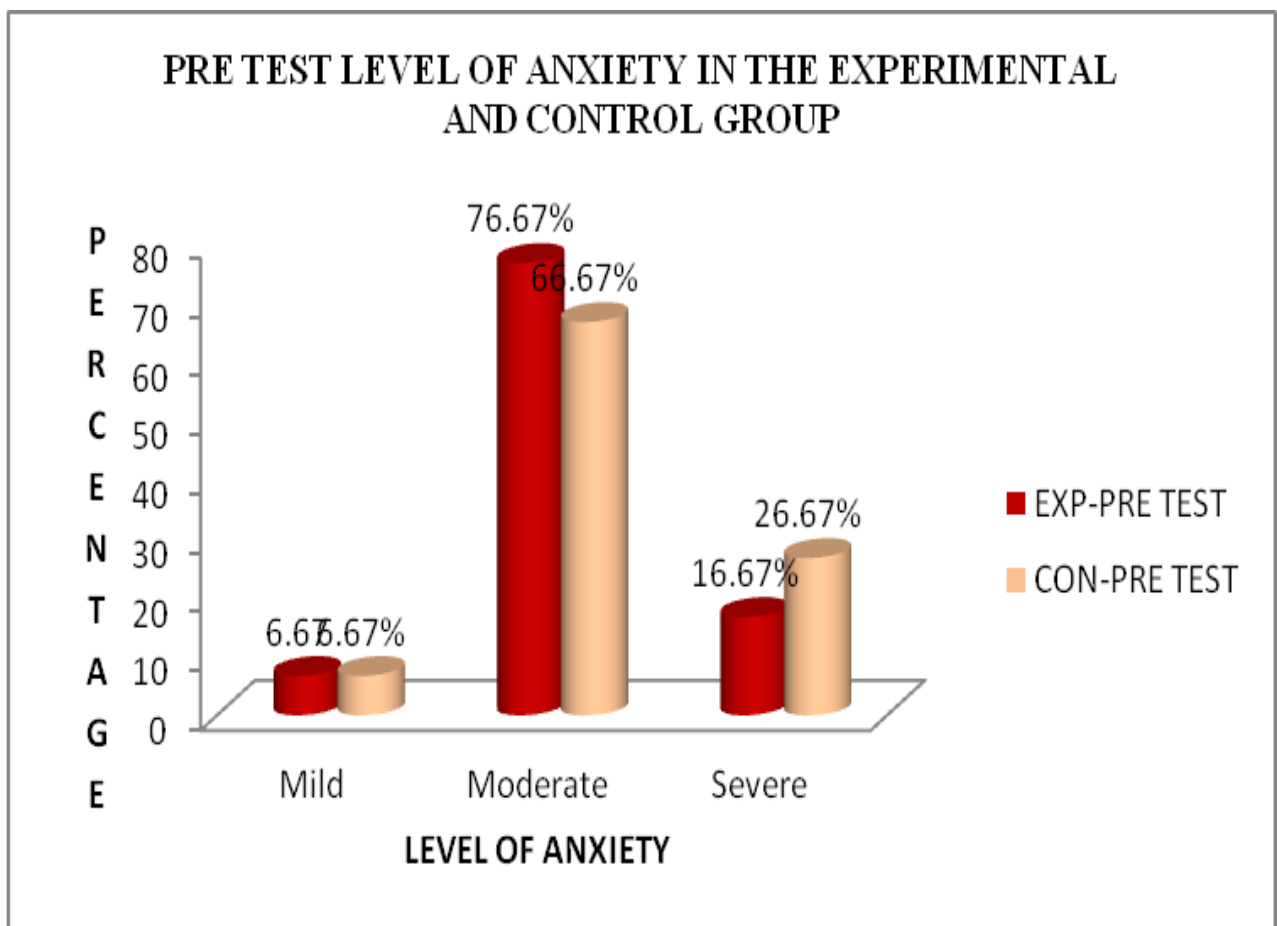
Table V

Frequency and percentage distribution of post test level of anxiety in the experimental and control group.

n=60

Post test	Mild		Moderate		Severe	
	No	**%**	**No**	**%**	**No**	**%**
Experimental group	26	86.67	2	6.67	2	6.67
Control group	2	6.67	22	73.33	6	20

The table V shows the frequency and percentage distribution of post test level of anxiety in the experimental and control group.

The table further reveals that post test level of anxiety in the experimental group, 26(86.67%) were in the mild level, 2(6.67&) were in the moderate level, 2(6.67%) were in severe level of anxiety. In the control group, 2(6.67%) were in the mild level, 22(73.33%) were in the moderate level and 6(20%) were in the severe level of pain.
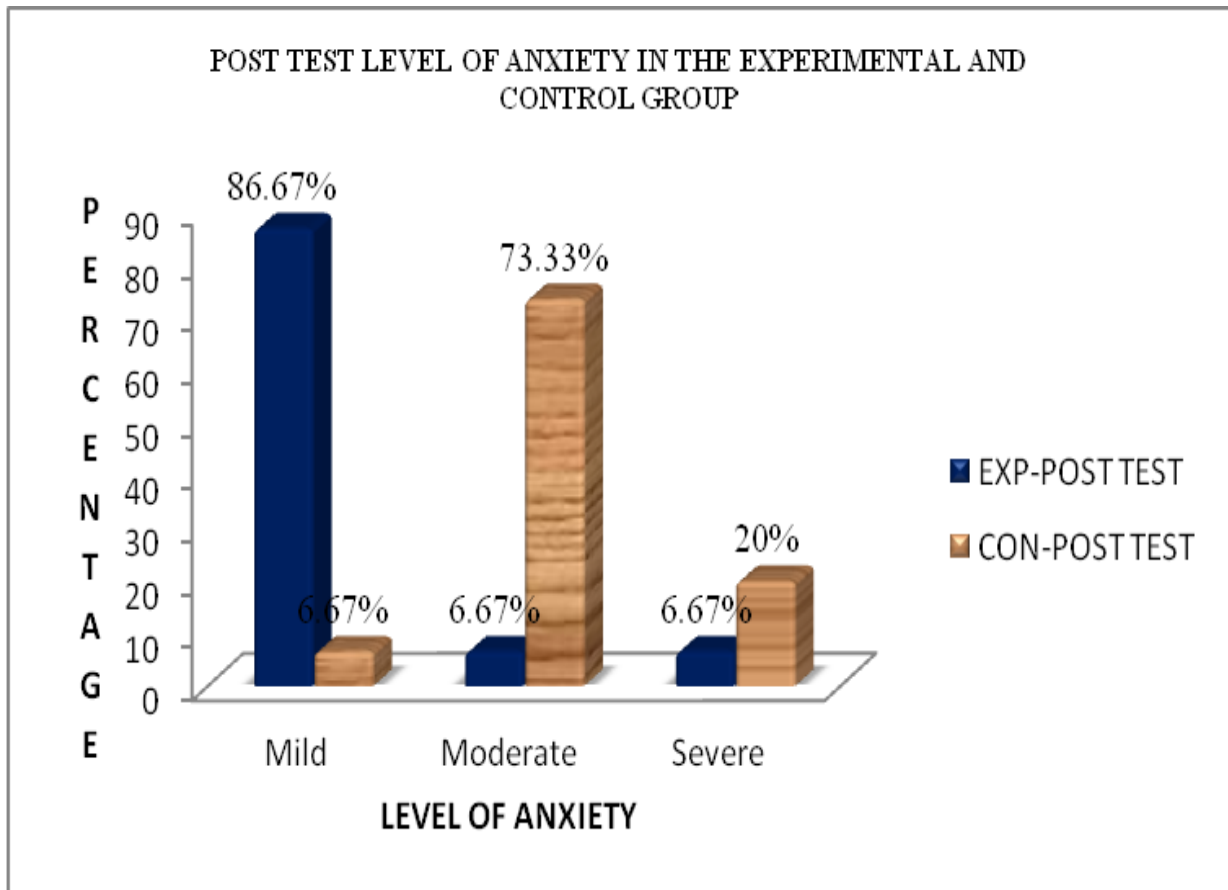
Fig.xiii. Frequency and percentage distribution of post test level of anxiety in the experimental and control group.

