

**EFFECTIVENESS OF TWO BACK MASSAGE  
TECHNIQUES ON LEVEL OF PAIN AND ANXIETY  
AMONG PATIENTS SUBJECTED TO  
CARDIAC SURGERY**



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**A STUDY TO ASSESS THE EFFECTIVENESS OF TWO  
BACK MASSAGE TECHNIQUES ON LEVEL OF PAIN AND  
ANXIETY AMONG PATIENTS SUBJECTED TO CARDIAC  
SURGERY AT VIJAYA HEART FOUNDATION,  
VADAPALANI, CHENNAI, 2010 - 2011**

Certified that this is the bonafide work of

**MRS.R.UMA**

VEL R.S. MEDICAL COLLEGE – COLLEGE OF NURSING,  
NO.42, AVADI - ALAMATHI ROAD,  
CHENNAI - 600 062

**COLLEGE SEAL**

**SIGNATURE:** \_\_\_\_\_

**Prof. Mrs.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, 2009

**PROFESSOR IN NURSING RESEARCH**

**Prof.Mrs.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**

**Mrs. K.M. DHANALAKSHMI**

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

Reader,

Medical Surgical Nursing

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

No.42, Avadi - Alamathi Road,

Chennai – 600 062, Tamil Nadu.

**MEDICAL EXPERT**

**Dr.K.N.REDDY**

M.D., D.M., FCCP., FICC.,

Director,

Vijaya Heart Foundation,

Vadapalani, Chennai.

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## ABSTRACT

Pain is an unpleasant sensory and emotional experiences associated with actual or potential tissue damage. Pain motivates us to withdraw from potentially damaging situations, protect a damaged body part while it heals and avoid those situations in the future. It is initiated by stimulation of nociceptors in the peripheral nervous system or malfunction of the peripheral or central nervous system. The transmission cells and the inhibitory cells are present in the dorsal horn of the spinal cord. Anxiety is a psychological and physiological state characterized by cognitive, somatic, emotional and behavioral components. These components combine to create an unpleasant feeling. Massage is one of non-pharmacological methods of reducing pain and anxiety. Massage is the manipulation of superficial layers of muscles and connective tissue to enhance the function, promote relaxation and well being.

A study was conducted to evaluate the effectiveness of two Back massage techniques on the level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai during 2010- 2011.

The study was conducted by adopting a quasi experimental research design. Sixty patients subjected to cardiac surgery who have fulfilled the inclusion criteria were selected by using the non-probability purposive sampling technique. The hypothesis formulated states that there is no significant difference between the therapeutic back massage group and the back massage group on the level of pain and anxiety among patients subjected to cardiac surgery. Therapeutic back massage group received Therapeutic back massage and the Back massage group received Back massage. The conceptual framework adopted was based on Wiedenback's Helping Art of clinical nursing theory. 20 minutes of Therapeutic back massage was given to the Therapeutic back massage group and 20 minutes of Back massage was given to the Back massage group for four days from the second post operative day to fifth post operative day. Pre and post test level of pain was assessed each day using the Numerical pain rating scale. Pre test level of anxiety was assessed on the first day and the post test level of anxiety was assessed on the fourth day, using self administered Modified Spielberger State Anxiety Inventory Scale. Comparison of pre test and post test level of pain among the patients subjected to cardiac surgery was done by using repeated "ANOVA" test.

Comparison of pre test and post test level of anxiety among the patients subjected to cardiac surgery was done by using paired “t” test.

Analysis revealed that, by comparing the overall post test level of pain between the Therapeutic back massage group and Back massage group, in the Therapeutic back massage group there was decrease in mean level of pain each day from 6.26 to 1.60 and standard deviation from 0.78492 to 0.62146 and the “t’ value were 2.254, 2.368, 3.965, 2.327 was found to be highly significant at  $p= 0.028$ ,  $p=0.021$ ,  $p= <0.001$ ,  $p= 0.023$  level of significance. Considering the anxiety the mean was 29.46 and standard deviation was 5.69 and “t” value was 7.043 found to be highly significant at  $p < 0.001$  level of significance.

In the Back massage group there was decrease in mean level of pain each day from 6.70 to 2.03 and the standard deviation from 0.70221 to 0.80872 and the “t” value were 2.254, 2.368, 3.965, 2.327 was found to be highly significant at  $p=0.028$ ,  $p=0.021$ ,  $p=<0.001$ ,  $p=0.023$  level of significance. Considering the anxiety the mean value was 38.36 and standard deviation was 7.13 and the “t” value 7.043 which was found to be highly significant at  $p < 0.001$  level of significance.

Administration of Therapeutic back massage to Therapeutic back massage group and Back massage to Back massage group among patients subjected to cardiac surgery enhances the reduction of pain and anxiety. When we compare the effectiveness between these two techniques, Therapeutic back massage and back massage were effective in reduction of pain and anxiety. Therefore massage can be incorporated in a busy cardiac care unit on reduction of pain and anxiety.

# CHAPTER – I

## INTRODUCTION

**“The greatest evil is physical pain”**

**Saint Augustine Theologian**

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It is the feeling of experiences such as stubbing a toe, burning a finger, putting Iodine on a cut and bumping the “funny bone”.

Pain motivates us to withdraw from potentially damaging situations, protect a damaged body part while it heals and avoids those situations in the future. It is initiated by stimulation of nociceptors in the peripheral nervous system or malfunction of the peripheral or central nervous systems. Most pain resolve promptly once the painful stimulus was removed and the body has healed, but sometimes pain persists despite removal of the stimulus and apparent healing of the body; and sometimes pain arises in the absence of any detectable stimulus, damage or pathology.

Gate control was the basis for Melzack and Wall’s 1965. The authors proposed that the large diameter (“touch, pressure, vibration”) and thin (“pain”) fibers meet at two places in the dorsal horn of the spinal cord: the “transmission”(T) cells and the “inhibitory” cells. Both large fibers and thin fibers signals excite the T cells, and when the output of the T cells exceeds a critical level, pain begins. The job of the inhibitory cells is to inhibit activation of the T cells. The T cells are the gate on pain, and inhibitory cells can shut the gate. If the large diameter and thin fibers have been activated by a noxious event, there will be exciting T cells (opening the pain gate). At the same time, the large diameters fibers will be exciting the inhibitory cells (tending to close the gate).

In 1968 Melzack and Casey described pain in terms of its three dimensions. Sensory-discriminative (sense of the intensity, location, quality and duration of the pain), Affective-motivational (unpleasantness and urge to escape the unpleasantness), and cognitive-evaluative dimensions (cognitions such as appraisal ,cultural values, distraction and hypnotic suggestions). They theorized that pain intensity and unpleasantness are not simply determined

by the magnitude of the painful stimulus, but higher cognitive activities can influence perceived intensity and unpleasantness. Cognitive activities may affect both sensory and affective experience or they may modify primarily the affective-motivational dimension.

There is a specific pain pathway from nociceptor to brain. Pain-related activity in the thalamus spread to the insular cortex and the anterior cingulate and the pain that is distinctly located also activates the primary and secondary somato sensory cortices.

Anxiety is a psychological and physiological state characterized by cognitive, somatic, emotional and behavioral components. These components combine to create an unpleasant feeling that is typically associated with uneasiness, apprehension, fear, or worry. Anxiety is a generalized mood condition that can often occur without an identifiable stimulus. As such, it is distinguished from fear, which occurs in the presence of an observed threat. Anxiety is the results of threats that are perceived to be uncontrollable or unavoidable.

Physical effects of anxiety may include palpitations, muscle weakness, tension, fatigue, nausea, chest pain, shortness of breath, stomach aches, or headaches. The body prepares to deal with a threat: blood pressure and heart rate are increased, sweating is increased, blood flow to the major muscle groups is increased and immune and digestive system functions are inhibited. External signs of anxiety may include pale skin, sweating, trembling and pupillary dilation. Someone who has anxiety might also experience it as a sense of dread or panic. Although panic attacks are not experienced by every person who has anxiety. Panic attacks usually come without warning and although the fear is generally irrational, the perception of danger is very real. A person experiencing a panic attack will often feel as if he or she is about to die or pass out.

Anxiety does not only consists of physical effects; there are many emotional ones and these include feelings of apprehension, trouble in concentrating, feeling tense, anticipating the worst, irritability, restlessness, watching for signs of danger and feeling like your mind's gone blank. Cognitive effects of anxiety may include thoughts about suspected dangers such as fear or dying.

Coronary artery disease is the prevalent type of cardiovascular disease. It is an abnormal accumulation of lipid or fatty substances and fibrous tissue in the vessel wall.

These substances create blockages or narrow the vessel in a way that reduces blood flow to the myocardium. The insufficient flow results in a decreased oxygen supply which may lead to angina. Advances in diagnostics, medical management, surgical management, anesthesia techniques and cardiopulmonary bypass as well as care provided in critical care, surgical units, home care and rehabilitation programs, have helped make surgery a viable treatment option for patients with cardiac disease. Coronary artery disease has been treated by some form of myocardial revascularization since 1960.

The most common cardiac surgery has been performed approximately for 35 years. CABG is a surgical procedure in which a blood vessel from another part of the body is grafted to the occluded coronary artery. So that the blood flow beyond the occlusion is called a bypass graft. Valvular heart disease has remained prevalent because of an increased number of older adults and it is treated by heart valve replacement.

Massage is the manipulation of superficial layers of muscle and connective tissue to enhance the function and promote relaxation and well being. Massage involves acting on and manipulating the body with pressure-structured, unstructured, stationary or moving-tension, motion or vibration done manually or with mechanical aids. Target tissues may include muscles, tendons, ligaments, skin, joints or other connective tissue as well as lymphatic vessel or organs of the gastrointestinal system. Massage can be applied with the hands, fingers, elbows, knees, forearm and feet. The most cited reason for introducing massage as therapy has been client demand and perceived clinical effectiveness.

## **BACKGROUND OF THE STUDY**

Pain is the most common reason for physician consultation in the United States. It is a major symptom in any medical condition and can significantly interfere with a person's quality of life and general functioning. Pain is the main reason for visiting the emergency department in more than 50% of the cases. Chronic pain is believed to affect 12-80% of the population.

Acute pain is common after cardiac surgery and prevents patients from participating in activities. Accurate assessment and understanding of pain are vital for providing satisfactory pain control and optimizing recovery. Pain produces tension which may stimulate



the central nervous system to release adrenaline, which results in constriction of the arterioles and increased heart rate. This can cause increased after load and decreased cardiac output. Deep pain may not be reflected in the immediate area of injury but occur in a border. Patients who had cardiac surgery experiences pain caused by the interruption of intercostal nerves along the incision route and irritation of the pleura by the chest catheters. Incisional pain may also be experienced from peripheral vein or artery graft harvest sites.

The International Association for the study of pain advocates that the relief of pain should be recognized as a human right, that chronic pain should be considered a disease and that pain medicine should have the full status of a speciality. Acute pain is usually managed by a practitioner with medications .Management of chronic pain however is much more difficult and may require the co-ordinate efforts of a pain management team, which includes medical practitioners, clinical psychologist, physiotherapists, occupational therapists and nurse practitioners.

All people experiences some degree of anxiety as they face new challenging or threatening life situations. In clinical settings fear of the unknown, unexpected news about one's health and any impairment of bodily function engenders anxiety. Although a mild level of anxiety can mobilize people to take a position, act on the task that needs to be done or learn to alter life style habits a more, anxiety that escalates to a near panic state can be incapacitating.

Coronary artery disease is the leading cause of death worldwide. While the symptoms and signs of coronary artery disease are noted in the advanced state of disease, most individuals with coronary artery disease shows no evidence of disease for decades as the disease progresses before the first onset of symptoms, often a sudden "heart attack" "According to the present trends in the United States, half of the healthy 40 year old males will develop coronary artery disease in the future, and one in three in the healthy 40 year old women.

Cardiac surgery is a surgery in which the Patient's chest is opened and surgery is performed on the heart. The term "open" refers to the chest, not to the heart itself. The heart may or may not be opened depending on the particular type of surgery. Since the 1990s, surgeons have begun to perform "off-pump bypass surgery"-coronary artery bypass surgery

without the aforementioned cardio pulmonary bypass. In these operations, the heart is beating during surgery, but is stabilized to provide an almost still work area. Some researchers believe this approach results in few post-operative complications and better overall results.

The incidence of coronary artery disease is 1,200,000 per year,100,000 per month,23,076 per week,3,287 per day,136 per hour,2 per minute ,estimated 1.2 million new or recurrent coronary attacks in the USA 2004 ( American Heart Association,2004).

The prevalence of Rheumatic Heart disease in June 2006

<b>Rheumatic heart disease</b>	<b>Prevalence / 1000</b>
United States	0.6
Japan	0.7
India	6-11
Asia	0.4-21.0
Africa	0.3-15.0
South America	1.0-17.0

Between the 1<sup>st</sup> February 1996 to 1<sup>st</sup> August 1997, 3707 patients had underwent Coronary artery bypass graft surgery. Approximately 17,5000 patients had underwent Coronary artery bypass graft surgery in the United States. More than 800,000 patients underwent Coronary artery bypass graft surgery worldwide each year.

More than 500,000 surgeries are done in India every year. Today more than 60% and every year 25000 Coronary artery bypass surgery are being carried in India. From January 1995 through February 2002, 515 patients aged 65 underwent isolated aortic valve replacement surgery, 518 patients underwent minimally invasive direct access heart valve surgery, 252 patients underwent aortic valve replacement surgery.

In the Vijaya Heart Foundation, in August 2010, 119 patients underwent cardiac surgery, of this 17 patients underwent valve replacement surgery, 15 patients underwent VSD, ASD closure, 83 patients underwent off pump Coronary artery bypass graft surgery and 4 patients underwent on pump Coronary artery bypass graft surgery.

Physical touch is caring as a concept having the dimension of physical, emotional, social and spiritual significance, needs to be treated in a holistic way and it was possible to enrich the meaning and methods of physical touch in nursing. So that its application may have effects, that has positive impacts on patients well being and comfort. Conservative management includes heat therapy, exercises, physical therapy and massage therapy.

The word massage means “to knead”, massage starts in utero. The baby is embraced by the rhythm of the mother’s movements. It has been in the neo- natal units to soothe the premature and sick babies (Paterson 1990).The natural use of hands to comfort and heal is documented in rock carvings, papyrus scrolls and ancient oral histories starting 1500 years ago (Oslen 1992) and many civilization notably the Greek, Italian, Indian, Arabic, Chinese, and the Egyptian had developed a system of Therapeutic massage.

Numerous research results indicate that non-pharmacological interventions are found to be effective for pain and anxiety. One of the non pharmacological interventions commonly used by the nurse to promote relaxation is the massage therapy, which is based on healing arts(Vickers 1996).The massage therapy is grounded in scientific principles. Three main physical effects of therapeutic massage are the release of muscle tension, increased circulation, induces local and general relaxation. Touch and massage are inextricably linked.

## **SIGNIFICANCE AND NEED FOR THE STUDY**

Persistent wound pain after coronary artery disease is common, but it is usually mild and frequently interferes with daily living. Long term post operative wound pain is a potential morbidity of cardiac surgery, with a reported incidence of more than 50%.The incidence of severe chronic pain is less common but is frequently disabling. The cause of persistent pain after sternotomy is multifactorial and this includes tissue destruction, intercoastal nerve trauma, scar formation, rib fractures, stainless-steel wire sutures and costochondral separation. This represents a very important problem after cardiac surgery, especially after internal mammary artery harvest.

Anxiety is a future-oriented mood state in which one is ready or prepared to attempt to cope with the upcoming negative events suggesting that it is a distinction between future

vs present dangers that divides anxiety and fear. Anxiety is considered to be a normal reaction to stress. It may help a person to deal with a difficult situation.

Watson (1986), defined touch as an intentional physical contact between two or more individuals. Westland (1993) define massage as the aware and continuous manipulations of the soft tissue of the body for therapeutic purposes. Numerous references from the cultures indicate that the massage was used for various medical conditions. The use of touch to comfort, heal and promote well being is instinctive and nature has been incorporated into every culture and period of history. Historically massage has been an integral therapeutic measure within the nursing practice. Back rubs have been practiced commonly as a part of standard care.

The nurse may offer a back rub to the clients during the course of bathing or it is advantageous to help a person to relax. A back rub or massage is a pain relief measure. Normally the nurse should take at least 2 to 5 minutes to give a thorough back rub. An important reason for administering back rub is to relieve tension and promote relaxation especially at bed time. Therefore the nurse should make sure that the client is comfortable.

Cutshall et.al (2009), conducted a study in United the states of America, to assess the role of massage therapy among clients who underwent cardiac surgery with the aims of determining the difference in pain, anxiety, tension and satisfaction scores of patients before and after massage. Patients in the interventions group received a 20 minutes session of massage therapy between post operative days 2 and 5 and patients in the control group received a 20 minutes quiet time between post operative days 2 and 5. Massage showed decrease in pain, anxiety and tension scores. It was concluded that massage can be successfully incorporated into a busy cardiac surgical practice.

Wentworth et.al (2009), conducted a study in the United States of America, to assess the efficacy of a 20 minute massage therapy session on pain, anxiety and tension in patients before an invasive cardiovascular procedures. To assess the feasibility of integrating massage therapy into preprocedural practices. Experimental pretest-posttest design was used. 130 patients undergoing invasive cardiovascular procedure were selected. The interventional group received 20 minutes of hands on massage at least 30 minutes before an invasive cardiovascular procedure and the control group received standard preprocedural care. Scores for pain, anxiety and tension were identified along with an increase in satisfaction, for

patients who received a 20 minute massage compared with those who received standard care. It was concluded that massage can be incorporated into medical cardiovascular units.