SECTION D

Table VI

Comparison of pretest and post test level of pain in the experimental and control group

n = 60

Group	Pain	Mean	S.D	't' Value
Experimental group	Pre test	7.30	1.24	t = 27.982***
	Post Test	1.30	0.47	p = 0.000, (S)
Control group	Pre test	7.90	0.96	t = -0.328
	Post Test	7.93	0.94	p = 0.745, (N.S)

S-Significant, N.S-Not significant

The table VI shows the comparison of pre test and post test level of pain in the experimental and control group.

The table further reveals comparison of level of pain among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 7.30 to 1.30 and decrease in standard deviation from 1.24 to 0.47 respectively the "t" value 27.982*** was found to be highly significant at $p<0.001$ level of significance .

The above findings indicates a decrease in the level pain following foot massage. Hence research hypothesis H_1 states that there is significant difference between pre test and post test level of pain among CABG client was accepted.

Fig.xiv. Comparison of pre test and post test level of pain in the experimental and control group

Table VII

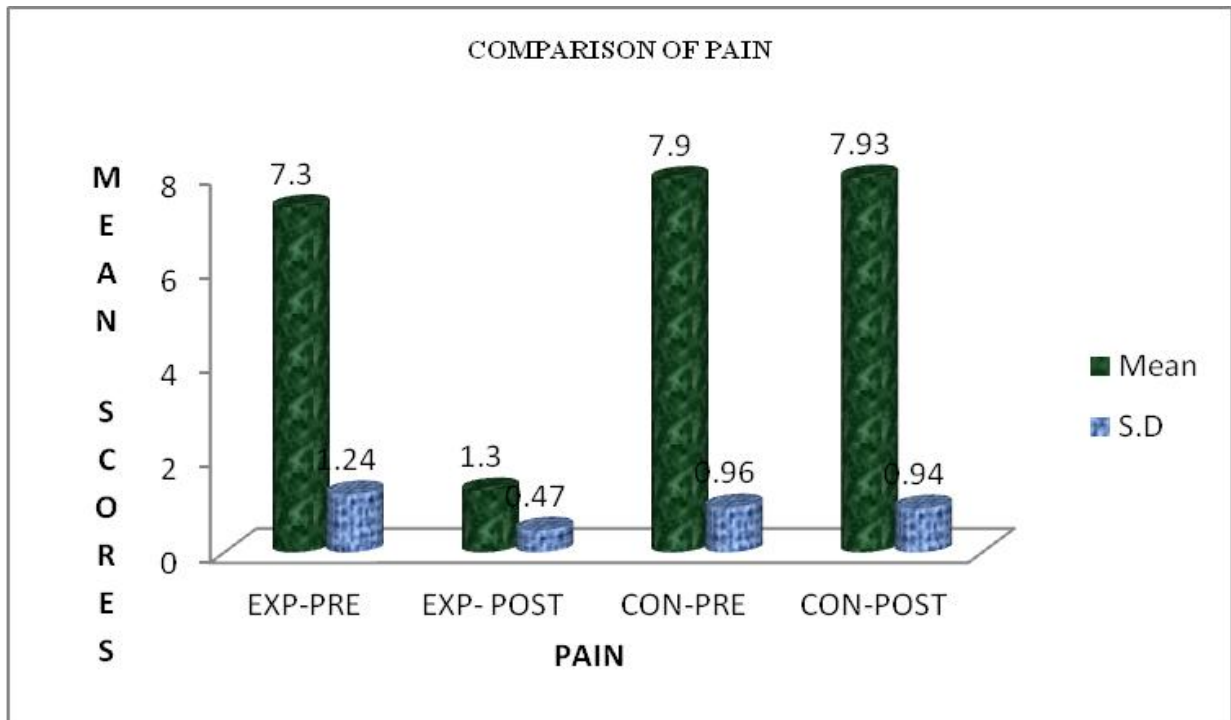**Comparison of pre test and post test level of anxiety in the experimental group and control group.**

n=60

Group	Anxiety	Mean	S.D	't' Value
Experimental group	Pre test	26.67	4.22	t = 33.523***
	Post Test	11.23	2.61	p = 0.000, (S)
Control group	Pre test	27.50	4.60	t = -0.421
	Post Test	27.57	4.55	p = 0.677, (N.S)

S-Significant, N.S-Not significant

The table VII shows the comparison of pre test and post test level of anxiety in the experimental and control group.

The table further reveals that comparison of level of anxiety among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 26.67 to 11.23 and decrease in standard deviation from 4.22 to 2.61 respectively the "t" value 33.523*** was found to be highly significant at $p<0.001$ level of significance indicating a decreased in the level of anxiety following foot massage.

The above findings indicates a decrease in the level anxiety following foot massage. Hence the research hypothesis H_2 states that there is significant difference between pre test and post test level of anxiety among CABG client was accepted.

COMPARISON OF ANXIETY
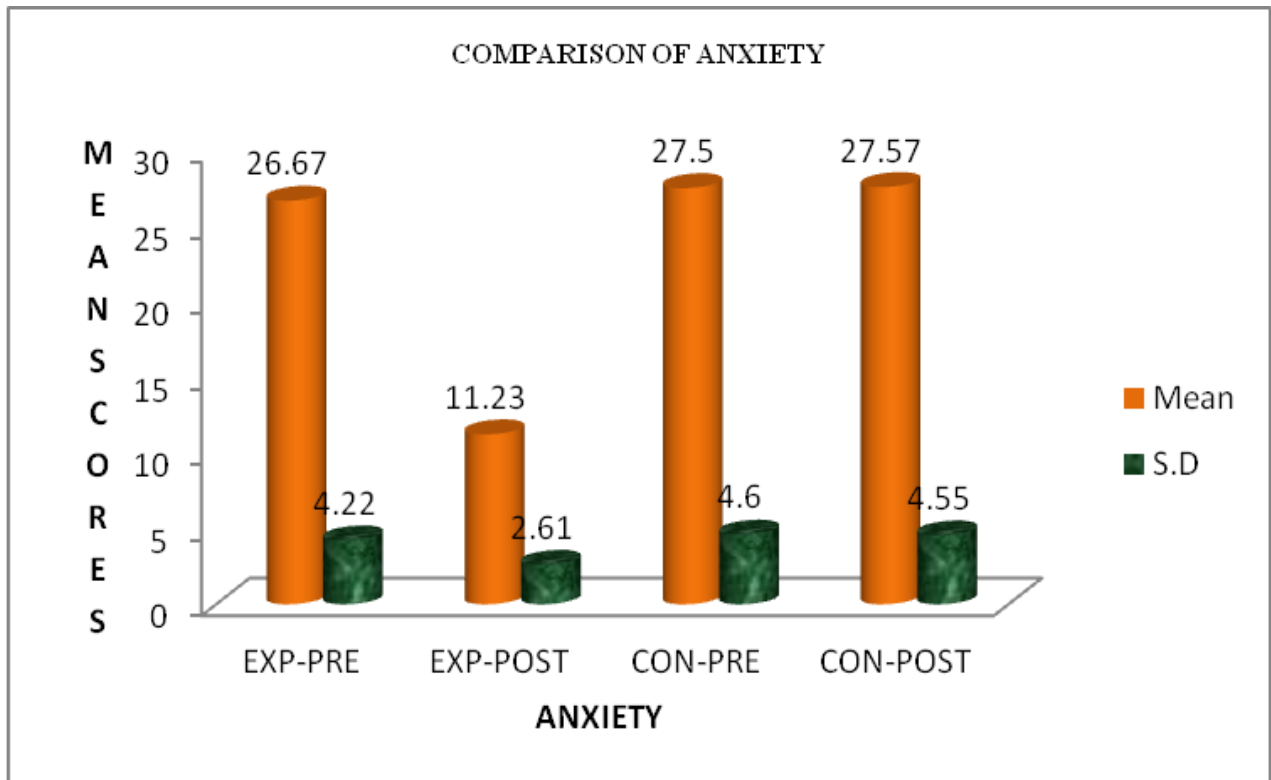
Fig.xv. Comparison of pre test and post test level of anxiety in the experimental group and control group.

Table VIII

Comparison of pre test level of pain and anxiety between the experimental and control group

n=60

	Group	Mean	S.D	Unpaired 't' Value
Pain	Experimental Group	7.30	1.23	t = -2.100
	Control Group	7.93	0.96	p = 0.040, (S)
Anxiety	Experimental Group	26.27	4.22	t = -1.082
	Control Group	27.50	4.99	p = 0.284, (N.S)

S-Significant, N.S- Not significant

The table VIII shows the comparison of pre test level of pain and anxiety between the experimental and control group.

The table further reveals that comparison of level of pain between experimental and control group among clients undergone CABG before providing foot massage was done by using paired "t" test. The mean value from 7.30 to 7.93 and standard deviation from 1.23 to 0.96 respectively the "t" value-2.100 . Level of anxiety between experimental and control group the mean value from 26.27 to 27.50 and standard deviation from 4.22 to 4.99 respectively the "t" value- 1.082.

Table IX

Comparison of post test level of pain and anxiety between the experimental and control group.

n=60

	Group	Mean	S.D	Unpaired 't' Value
Pain	Experimental Group	1.30	0.47	t = -34.498***
	Control Group	7.93	0.94	p = 0.000, (S)
Anxiety	Experimental Group	11.23	2.61	t = -17.046***
	Control Group	27.57	4.55	p = 0.000, (S)

S-Significant

The table IX shows the comparison of post test level of pain and anxiety between the experimental and control group.

The table further reveals that comparison of level of pain between experimental and control group among clients undergone CABG after providing foot massage was done by using paired "t" test. The mean value from 1.30 to 7.93 and standard deviation from 0.47 to 0.0.94 respectively the "t" value- 34.498***. Level of anxiety between experimental and control group the mean value from 11.23 to 27.57 and standard deviation from 2.61 to 4.55 respectively the "t" value- 17.046***.

COMPARISON BETWEEN EXPERIMENTAL AND CONTROL GROUP
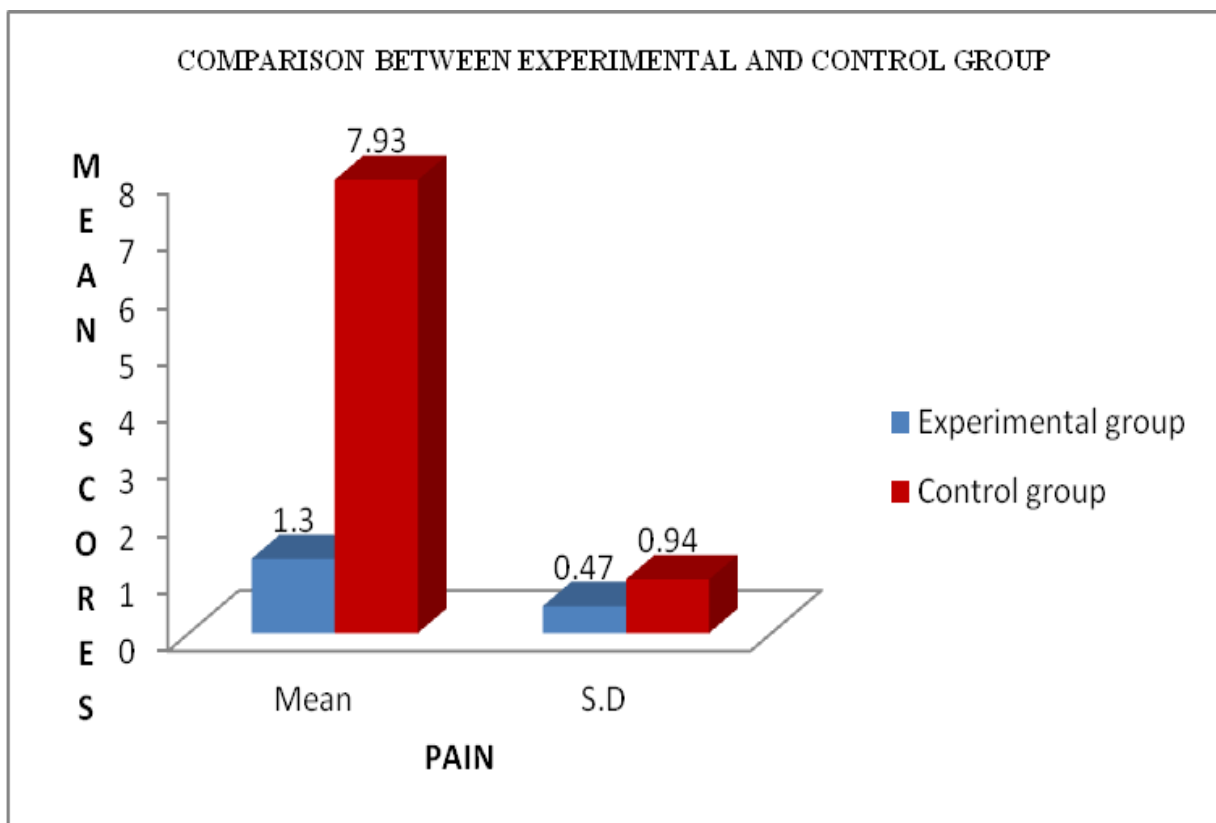
Fig.xvi. Comparison of post test level of pain between the experimental and control group.
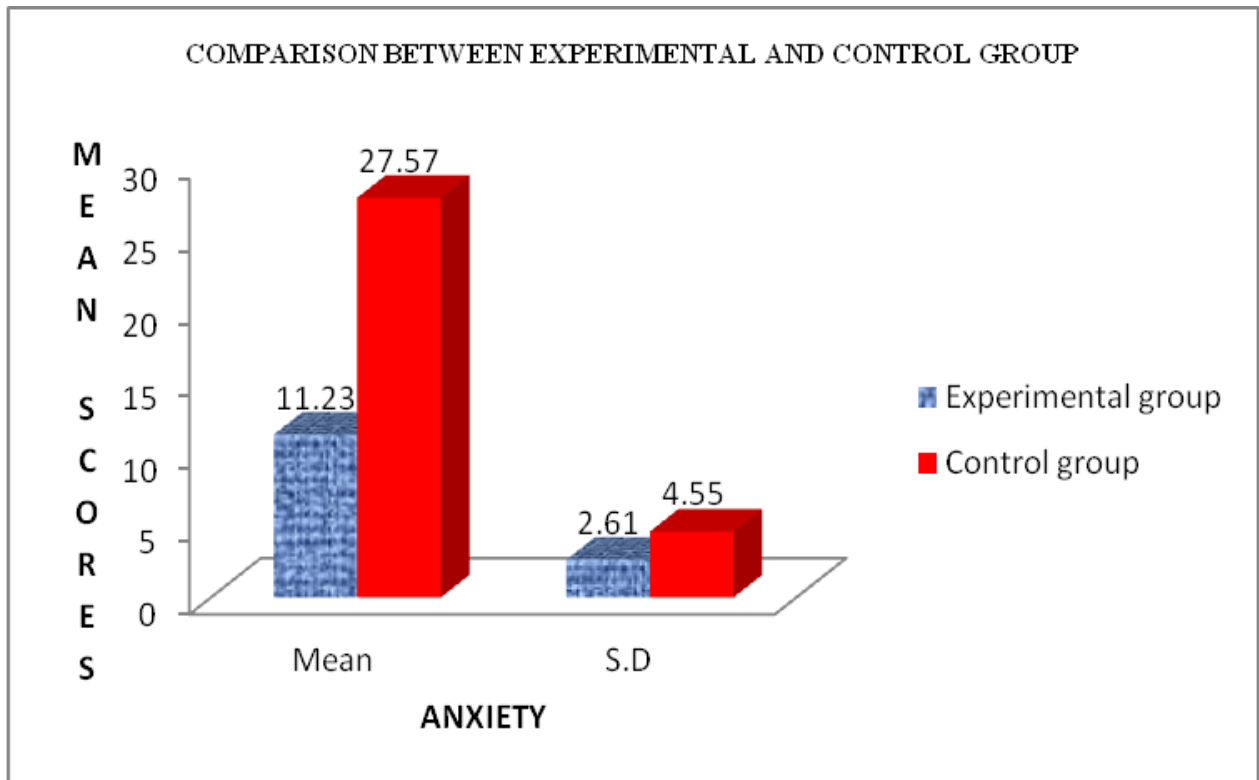
Fig.xvii. Comparison of post test level of anxiety between the experimental and control group.