Bauer et.al (2007), conducted a study in the United states of America, to assess the effects of massage therapy for alleviation of pain, anxiety and tension among patients subjected to cardiac surgery. 113 patients were selected, of this 62 samples were received massage and 51 samples were received quiet relaxation. Massage therapy had significantly decreased pain, anxiety and tension. It was concluded that massage therapy may be an important component of healing experiences for patients after cardiac surgery.

Mitchinson et.al (2007), conducted a study in the United states of America, to assess the effect of massage therapy on pain management and post operative anxiety among patients who experiences unrelieved post operative pain. 605 patients were selected and they were assigned into 3 groups. 1) control group (routine care) 2) Individual attention from a massage therapist. 3) Back massage by a massage therapist each day up to 5 post operative days. Patients in the massage group experienced a faster rate of decrease in pain intensity  $p=0.02$  and unpleasantness  $p=0.01$  compared with control group. It was concluded that massage was an effective and safe adjuvant therapy for the relief of acute post operative pain in patients undergoing major operations.

Altern Ther (2003), conducted a study in the United States of America, to assess the effects of Back massage before diagnostic cardiac catheterization. The purpose of the study was to measure the effects of a 20 minutes back massage on physiological and psychological human response of the patients admitted for a diagnostic cardiac catheterization. A 20 minutes back massage appeared to reduce systolic blood pressure in patients awaiting a diagnostic cardiac catheterization. The study concluded that back massage was appeared to reduce blood pressure, respiration, perceived psychological distress and pain.

Mitzel-Wilkinson (2000), said that nursing is a profession that can be practiced in many unique ways. Nursing care can be provided through conventional means in traditional settings or practiced in domains labeled as alternative or complementary therapy. Massage therapy is an alternative therapy of a holistic nursing practice.

Broad based nursing knowledge, experiences, skill coupled with professional massage provide for comprehensive patients assessments, greater understanding of the appropriate use of massage for patients, families, health care providers and administrative staff. Nursing touches all discipline in health care, a nurse who skilled in massage can collaborate in treating patients from any service or specialty and is in a special position to provide a wide range of health care information to patients and their families.

The above studies impressed the researcher to do a study on massage therapy. Nurses working in hospitals spend more time with patients who are having pain and anxiety after cardiac surgery and the nurse try to work closely with patients to alleviate the pain and anxiety. The Therapeutic back massage and Back massage relives pain and anxiety. Based on this effect the researcher was interested to compare the effectiveness between these two techniques (Therapeutic back massage and Back massage) on level of pain and anxiety among patients subjected to cardiac surgery.

## **TITLE**

Effectiveness of two Back Massage Techniques on level of pain and anxiety among patients subjected to cardiac surgery.

## **STATEMENT OF THE PROBLEM**

A study to assess the effectiveness of two Back Massage Techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai, 2010-2011.

## **OBJECTIVES**

1. To assess the pre test level of pain and anxiety among Therapeutic back massage group and Back massage group
2. To assess the post test level of pain and anxiety among Therapeutic back massage group and Back massage group.
3. To compare the effectiveness on level of pain and anxiety between the Therapeutic back massage group and Back massage group.
4. To associate the post test level of pain and anxiety with the demographic variables among Therapeutic back massage group and Back massage group.

## **VARIABLES OF THE STUDY**

Variables are the characteristics that vary among the subjects being studied.

### **Independent Variables**

Therapeutic back massage and Back massage.

### **Dependent Variables**

Pain and anxiety

### **Demographic Variables**

It includes age, gender, educational qualifications, occupation, family income per month, marital status, personal habits, dietary pattern and co-morbid illness.

## **OPERATIONAL DEFINITIONS**

### **Effectiveness**

Refers to the impact of two back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery.

### **Two Back Massage Techniques**

Two back massage techniques include Therapeutic back massage and Back massage.

### **Therapeutic Back Massage**

Refers to smooth rhythmic stroking comprised of superficial stroking, effleurage, circular kneading, skin rolling, hacking and tapping. It is applied with powder from lower back to the neck for 20 minutes, once a day from second post operative day to fifth post operative day.

### **Back Massage**

Refers to long, smooth, circular motions comprised of effleurage, petrissage, taptoment and friction. It is applied with powder from buttocks to neck for 20 minutes, once a day from second to fifth post operative day.

**Pain**

Refers to subjective feelings, distressing sensation expressed in terms of mild, moderate and severe, elicited by using Numerical pain rating scale.

**Anxiety**

Refers to a state of excessive uneasiness in response to cardiac surgery, elicited by using self administered Modified Spielberger state anxiety inventory scale.

**Cardiac Surgery**

Refers to patient who underwent coronary artery bypass graft surgery, mitral valve replacement and aortic valve replacement.

**ASSUMPTIONS**

1. Most of the patients underwent cardiac surgery may have pain and anxiety.
2. Pain and anxiety scores may vary from one individual to another.
3. Therapeutic back massage and Back massage may have some effect on pain and anxiety.

**NULL HYPOTHESIS**

**H<sub>01</sub>:** There is no significant difference between Therapeutic back massage and Back massage on level of pain among patients subjected to cardiac surgery.

**H<sub>02</sub>:** There is no significant difference between Therapeutic back massage and Back massage on level of anxiety among patients subjected to cardiac surgery.

**DELIMITATIONS**

1. The study was delimited to one month of data collection.
2. Setting of the study was delimited to Vijaya Heart Foundation, Chennai.

**PROJECTED OUTCOME**

1. The study will enable the patients to feel comfortable with reduced pain and anxiety.



2. Study findings will help to make standard nursing care for patients who underwent cardiac surgery.

## **SUMMARY**

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

## **ORGANISATION OF THE REPORT**

The following chapter contains

- CHAPTER-I** : Introduction, background, significance and need for the study
- CHAPTER-II** : Review of literature and conceptual framework.
- CHAPTER-III** : Methodology
- CHAPTER-IV** : Analysis and interpretation of data.
- CHAPTER-V** : Discussion
- CHAPTER-VI** : Summary and recommendations

This is followed by references and appendices.

## **CHAPTER – II**

### **REVIEW OF LITERATURE**

Review of literature is a systematic search of published work to gain information about a research topic (Polit and Hungler, 2006). Through the literature review, researcher generates a picture of what is known about a particular situation and the knowledge gap that exists between the statement problem and the research subjects problem and lays a foundation for the research plan. It provides a background for the current knowledge on the topic and illuminates the significance of the study.

The present literature review was based on extensive surveys of journals, books and international nursing indicates. A review of literature 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 study under the following heading.

#### **PART-I: LITERATURE REVIEW**

SECTION-A: General information related to Back massage.

SECTION-B: General information related to Therapeutic back massage.

SECTION-C: Studies related to Pain and Anxiety among patients subjected to cardiac Surgery.

SECTION-D: Studies related to Back massage.

SECTION-E: Studies related to Therapeutic back massage.

#### **PART-II: CONCEPTUAL FRAMEWORK**

##### **PART -I**

##### **Section –A: General information related to Back massage**

Back massage refers to long, smooth, circular motions comprised of effleurage, petrissage, taptoment and friction, it was applied with powder from buttocks to neck for 20 minutes, once a day from second post operative day to fifth post operative day.

## **TECHNIQUES**

### **Stroking (Effleurage)**

Stroke the large surface of the patients back in long, smooth strokes with the palm of the hands. Stroke in the direction of the venous circulation toward the heart (upward in the middle and downward on the sides) generally in a circular pattern. Use heavier pressure for the upward stroke. Use thumb and fingers on the small surfaces. Keep strokes and pressure even.

### **Kneading (Petrissage)**

Press on muscle groups or single muscle picking them up and squeezing them gently. Use palms of the hands for large muscles. Use fingers and thumbs for single muscle. Use this movement for the outer aspect of the back.

### **Tapping (Tapotment)**

Use a light tapping with the edge of the hands to stimulate circulation.

### **Friction**

Rub around the bony prominence of the patients body, such as at the end of the spine and along each shoulder blade.

## **Section – B: General information related to Therapeutic back massage**

Refers to smooth rhythmic stroking comprised of superficial stroking, effleurage, circular kneading, skin rolling, hacking and tapping, it was applied with powder from lower back to the neck for 20 minutes, once a day from second post operative day to fifth post operative day.

## **TECHNIQUES**

### **SUPERFICIAL STROKING**

The strokes can be applied from proximal to the distal part of the back or vice versa.

#### **Physiological Effects**

1. Superficial stroking stimulates the cutaneous touch receptors. It has a sedative effect on the body.
2. It indirectly improves the circulation by activating the axon reflex.

### **EFFLEURAGE OR DEEP STROKING**

It is the movement of the palmar aspect of the hand over the external surface of the body with constant moderate pressure in the direction of the venous and lymphatic drainage.

### **Physiological Effects**

1. Effleurage produces squeezing of the veins and lymphatic and forces the venous and lymphatic fluids towards the heart.
2. It has a mild stimulating effect on the vasomotor nerves supplying the blood vessels and skin and leads to elicitation of axon reflex.
3. Facilitates the circulation in the capillaries
4. Stimulation of touch and pressure receptors during effleurage brings about a sedative effect which serves to soothe, decrease pain and lessen muscle tension.

### **CIRCULAR KNEADING**

Tissues are pressed down on to the underlying structures and pressure is applied in a circular way along the long axis.

### **Physiological Effects**

1. It produces a local increase in the flow of blood due to the pumping action, liberation of H substances and elicitation of axon reflex.
2. Stimulation of touch and pressure receptor associated with these techniques contribute to reduction of pain.

### **SKIN ROLLING**

It involves lifting and stretching of the skin between the thumb and the fingers. The therapist lifts up and moves the skin and superficial fascia with both hands keeping a roll of the skin raised continuously ahead of moving thumb.

### **Physiological Effects**

Stretch the cutaneous and subcutaneous tissue and induce relaxation.

### **HACKING**

In hacking only the ulnar border of medial three fingers (little, ring, middle) are used to strike the skin.

## **Physiological Effects**

Rhythmic intermittent touch stimulates the low threshold receptors which help to diminish the perception of chronic pain.

## **TAPPING**

Intermittent touch and pressure are to be applied over a small area.

## **Physiological Effects**

1. Induce relaxation and calm the mental state of patient.
2. Cutaneous vasodilatation is produced by elicitation of axon reflex and release of H substances.

## **Section C: Studies related to pain and anxiety among patients subjected to cardiac surgery.**

Parry M (2010), conducted a study in Canada, to assess the pain experiences of men and women after coronary artery bypass graft surgery. The objective of the study was to compare the prevalence, severity of pain and pain-related interference with activities in men and women 9 weeks after CABG surgery. Participants included men (n=78) and women (n=17) who were having first time nonemergency CABG surgery. 47% of the women (n=8) had moderate to severe pain. It was statistically significant between the groups more women reporting moderate to severe pain with movement (p=.03) with walking (p=.01) and sleeping (p=.01).

Nelson FV, (1998), conducted a study in USA, to assess the relationship and influence of anxiety on postoperative pain in the coronary artery bypass graft patient. The purpose of this study were to investigate the relationship of postoperative anxiety and pain following CABG surgery, and to determine the level of anxiety, demographic, and other factors on the level of postoperative pain. Pain and anxiety were assessed on postoperative day 2 and day 3. A direct relationship of anxiety with pain was found overtime with the highest relationship on postoperative day 2 ( $r=0.235-0.492$ ,  $p<0.01$ ). Significant difference by level of anxiety and time were reported.

#### **Section D: Studies related to Back massage**

Harris M, Richards KC (2010), conducted a study in USA, to assess the physiological and psychological effects of slow stroke back massage and hand massage on relaxation in older people. Review design was used, 21 studies met the inclusion criteria for massage. All studies used slow stroke back massage and hand massage, showed statistically significant improvements on physiological and psychological indicators of relaxation. The most common protocols were 3 minutes slow stroke back massage and 10 minutes hand massage. It was concluded that slow stroke back massage and hand massage showed physiological and psychological relaxation in older people.

Notoy et.al (2010), conducted a study in Japan, to assess the effects of Back massage therapy on psychological relaxation and increase in salivary chromogranin A release. 25 young healthy volunteers were participated in the study. Heart rate, salivary bio markers, STAI score were assessed before and after back massage. It was concluded that there was a changes in the salivary bio markers, and no changes in psychological status following massage therapy. Beneficial effects of massage therapy as chromogranin A release has antibacterial and antifungal activity.

Schiff A (2006), conducted a study in German, literature review of back massage and similar techniques to promote sleep in elderly people. Insomnia is a frequent problem among elderly people. Nurses use relaxing interventions to promote sleep. One of these techniques is back massage and is very popular because of the expected relaxing effect of touch. This review includes 16 surveys of the international nursing literature and the German literature until the year 2004. These studies are presented and evaluated. The results indicate that these interventions promote relaxation and sleep and that they are perceived as pleasant by the elderly.

Mok E, Woo CP (2004), conducted a study in Hong Kong, to explore the effect of slow stroke back massage on anxiety and shoulder pain in hospitalized elderly patients with stroke. An experimental qualitative design was used. 102 samples were selected, 10 minutes of slow stroke back massage for seven consecutive evenings were given to the patients. Massage reduced the patient level of pain perception and anxiety. So it was concluded that massage reduced pain and anxiety in hospitalized elderly patients with stroke.

Altem Ther (2003), conducted a study in USA, to assess the effects of back massage before diagnostic cardiac catheterization. The purpose of the study was to measure the effects of a 20 minutes back massage on physiological and psychological human response of the patients admitted for a diagnostic cardiac catheterization. Data were compared in a repeated measure design before the back massage and immediately following the back massage. Back massage reduced Blood pressure, respiration, perceived psychological distress and pain. It was concluded that back massage was effective in reduction of Blood pressure, respiration and pain.

Boone T et.al (2001), conducted a study in USA, to assess the effects of a 10 minute back rub on cardiovascular responses in healthy subjects. 12 healthy males and females were participated in the study. ABA design was used. The intervention group received 10 minute back rub. Oxygen consumption and cardiac output were assessed. These results indicate that the oxygen consumption response during the back rub was achieved by reciprocal central and peripheral adjustments. So it was concluded that it was effective in inducing relaxation.

Richards KC (1996), said that the aging process introduces many changes that affect the whole person, age-related changes in the nervous system, include acute and chronic illnesses, primary sleep disorders, and factors associated with hospitalization in the critical care unit are elements identified with sleep disturbance in the elderly patient hospitalized in the critical care unit. One of the most important challenges for critical care nurses to promote a healing environment for elderly patients where they can obtain the sleep necessary for recovery. Potentially effective nursing interventions for sleep promotion are back massage, relaxing music, imagery, and muscle relaxation.

### **Section E: Studies related to Therapeutic back massage**

Taghinejad H et.al (2010) ,conducted a study in Iran, to compare the effects of massage and music therapies on the severity of labor pain. 101 primigravidae who were hospitalized for vaginal delivery were recruited and randomly stratified into two groups of either massage (n=51) or music (n=50) therapies. The two groups were compared in terms of pain severity before and after the interventions. Mothers in the massage group had a lower level of pain compared with those in the music therapy group (p=0.009). A significant difference was observed between the two groups in terms of pain after intervention

( $p=0.01$ ). Massage was an effective method for reducing and relieving labour pain and can be clinically recommended as an alternative methods.

Listing M et.al (2009), conducted a study in German, to investigate the efficacy of classical massage in reducing breast cancer related symptoms and mood disturbances. 86 women were enrolled in the study. Women diagnosed with primary breast cancer were randomized into an intervention group and control group. The intervention group received bi-weekly 30 minutes classical massage in the back and head-neck areas. The control group received no additional treatment to their routine health care. So it was concluded that classical massage seems to be an effective treatment for reducing physical discomfort and fatigue and improving mood disturbances in women with early stage of breast cancer.

J Bodyw Moh Ther (2008), conducted a study in USA, to evaluate the effectiveness of massage therapy as a component in increasing range of motion, decreasing pain and assisting in healing of a client with low back pain and sciatica symptoms. Frequency, duration, and intensity of symptoms were recorded in a daily dairy beginning after the client's first visit with the massage therapist, manual therapy was administered once a week, each session lasted 45 minutes. The results of this study suggest that massage therapy was effective in reducing LBP intensity and increasing ROM. It was concluded that massage was an effective non pharmacological interventions for reducing pain and sciatica symptoms associated with low back pain.

Wilkinson et.al (2008), conducted a study in London, to assess the effectiveness of massage for patients with cancer, in terms of reducing physical or psychological symptoms, improving quality of life, or producing unwanted side effects. Time series design was used, participants were adults with a diagnosis of cancer and receiving care in any healthcare settings. Outcome measures to be included were patient-reported levels of physical and psychological indices of symptom distress and quality of life. Ten trials met the inclusion criteria and their results suggest that massage might reduce anxiety in patients with cancer in the short term and may have a beneficial effect on physical symptoms of cancer, such as pain and nausea.

Seers K, et.al (2008), conducted a study in U.K, to determine the effectiveness of a single session of nurse-administered massage for the short term relief of chronic non-



malignant pain and anxiety. A randomized controlled trial design was used, in which the patients were assigned to a massage or control group. The massage group received a 15 minute manual massage and the control group received a 15 minute visit to talk about their pain. 101 patients were randomized and evaluated, 50 in the massage and 51 in the control group. Patients in the massage group had a statistically significant reduction in pain and anxiety. So it was concluded that massage was effective in the short term reduction for chronic pain of moderate to severe intensity.

Russell NC et.al (2008), conducted a study in USA, to assess the role of massage therapy in cancer care. The care of patients with cancer not only involves dealing with its symptoms but also with complicated information and uncertainty, isolation, and fear of disease progression, disease recurrence and death. Patients whose treatments require them to go without contact can find a lack of touch to be an especially distressing factor. Massage therapy is often used to address these patients need for human contact, and findings support the positive value of massage in cancer centre. Several reviews of the scientific literature have attributed positive effects to massage, including improvements in patient's relaxation, sleep, and in the relief of pain, anxiety and nausea.

Melancon B, Miller LH (2005), conducted a study in USA, massage therapy versus traditional therapy for low back pain relief: implications for holistic nursing practice. This study explored whether there is a significant difference in perceived low back pain relief between patients receiving massage versus traditional therapy. Using a 2- variable by 3- variable fully crossed, factorial, comparative research design was used. Statistical results showed slightly more efficacy for traditional therapy; however, the additional benefits of massage add to its value for holistic nursing practice.

Goodfellow LM (2003), conducted a study in USA, to assess the effects of therapeutic back massage on psycho physiologic variables and immune function in spouses of patients with cancer. Experimental design was used. Spouses of patients with cancer (N=42) randomly assigned to either the experimental or control group. The intervention group received a 20 minutes therapeutic back massage at three times. Data collected on measures of depressive mood, loneliness, marital disruption and health practices were correlated with natural killer cell activity. Findings suggest that therapeutic back massage may enhance mood and reduce perceived stress in this population.

Hernandez Reif et.al.,(2001), investigated the treatment effects for pain reduction, depression, anxiety, stress and sleeplessness and for improving trunk range of motion associated with chronic low back pain. 24 adults with low back pain were randomly assigned to a massage therapy or a PMRT session for 30 minutes twice a week for 5 weeks. Massage therapy was effective in decreasing pain, stress and symptoms associated with chronic low back pain. Adults with low back pain with duration of at least 6 months receiving massage therapy reported experience of less pain, depression, anxiety and sleep.

Nixon, Teschendorff, Finney and Korilocoilz (1997) investigated the impact of massage therapy on patient's perception of post operative pain among 19 patients were assigned to the treatment group and 20 patients were assigned to the control group. Data were analyzed using analysis of covariance repeated measures within subjects design controlling for age, the result indicated that massage produced a significant reduction in patient's perception of pain over a 24 hour period. A linear positive relationship emerged between patient's age and duration of the massage.

Fravez .Torrey and Glick (1993), studied to investigate the impact on the selected outcomes of pain, sleep, symptoms distress and anxiety on hospitalized patients who were recovering after chemotherapy in the oncology unit.20 were assigned to the treatment group and 21 to the comparison group. The outcome variables were measured after the first night in the hospital and approximately 24 hour after the last massage. The patients in study who received therapeutic massage showed significant improvement in pain, sleep and symptom of distress when compared to the similar group patients who received only the nursing presence.

## **PART II**

### **CONCEPTUAL FRAMEWORK**

This section deals with conceptual framework adopted for the study. A conceptual framework or model provides the investigator, the guidelines to proceed in attaining the objectives of the study based on a theory. It is a schematic representation of the steps, activities and outcome of the study.

The conceptual framework of this study is based on Wiedenbach's Helping Art of clinical Nursing Theory. Ernestine Wiedenbach's views, this theory has a set of interrelated concepts that gives systematic view of a phenomenon that is explanatory and predictive in nature. The present study was aimed to help the patients who underwent cardiac surgery to reduce the level of pain and anxiety.

Wiedenbach's enrolled in the Johns Hopkins Hospital school of nursing and wrote "Family centered maternity nursing". She developed the Helping Art of clinical nursing – prescriptive theory in 1964. According to Wiedenbach's, the practice of nursing comprises a wide variety of services, each directed towards the attainment of one of its three components.

#### **Step 1: Identifying the need for help**

In identifying the need the nurse perceives patients as consistent or inconsistent with her concept, collect the information and identifying the need for help. There are two components in identifying the need for help.

##### **a) General information:**

This comprises of collecting the information to identify the need. In this study the investigator assessed the general information, which includes the demographic variables and also assessed the pretest level of pain and anxiety among patients subjected to cardiac surgery.

**b) The central purposes:**

Central purpose refers to what the nurse wants to accomplish. In this study, the investigator identified the central purpose was to reduce the level of pain and anxiety among patients subjected to cardiac surgery.

**Step II: Ministering the needed help**

In ministering the needed help to the patients, the nurse may give advice or information, make referral, apply a comfort measure or carry out therapeutic procedure. There are two components in identifying the need for help.

**a) Prescription**

It refers to the plan of care, the nature of action that will fulfill the central purpose. In this study, the investigator adopted Therapeutic back massage and Back massage as prescription.

## **b) Ministering (Intervention)**

The nurse may give advice or information and carry out therapeutic procedure. In this study the investigator gave Therapeutic back massage to Therapeutic back massage group and Back massage to Back massage group among patients subjected to cardiac surgery.

### **Step III: Validating that the needed help was met**

It is validating that the needed help was delivered in achieving the central purpose. This step involves the post assessment after ministering the help and comparison/analysis to infer the outcome. This approach thereby enables the researcher to make suitable decision and recommended action to continues, drop or modify the nursing action. Here it is the comparison of Therapeutic back massage and Back massage on level of pain and anxiety among patients subjected to cardiac surgery.

### **Realities**

Realities refers to the physical, physiologic, emotional, and spiritual factors that come into play in a situation nursing actions.

### **Agent**

The agent is the participating nurse or a designer who has the personal attributes, capabilities, commitment, and competence to provide nursing care. In this study the agent was the researcher.

### **The recipient**

The recipient is the patient who has personal attributes, problems, capabilities, aspiration, and abilities to cope. In this study the recipient was patients who underwent cardiac surgery.

### **The goal**

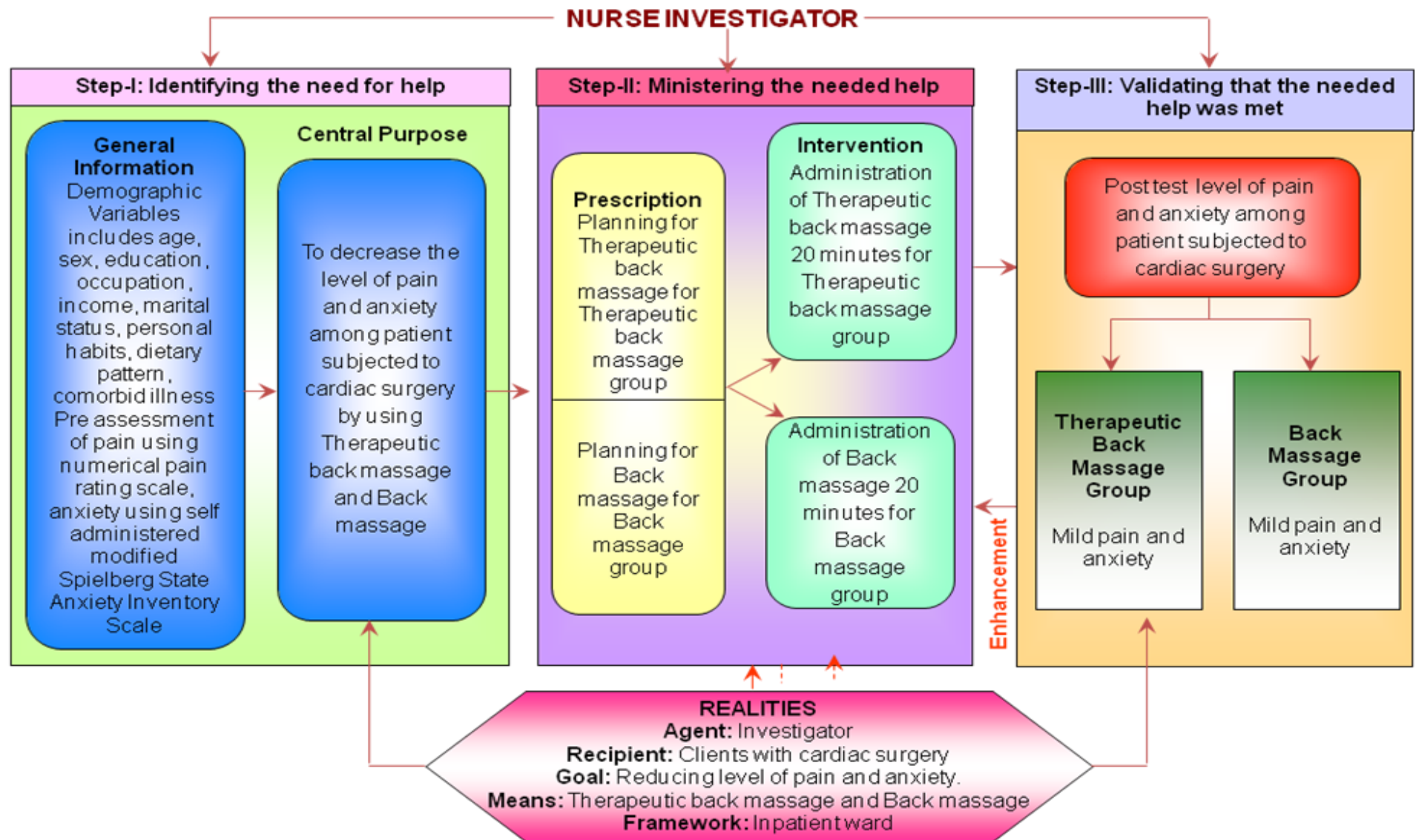
The goal is the nurses desired outcome, it directs actions and suggests the reason for taking those actions. In this study the goal was to reduce the pain and anxiety.

**The means**

The means are the activities and devices used by the nurse to achieve the goal. In this study the means were Therapeutic back massage and Back massage.

**The framework**

The framework refers to the facilities in which nursing is practiced; it comprises human, environment, professional, and organizational aspects of care. In this study the framework refers to in patients at Vijaya Heart Foundation.



**FIG.1: CONCEPTUAL FRAMEWORK BASED ON WIEDENBACK'S HELPING ART OF CLINICAL NURSING THEORY (1964)**

## CHAPTER – III

### RESEARCH METHODOLOGY

This chapter describes the research methodology followed to evaluate the effectiveness of two Back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai, 2010-2011.

It deals with the research approach, research design, setting of the study, population, criteria for selection of sample, sample size, sampling technique, development and description of the tool for data collection, content validity, pilot study, procedures for data collection and statistical analysis.

#### RESEARCH APPROACH

An evaluative approach was used to compare the effectiveness of two Back massage techniques.

#### RESEARCH DESIGN

The investigator has chosen the Quasi experimental research design to find out the effectiveness of two Back massage techniques on level of pain and anxiety.

This can be diagrammatically shown as

Back massage group	Pre test	20 minutes Back massage from buttocks to the neck from 2 <sup>nd</sup> to 5 <sup>th</sup> Post operative day.	Post test
Therapeutic back massage group	Pre test	20 minutes Therapeutic back massage from lower back to the neck from 2 <sup>nd</sup> to 5 <sup>th</sup> Post operative day.	Post test



## **VARIABLES OF THE STUDY**

Variables are the characteristics that vary among the subjects being studied.

### **Independent Variables**

Therapeutic back massage and Back massage.

### **Dependent Variables**

Pain and anxiety

### **Demographic Variables**

It includes age, gender, educational qualifications, occupation, family income per month, marital status, personal habits, dietary pattern and co-morbid illness.

## **RESEARCH SETTING**

The study was conducted at Vijaya Heart Foundation, Chennai. It is 25 kilometer away from Vel.R.S.Medical College – College of Nursing. It is a 600 bedded hospital located at Vadapalani, Chennai. Approximately 40 to 50 patients with Coronary artery disease are admitted per day and 1000 per month and 5to 6surgeries are performed per day and 100-120 per month.

## **POPULATION**

Population refers to the entire patients with the cardiac surgery and it is important to make distribution between target and accessible population.

### **Target Population**

Target population of the study comprised of all patients with cardiac surgery aged between 20-60 years.

### **Accessible Population**

Accessible population of the study comprised of all the patients with cardiac surgery aged between 20-60 years who were admitted for the treatment at Vijaya Heart Foundation, Vadapalani, Chennai.

## **SAMPLE**

Sample of the study comprises of patients who underwent cardiac surgery, who fulfilled the inclusion criteria, and admitted at Vijaya Heart Foundation, Vadapalani, Chennai.

## **SAMPLE SIZE**

The study sample comprised of 60 patients (30 patients in Therapeutic back massage group and 30 patients in Back massage group) subjected to cardiac surgery who fulfilled the inclusion criteria.

## **SAMPLING TECHNIQUE**

Non Probability Purposive sampling technique was used to evaluate the effectiveness of two back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery.

## **CRITERIA FOR SAMPLE SELECTION**

### **Inclusion Criteria**

1. Patients who underwent cardiac surgery.
2. Patients who underwent surgery for the first time
3. Patients who were able to read and write Tamil or English.
4. Patients who were willing to participate.

### **Exclusion Criteria**

1. Post operative patients in the mechanical ventilator.
2. Patients who developed complications post operatively.

## **METHODS OF DEVELOPING THE TOOL**

The tool was developed after an extensive review of literature, internet sources and opinion of the experts. The pain was measured by using Numerical pain rating scale and self administered Modified Spielberger state anxiety inventory scale was used to assess the anxiety level.

## **DESCRIPTION OF THE TOOL**

The Tool used for the data collection had three sections

**Section – I:** Description of demographic variables. It includes age, gender, educational qualification, occupation, family income, marital status personal habits, dietary pattern and co morbid illness.

**Section – II:** This section consists of pain scale. The pain was assessed by using Numerical pain rating scale.

**Section – III:** This section consists of 20 questions related to physical response, psychological response and emotional response and was measured by using self administered Modified Spielberger State Anxiety Inventory Scale.

## **SCORING PROCEDURE**

### **Section – I: Description of demographic variables.**

No scoring was allotted for the demographic variables.

### **Section – II: Assessment of pain**

Assessment of pain using Numerical pain rating scale as per the recommendation. The samples were asked to indicate the pain score on the Numerical pain rating scale.

0 None

1-3 Mild pain

4-6 Moderate pain

7-10 Severe pain

### **Section – III: Assessment of anxiety.**

Assessment of Anxiety using self administered Modified Spielberger State Anxiety inventory Scale. In this section scoring was given. For each question carry maximum score of 4 and minimum score of 1. Total maximum score was 80 and minimum was 20. The Questionnaire was given to the patients and they were asked to mark their responses. Non-literate patients got help from their attender to mark their responses.

The level of anxiety was classified as follows

<b>Scores</b>	<b>Level of anxiety</b>
<50%	Mild
51-75%	Moderate
>75%	Severe

### **VALIDITY OF THE TOOL**

The content of the tool was validated by one Medical Expert, three Medical and Surgical Nursing Experts. The Experts suggestions were incorporated and the tool was finalized and was used by the investigator for the main study.

### **RELIABILITY OF THE TOOL**

The reliability of the tool to assess the level of pain was established by inter rated method using Karl-Pearson's correlation co-efficient method and the correlation was  $r = 0.8$ . The tool to assess the level of anxiety was established by test retest method and the reliability was done by using Spearman's rank correlation method and the Correlation was 0.8. Hence the tools were considered as reliable.

### **ETHICAL CONSIDERATIONS**

Ethical considerations refers to a system of moral values that is concerned with the degree to which research procedures adheres to professional, legal and social obligations to study participants.

The study was conducted after the approval of dissertation committee. The formal permission was taken from Assistant General Manager and Medical director of Vijaya Heart Foundation, Chennai, before proceedings with the study. The patients were clearly explained about the study purpose and the oral consent was obtained. It was assured to the patients that the results would be kept confidential.

### **PILOT STUDY**

The pilot study was conducted at Vijaya Heart Foundation from 26.4.2010 to 3.5.2010

The formal permission was obtained from Assistant General Manager and Medical Director of the Vijaya Heart Foundation. Six patients (3 in Therapeutic back massage and 3 in Back massage group) who fulfilled the inclusion criteria were selected by non probability purposive sampling technique. The samples for the Therapeutic back massage and Back massage were allotted through Lottery method. A brief introduction about the self and study was given and the data was collected from the patients. Oral consent was taken from samples and confidentiality of the response was assured. The data related to the variables were collected. The pre assessment of the level of pain and anxiety were checked before giving the Therapeutic back massage to Therapeutic back massage group and Back massage to Back massage group. Therapeutic back massage group received 20 minutes of Therapeutic back massage and the Back massage group received 20 minutes of Back massage. Post assessment of pain was done immediately after the intervention each day using Numerical pain rating scale and the level of anxiety was done at fifth post operative day using self administered modified Spielberger state anxiety inventory scale.

The statistical analysis of the pilot suggested a positive correlation between the Therapeutic back massage and Back massage on level of pain and anxiety. The 'r' value was 0.8 for pain and 0.8 for anxiety. The study was found to be reliable and appropriate and hence the procedure was decided to be followed in the main study.

## **DATA COLLECTION PROCEDURE**

The study was conducted from 15.5.2010 to 15.6.2010. Before starting the study a formal consent was obtained from Assistant General Manager and medical director of the Vijaya Heart Foundation, Vadapalani, Chennai and the investigator selected 60 samples (30 in Therapeutic back massage group and 30 in Back massage group) using non probability purposive sampling technique.

A self introduction was given and the oral consent was obtained from the study subjects. The confidentiality was assured. A brief explanation about the pain scale and anxiety scale and its purpose and importance of the Therapeutic back massage and Back massage was given. The patients who underwent cardiac surgery and who were at the second post operative day were taken for study. The samples for the Therapeutic back massage and Back massages were allotted through Lottery method. Pre test assessment of

pain and anxiety was done before the interventions, which was followed by the intervention at the same day before giving analgesics to the patients. Post test assessment of pain was done by asking the patients to indicate the pain score on the Numerical pain rating scale immediately after the interventions each day and post assessment of anxiety was checked on the fifth post operative day, using Self administered Modified Spielberger state Anxiety inventory scale, the questionnaire were given to the patients and the patients were asked to mark their responses.