SECTION E

Table X

Association of post test level of pain with the demographic variables in the experimental group

n=30

Demographic Variables	≤Mean		>Mean		Chi-Square Value
	No.	%	No.	%	
Age in years					$\chi^2 = 1.627$
36 – 45	2	6.7	0	0	d.f = 2
46 – 55	2	6.7	2	6.7	p = 0.443
56 – 65	17	56.7	7	23.3	N.S
Gender					$\chi^2 = 0.879$
Male	18	63.3	7	23.3	d.f = 1
Female	2	6.7	2	6.7	p = 0.348 N.S
Occupation					$\chi^2 = 5.000$
Unemployed	5	16.7	3	10.0	d.f = 3
Self employed	5	16.7	5	16.7	p = 0.172
Government employed	7	23.3	1	3.3	N.S
Private employed	4	13.3	0	0	
Family income per month in Rs.					$\chi^2 = 5.833$
<5,000/-	-	-	-	-	d.f = 2
5,001 - 10,000/-	0	0	2	6.7	p = 0.054
10,001 - 15,000	5	16.7	3	10.0	N.S
>15,000/-	16	53.3	4	13.3	
Educational Qualification					$\chi^2 = 3.990$
Illiterate	1	3.3	2	6.7	d.f = 3
Schooling	9	30.0	3	10.0	p = 0.263
Graduate	7	23.3	4	13.3	N.S
Post graduate	4	13.3	0	0	
Co-morbid illness					$\chi^2 = 0.292$
Diabetes mellitus	16	53.3	6	20.0	d.f = 1
Hypertension	5	16.7	3	10.0	p = 0.589
Hyper or hyperthyroidism					N.S

N.S – Not Significant

The table X shows the association of post test level of pain with demographic variables in the experimental group.

The table further reveals the association of the post test level of pain among client undergone CABG with the selected demographic variables, was done by using chi square test. It was found that there was no significant association of pain with the demographic variables.

Table XI

Association of post test level of anxiety with the demographic variables in the experimental group

n=30

Demographic Variables	≤Mean		>Mean		Chi-Square Value
	No.	%	No.	%	
Age in years					$\chi^2 = 0.136$
36 – 45	1	3.3	1	3.3	d.f = 2
46 – 55	2	6.7	2	6.7	p = 0.934
56 – 65	14	46.7	10	33.3	N.S
Gender					$\chi^2 = 0.084$
Male	15	50.0	11	36.7	d.f = 1 p = 0.773
Female	2	6.7	2	6.7	N.S
Occupation					$\chi^2 = 2.613$
Unemployed	3	10.0	5	16.7	d.f = 3
Self employed	7	23.3	3	10.0	p = 0.455
Government employed	4	13.3	4	13.3	N.S
Private employed	3	10.0	1	3.3	
Family income per month in Rs.					$\chi^2 = 1.697$
<5,000/-	-	-	-	-	d.f = 2
5,001 - 10,000/-	2	6.7	0	0	p = 0.428
10,001 - 15,000	4	13.3	4	13.3	N.S
>15,000/-	11	36.7	9	30.0	
Educational Qualification					
Illiterate	1	3.3	2	6.7	$\chi^2 = 2.110$
Schooling	6	20.0	6	20.0	d.f = 3
Graduate	8	26.7	3	10.0	p = 0.550
Post graduate	2	6.7	2	6.7	N.S
Divorced	-	-	-	-	
Co-morbid illness					$\chi^2 = 0.151$
Diabetes mellitus	12	40.0	10	33.3	d.f = 1
Hypertension	5	16.7	3	10.0	p = 0.697
Hyper or hyperthyroidism					N.S

N.S – Not Significant

The table XI shows the association of post test level of anxiety with demographic variables in the experimental group.

The table further reveals the association of the post test level of anxiety among client undergone CABG with the selected demographic variables, was done by using chi square test. It was found that there was no significant association of anxiety with the demographic variables.

CHAPTER - V

DISCUSSION

Incisional and sternal pain is the common problem in post CABG. Patients are typically discharged on a short course of analgesics, but they should expect some degree of continued musculoskeletal discomfort for several weeks. Internal mammary grafts are also associated with a unique pain syndrome. Symptoms range from numbness to pinprick to severe hypersensitivity of the skin over lying the sternum.

Patients suffer from pain in many ways. Pain robs patients of their lives. Patients may become depressed or anxious and want to end their lives. Patients are sometimes unable to do many of the things they did without pain, and this state of living in pain affects their relationships with others and sometimes their ability to maintain employment.
Anxiety is defined as "A feeling of apprehension and fear characterized by physical symptoms such as palpitations, sweating, and feelings of stress. These disorders fill people's lives with overwhelming anxiety and fear.

This chapter deals with the discussion of the result of the data analysis based on the objectives of the study and hypothesis. A study to evaluate the outcome of the foot massage on pain and anxiety among clients undergone Coronary Artery Bypass Graft surgery at Vijaya Heart Foundation, Vadapalani, Chennai.

The objectives were
1. To assess the pre test level of pain among post CABG clients in the experimental and control group.
2. To assess the pre test level of anxiety among post CABG clients in the experimental and control group.
3. To assess the post test level of pain among post CABG clients in the experimental and control group.
4. To assess the post test level of anxiety among post CABG in the experimental and control group.

5. To determine the outcome of foot massage on level of pain and anxiety in the experimental and control group.

6. To associate the post test level of pain and anxiety in the experimental group with the selected demographic variables

The demographic variables in the study were age, gender, education, occupation, family income, marital status, co-morbid illness and family support.

In the experimental group, majority of the clients 24(80.00%) were in the age groups of 56-65 years, 26(86.67%) were male, 10(33.33%) were self employed, and 12(40%) were schooling. It further shows that majority 20(66.67%) had a monthly income of more than Rs.15,000, 30(100%) were married, 22(73.33%) had co-morbid illness of Diabetes mellitus and 30(100%) had family support.

Whereas in the control group, majority of the clients 25(83.33%) were in the age groups of 56-65 years, 25(83.33%) were male, 10(33.33%) were government employed, and 16(53.33%) were graduates. It further shows that majority 14(46.67%) had a monthly income of more than Rs.15,000, and Rs.10,001 to Rs.15,000 had respectively, 30(100%) were married, 22(73.33%) had co-morbid illness of Diabetes mellitus and 30(100%) had family support.

The first objective was to assess the pre test level of pain among post CABG clients in the experimental and control group.

Considering the experimental group, in the pre test 9(30%) had moderate level of pain and 21(70%) had severe level of pain.

Whereas in the control group, in the pre test 3(10%) had moderate level of pain and 27(90%) had severe level of pain.

The study findings were consistent with a study conducted by Sedighe Fayzi et al.,(2011) which was to determine the effects of foot and hand massage on postoperative pain in cardiac surgery patients in Gollestan hospital, Iran. They selected sixty-five patients based on aim and randomly assigned to either control (n = 33) or massage group (n = 32). The massage group received a 20 min foot and hand massage (each extremity 5 min) and control group rested in bed and researcher was near them for 20 min. Pain intensity measured by

visual analogue scale before and after intervention in two groups. There was statistically significant difference on the pain intensity and type, after intervention (massage) (p-value = 0.000). According to the obtained findings, first and second hypothesis were approved, and the pain was reduced by hand and foot massage. Our study The findings revealed that the effectiveness of massage in postoperative cardiac surgical pain.

The second objective was to assess the pre test level of anxiety among post CABG clients in the experimental and control group.