DATE		No of subjects		Intervention	Post test
From	To	Therapeutic Back massage	Back massage		
15.5.10	18.5.10	2	2	Therapeutic back massage was given to the therapeutic back massage group for 20 minutes from lower back to neck for 4 days, from 2 <sup>nd</sup> to 5 <sup>th</sup> post operative day. Back massage was given to the Back massage group for 20 minutes from buttocks to neck for 4 days from 2 <sup>nd</sup> to 5 <sup>th</sup> post operative day,	Post test of pain was done immediately after the intervention each day and the post test of anxiety was checked on the fifth post operative day.
17.5.10	20.5.10	1	1		
18.5.10	21.5.10	1	1		
19.5.10	22.5.10	1	1		
20.5.10	23.5.10	1	1		
21.5.10	24.5.10	1	1		
22.5.10	25.5.10	1	1		
24.5.10	27.5.10	2	2		
25.5.10	28.5.10	1	1		
26.5.10	29.5.10	1	1		
27.5.10	30.5.10	2	2		
28.5.10	31.5.10	1	1		
29.5.10	1.6.10	1	1		
31.5.10	3.6.10	1	1		
1.6.10	4.6.10	1	1		
2.6.10	5.6.10	1	1		
3.6.10	6.6.10	1	1		
4.6.10	7.6.10	1	1		
5.6.10	8.6.10	1	1		
6.6.10	9.6.10	2	2		
7.6.10	10.6.10	1	1		

DATE		No of subjects		Intervention	Post test
8.6.10	11.6.10	1	1		
9.6.10	12.6.10	1	1		
10.6.10	13.6.10	1	1		
11.6.10	14.6.10	1	1		
12.6.10	15.6.10	1	1		

## **DATA ANALYSIS AND PROCEDURE**

### **Descriptive Statistics**

Frequency and percentage distribution was used to analyse the variables of the study. Mean and standard deviation was used to compute the level of pain and anxiety before and after two back massage techniques among patients subjected to cardiac surgery.

### **Inferential Statistics**

1. Repeated ANOVA was used to assess the pre test and post level of pain.
2. Paired 't' was used to assess the pre test and post test level of anxiety.
3. Chi square similarity was used to associate the post test level of pain with the demographic variables.
4. Chi square was used to associate the post test level of anxiety with the demographic variables.

## CHAPTER – IV

### DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretations of data collected from 60 patients subjected to cardiac surgery to evaluate the effectiveness of Therapeutic back massage and Back massage group on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai.

#### ORGANISATION OF DATA

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

**Section A:** Frequency and percentage distribution of demographic variables among patients subjected to cardiac surgery.

**Section B:** Assessment of pre test level of pain and anxiety among patients subjected to cardiac surgery.

**Section C:** Assessment of post test level of pain and anxiety among patients subjected to cardiac surgery.

**Section D:** Comparison of level of pain and anxiety between Therapeutic back massage group and Back massage group among patients subjected to cardiac surgery.

**Section E:** Association of post test level of pain and anxiety among patients subjected to cardiac surgery with the demographic variables.



## SECTION A

**Table 1: Frequency and percentage distribution of demographic variables of the patients subjected to cardiac surgery.**

n =60

S.No	Demographic Variables	Therapeutic Back Massage Group		Back Massage Group	
		No.	%	No.	%
<b>1.</b>	<b>AGE</b>				
	a.20-30 years	2	6.67	-	-
	b.31-40 years	1	3.33	-	-
	c.41-50 years	7	23.33	10	33.33
	d.51-60 years	20	66.67	20	66.67
<b>2.</b>	<b>GENDER</b>				
	a. Male	24	80.00	24	80.00
	b. Female	6	20.00	6	20.00
<b>3.</b>	<b>EDUCATIONAL QUALIFICATION</b>				
	a. Non literate	6	20.00	4	13.33
	b.Primary	6	20.00	6	20.00
	c.Secondary	9	30.00	9	30.00
	d.Graduate	9	30.00	11	36.67
<b>4.</b>	<b>OCCUPATION</b>				
	a. Unemployed	15	50.00	13	43.34
	b. Self employed	4	13.33	3	10.00
	c. Govt. employed	6	20.00	7	23.33
	d. Private employed	5	16.67	7	23.33
<b>5.</b>	<b>FAMILY INCOME/MONTH</b>				
	a. RS <5000	-		2	6.67
	b. RS 5001-10000	3	10.00	3	10.00
	c. RS 10001-15000	17	56.67	9	30.00
	d. RS >15000	10	33.33	16	53.33
<b>6.</b>	<b>MARITAL STATUS</b>				
	a. Unmarried	1	3.33	-	
	b. Married	29	96.67	30	100

S.No	Demographic Variables	Therapeutic Back Massage Group		Back Massage Group	
		No.	%	No.	%
	c. Widow/widower	-		-	
	d. Divorced	-		-	
<b>7.</b>	<b>PERSONAL HABITS</b>				
	a. Smoking	9	30.00	12	40.00
	b. Alcohol	5	16.67	2	6.67
	c. Smoking & alcohol	6	20.00	8	26.66
	d. Betel chewing	3	10.00	2	6.67
	No bad habits	7	23.33	6	20.00
<b>8.</b>	<b>DIETARY PATTERN</b>				
	a. Vegetarian	8	26.67	4	13.33
	b. Non vegetarian	22	73.33	26	86.67
<b>9.</b>	<b>CO-MORBID ILLNESS</b>				
	a. DM	7	23.33	6	20.00
	b. HT	7	23.33	8	26.66
	c. DM/HT	10	33.34	10	33.34
	d. NIL	6	20.00	6	20.00

The above table shows the frequency and percentage distribution of the demographic variables of the respondents. In the Therapeutic back massage group, according to their age 20(66.67 %) of them were in the age of 51-60 years, 1 (3.33 %) of them were in the age of 31-40 years. In the Back massage group, 20 (66.67 %) of them were in the age of 51-60 years, 10 (33.33 %) of them were in the age of 41-50 years.

Regarding the gender, in the Therapeutic back massage group, 24(80%) of them were males and 6(20%) of them were females. In the Back massage group, 24(80%) of them were males and 6(20%) of them were females.

Considering the educational qualifications, in the Therapeutic back massage group, 9(30%) of them were secondary and graduate and 6(20%) of them were non

literate and primary. In the Back massage group 11(36.67%) of them were graduate and 9(30%) of them were secondary.

Regarding the occupation in the Therapeutic back massage group, 15(50%) of them were unemployed 6(20%) of them were government employed. In the Back massage group 13(43.34%) of them were unemployed 7(23.33%) of them were government and private employed.

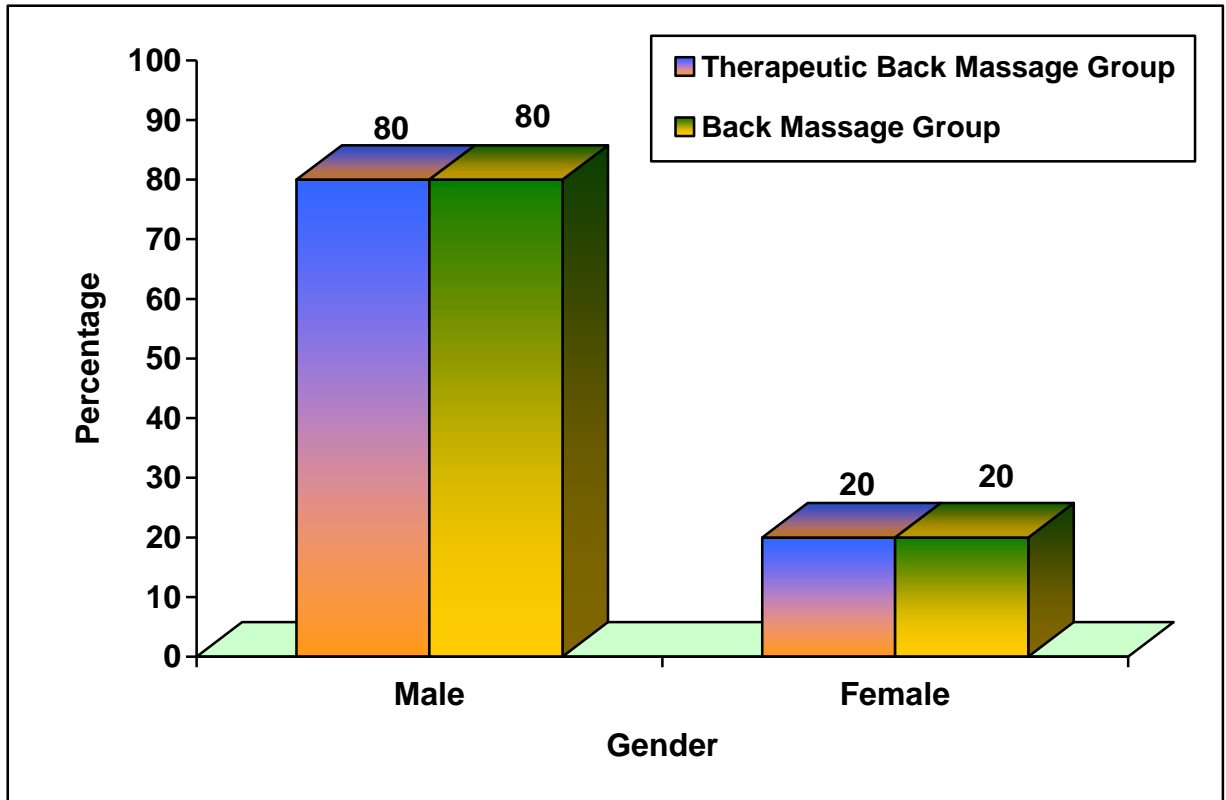
Considering the monthly income of family, in the Therapeutic back massage group 17(56.67%) of them had Rs.10001-15000, 10(33.33%) of them were seeking >Rs.15000. In the Back massage group, 16(53.33%) of them were seeking >Rs.15000, 9(30%) of them were between Rs.10001-15000.

Regarding the marital status, in the Therapeutic back massage group 29(96.67 %) of them were married and 1(3.33%) of them were unmarried. In the Back massage group 30(100%) all were married.

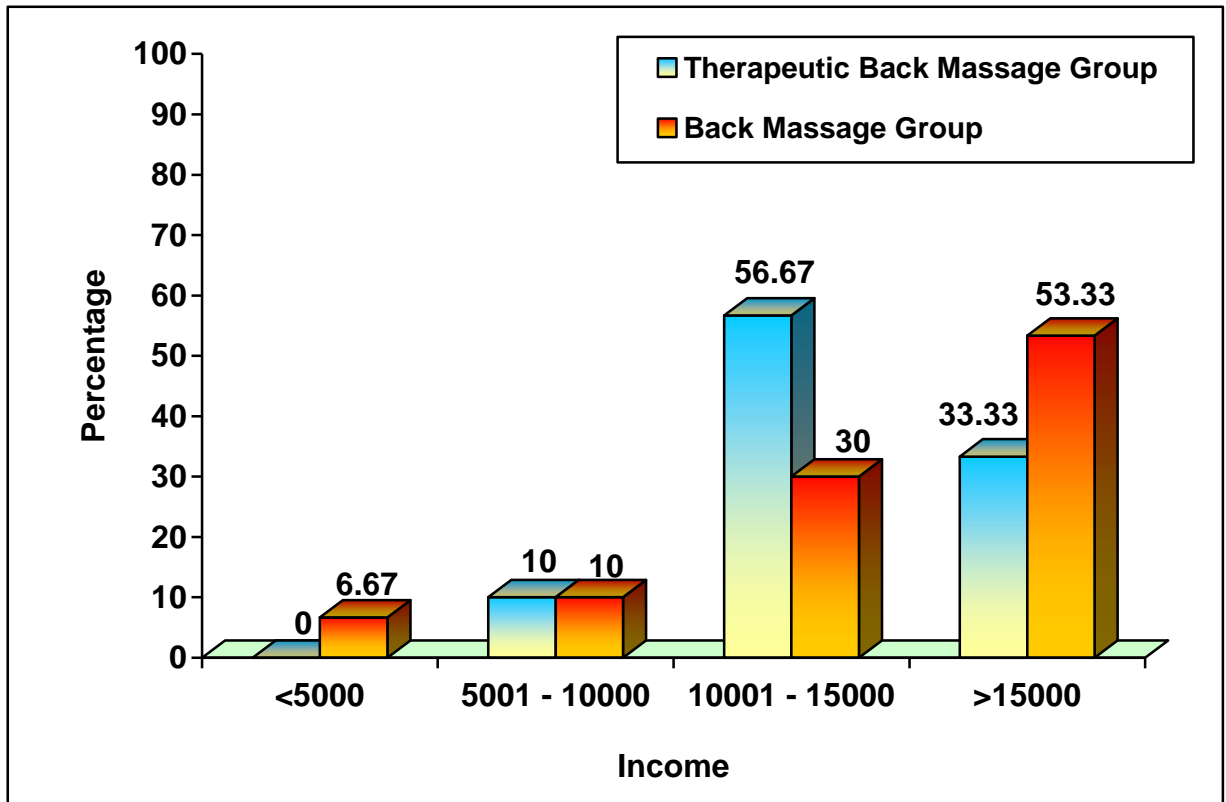
Considering the personal habits, in the Therapeutic back massage group 9(30%) of them were having the habit of smoking, 3(10%) of them were the habit of betel chewing. In the Back massage group, 12(40%) of them were the habit of smoking, 2(6.67%) of them were the habit of alcohol consumption and betel chewing.

Considering the dietary pattern, in the Therapeutic back massage group, 22(73.33%) of them were non vegetarian, 8(26.67%) of them were vegetarian. In the Back massage group, 26(86.67%) of them were non vegetarian and 4(13.33%) of them were vegetarian.

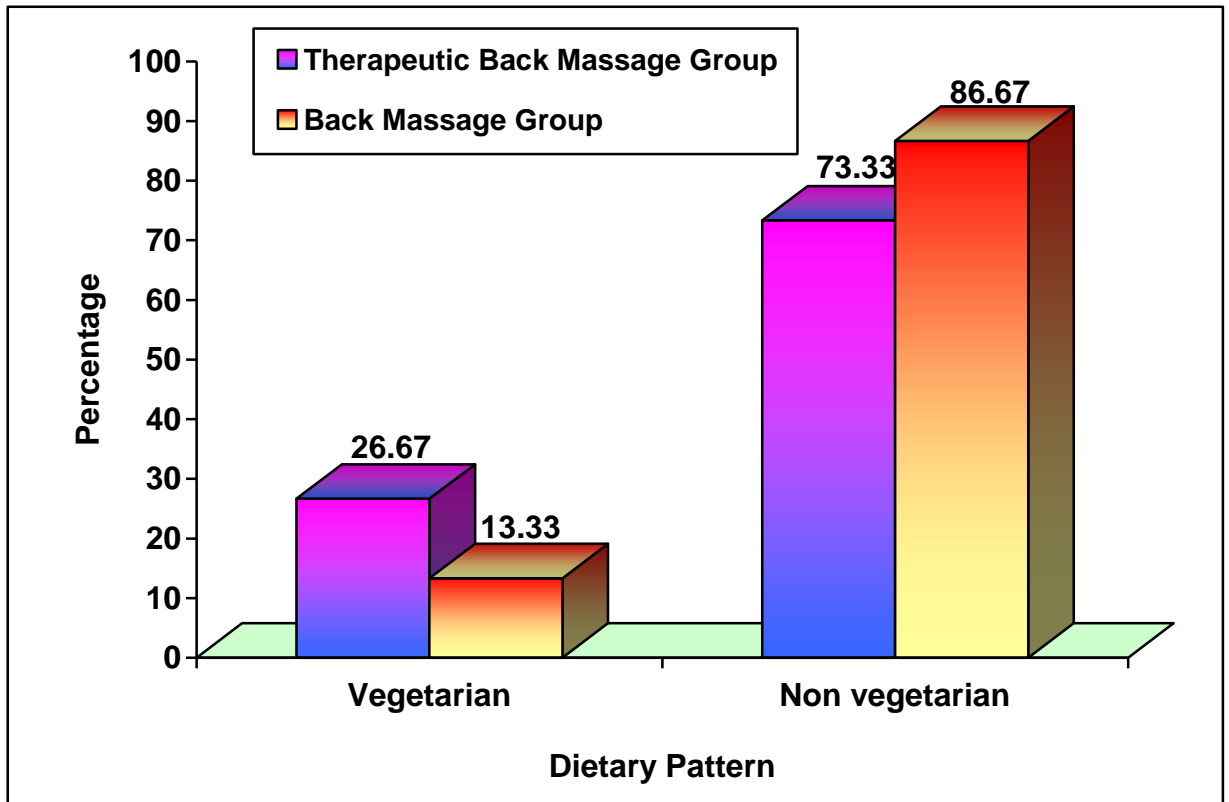
Regarding the co-morbid illness, in the Therapeutic back massage group, 10(33.34%) of them had both Diabetes mellitus and Hypertension, 6(20%) of them does not have any co-morbid illness. In the Back massage group, 10(33.33%) of them had both diabetes mellitus and Hypertension and 6(20%) of them does not have any co-morbid illness.



**Fig.2: Percentage distribution of gender of the Therapeutic back massage group and Back massage group**



**Fig.3: Percentage distribution of family monthly income of the Therapeutic back massage group and Back massage group**



**Fig.4: Percentage distribution of dietary pattern of the Therapeutic back massage group and Back massage group**

## SECTION B

**Table 2: Frequency and percentage distribution of pre test level of pain and anxiety among patients subjected to cardiac surgery.**

n = 60

	Days	Pre test –Therapeutic back massage Group						Pre test – Back massage Group					
		Mild		Moderate		Severe		Mild		Moderate		Severe	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level of pain	Day1	-	-	-	-	30	100	-	-	-	-	30	100
	Day 2	-	-	-	-	30	100	-	-	-	-	30	100
	Day3	-	-	17	56.66	13	43.33	-	-	24	80.00	6	20.00
	Day 4	4	13.33	26	86.66	-	-	-	-	30	100	-	-
Level of anxiety	Day 1	5	16.67	25	83.33	-	-	3	10.00	27	90.00	-	-

The above table shows that the frequency and percentage distribution of pre test level of pain and anxiety in the Therapeutic back massage group and Back massage group. In the Therapeutic back group, in Day 1 and Day 2, 30(100%) of them had severe pain, in Day 3, 17(56.66%) of them had moderate pain and 13(43.33%) of them had severe pain, in Day 4, 26(86.66%) of them had moderate pain and 4(13.33%) of them had mild pain. Regarding the anxiety 25 (83.33%) of them had moderate anxiety.

In the Back massage group, in Day 1 and Day 2, 30(100%) of them had severe pain, in Day 3, 24(80.00) of them had moderate pain, 6(20%) of them had severe pain, in Day 4, 30(100%) of them had moderate pain. Regarding the anxiety, 27 (90%) of them had moderate anxiety.

## SECTION C

**Table 3: Frequency and percentage distribution of post test level of pain and anxiety among patients subjected to cardiac surgery.**

n = 60

	Days	Post test –Therapeutic back massage group						Post test – Back massage group					
		Mild		Moderate		Severe		Mild		Moderate		Severe	
		No	%	No	%	No	%	No	%	No	%	No	%
Level of pain	Day1	-	-	20	66.66	10	33.33	-	-	13	43.33	17	56.66
	Day 2	-	-	30	100	-	-	-	-	25	83.33	5	16.66
	Day3	18	60	12	40	-	-	10	33.33	20	66.66	-	-
	Day 4	30	100	-	-	-	-	30	100	-	-	-	-
Level of anxiety	Day 1	25	83.33	5	16.67	-	-	20	66.67	10	33.33	-	-

The above table shows that the frequency and percentage distribution of post test level of pain and anxiety in the Therapeutic back massage group and Back massage group. In the Therapeutic back massage group, in Day 1 most of them 20 (66.66%) had moderate pain, in Day 2, 30 (100%) had moderate pain, in Day 3, 18 (60%) of them had mild pain, in Day 4 all of them 30 (100%) had mild pain, regarding the anxiety, most of them 25 (83.33%) had mild anxiety.

In the Back massage group, in Day 1 most of them 17 (56.66) had severe pain, in Day 2, 25 (83.33%) of them had moderate pain, in Day 3, 10 (33.33%) of them had mild pain, in Day 4 all of them 30 (100%) had mild pain, regarding the anxiety 20 (66.67%) of them had mild anxiety.



## SECTION D

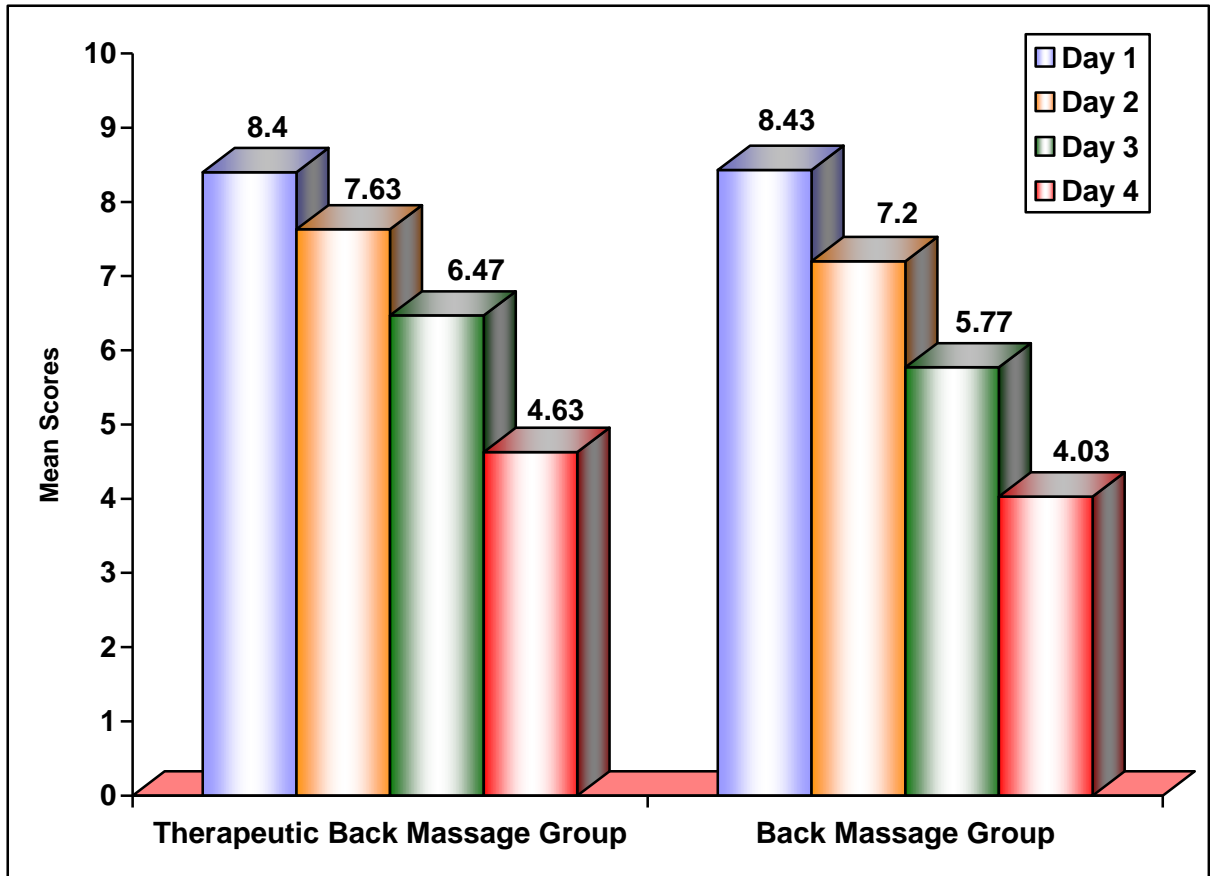
**Table 4: Comparison of Pre test level of pain and anxiety in the Therapeutic back massage and Back massage group.**

n=60

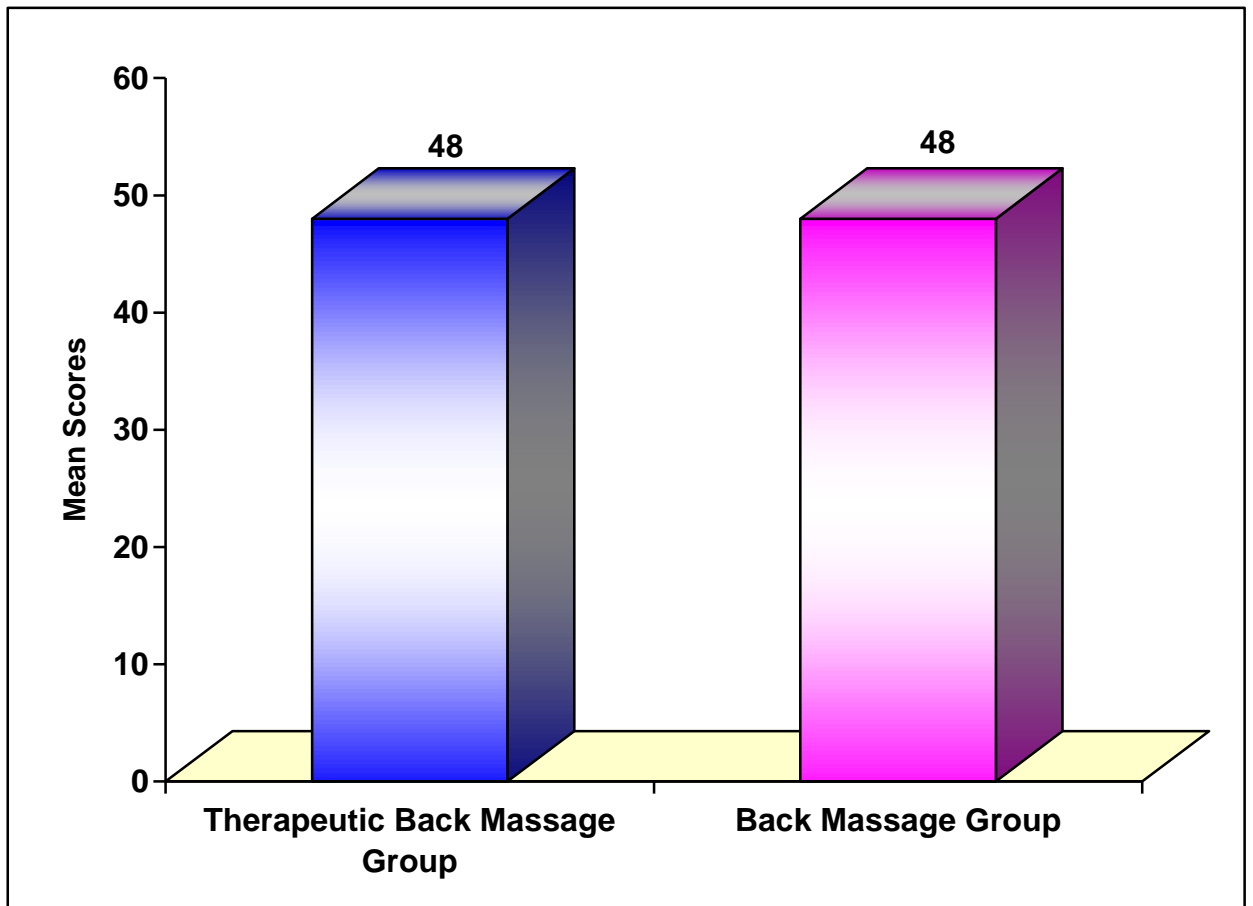
	Days	Therapeutic back massage group		Back massage group	
		Mean	S.D	Mean	S.D
Level of pain	Day 1	8.4000	0.77013	8.4333	0.56832
	Day 2	7.6333	0.55605	7.2000	0.66436
	Day 3	6.4667	0.68145	5.7667	0.93526
	Day 4	4.6333	0.99943	4.0333	0.76489
Level of Anxiety	Day 1	48	5.13	48	5.09

The above table reveals that the pre test level of pain and anxiety in the Therapeutic back massage and Back massage group. In the Therapeutic back massage group the Mean level of pain from 8.4000 to 4.6333 and standard deviation from 0.77013 to 0.99943. Regarding the anxiety the mean was 48 and the standard deviation was 5.13.

In the Back massage group there was a decrease in mean level of pain was from 8.4333 to 4.0333 and the standard deviation from 0.56832 to 0.76489. Regarding the anxiety the mean was 48 and the standard deviation was 5.09.



**Fig.5: Comparison of pre test level of pain in the Therapeutic back massage and Back massage group**



**Fig.6: Comparison of pre test level of anxiety in the Therapeutic back massage and Back massage group**

## SECTION E

**Table 5: Comparison Post test level of pain and anxiety in the Therapeutic back massage group and Back massage group.**

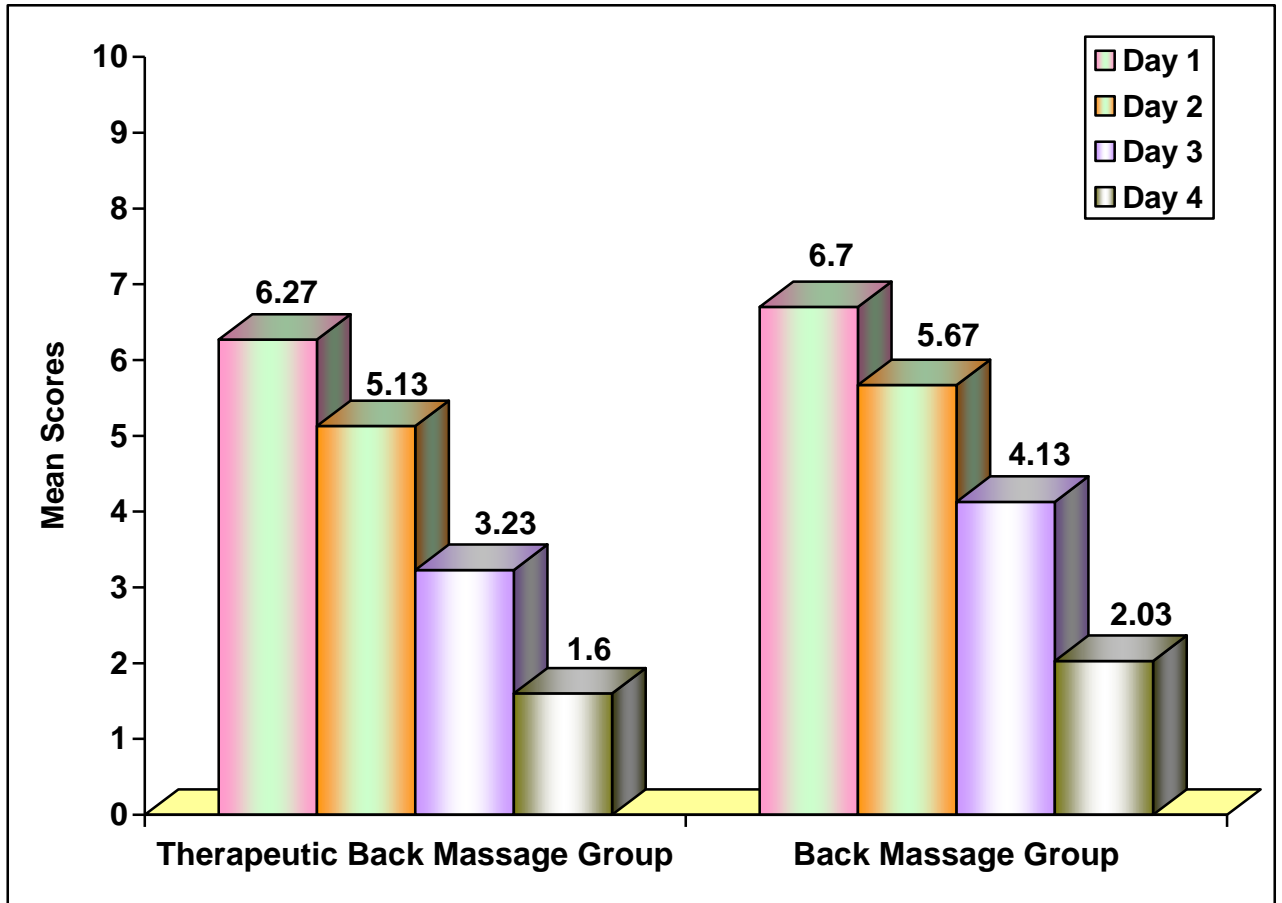
n = 60

	Days	Therapeutic back massage			Back massage		
		Mean	S.D	P value	Mean	S.D	P value
Level of pain	Day 1	6.2667	0.78492	<0.001*** (S)	6.7000	0.70221	<0.001*** (S)
	Day 2	5.1333	0.77608		5.6667	0.95893	
	Day 3	3.2333	0.72793		4.1333	1.00801	
	Day 4	1.6000	0.62146		2.0333	0.80872	
Level of Anxiety	Day 4	29.46	7.13		38.36	5.65	

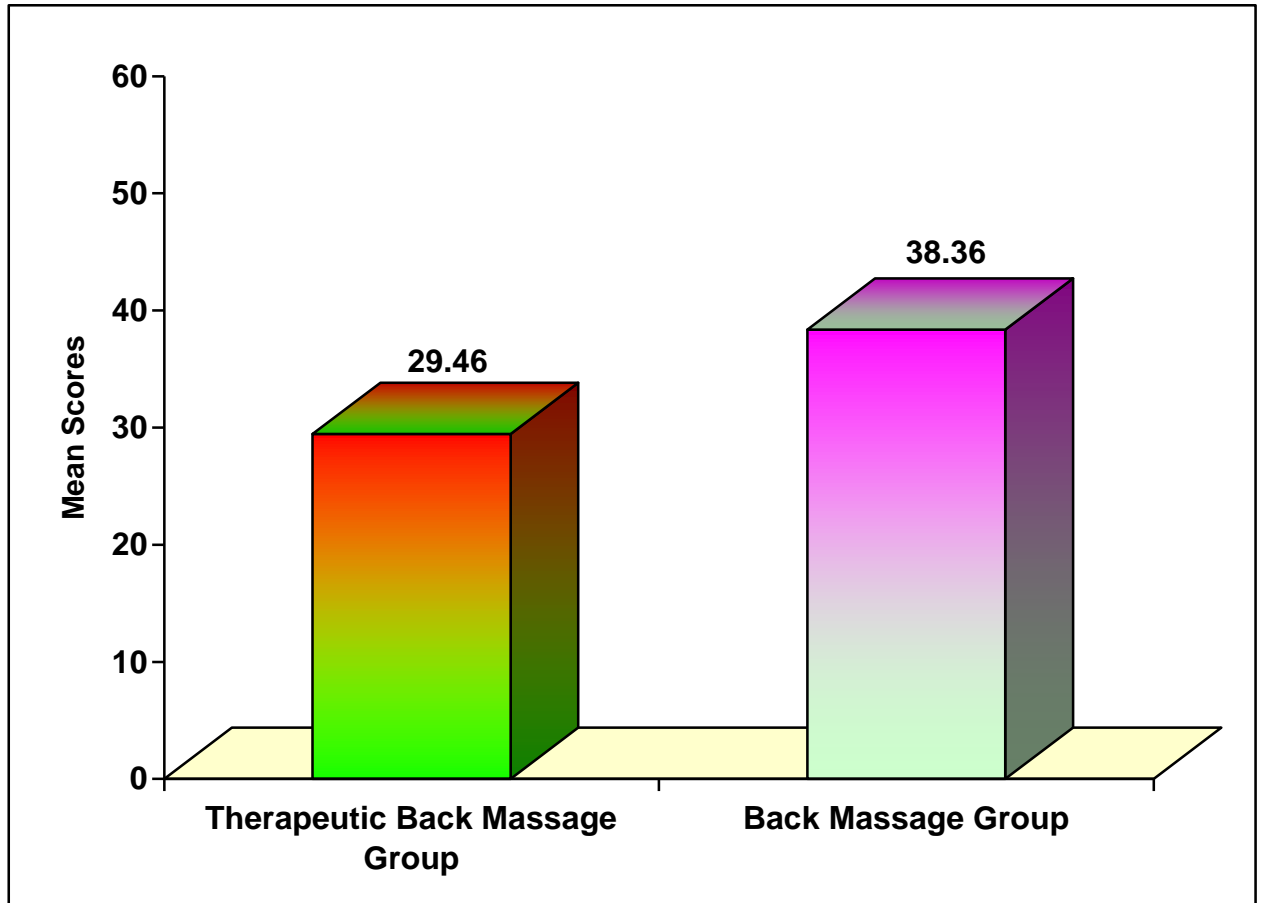
\*\*\* p<0.001, S - significant

The above table reveals that the post test level of pain in the Therapeutic back massage group and Back massage group. In the Therapeutic back massage group there was a decrease in mean level of pain from 6.2667 to 1.6000 and standard deviation from 0.78492 to 0.62146. In the Back massage group there was a decrease in mean level of pain from 6.7000 to 2.0333 and the standard deviation from 0.70221 to 0.80872. In both groups the pain was found to be significant at p < 0.001 level of significance.