Considering the experimental group, in the pre test 2(6.67%) had mild level of anxiety, 23(76.67%) had moderate level of anxiety and 5(16.67%) had severe level of anxiety.

Whereas in the control group, in the pre test 2(6.67%) had mild level of anxiety, 20(66.67%) had moderate level of anxiety and 8(26.67%) had severe level of anxiety.

The study findings were consistent with a study conducted by Reza Ali et al., (2007) which was to examine the presence of anxiety in patients before and after coronary artery bypass grafting surgery (CABG) in Fatemeh Zahra university hospital ,Iran. Additionally, Comprehensive data on 187 patients who underwent CABGs were prospectively collected and 18 months follow-up anxiety and QOL in functional status were measured using the state portion of the Spielberger State-Trait anxiety inventory (STAI) and Short Form Health Survey (SF-36) questionnaire respectively. State anxiety scores ranged from 23-67 with a mean of 38±-9.95 before and 20-65 with a mean of 32±-9.40 in 18 months after CABGs. This study demonstrated that most patients (N=108, 57.8 and N=115, 61.5) had low levels of anxiety at both time, respectively. The present study showed significant positive association between pre and postoperative state anxiety (P=0.000) and pre and postoperative mental health (P=0.000).Results showed negative correlations between preoperative mental health and preoperative state anxiety(p=0.000), postoperative physical functioning and postoperative state anxiety (p=0.000).

The third objective was to assess the post test level of pain among post CABG clients in the experimental and control group.

Considering the experimental group, in the post test 27(90%) were in the mild level,2(6.67%)were in the moderate level,1(3.33%) were in the severe level.

Whereas in the control group 2(6.67%) mild level, 3(10%) were in the moderate level and 25(83.33%) were in the severe level of pain.

The fourth objective was to assess the post test level of anxiety among post CABG in the experimental and control group.

Considering the experimental group, post test 26(86.67%) were in the mild level, 2(6.67&) were in the moderate level, 2(6.67%) were in severe level of anxiety.

Whereas in the control group, 2(6.67%) were in the mild level, 22(73.33%) were in the moderate level and 6(20%) were in the severe level of pain.

The fifth objective was to assess the outcome of foot massage on level of pain and anxiety in the experimental group.

In the experimental group the outcome of level of pain among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 7.30 to 1.30 and decrease in standard deviation from 1.24 to 0.47 respectively the "t" value 27.982*** was found to be highly significant at $p<0.001$ level of significance indicating a decreased in the level of pain following foot massage.

All these findings indicates a decrease in the level of pain following the foot massage . Hence the research hypothesis H1 states that there is significant difference between pre test and post test level of pain among clients undergone CABG was accepted.

In control group, the level of pain among clients undergone CABG before and after providing foot massage was done by using paired "t" test. Mean value from 7.90 to 7.93 and the standard deviation from 0.96 to 0.0.94 respectively the "t" value -0.328 was found to be not significant at $p=0.745$ level of not significance indicating that the level of pain was not decreased .

In the experimental group the effectiveness of level of anxiety among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 26.67 to 11.23 and decrease in standard deviation from 4.22 to 2.61 respectively the "t" value 33.523*** was found to be highly significant at $p<0.001$ level of significance indicating a decreased in the level of anxiety following foot massage.

All these findings indicates a decrease in the level of anxiety following the foot massage. Hence the research hypothesis H2 states that there is significant difference between pre test and post test level of anxiety among clients undergone CABG was accepted.

In control group, the level of anxiety among clients undergone CABG before and after providing foot massage was done by using paired "t" test. Mean value from 27.50 to 27.57 and the standard deviation from 4.60 to 4.55 respectively the "t" value -0.421 was found to be not significant at $p=0.677$ level of not significance indicating that the level of anxiety was not decreased .

The present study findings were consistent with the finding of the study conducted by Gunnarsdottir T.J, (2007),studied the effectiveness of foot massage on pain and anxiety . A pilot study was conducted for nine clients undergone CABG .Thirty minutes of foot massage was provided for five days, pain and anxiety level was checked daily before and immediately after the intervention and found that it was effective in reducing the pain and anxiety at $p<0.001$ level of significance. It was concluded that foot massage reduces pain and anxiety.

The conceptual framework for the study was based on Roy s adaptation model and provided a comprehensive framework for achieving the objectives of the study. According to Callista Roy adaptation Theory, In input assessment of pain and anxiety was done. Throughput was met by administering nursing intervention to the experimental group such as foot massage. Output was obtained by evaluation of post assessment level of pain and anxiety

The sixth objective was to associate the post test level of pain and anxiety in the experimental group with the selected demographic variables

Association of the post test level of pain and anxiety among clients undergone CABG with the selected demographic variables was done by using chi square test. It was found that there was no significant association of pain and anxiety with the demographic variables.

CHAPTER – VI

SUMMARY, NURSING IMPLICATIONS, RECOMMENDATIONS, AND LIMITATIONS

Traditional Chinese medicine which is complex anxiety system of healing acupressure, foot, ear, hand reflexology, acupuncture, relaxation exercise which helps to promote health and treat disease. Autogenic training, cognitive therapy, meditation, deep breathing, relaxation techniques, progressive relaxation, listening to music can be practiced to promote health.

There are various measures that exist and are not an efficient way in nursing practice. Since foot massage also one of the measures which can be easily brought into nursing practice, the investigator was interested to evaluate the outcome of foot massage on pain and anxiety among clients undergone CABG at Vijaya Heart Foundation, Vadapalani, Chennai.

The Objectives of the study were

1. To assess the pre test level of pain among post CABG clients in the experimental and control group.
2. To assess the pre test level of anxiety among post CABG clients in the experimental and control group.
3. To assess the post test level of pain among post CABG clients in the experimental and control group.
4. To assess the post test level of anxiety among post CABG in the experimental and control group.
5. To assess the outcome of foot massage on level of pain and anxiety in the experimental and control group.
6. To associate the post test level of pain and anxiety in the experimental group with the selected demographic variables

Assumptions of the study were

1. Clients who have undergone CABG may have pain and anxiety
2. Foot massage may have some effects on pain management and anxiety among post CABG clients.

The hypothesis of the study were

H₁: There is significant difference between the pre test and post test level of pain in the experimental group.

H₂: There is significant difference between the post test level of anxiety between experimental and control group

Review of literature

Section A: General information related to foot massage

Section B: Studies related to foot massage

Section C: Studies related to CABG

Section D: Studies related to pain and anxiety with CABG

Section E: Studies related to effect of foot massage on pain and anxiety

Conceptual Framework

The conceptual framework for the study was based on Roy s adaptation model and provided a comprehensive framework for achieving the objectives of the study. According to Callista Roy adaptation Theory, In input assessment of pain and anxiety was done. Throughput was met by administering nursing intervention to the experimental group such as foot massage. Output was obtained by evaluation of post assessment level of pain and anxiety

The quasi experimental pre test and post test design was designed by the researcher to evaluate the effectiveness of foot massage on level of pain and anxiety and non probability purposive sampling technique was used to select the samples.

The investigator developed tool after reviewing the relevant literature .It consists of two parts

Section – I: Demographic variables

Section – II: Numerical pain rating scale and modified trait anxiety scale

Major findings of the study were:

The majority of the clients 21(70%) were found to have severe level of pain, 9(30%) were found to have moderate level of pain, 0(0%) had mild level of pain. Regarding the anxiety, majority of them 23(76.67%) were had moderate level of anxiety, 5(16.67%) had severe level of anxiety, 2(6.67%) had mild level of anxiety. In the control group, the majority of the clients 27(90%) were found to have severe level of pain, 3(10%) were found to have moderate level of pain, 0(0%) had mild level of pain. Regarding the anxiety, majority of them 20(66.67%) were had moderate level of anxiety, 8(26.67%) had severe level of anxiety, 2(6.67%) had mild level of anxiety.