The above table reveals that the post test level of anxiety in the Therapeutic back massage and Back massage group. In the Therapeutic back massage group the mean was 29.46 and standard deviation was 7.13 and in the Back massage group the mean was 38.36 and the standard deviation was 5.65.



**Fig.6: Comparison of post test level of pain in the Therapeutic back massage and Back massage group**



**Fig.7: Comparison of post test level of anxiety in the Therapeutic back massage and Back massage group**

## SECTION F

**Table 6: Comparisons of overall post test level of pain and anxiety between Therapeutic back massage and Back massage group.**

n = 60

	Duration	Therapeutic back massage	Back massage	Mean difference	Confidence interval	t value	P value
Level of pain	Day 1	6.26	6.70	0.43	0.82 to 0.05	2.254	0.028*(S)
	Day 2	5.13	5.67	0.53	0.98 to 0.08	2.368	0.021*(S)
	Day 3	3.23	4.13	0.90	1.35 to 0.44	3.965	<0.001***(S)
	Day 4	1.60	2.03	0.43	0.81 to 0.06	2.327	0.023*(S)
Level of Anxiety	Day 4	29.46	38.36	8.90	-	7.043	<0.001***(S)

\*\*\*p<0.001, \*p<0.05, S – Significant

The above table reveals the comparisons of effectiveness of pain between the Therapeutic back massage group and Back massage group among patients subjected to cardiac surgery, was done by using repeated ANOVA test. In the Therapeutic back massage, there was a decrease in the mean level of pain from 6.26 to 1.60 and in the Back massage there was a decrease in the mean level of pain from 6.70 to 2.03. When we compare the effectiveness between the Therapeutic back massage group and Back massage group there was a significant difference between these two techniques and the difference were 0.43, 0.53, 0.90, 0.43 and the “t” value was 2.254, 2.368, 3.965, 2.327 and it was found to be significant at p<0.001 and p=0.021, level of significance.

Regarding the comparisons of overall post test level of anxiety between the Therapeutic back massage group and Back massage group among the patients subjected to cardiac surgery was done by using paired “t” test. There was a decrease in mean level of anxiety from 38.36 to 29.46 and the standard deviation from 7.13 to 5.65 and the “t” value 7.043 was found to be significant at p<0.001, level of significance.

The above findings indicate a decrease in the level of pain and anxiety in the Therapeutic back massage group and Back massage group. Hence the null hypothesis  $H_{01}$  and  $H_{02}$  states that there is no significant difference between the therapeutic back massage and back massage on level of pain and anxiety among patients subjected to cardiac surgery was rejected.



## SECTION G

**Table 7: Association of post test level of pain in the Therapeutic back massage group with the demographic variables**

n=60

Demographic Variables	Mild		Chi-Square Value
	No.	%	
<b>Age</b>			
a.20 - 30 years	2	6.67	$\chi^2 = 30.53$ d.f = 3 S***
b.31 - 40 years	1	3.33	
c.41 - 50 years	7	23.33	
d.51 - 60 years	20	66.67	
<b>Gender</b>			
a. Male	24	80.0	$\chi^2 = 10.8$ d.f = 1 S***
b .Female	6	20.0	
<b>Educational Qualification</b>			
a. Non literate	6	20.0	$\chi^2 = 1.467$ d.f = 3 N.S
b.Primary	6	20.0	
c .Secondary	10	33.33	
d. Graduate	8	26.67	
<b>Occupation</b>			
a. Unemployed	6	20.0	$\chi^2 = 1.467$ d.f = 3 N.S
b. Self employed	6	20.0	
c. Govt. employed	10	33.33	
d. Private employed	8	26.67	
<b>Family income per month</b>			
a. Less than Rs.5000	0	0	$\chi^2 = 9.8$ d.f = 2 S**
b.Rs.5001 - 10000	3	10.0	
c.Rs.10001 - 15000	17	56.67	
d.Above Rs.15000	10	33.33	
<b>Marital Status</b>			
a. Unmarried	1	3.33	$\chi^2 = 26.13$ d.f = 1 S***
b .Married	29	96.67	
c. Widow/Widower	0	0	
d. Divorced	0	0	
<b>Personal Habits</b>			
a. Smoking	9	30.0	$\chi^2 = 3.333$ d.f = 4 N.S
b. Alcohol	5	16.67	
c. Smoking and Alcohol	6	20.0	
d. Betel chewing	3	10.0	
e. No bad habits	7	23.33	
<b>Dietary Pattern</b>			
a. Vegetarian	8	26.67	$\chi^2 = 6.533$

<b>Demographic Variables</b>	<b>Mild</b>		<b>Chi-Square</b>
b. Non-vegetarian	22	73.33	d.f = 1 S*
<b>Co-morbid Illness</b>			$\chi^2 = 1.20$ d.f = 3 N.S
a. Diabetes Mellitus	7	23.33	
b. Hypertension	7	23.33	
c. Diabetes Mellitus & Hypertension	10	33.33	
d. Nil	6	20.0	

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001, S – Significant, N.S – Not Significant

The above shows the association of post test level of pain among patients subjected to cardiac surgery with the demographic variables was done by using chi square similarity test. It was found that, post test level of pain has significant association with age, gender, family income per month, marital status and dietary pattern at p<0.05, p<0.01, p<0.001 level of significance.

**Table 8: Association of post test level of pain in the Back massage group with the demographic variable.**

n =30

Demographic Variables	Mild		Chi-Square Value
	No.	%	
<b>Age</b>			$\chi^2 = 3.333$ d.f = 1 N.S
a. 20 - 30 years	0	0	
b. 31 - 40 years	0	0	
c. 41 - 50 years	10	33.33	
d. 51 - 60 years	20	66.67	
<b>Gender</b>			$\chi^2 = 10.8$ d.f = 1 S***
a. Male	24	80.0	
b. Female	6	20.0	
<b>Educational Qualification</b>			$\chi^2 = 3.867$ d.f = 3 N.S
a. Non literate	4	13.33	
b. Primary	6	20.0	
c. Secondary	9	30.0	
d. Graduate	11	36.67	
<b>Occupation</b>			$\chi^2 = 6.8$ d.f = 3 N.S
a. Unemployed	13	43.33	
b. Self employed	3	10.0	
c. Govt. employed	7	23.33	
d. Private employed	7	23.33	
<b>Family income per month</b>			$\chi^2 = 16.67$ d.f = 3 S***
a. Less than Rs.5000	2	6.67	
b. Rs.5001 - 10000	3	10.0	
c. Rs.10001 - 15000	9	30.0	
d. Above Rs.15000	16	53.33	
<b>Marital Status</b>			$\chi^2 = 12.0$ d.f = 4 S*
a. Unmarried	0	0	
b. Married	30	100.0	
c. Widow/Widower	0	0	
d. Divorced	0	0	
<b>Personal Habits</b>			$\chi^2 = 16.13$ d.f = 1 S***
a. Smoking	12	40.0	
b. Alcohol	2	6.67	
c. Smoking and Alcohol	8	26.67	
d. Betel chewing	2	6.67	
e. No bad habits	6	20.0	
<b>Dietary Pattern</b>			$\chi^2 = 1.467$ d.f = 3 N.S
a. Vegetarian	4	13.33	
b. Non-vegetarian	26	86.67	

Demographic Variables	Mild		Chi-Square Value
<b>Co-morbid Illness</b>			$\chi^2 = 38.6$ d.f = 2 S***
a.Diabetes Mellitus	6	20.0	
b. Hypertension	8	26.67	
c. Diabetes Mellitus & Hypertension	10	33.33	
d. Nil	6	20.0	

\*p<0.05, \*\*\*p<0.001, S – Significant, N.S – Not Significant

The above table shows the association of post test level of pain among patients subjected to cardiac surgery with demographic variables was done by using chi square similarity test. It was found that, post test level of pain has significant association with gender, family income per month, marital status, personal habits and co morbid illness at p<0.001 and p<0.05 level of significance.

## SECTION H

**Table 9: Association of post test level of anxiety in the Therapeutic back massage group with the demographic variables.** n = 30

Demographic Variables	Mild		Moderate		Chi-Square Value
	No.	%	No.	%	
<b>Age</b>					$\chi^2 = 1.354$ d.f = 1 N.S
a. 20 - 30 years	2	6.67	0	0.00	
b. 31 - 40 years	1	3.33	0	0.00	
c. 41 - 50 years	5	16.67	2	6.67	
d. 51 - 60 years	17	56.67	3	10.00	
<b>Gender</b>					$\chi^2 = 1.5$ d.f = 1 N.S
a. Male	19	63.33	5	16.67	
b. Female	6	20.00	0	0.00	
<b>Educational Qualification</b>					$\chi^2 = 2.88$ d.f = 1 N.S
a. Non literate	5	16.67	1	3.33	
b. Primary	5	16.67	1	3.33	
c. Secondary	7	23.33	3	10.00	
d. Graduate	8	26.67	0	0.00	
<b>Occupation</b>					$\chi^2 = 2.52$ d.f = 3 N.S
a. Unemployed	13	43.33	2	6.67	
b. Self employed	3	10.00	1	3.33	
c. Govt. employed	4	13.33	2	6.67	
d. Private employed	5	16.67	0	0.00	
<b>Family income per month</b>					$\chi^2 = 0.932$ d.f = 2 N.S
a. Less than Rs.5000	0	0.00	0	0.00	
b. Rs.5001 - 10000	2	6.67	1	3.33	
c. Rs.10001 - 15000	14	46.67	3	10.00	
d. Above Rs.15000	9	30.00	1	3.33	
<b>Marital Status</b>					$\chi^2 = 2.07$ d. f= 1 N.S
a. Unmarried	1	3.33	0	0.00	
b. Married	24	80.00	5	16.67	
c. Widow/Widower	0	0.00	0	0.00	
d. Divorced	0	0.00	0	0.00	
<b>Personal Habits</b>					$\chi^2 = 5.04$ d.f = 4 N.S
a. Smoking	6	20.00	3	10.00	
b. Alcohol	4	13.33	1	3.33	
c. Smoking and Alcohol	6	20.00	0	0.00	
d. Betel chewing	2	6.67	1	3.33	
e. No bad habits	7	23.33	0	0.00	
<b>Dietary Pattern</b>					$\chi^2 = 0.545$ d.f = 1 N.S
a. Vegetarian	6	20.00	2	6.67	
b. Non-vegetarian	19	63.33	3	10.00	

<b>Demographic Variables</b>	<b>Mild</b>		<b>Moderate</b>		<b>Chi-Square</b>
<b>Co-morbid Illness</b>					$\chi^2 = 4.59$ d.f = 3 N.S
a. Diabetes Mellitus	5	16.67	2	6.67	
b. Hypertension	7	23.33	0	0.00	
c. Diabetes Mellitus & Hypertension	7	23.33	3	10.00	
d. Nil	6	20.00	0	0.00	

N.S – Not Significant

The above table shows the association of the post test level of anxiety among patients subjected to cardiac surgery with the demographic variables, was done by using chi square test. It was found that there was no significant association with the demographic variables.

**Table 10: Association of post test level of anxiety in the Back massage group with the demographic variables.**

n = 30

Demographic Variables	Mild		Moderate		Chi-Square Value
	No.	%	No.	%	
<b>Age</b>					$\chi^2 = 0.75$ d.f = 1 N.S
a. 20 - 30 years	0	0.00	0	0.00	
b. 31 - 40 years	0	0.00	0	0.00	
c. 41 - 50 years	7	23.33	3	10.00	
d. 51 - 60 years	13	43.34	7	23.33	
<b>Gender</b>					$\chi^2 = 0.938$ d.f = 1 N.S
a. Male	18	60.00	7	23.33	
b. Female	2	6.67	3	10.00	
<b>Educational Qualification</b>					$\chi^2 = 0.129$ d.f = 3 N.S
a. Non literate	2	6.67	2	6.67	
b. Primary	5	16.67	1	3.33	
c. Secondary	6	20.00	3	10.00	
d. Graduate	7	23.33	4	13.33	
<b>Occupation</b>					$\chi^2 = 1.187$ d.f = 3 N.S
a. Unemployed	10	33.34	3	10.00	
b. Self employed	2	6.67	1	3.33	
c. Govt. employed	4	13.33	3	10.00	
d. Private employed	4	13.33	3	10.00	
<b>Family income per month</b>					$\chi^2 = 0.281$ d.f = 3 N.S
a. Less than Rs.5000	1	3.33	1	3.33	
b. Rs.5001 – 10000	2	6.67	1	3.33	
c. Rs.10001 – 15000	6	20.00	3	10.00	
d. Above Rs.15000	11	36.67	5	16.67	
<b>Marital Status</b>					$\chi^2 = 0$
a. Unmarried	0	0.00	0	0.00	
b. Married	20	66.67	10	33.33	
c. Widow/Widower	0	0.00	0	0.00	
d. Divorced	0	0.00	0	0.00	
<b>Personal Habits</b>					$\chi^2 = 5.813$ d.f = 4 N.S
a. Smoking	10	33.33	2	6.67	
b. Alcohol	2	6.67	0	0.00	
c. Smoking and Alcohol	3	10.00	5	16.67	
d. Betel chewing	1	3.33	1	3.33	
e. No bad habits	4	13.33	2	6.67	
<b>Dietary Pattern</b>					$\chi^2 = 2.308$ d.f = 1 N.S
a. Vegetarian	4	13.33	0	0.00	
b. Non-vegetarian	16	53.34	10	33.33	

<b>Demographic Variables</b>	<b>Mild</b>		<b>Moderate</b>		<b>Chi-Square</b>
<b>Co-morbid Illness</b>					$\chi^2 = 1.800$ d.f = 3 N.S
a. Diabetes Mellitus	4	13.33	2	6.67	
b. Hypertension	5	16.67	4	13.33	
c. Diabetes Mellitus & Hypertension	7	23.33	2	6.67	
d. Nil	4	13.33	2	6.67	

N.S – Not Significant

The above table shows the association of the post test level of anxiety among patients subjected to cardiac surgery with the demographic variables was done by using chi square test. It was found that there was no significant association with the demographic variables.



## **CHAPTER – V**

### **DISCUSSION**

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 effectiveness of two back massage Techniques on level of pain and anxiety among patients subjected to Cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai.

#### **The objectives were**

1. To assess the pre test level of pain and anxiety among Therapeutic back massage group and Back massage group
2. To assess the post test level of pain and anxiety among Therapeutic back massage group and Back massage group.
3. To compare the effectiveness on level of pain and anxiety between the Therapeutic back massage group and Back massage group.
4. To associate the post test level of pain and anxiety with the demographic variables among Therapeutic back massage group and Back massage group.

The demographic variables selected for the study were age, gender, educational qualification, occupation, family income per month, marital status, personal habits, dietary pattern, and co- morbid illness. With respect to the age, majority of the patients in the Therapeutic back massage group and Back massage group 20(66.67%) were in the age group of 51-60 years. Regarding the gender, majority of them in Therapeutic back massage group and Back massage group, were 24(80%) males. Considering the educational qualification majority of them in the Therapeutic back massage group were 9(30%) secondary and graduate, in the Back massage group were 11(36.67) graduate, regarding the occupation majority of them in the Therapeutic back massage group were 15(50%) unemployed, in the Back massage group were 13(43.34%) unemployed and regarding family income per month majority of them in the Therapeutic back massage group 17(56.67%) had monthly income between Rs.10001-15000, in the Back massage group 16(53.33%) had monthly income more than Rs.15000.