After providing foot massage majority of the clients 27(90%) were found to have mild level of pain,2(6.67%)were in the moderate level,1(3.33%) were in the severe level of pain..Regarding the anxiety, majority of them 26(86.67%) were had mild level of anxiety, 2(6.67%) had moderate level of anxiety, 2(6.67%) had severe level of anxiety. In the control group, the majority of the clients 25(83.33%) were found to have severe level of pain, 3(10%) were found to have moderate level of pain, 2(6.67%) had mild level of pain. Regarding the anxiety, majority of them 22(73.33%) were had moderate level of anxiety, 6(20.00%) had severe level of anxiety, 2(6.67%) had mild level of anxiety.

The comparison of pain level among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 7.30 to 1.30 and decrease in standard deviation from 1.24 to 0.47 respectively the "t" value 27.982*** was found to be highly significant   at p<0.001 level of significance indicating a decreased in the level of pain following foot massage.

In control group, the comparison of pain level among clients undergone CABG was done by using paired "t" test. Mean value from 7.90 to 7.93 and the standard deviation from

0.96 to 0.0.94 respectively the "t" value -0.328 was found to be not significant at p=0.745 level of not significance indicating that the level of pain was not decreased .

The comparison of anxiety level among clients undergone CABG before and after providing foot massage was done by using paired "t" test. There was a decrease in mean value from 26.67 to 11.23 and decrease in standard deviation from 4.22 to 2.61 respectively the "t" value 33.523*** was found to be highly significant at p<0.001 level of significance indicating a decreased in the level of anxiety following foot massage.

In control group, the comparison of anxiety level among clients undergone CABG was done by using paired "t" test. Mean value from 27.50 to 27.57 and the standard deviation from 4.60 to 4.55 respectively the "t" value -0.421 was found to be not significant at p=0.677 level of not significance indicating that the level of anxiety was not decreased .

All these findings indicates a decrease in the level of pain following the foot massage . Hence the research hypothesis H1 states that there is significant difference between pre test and post test level of pain among clients undergone CABG was accepted.

All these findings indicates a decrease in the level of anxiety following the foot massage . Hence the research hypothesis H2 states that there is significant difference between pre test and post test level of anxiety among clients undergone CABG was accepted.
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Association of the post test level of pain and anxiety among clients undergone CABG with the selected demographic variables was done by using chi square test. It was found that there was no significant association of pain and anxiety with the demographic variables.

NURSING IMPLICATIONS

The investigator has derived the following implications from the study which are all vital concern in the field of nursing practice, nursing administration, nursing education and nursing practice.

Nursing Practice

1. The role of the nurse will help to encourage the clients get relief from pain and anxiety.

2. The nurse must be taught to assess the level of pain and anxiety in a accurate manner.

3. Foot massage can be made to practice as a routine nursing care.

4. Develop ability to exhibit coping ability of the clients with anxiety.

5. Understanding importance of foot massage as an alternative complementary therapy in the field of nursing.

Nursing Education

1. Teach the students regarding importance and effectiveness of foot massage.

2. Provide exposure to various alternative complementary therapies and encourage the student to participate in the specialization and expand their carrier.

3. Reinforce the student to apply foot massage to clients with pain and anxiety after CABG in the clinical area.

4. Educators can encourage the nurses to bring out innovative and creative ideas pertaining management of pain and anxiety.

5. Educators can encourage the students for the utilization of research based practice.

Nursing Administration

1. Continuing education programme and in service education can be conducted on the use of foot massage and its wide range of benefits on anxiety and pain management.

2. Nurses should be encouraged to use foot massage in the anxiety and pain management.

3. Provide opportunity for nurses to attend training programme on pain and anxiety.

4. Nurse administrator helps to evaluate the patient satisfaction periodically.

Nursing Research

1. More researches can be performed in order to establish the benefits of foot massage worldwide.

2. The finding should be disseminated through conference, seminars, publication in journals and world wide web.

3. Nurse researcher can provide more research in this evolving discipline.

4. As evident from the review of literature, more research needs to be conducted on this discipline.

RECOMMENDATIONS

1. Comparative study can be done using true experimental design.
2. Similar study can be conducted with other settings like patient undergone abdominal surgery.
3. Foot massage must be a routine care after CABG.
4. Similar study can be conducted on large sample size.

LIMITATION

Hardness of foot were felt during massage for some clients.

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http://www.ncbi.nih.gov

APPENDIX – A

LIST OF EXPERTS FOR CONTENYT VALIDITY

NURSING EXPERTS:

1.   **Hema Suresh, M.Sc.(N).,**

Vice Principal,

Meenakshi College of Nursing,

Mangadu, Chennai-69.

2.   **Jolly Ranjith, M.Sc.(N).,**

Reader,

Omayal Achi College of Nursing,

Avadi, Chennai - 62.

3.   **Jayasri, M.Sc.(N).,**

Vice Principal,

MIOT College of Nursing,

Chennai - 116.

4.   **Selvakani Pandian, M.Sc.(N).,**

Vice Principal,

SRM College of Nursing,

Kattankulathur, Chennai-203.

MEDICAL EXPERT:

1.   **K.N.Reddy, MD., D.M., FCCP., FICC**

Chief Cardiologist,

Vijaya Heart Foundation,

Vadapalani, Chennai – 26.

PHYSIOTHERAPIST:

1.   **Balaji, MPT**

Vijaya Hospital,

Chennai – 26.

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From:

    Ms. Loganayagi.P

    M.Sc.(Nursing), II year,

    Vel.R.S Medical College, College of Nursing,

    Avadi, Chennai.

To:

Respected Madam/Sir

    Sub: Requisition for expert opinion on suggestion for content validity of the tools

    I am Ms.LOGANAYAGI, a student of M.Sc.(N) II YEAR at Vel. R.S Medical College, College of Nursing, Avadi, Chennai.

    As a partial fulfilment of requirement in the M.Sc(Nursing) programme, I have to complete a dissertation topic I have selected is **"A Quasi experimental study to assess the outcome of foot massage on pain and anxiety among client undergone CABG in selected hospital, Chennai 2011-2012**".

    Hence with I am sending the developed tools for content validity and for your expert opinion and valuable suggestions.

        Thanking you,

        Yours Sincerely,

ENCLOSURES:

1. Statement and objectives of study
2. Blue print of the tools.
3. Content validity certificate.

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by Ms.Loganayagi M.Sc.(N), II year Student, Vel R.S. Medical College, College of Nursing, Chennai on the topic. **"A Quasi experimental study to assess the outcome of foot massage on pain and anxiety among post Coronary artery bypass graft (CABG) client in Vijay Hospital, Vadapalani 2011 – 2012"** is validated by the undersigned and she can proceed with this tool to conduct the main study.

Place :

Date :

Signature

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Miss.P.LOGANAYAGI**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of foot massage on pain and anxiety among clients undergone coronary artery bypass graft in Vijaya hospital, Vadapalani.** is validated by the undersigned and she can proceed with this tool to conduct the main study.

SIGNATURE

Hema Suresh

VICE PRINCIPAL
MEENAKSHI COLLEGE OF NURSING
CHIKKARAYAPURAM, NEAR MANGADU, CHENNAI - 600 069

Place: Chennai

Date: 09. 6. 2011

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Miss.P.LOGANAYAGI**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of foot massage on pain and anxiety among clients undergone coronary artery bypass graft in Vijaya hospital, Vadapalani.** is validated by the undersigned and she can proceed with this tool to conduct the main study.

SIGNATURE

PROF. N. JAYASRI
VICE- PRINCIPAL
MIOT COLLEGE OF NURSING
CHENNAI-116.

Place: Chennai
Date:

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Miss.P.LOGANAYAGI**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of foot massage on pain and anxiety among clients undergone coronary artery bypass graft in Vijaya hospital, Vadapalani.** is validated by the undersigned and she can proceed with this tool to conduct the main study.

SIGNATURE

Place: Chennai

Date: 04 /06 /11

SELVAKANI PANDIAN, M.Sc(N).,
Vice Principal
SRM COLLEGE OF NURSING
SRM UNIVERSITY
SRM Nagar, Kattankulathur - 603 203,
Kancheepuram - Dist. Tamil Nadu, India.