Considering the marital status majority of them in the Therapeutic back massage group 29(96.67%) were married, in Back massage group 30(100%) were married and regarding the personal habits majority of them in the Therapeutic back massage group 9(30%) had the habits of smoking, in the Back massage group 12(40%) had the habit of smoking. With respect to the dietary pattern majority of them in the Therapeutic back massage group 22(73.33%) were non vegetarian, in the Back massage group 26(86.67%) were non vegetarian, considering the co-morbid illness majority of them in the Therapeutic back massage and Back massage group 10(33.34%) had Diabetes mellitus and Hypertension.

**The first objective was to assess the pre-test level of pain and anxiety among Therapeutic back massage group and Back massage group.**

The majority of the patients in the Therapeutic back massage group, in day 1 and day 2, 30(100%) of them had severe pain, in day 3, 17(56.66%) of them had moderate pain, in day 4, 26(86.66%) of them had moderate pain. In the Back massage group, in day 1 and day 2, 30(100%) of them had severe pain, in day 3, 24(80%) of them had moderate pain, in day 4, 30(100%) of them had moderate pain. Considering the anxiety, in the Therapeutic back massage group, majority of them 25(83.33%) had moderate anxiety, in the Back massage group majority of them 27(90%) had moderate anxiety.

Greszta et.al (2008), conducted a study in Waraszawa, to investigate the relationship of post operative pain following CABG surgery with two variables level of pre operative anxiety and level of anxiety trait. 83 male patients were randomly selected for the study. Anxiety state and anxiety trait were measured in the pre operative period using a polish version of STAI. Post operative pain were measured using modified version of McGill pain questionnaire. The result showed that a significant relationship on the level of pre operative anxiety state and anxiety trait with the degree of pain regression within the post operative wound following the administration of medication was found  $p < 0.01$  and  $p = 0.001$  respectively. So it was concluded that there was significant relationship of anxiety and pain.

**The second objective was to assess the post test level of pain and anxiety among Therapeutic back massage group and Back massage group.**

After providing the Therapeutic back massage and Back massage, in the Therapeutic back massage group, majority of them in day 1, 20(66.66%) of them had moderate pain, in day 2, 30(100%) of them had moderate pain, in day 3, 18(60%) of them had mild pain, in day 4, 30(100%) of them had mild pain. In the Back massage group majority of them in day 1, 17(56.66) had severe pain, in day 2, 25(83.33%) of them had moderate pain, in day 3, 10(33.33%) of them had mild pain, in day 4, 30(100%) of them had mild pain. Considering the anxiety, in the Therapeutic back massage majority of them 25(83.33) had mild anxiety, in the Back massage group 20(66.67%) of them had mild anxiety.

Twenty minutes of Therapeutic back massage was provided to the therapeutic back massage group from lower back to neck from second post operative day to fifth post operative day. Twenty minutes of Back massage was provided to the Back massage group from buttocks to the neck from second post operative day to fifth post operative day in reducing pain and anxiety. It was concluded that Therapeutic back massage and Back massage were effective in reduction of pain and anxiety among patients subjected to Cardiac surgery.

The present study finding were consistent with the findings of the study conducted by Cutshall et.al (2009), conducted a study in the United states of America to assess the role of massage therapy among clients underwent cardiac surgery with the aims of determining the difference in pain, anxiety, tension and satisfaction scores of patients before and after massage. Patients in the interventions group received a 20 minutes session of massage therapy between post operative days 2 and 5, patients in the control group received a standard care and a 20 minutes quiet time between post operative days 2 and 5. Massage showed decrease in pain, anxiety and tension scores. It was concluded that massage can be successfully incorporated into a busy cardiac surgical practice.

**The third objective was to compare the effectiveness on level of pain and anxiety between the Therapeutic back massage group and Back massage group.**

The comparison of effectiveness on level of pain and anxiety between the Therapeutic back massage and Back massage group among patients subjected to cardiac

surgery, was done by using repeated ANOVA test. In the Therapeutic back massage group, there was a decrease in the level of pain from 6.26 to 1.60 and in the Back massage group there was a decrease in the mean level of pain from 6.70 to 2.03 was found to be significant at  $p=0.028$  (day 1),  $p=0.021$  (day 2),  $p<0.001$ (day 3) ,  $p=0.023$  (day 4) level of significance. Hence the null hypothesis  $H_{01}$  states that there is no significant reduction in the level of pain between the therapeutic back massage and back massage was rejected.

Comparison of the level of anxiety between the Therapeutic back massage group and the Back massage group among patients subjected to cardiac surgery was done by using paired “t” test. There was a decrease in mean level of anxiety between the Therapeutic back massage group and Back massage group, and the difference was from 38.33 to 30.36 and the standard deviation from 7.13 to 7.043 was found to be significant at  $p<0.001$ . Hence the null hypothesis  $H_{02}$  states that there is no significant reduction in the level of anxiety between the Therapeutic back massage group and Back massage group among patients subjected to cardiac surgery was rejected.

**The fourth objective was to associate the post test level of pain and anxiety with the demographic variables among Therapeutic back massage group and Back massage group.**

Association of the post test level of pain among patients subjected to cardiac surgery was done by using chi-square similarity test. It was found that in the Therapeutic back massage group, age, gender, family income per month, marital status, and dietary pattern were significant. In the back massage group gender, family income per month, marital status, personal habits and co morbid illness were significant.

Considering the association of the post test level of anxiety among patients subjected to cardiac surgery with the demographic variables, was done by using chi square test. It was found that there was no significant association with the demographic variables.

The present study findings were consistent with the findings of the study conducted by Parry M (2010), conducted a study in Canada, to assess the pain experiences of men and women after coronary artery bypass graft surgery. The objective of the study was to

compare the prevalence and severity of pain and pain-related interference with activities in men and women 9 weeks after CABG surgery. Participants included men (n=78) and women (n=17) who were having first time nonemergency CABG surgery .47% of the women (n=8) had moderate to severe pain. There was a statistically significant between-groups difference, with more women reporting moderate to severe pain with movement (p=.03) with walking (p=.01) and sleeping (p=.01) due to pain.

The conceptual framework used in this study was based on Wiedenbach's Helping Art of clinical Nursing Theory. In this model, nursing as an art based on goal directed care. Identifying the need for help, ministering the needed help, validating that the needed help was met.

In the present study the investigator considered the patients subjected to cardiac surgery as a person who were suffering from pain and anxiety. In this study the investigator assessed the general information, which includes the demographic variables and also assessed the pre test level of pain and anxiety among patients subjected to cardiac surgery. The central purpose is to decrease the level of pain and anxiety among patients subjected to cardiac surgery.

Ministering the needed help, in the present study the investigator planned administration of Therapeutic back massage for 20 minutes to Therapeutic back massage group, Back massage for 20 minutes to Back massage group, for four days from second post operative day to fifth post operative day.

Validating that the needed help was met, in the present study it can be either be no pain and anxiety or reduced to mild pain and anxiety. On mild pain and anxiety, the subject were reinstitute either the Therapeutic back massage or Back massage in the same way or in a modified way.

The study concluded that the patients subjected to cardiac surgery had mild pain and anxiety in Therapeutic back massage group and in the Back massage group. Hence Therapeutic back massage and the Back massage can be incorporated as an effective pain and anxiety reduction measure, which gives comfort to the patients.

## **CHAPTER – VI**

### **SUMMARY, NURSING IMPLEMENTATION, RECOMMENDATION AND LIMITATIONS**

This chapter represents summary, nursing implications, recommendations and limitations of the study.

#### **SUMMARY**

Pain produces tension which may stimulate the central nervous system to release adrenaline, which results in constriction of the arterioles and increased heart rate. This can cause increased after load and decreased cardiac output.

Pain intensity may range from mild to severe to agonizing is experienced as having qualities such as sharp, throbbing, dull, nauseating, burning and shooting. It often has both an emotional quality and a sensed bodily location.

All people experience some degree of anxiety as they face new challenging or threatening life situations. In clinical settings fear of the unknown, unexpected news about one's health and any impairment of bodily functions engenders anxiety.

Massage is the manipulation of superficial layers of muscle and connective tissue to enhance the function and promote relaxation and well being. Massage involves acting on and manipulating the body with pressure-structured, unstructured, stationary or moving-tension, motion or vibration done manually or with mechanical aids. Target tissues may include muscles, tendons, ligaments, skin, joints or other connective tissue as well as lymphatic vessel or organs of the gastrointestinal system. Massage can be applied with the hands, fingers, elbows, knees, forearm and feet. The most cited reason for introducing massage as therapy have been client demand and perceived clinical effectiveness

#### **The objectives of the study were**

1. To assess the pre test level of pain and anxiety among Therapeutic back massage group and Back massage group

2. To assess the post test level of pain and anxiety among Therapeutic back massage group and Back massage group.
3. To compare the effectiveness on level of pain and anxiety between the Therapeutic back massage group and Back massage group.
4. To associate the post test level of pain and anxiety with the demographic variables among Therapeutic back massage group and Back massage group.

**Assumptions of study were:**

1. Most of the patients underwent cardiac surgery may have pain and anxiety.
2. Pain and anxiety scores may vary from one individual to another.
3. Therapeutic back massage and Back massage may have some effect on pain and anxiety.

**Hypothesis formulated were**

**H<sub>01</sub>:** There is no significant difference between Therapeutic back massage and Back massage on level of pain among patients subjected to cardiac surgery.

**H<sub>02</sub>:** There is no significant difference between Therapeutic back massage and Back massage on level of anxiety among patients subjected to cardiac surgery.

**Review of literature**

SECTION-A: General information related to Back massage.

SECTION-B: General information related to Therapeutic back massage

SECTION-C: Studies related to pain and anxiety among patients subjected to cardiac surgery

SECTION-D: Studies related to Back massage

SECTION-E: Studies related to Therapeutic back massage.

**Conceptual framework**

The conceptual frame work for the study was based on Wiedenbach's Helping Art of clinical Nursing Theory and provided a comprehensive frame work for achieving the objective of the study.

According to Wiedenbach's Helping Art of clinical nursing, the agent was the investigator, recipient was the patients subjected to cardiac surgery, goal was to reduce

the level of pain and anxiety, means was the Therapeutic back massage and Back massage, frame work was the inpatient ward.

The Quasi experimental research design was adopted by the researcher to evaluate the effectiveness of two back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery and non probability purposive sampling technique was used to select the samples. The number of sample was restricted to 60, (30 in the Therapeutic back massage group and 30 in the Back massage group).

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

Section I : Demographic variables

Section II : Numerical pain assessment scale

Section III : Self administered modified Spielberger state anxiety inventory scale

#### **Major finding of the study were:**

The majority of the patients in the Therapeutic back massage group, in day 1 and day 2, 30(100%) of them had severe pain, in day 3, 17(56.66%) of them had moderate pain, in day 4, 26(86.66%) of them had moderate pain. In the Back massage group, in day 1 and day 2, 30(100%) of them had severe pain, in day 3, 24(80%) of them had moderate pain, in day 4, 30(100%) of them had moderate pain. Considering the anxiety, in the Therapeutic back massage group, majority of them 25(83.33%) had moderate anxiety, in the Back massage group majority of them 27(90%) had moderate anxiety.

After providing the Therapeutic back massage and Back massage, in the Therapeutic back massage group, majority of them in day 1, 20(66.66%) had moderate pain, in day 2, 30(100%) of them had moderate pain, in day 3, 18(60%) of them had mild pain, in day 4, 30(100%) of them had mild pain. In the Back massage group majority of them in day 1, 17(56.66) had severe pain, in day 2, 25(83.33%) of them had moderate pain, in day 3, 10(33.33%) of them had mild pain, in day 4, 30(100%) of them had mild pain. Considering the anxiety, in the Therapeutic back massage majority of them 25(83.33%) had mild anxiety, in the Back massage group 20(66.67%) of them had mild anxiety.



Twenty minutes of Therapeutic back massage was provided to the therapeutic back massage group from lower back to neck from second post operative day to fifth post operative day. Twenty minutes of Back massage was provided to the Back massage group from buttocks to the neck from second post operative day to fifth post operative day on reducing pain and anxiety. It was concluded that Therapeutic back massage and Back massage were effective in reduction of pain and anxiety among patients subjected to Cardiac surgery.

The comparison of effectiveness between the Therapeutic back massage and Back massage group among patients subjected to cardiac surgery, was done by using repeated ANOVA test. In the Therapeutic back massage group, there was a decrease in the mean level of pain from 6.26 to 1.60 and in the Back massage group there was a decrease in the level pain from 6.70 to 2.03 was found to be significant at  $p=0.028$  (day 1),  $p=0.021$ (day 2),  $p<0.001$ (day 3),  $p=0.023$ (day 4), level of significance.

Comparison of the level of anxiety between the Therapeutic back massage group and the Back massage group among patients subjected to cardiac surgery was done by using paired “t” test. There was a decrease in mean level of anxiety between the Therapeutic back massage group and Back massage group, and the difference was from 38.33 to 30.36 and the standard deviation from 7.13 to 7.043 was found to be significant at  $p<0.001$ . Hence the null hypothesis  $H_{01}$  and  $H_{02}$  states that there is no significant reduction on the level of pain and anxiety between the Therapeutic back massage group and Back massage group among patients subjected to cardiac surgery was rejected.

Association of the post test level of pain among patients subjected to cardiac surgery was done by using chi- square similarity test. It was found that in the Therapeutic back massage group, demographic variables such as age, gender, family income per month, marital status, and dietary pattern were significant. In the back massage group demographic variables such as gender, family income per month, marital status, personal habits and co morbid illness were significant.

Considering the association of the post test level of anxiety among patients subjected to cardiac surgery with the demographic variables, was done by using chi

square test. It was found that there was no significant association with the demographic variables among the Therapeutic back massage group and Back massage group.

## **NURSING IMPLICATIONS**

Society has tremendous technological advancement in day today life. Therefore the nurse practitioner in the nursing field can help in supporting the patients with pain and anxiety.

### **Nursing Practice**

1. The role of the nurse will help to encourage the patients to 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. Therapeutic back massage and Back massage can be made to practice as a routine nursing care.
4. Develop ability to exhibit coping ability of the patients with pain and anxiety.
5. Understand importance of massage as an alternative complementary therapy in the field of nursing.

### **Nursing Education**

1. Teach the students regarding the importance and effectiveness of Therapeutic back massage and Back massage.
2. Provide exposure to various alternative complementary therapy and encourage the student to participate in the specialization and expand their carrier.
3. Motivate the student to apply massage therapy to patients with pain and anxiety when they are 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 effective utilization of research based practice.

### **Nursing Administration**

1. Continuing education program and in service education program can be conducted on the use of Therapeutic back massage and Back massage and its wide range of benefits on pain and anxiety management.
2. Nurses should be encouraged to use either Therapeutic back massage or Back massage for pain and anxiety management.
3. Arrange for public awareness program regarding the importance of cost effective measure on pain and anxiety management.
4. Provide opportunity for nurses to attend training program on pain and anxiety management.

### **Nursing Research**

1. More researches can be performed in order to establish the benefits of Therapeutic back massage and Back massage world wide.
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. Similar study can be conducted with large samples for better generalization.
2. The study can be done by using true experimental design.
3. The study can be done on cancer patients.

### **LIMITATION**

The researcher found difficulty in collecting review of literature and the review of literature does not contain Indian studies.

## **APPENDIX – A**

### **LIST OF EXPERTS FOR CONTENT VALIDITY**

- 1. Mrs. Hemasuresh, R. N., R.M., M.Sc (N).,**  
Vice Principal,  
Medical – Surgical Nursing,  
Meenakshi College of Nursing.
  
- 2. Mrs. Kavinmozhi, R. N., R.M., M.Sc (N).,**  
Principal,  
Medical – Surgical Nursing,  
Right College of Nursing.
  
- 3. Mrs. Jolly Ranjith, R. N., R.M., M.Sc (N).,**  
Reader,  
Medical – Surgical Nursing,  
Omayal Achi College of Nursing.
  
- 4. Mrs.Porkodi, R. N., R.M., M.Sc (N).,**  
Professor,  
Medical Surgical Nursing,  
Sri Ramachandra College of Nursing.
  
- 5. Dr.Anbzhagan M.D.,**  
Associate Professor in Medicine,  
Meenakshi Medical College and Research Institute,  
Enathur.

## LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

**Mrs.R.Uma**  
M.Sc.(N) I Year,  
Vel R.S Medical College – College of Nursing,  
Avadi, Chennai – 600 062.

**To**

Respected Madam/Sir,

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

I am Mrs. R. Uma, a student of M.Sc.(Nursing)- I year at Vel R.S Medical College - College of Nursing, Avadi, Chennai – 62, affiliated to Dr.M.G.R.Medical University, Chennai.

As a partial fulfillment of the requirement in the M.Sc. Nursing Programme, I have to complete a dissertation the topic I have selected is **“A study to assess the effectiveness of two back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai, 2010 – 11.”**

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

Thanking you,

Yours sincerely,

**R.Uma**

**Enclosures:**

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

## **CERTIFICATE FOR CONTENT VALIDITY**

This is to certify that the tools developed by Mrs. R. Uma, M.Sc. Nursing student Vel R.S. Medical College – College of Nursing, Chennai on the topic, **A study to assess the Effectiveness of Two back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai, 2010 – 11.”.** is validated by the undersigned and she can proceed with this tool to conduct the main study.