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tools developed by **Miss.P.LOGANAYAGI**, M.Sc. Nursing, IInd year student , Vel.R .S. Medical College - College of Nursing, Chennai on the topic "**A Study to assess the effectiveness of foot massage on pain and anxiety among clients undergone coronary artery bypass graft in Vijaya hospital, Vadapalani.** is validated by the undersigned and she can proceed with this tool to conduct the main study.

SIGNATURE

Dr. K.N. REDDY, M.D., D.M., FCCP., FICC
DIRECTOR,
REGD. NO : 33563
VIJAYA HEART FOUNDATION
VIJAYA HOSPITAL

Place: Chennai

Date: 06 / 06 / 11

APPENDIX - B

INTRODUCTION

Dear participants,

    I Miss.Loganayagi.P, M.Sc(N) II year student from Vel R.S Medical college- college of Nursing, Avadi, Chennai. I would like to conduct a study to assess the outcome of foot massage on pain and anxiety among client undergone CABG at Vijaya hospital, Chennai. I request you participate in the study. Numerical pain rating scale and modified trait anxiety scale will be used to assess the pain and anxiety. I assure you that the responses given by you will be used only for my study purpose. So I request you to kindly give your full co-operation and willingness.

Thanking you.

CONSENT FOR PARTICIPATING IN THE STUDY

I hereby consent to participate in the study titled, **"A Quasi experimental study to assess the outcome of foot massage on pain and anxiety among post Coronary artery bypass graft (CABG) client in Vijay Hospital, Vadapalani "** "with clear conscience and free will. I have been clearly explained about the purpose and the benefits of being a study participant. All my doubts have been cleared. I have also been assured of anonymity and freedom to withdraw at any point of the study period.

Thus, I hereby consent to participate in the study.

SECTION-A

DEMOGRAPHIC VARIABLES

1.Age in years.

    a) 36 – 45

    b) 46- 55

    c) 56 – 65

2. Gender

    a) Male

    b) Female

3.Occupation

    a)Unemployed

    b)Self employed

    c)Government employed

    d) Private employed

4.Family income per month in Rs

    a) <5000/-

    b) 5001-10,000/-

    c) 10,001-15,000

    d) > 15 ,000

5.Educational qualification

    a) Illiterate

    b0Schooling

    c)Graduate

    d) Post graduate

6.Marital status

    a)Unmarried

    b) Married

    c) Widow/Widower

    d) Divorced

7. Co morbid illness

    a)Diabetes mellitus

    b) Hypertension

    c) Hyper or hypothyroidism

8.Family support

    a) Yes
    b)No

SECTION-B

MODIFIED TRAIT ANXIETY SCALE

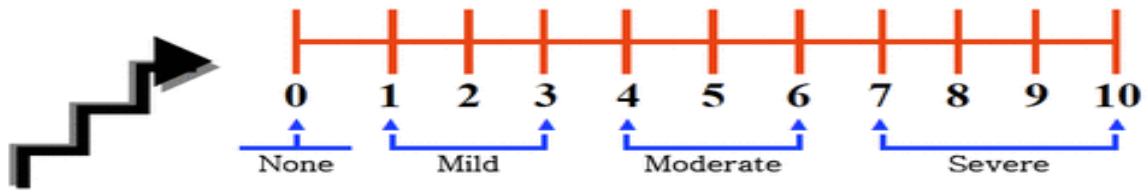| s.no	Questions	Not at all	A little	Some what	Very much so
1.	I feel tense				
2.	I feel strained				
3.	I feel calm				
4.	I feel at ease				
5.	I feel secure				
6.	I feel uncomfortable				
7.	I feel self confident				
8.	I am relaxed				
9.	I feel steady				
10.	I feel pleasant				

Note:

1-Not at all

2-A little

3-Some what

4-Very much so

SECTION-C

NUMERICAL PAIN RATING SCALE

 0-NONE
1 to 3-MILD PAIN
4 to 6- MODERATE PAIN
7 to 10- SEVERE PAIN

முகவுரை

அனைவருக்கும் வணக்கம்,

என் பெயர் ப. லோகநாயகி நான் வேல். ஆர். எஸ். மருத்துவக் கல்லூரி - செவி- யர் கல்லூரியில் இரண்டாம் ஆண்டு முதுநிலை பட்டப் படிப்பை பயில்கிறேன். என்னுடைய பட்ட படிப்பில் ஆய்வு மேற்கொள்ள வேண்டி உள்ளதால் இருதய ரத்த அறுவை சிகிச்சை முடிந்த நோயாளிகள் மத்தியில் பாதத்தை பிடித்து விடுவதன் மூலம் வ- மற்றும் பயத்தை போக்குவதற்கான ஆய்வினை நடத்த உள்ளேன். எனவே நான் நடத்தவிருக்கும் இந்த ஆய்விற்கு ஒத்துழைப்பு தறுமாறு கேட்டுக்கொள்கிறேன்.

நன்றி...

இப்படிக்கு.,

ஆய்விற்கான ஒப்புமை

நான் என்னுடைய மனப்பூர்வமான சம்மதத்துடன் கீழ் கொடுக்கப்ட்டுள்ள ஆய்வில் முழுமையாக பங்கேற்கிறேன். இருதய ரத்த அறுவை சிகிச்சை முடிந்த நோயாளிகள் மத்தியில் பாதத்தை பிடித்து விடுவதன் மூலம் வ-மற்றும் பயத்தை போக்குவதற்கான ஆய்வு இந்த சோதனை பற்றிய அனைத்து விவரங்களையும் அறிந்ததுடன் எனக்கு தோன்றிய எல்லாவிதமான சந்தேகங்களுக்கும் சரியான விளக்கத்தை பெற்றுக்கொண்டு முழுமனதுடன் எந்தவித வற்புறுத்தலும் இன்றி இந்த ஆய்விற்கு பங்கேற்பு அளிக்கிறேன். இந்த ஆய்வில் பெறப்படும் என்னுடைய விவரங்கள் அனைத்தும் நம்பகமான முறையில் பாதுகாக்கப்படும் என்றும் எந்த நேரத்திலும் இந்த ஆய்வில் இருந்து விடுபட எனக்கு முழு சுதந்திரம் வழங்கப்பட்டுள்ளது. எனவே இந்த ஆய்விற்கு எனது முழுமையான சம்மதத்தை தெரிவிக்கிறேன்.

தகவலாளர் விவரம்

1.வயது (ஆண்டுகளில்) ☐

    அ.36 – 45 வரை

    ஆ.46 – 55 வரை

    இ. 56 – 65 வரை

2.பா- னம் ☐

    அ.   ஆண்

    ஆ.   பெண்

3.தொழில் ☐

    அ.வேலையில்லாதவர்

    ஆ. சுய வேலை

    இ. அரசு ஊழியர்

    ஈ. தனியார் ஊழியர்

4.குடும்பத்தின் மாத வருமானம் (ரூபாயில்) ☐

    அ. 5000க்கு கீழ்

    ஆ. 5001 முதல் 10,000 வரை

    இ. 10,001 முதல் 15,000 வரை

    ஈ. 15,000க்கு மேல்

5.கல்வித் தகுதி ☐

    அ. படிக்காதவர்

    ஆ. பள்ளிப் படிப்பை முடித்தவர்

    இ. பட்டதாரி

    ஈ. முதுநிலைப் பட்டதாரி

6.திருமணநிலை

      அ.   திருமணமாகதவர்

      ஆ.   திருமணமானவர்

      இ.   விதவை/மனைவியை இழந்தவர்

      ஈ.   விவாகரத்து பெற்றவர்

7.இதர நோய்

      அ.   நீரிழிவு நோய்

      ஆ.   உயர் இரத்த அழுத்த நோய்

      இ.   தைராய்டு உபாதை

8.குடும்பத்தின் ஒத்துழைப்பு

   அ.   ஆம்

      ஆ.   இல்லை

மனவிசாரத்தை (கவலை) அறியும் அளவு கோல்

வ.எண்.	பொருளடக்கம்	எ	மி.கு	கு	மி.அ
1.	நான் அமைதியாக உணர்கிறேன்.				
2.	நான் பாதுகாப்பாக உணர்கிறேன்.				
3.	நான் இறுக்கமான சூழ்நிலையை உணர்கிறேன்				
4.	நான் விருப்பமில்லாத சூழ்நிலையை உணர்கிறேன்.				
5.	நான் வலியற்ற நிலையை உணர்கிறேன்.				
6.	நான் ஆறுதலில்லாத நிலையை உணர்கிறேன்.				
7.	நான் தன்னம்பிக்கையான நிலையை உணர்கிறேன்.				
8.	நான் ஓய்வு நிலையை உணர்கிறேன்.				
9.	நான் நிலையான மனநிலையை உணர்கிறேன்.				
10.	நான் மனதிற்கிசைந்த நிலையை உணர்கிறேன்.				

குறிப்பு:

எ   -   எப்போதும் இல்லை

மி.கு   -   மிக குறைந்த அளவு கவலை

கு   -   குறைந்த அளவு கவலை

மி.கு   -   மிக அதிக அளவு கவலை

எண் சார்ந்த வகையான அளவுகோல்

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

வலி
இல்லை   லேசான வலி   மிதமான வலி   அதிகமான வலி
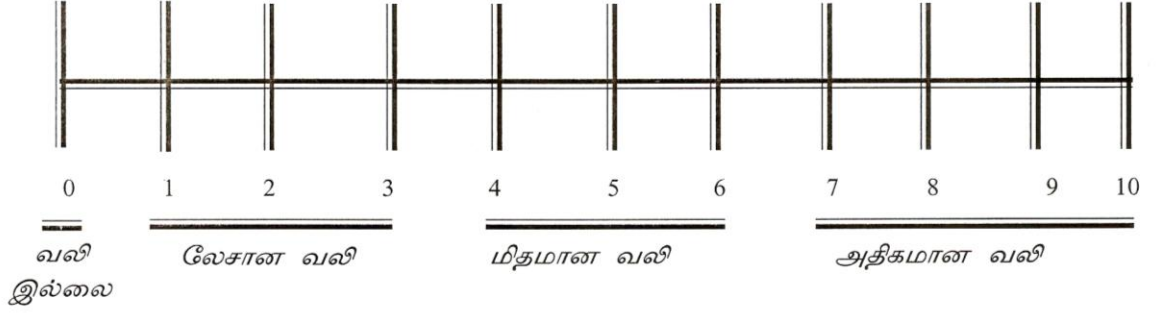
0-   வலி இல்லை
1 to 3 - லேசான வலி
4 to 6- மிதமான வலி
7 to 10- அதிகமான வலி

CERTIFICATE FOR ENGLISH EDITING

TO WHOM IT MAY CONCERN

This is to Certify that the dissertation Work **"A Quasi experimental study to assess the effectiveness of foot massage on pain and anxiety among clients undergone CABG at Vijaya Heart Foundation, Vadapalani, Chennai, 2011–2012,** done by Ms.Loganayagi. P II year M.Sc(Nursing) student of Vel. R.S Medical college- College of Nursing, Chennai is edited for English Language appropriateness by _____

Name:

Signature:

CERTIFICATE FOR ENGLISH EDITING

TO WHOM IT MAY CONCERN

This is to Certify that the dissertation Work A quasi experimental study to assess the effectiveness of foot massage on pain and anxiety among clients undergone CABG at Vijaya Heart Foundation, Vadapalani, Chennai, 2011 – 2012, done by Ms. Loganayagi. P II year M.Sc (Nursing) student of Vel. R.S Medical college- College of Nursing, Chennai is edited for English Language appropriateness by _____

Name: N. UDAYA PRASANNA.
Signature: Udaya Prasanna.
MA. BEd English.

CERTIFICATE FOR TAMIL EDITING

TO WHOM IT MAY CONCERN

This is to Certify that the dissertation Work **"A quasi experimental study to assess the effectiveness of foot massage on pain and anxiety among clients undergone CABG at Vijaya Heart Foundation, Vadapalani, Chennai, 2011–2012,** done by Ms.Loganayagi.P II year M.Sc(Nursing) student of Vel. R.S Medical College- College of Nursing, Chennai is edited for Tamil Language appropriateness by_____.

Name:

Signature:

CERTIFICATE FOR TAMIL EDITING

TO WHOM IT MAY CONCERN

This is to Certify that the dissertation Work A quasi experimental study to assess the effectiveness of foot massage on pain and anxiety among clients undergone CABG at Vijaya Heart Foundation, Vadapalani, Chennai, 2011 – 2012, done by Ms. Loganayagi. P II year M.Sc (Nursing) student of Vel. R.S Medical college- College of Nursing, Chennai is edited for Tamil Language appropriateness by _____.

Name: C. PRAMEELA B·Lit·M·Com ·B·Ed

Signature: C-Pramila

CERTIFICATE FOR FOOT MASSAGE

This is to certify that Ms. P. Loganayagi, M.Sc (Nursing) II year student, Vel. R.S. Medical College, College of Nursing, Chennai on the topic,**" A Quasi experimental study to assess the outcome of foot massage on pain and anxiety among clients undergone CABG at Vijaya heart foundation,Vadapalani, Chennai.** is validated that the foot massage has no harmful effect among post CABG clients and she can proceed with this to conduct the main study.

PLACE: **SIGNATURE**
DATE:

VIJAYA HOSPITAL
(UNIT OF VIJAYA MEDICAL & EDUCATIONAL TRUST)

05-June-11

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms P.LOGANAYAGI,** M.Sc. Nursing II Year student of Vel R.S. College of Nursing has formally learnt foot massage and she can use this technique for conducting the study on "Effectiveness of Foot Massage on pain and anxiety among post Coronary Artery Bypass Graft surgery client" at selected hospital, Chennai.

H.O.D
Department of Physiotherapy

Senior Manager (HR)
Human Resources Department

VEL R.S. Medical College

(College of Nursing)

Owned by R.S. Trust
(Approved by Govt. of Tamil Nadu,
Indian Nursing Council, New Delhi, Tamil Nadu Nurses & Midwives Council &
Affiliated to The Tamil Nadu Dr. M.G.R. Medical University)
No. 42, Avadi - Alamathi Road,
Vellanur (Post), Avadi, Chennai - 600 062
Phone : 044 - 26840605, E-mail : vrsmc_con@yahoo.com

Administrative Office:
"Santi Sudha", # 38 (Old No. 24),
ABM Avenue, (Opp. Park Sheraton Hotel),
Chennai - 600 028. India.
Phone off : 24355648, 24334845, 24335828
Residence : 24344708
Fax   : 24340386, 24357591
Grams   : VELGROUP CHENNAI - 28
E-mail   : veltech@md3.vsnl.net.in
Website   : WWW.vel-tech.org
Phone   : 26841093   Fax : 26841601

13/01/2011

To   THE DIRECTOR

VIJAYA HEART FOUNDATION,

VADAPALANI,

CHENNAI - 26.

Sub: Seeking permission for conducting main & pilot study-reg.

Respected Sir/ Madam,

This is to introduce Ms. P.Loganayagi, Master Degree Nursing student of this college.
She has selected the following topic for the Research study to be submitted to the T.N Dr. M.G.R
Medical University as partial fulfillment of the master degree in nursing program.

The topic for the study is "Effectiveness of Foot massage and on pain & anxiety among clients
undergone cardiac surgery ".

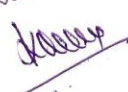She is interested in conducting Main Study & Pilot study at your estimated institution.

I assure you that our student will abide by the rules and regulations of the Institution. I
request you're at most help in regard to the same.
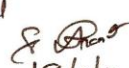
Thanking you.

Place: VADAPALANI.
Date

Prof.Mrs.M.Anuradha
PRINCIPAL
VEL R. S. MEDICAL COLLEGE
(COLLEGE OF NURSING)
42, AVADI-ALAMATHI ROAD
VELLANUR CHENNAI

Permitted

Discussed with Dr. KNR by NS - VHF and also with
HRM - permitted
19/1/11