**Place :**

**Date :**

**Signature**

## **APPENDIX – B**

### **INTRODUCTION**

Dear Participants,

I am Mrs. R. Uma, M.Sc (N) II year student from Vel R.S.Medical College - College of Nursing, Avadi, Chennai. I would like to assess the effectiveness of two Back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery. The massage which is being performed on you will not harm you and request you to participate in the study. In between if you want to withdraw you have the full right to do that. Numerical pain rating scale will be given to you and you have to indicate the pain score and at the same time regarding the anxiety self administered questionnaire will be given to you which contains four responses and you have select the responses. 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

## SECTION – I: DEMOGRAPHIC VARIABLES

1. Age ( )
  - a. 20-30 years
  - b. 31-40 years
  - c. 41-50 years
  - d. 51-60 years
  
2. Gender ( )
  - a. Male
  - b. Female
  
3. Educational Qualification ( )
  - a. Non literate
  - b. Primary
  - c. Secondary
  - d. Graduate
  
4. Occupation ( )
  - a. Unemployed
  - b. Self employed
  - c. Govt. employed
  - d. Private employed
  
5. Family income per month ( )
  - a. Less than Rs.5000
  - b. Rs.5001-10000
  - c. Rs.10001-15000
  - d. Above Rs.15000
  
6. Marital status ( )
  - a. Unmarried



- b. Married
- c. Widow/Widower
- d. Divorced

7. Personal Habits ( )

- a. Smoking
- b. Alcohol
- c. Smoking and alcohol
- d. Betel chewing
- e. No bad habits

8. Dietary Pattern ( )

- a. Vegetarian
- b. Non-vegetarian

9. Co-morbid illness ( )

- a. Diabetes Mellitus
- b. Hypertension
- c. Diabetes Mellitus and Hypertension
- d. Nil

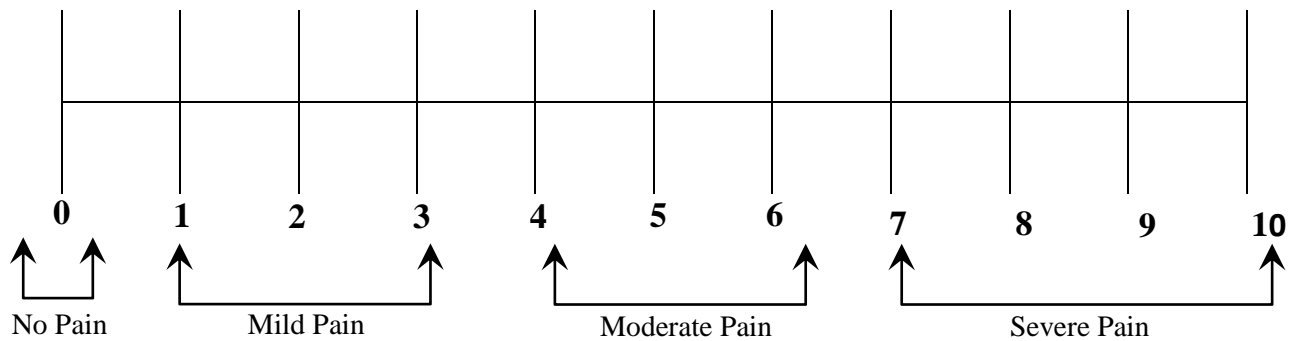
## SECTION – II: NUMERICAL PAIN RATING SCALE

**Purpose** : This scale was designed to assess the pain score among the patients subjected to cardiac surgery.

**Instructions:**

Kindly indicate the pain score which was given below.

The information collected through this exercise will be confidential and exclusively used Purpose



## SECTION – III: SELF ADMINISTERED MODIFIED SPIELBERGER STATE ANXIETY INVENTORY SCALE

**Purpose:** Self administered questionnaire was designed to assess the anxiety level among the patients subjected to cardiac surgery.

**Instructions:**

Kindly respond all questions listed below and not leave any questions unanswered.

The information collected through this exercise will be confidential and exclusively used purpose.

RESPONSE CATEGORIES	NOT AT ALL (1)	A LITTLE (2)	SOME WHAT (3)	VERY MUCH (4)
<b>PHYSICAL RESPONSE</b> 1. Do you feel tense 2. Do you feel strain 3. Do you feel at ease 4. Do you feel satisfied 5. Do you feel comfortable 6. Do you feel nervous 7. Do you feel relaxed 8. Do you feel steady				
<b>PSYCHOLOGICAL RESPONSE</b> 1. Do you feel upset 2. Do you presently worrying over possible misfortunes 3. Do you feel indecisive 4. Do you feel frightened 5. Do you feel content				
<b>EMOTIONAL RESPONSE</b> 1. Do you feel calm 2. Do you feel secure 3. Do you feel self confident 4. Do you feel jittery 5. Do you feel worried 6. Do you feel confused 7. Do you feel pleasant				

**SCORING**

<20 No anxiety

21- 40 Mild anxiety

41- 60 Moderate anxiety

61- 80 Severe anxiety

## முடிவுரை

வணக்கம்.

நான் வேல் ஆர்.எஸ் மருத்துவ கல்லூரி-செவிலியர் கல்லூரியில் இரண்டாம் ஆண்டு முதுகலை செவிலியர் கல்வி பயிலும் மாணவி. நான் என் படிப்பின் ஒரு பகுதியாக இருதய அறுவை சிகிச்சை செய்த நோயாளிகளுக்கு இரண்டு வகையான முதுகை மிருதுவாக அழுத்தும் பயிற்சியின் மூலம் வலி மற்றும் பதட்ட நிலை குறையும் என்பதை பற்றிய ஒரு ஆய்வை நடத்துகின்றேன். இதன் தொடர்பாக நான் தங்களை எனது ஆய்வின் பங்கேற்பாளராக இணைத்துக் கொள்ள மிக தாழ்மையுடன் கேட்டுக்கொள்கிறேன். இதன் தொடர்பாக நான் கேட்கும் கேள்விகளுக்கு சரியான உங்கள் பதிலை தெரிவிக்கவும். உங்கள் பதிலை நான் என் ஆய்விற்காக மட்டுமே பயன் படுத்துவேன் என்று உறுதியளிக்கிறேன்.

நன்றி!

**பகுதி-அ : தனி நபர் விவரம்**

1. வயது ( )
  - அ) 20 - 30 வருடங்கள்
  - ஆ) 31 - 40 வருடங்கள்
  - இ) 41 - 50 வருடங்கள்
  - ஈ) 51 - 60 வருடங்கள்
  
2. பாலினம் ( )
  - அ) ஆண்
  - ஆ) பெண்
  
3. கல்வித்தகுதி ( )
  - அ) படிப்பறிவில்லாதவர்
  - ஆ) ஆரம்பக் கல்வி
  - இ) மேனிலைக் கல்வி
  - ஈ) பட்டதாரி
  
4. தொழில் ( )
  - அ) வேலையில்லாதவர்
  - ஆ) சுயவேலை
  - இ) அரசுப் பணி
  - ஈ) தனியார் பணி
  
5. குடும்ப மாத வருமானம் ( )
  - அ) ரூ.5000க்கு குறைவாக
  - ஆ) ரூ.5001 - 10000
  - இ) ரூ.10001 - 15000
  - ஈ) ரூ.15,000க்கு மேல்

6. திருமணத்தகுதி ( )

அ) திருமணமாகாதவர்

ஆ) திருமணமானவர்

இ) விதவை/மனைவியை இழந்தவர்

ஈ) விவாகரத்தானவர்

7. பழக்கவழக்கம் ( )

அ) புகைப்பிடித்தல்

ஆ) குடிப்பழக்கம் உள்ளவர்

இ) புகை மற்றும் குடிப்பழக்கம் உள்ளவர்

ஈ) வெற்றிலை பழக்கம் உள்ளவர்

உ) எந்த பழக்கமும் இல்லை

8. உணவுப்பழக்கம் ( )

அ) சைவம்

ஆ) அசைவம்

9. நோய் ( )

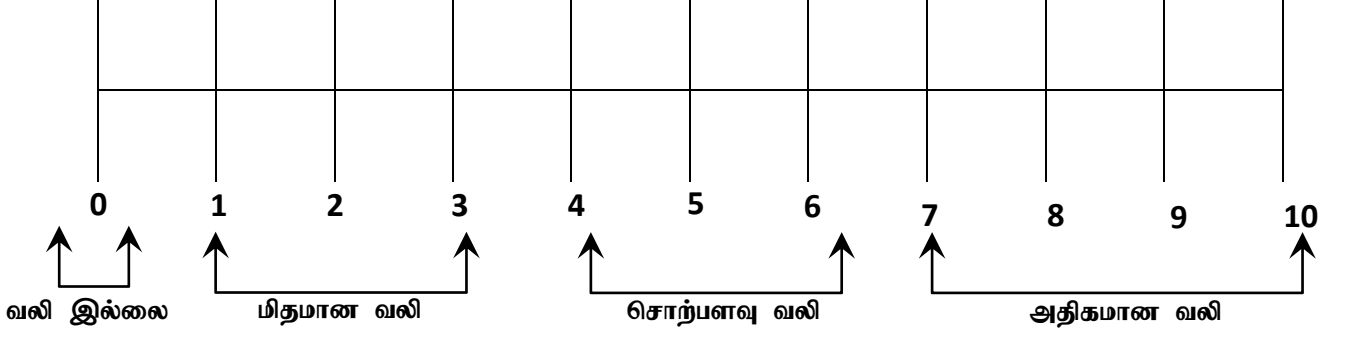
அ) நீரிழிவு நோய்

ஆ) இரத்தக்கொதிப்பு

இ) நீரிழிவு நோய் மற்றும் இரத்தக்கொதிப்பு

ஈ) ஏதுமில்லை

## வலியை அளவிடும் அளவை



**சுயமாக அளிக்கப்பட்ட மாற்றப்பட்ட ஸ்பீல்பெர்க் பதட்டத்தை  
மதிப்பிடும் அளவை**

பதிதலின் வகைகள்	ஒன்றும் இல்லை (1)	சிறிதளவு (2)	குறைந்த அளவு (3)	மிகவும் அதிகம் (4)
<b>உடல்ரீதியான பதிவுகள்</b> 1. நீங்கள் இறுக்கமாக உணர்கிறீர்களா? 2. நீங்கள் கடினமாக உணர்கிறீர்களா? 3. நீங்கள் எளியதாக உணர்கிறீர்களா? 4. நீங்கள் திருப்தியாக உணர்கிறீர்களா? 5. நீங்கள் செளகரியமாக உணர்கிறீர்களா? 6. நீங்கள் பதட்டமாக உணர்கிறீர்களா? 7. நீங்கள் ஆசுவாசமாக உணர்கிறீர்களா? 8. நீங்கள் நிதானத்தை உணர்கிறீர்களா?				
<b>மனநிலை சம்பந்தமான பதிவுகள்</b> 1. நீங்கள் எரிச்சலாக உணர்கிறீர்களா? 2. நீங்கள் தற்போது எதிர்பாராமல் நடக்கப் போவதை நினைத்து வருந்துகிறீர்களா? 3. நீங்கள் அதிகபடியான நடுக்கம் உணர்கிறீர்களா? 4. நீங்கள் பயத்தை உணர்கிறீர்களா ? 5. நீங்கள் போதுமென்ற மனநிலையை உணர்கிறீர்களா?				
<b>உணர்வுபூர்வமான பதிவுகள்</b> 1. நீங்கள் அமைதியை உணர்கிறீர்களா? 2. நீங்கள் பாதுகாப்பாக உணர்கிறீர்களா? 3. நீங்கள் சுயநம்பிக்கையாக உள்ளீரா ? 4. நீங்கள் முடிவெடுக்க முடியாமல் உள்ளீரா? 5. நீங்கள் குழப்பத்தை உணர்கிறீர்களா ? 6. நீங்கள் மகிழ்ச்சியாக உள்ளீரா ?				

**மதிப்பீடு:**

1. <20 - பதட்டம் இல்லை
2. 21-40 - குறைந்த பதட்டம்
3. 41-60 - மிதமான பதட்டம்
4. 61-80 - அதிகப்படியான பதட்டம்



## APPENDIX – C



### 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

14/05/2010

To

The General manager  
Vijaya Heart Foundation  
Chennai.

Sub: Seeking permission for conducting main study.

Respected Sir/Madam,

This is to introduce Mrs.R.Uma (Medical Surgical Nursing )  
Master Degree Nursing student of this college. She has selected the following topic for  
her research study to be submitted to the Tamil Nadu Dr. MGR medical university as  
partial fulfillment of the master degree in nursing program.

The topic for the study is, " A study to assess the Effectiveness of Two Back  
Massage Techniques on level of pain and Anxiety among patients subjected to cardiac  
surgery at Vijaya Heart Foundation Chennai, "

She is interested in conducting the study at your esteemed institution. From 15/5/2010  
to 15/6/2010

I assure you that our student will abide by the rules and regulations of the  
setting. I request your at most help in regard to the same.

Thanking you!

  
Mrs.M.Anuradha

PRINCIPAL

VEL R. S. MEDICAL COLLEGE  
(COLLEGE OF NURSING)  
42, AVADI-ALAMATHI ROAD  
VELLANUR, CHENNAI-63

  
P. RAVINDRA REDDY  
ASST. GENERAL MANAGER  
VIJAYA HOSPITAL  
No. 180, N.S.K. SALAI  
CHENNAI - 600 026.



**Dr. V. BALCHANDAR**, M.P.T. (Neuro), Ph.D.  
Consultant Physical Therapist

Principal  
College of Physiotherapy  
Jaya College of Paramedical Sciences  
Chennai - 602 024.  
Email : balaisright@hotmail.com

Sri Jhanani Physiotherapy Clinic  
No.235/2, N.M. Road  
Avadi, Chennai - 600 054  
Mobile : 94440 11343  
Phone : 044-25022878

R

Date : . . . 29.3.10 . . . . .

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Mrs. R. UMA**, M.Sc., (N) Student (II year) Vel R.S. Medical College, College of Nursing had attended hands on clinical training in application of Back massage and Therapeutic back massage techniques in my clinic.

She had under gone these classes for application of this in her study, "**A Study to assess the effectiveness of two back massage techniques on level of pain and anxiety among patients subjected to Cardiac Surgery at Vijaya Heart Foundation, Chennai**". I sincerely appreciate her efforts in mastering these techniques and assure that she can treat all patients with due care & with appropriate techniques.

We wish her good luck and success in her study.

Signature

**Dr. V. Balchandar. M.P.T,MIAP.**  
PRINCIPAL  
JAYA COLLEGE OF PHYSIOTHERAPY  
THIRUNINDRAVUR

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work “**A study to assess the effectiveness of Two Back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai**”, was done by **Mrs. R. Uma**, II Year M.Sc(N) student of Vel. R.S. Medical college- college of Nursing, Avadi, Chennai, is edited for English Language appropriateness by **Mr.Elangovan M.A.,M. Ed.,**

Name *S. Elangovan*

Signature

*S. Elangovan*  
5/12/2020

**Govt. Hr. Sec. School  
Akkur  
T.V. Malai Dist - 631 701.**

CERTIFICATE FOR TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Tamil Version of Tool used for the dissertation work, “ **A Study to assess the effectiveness of Two Back massage techniques on level of pain and anxiety among patients subjected to cardiac surgery at Vijaya Heart Foundation, Vadapalani, Chennai**”, was done by **Mrs. R. Uma**, II Year M.Sc(N) student of Vel. R.S. Medical college- college of Nursing, Avadi, Chennai, is edited for Tamil Language appropriateness by

Name **S. MANIVELU**

Signature

**S.MANIVELU** M.Sc., Ed., M.Ed.,  
Tamil M.A., M.Phil.

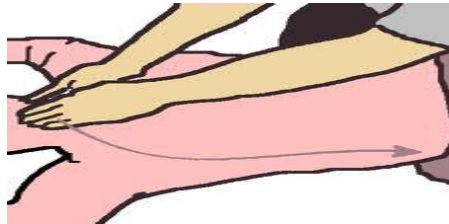
P.G. Teacher in Physics,  
Govt. Hr. Sec. School,  
THIRUPUKUZH - 631 551

## APPENDIX - D

### STEPS FOLLOWED DURING BACK MASSAGE

1. Explain the procedure to patient.
2. Perform hand hygiene.
3. Provide privacy to patient.
4. Place the patient to side lying position with the back exposed from the shoulders to the sacral area.
5. Warm the lubricants in the palm of your hands.

#### 6. Stroking (Effleurage)



Stroke the large surface of the patients back in long, smooth strokes with the palm of the hands. Upward in the middle and downward on the sides.

#### 7. Kneading (Petrissage)



Press on muscles groups or single muscle picking them up and squeezing them gently. Use palms of the hands for large muscles. Use fingers and thumbs for single muscle.

## **8. Tapping (Taptoment)**



Use a light tapping with the edge of the hands to stimulate circulation.

## **9. Friction**



Rub around the bony prominence of the patient's body, such as at the end of the spine and along each shoulder blade.

10. complete the massage with additional long stroking movements.

11. Perform hand hygiene.



## **STEPS FOLLOWED DURING THERAPEUTIC BACK MASSAGE**

1. Explain the procedure to patient.
2. Perform hand hygiene.
3. Provide privacy to patient.
4. Place the patient to side lying position with the back exposed from the lower back to the neck.
5. Apply powder on the back.

### **6. Superficial stroking**



Apply superficial stroking from proximal to the distal part of the back and vice versa

### **7. Effleurage or Deep stroking**



Place your hands beside each other and moves the palmar aspect of the hands and fingers over the external surface of the body with constant moderate pressure applied in the direction of the venous and the lymphatic drainage.

### **8. Circular Kneading**



Place one hand over the other and apply pressure in a circular way along the long axis of the back.

### 9. Skin Rolling



Lifts up and moves the skin between the thumb and the fingers with the both hands keeping a roll of the skin raised continuously ahead of moving thumb.

### 10. Hacking



Use the ulnar border of medial three fingers to strike the skin.

### 11. Tapping



Cup the hand and repeatedly touch and apply pressure along the long axis of the back.

12. At the end of each step apply superficial stroking and deep stroking.

13. Perform hand hygiene.