EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG POSTCAESAREAN MOTHERS AT SELECTED HOSPITALS, SALEM

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-Eileen Caddy

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ANNEXURES

ABSTRACT

"A Study was conducted to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Postcaesarean mothers at Selected Hospitals, Salem".

Quasi experimental pre test post test control group design was adopted. Non probability purposive sampling technique was used to select 60 postcaesarean mothers among which 30 were assigned to experimental group and 30 were assigned to control group. The data was collected using structured interview schedule. Pre test was done for both experimental and control group by using Numerical pain intensity scale. Hand and Foot Massage was given for the experimental group for 20 minutes two times a day at 4hrs for first two days (morning and evening) and withheld for control group. Post test was done for both experimental and control group by using the same scale. The study findings showed that in experimental group, 14(46.67%) of the postcaesarean mothers belong to the age group of 26-30 and 12(40%) of them belong to the age group of 21-25 years in control group 14(46.66%) of them belong to the age group of 21-25 years. In experimental group, 15(50%) had completed higher secondary education and in control group 12(40%) had higher secondary education. In experimental group, 23(76.67%) of them were unemployed, whereas in control group 20(66.67%) of them were unemployed. In experimental group 24(80%) were multi gravid, whereas in control group 17(56.67%) were multi gravid. In experimental group 24(80%) had previous history of caesarean section and in control group 15(50%) had history of both.

The mean pre test score in experimental group was 6.4±0.56 and mean post test score was 3.5±0.79. The 't' value was 33.72 which is significant at $p \leq 0.05$ level. Hence H_1 was retained at $p \leq 0.05$ level. The mean score in experimental group was 3.5±0.79 and mean score in control group was 6.1±0.65. The 't' value was 15.66 which was significant at $p \leq 0.05$ level. Hence H_2 was retained at $p \leq 0.05$ level. There was a significant association between educational status and pain among postcaesarean mothers in experimental group. Hence H_3 was retained at $p \leq 0.05$ level. There was no significant association between demographic variables and pain among postcaesarean mothers in control group. Hence H_3 was rejected at $p \geq 0.05$ level. Hence Hand and Foot Massage is one of the alternative and complementary therapies, which is simple, safe and cost effective and found to be effective in reducing pain after caesarean section and also promotes psychological wellbeing of the mother.

CHAPTER-I

INTRODUCTION

"Pain pays the income of each precious thing."

- William Shakespeare

Motherhood is a gift for every women. Pregnancy and birth are a unique experience. Giving birth to a new life is the most painful experience in a woman's life, though she experiences the happiness later by carrying the newborn. There are many different methods for child birth. Vaginal delivery is one of the most common and safest type of childbirth. When necessary in certain circumstances, forceps and vaccum delivery may be used. Although vaginal delivery is the most common, sometimes caesarean delivery is necessary for the safest of mother and baby.

Caesarean section is the most frequently performed surgery in the world. These are common than most surgeries due to many factors, one factor is certain, that nearly 50% of world population are women and pregnancy is still a common condition. A Caesarean section is a surgical procedure in which incision is made through a mother's abdomen and uterus to deliver one or more babies, or rarely, to remove a dead fetus. A caesarean section is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk, although in recent times it has been also performed upon request for childbirths that could otherwise have been natural. It has now become increasingly the procedure of choice in high risk pregnancies, to prevent perinatal morbidity and mortality.

WHO reviewed 1,07,950 births from nine countries in Asia including India, China, Japan, Nepal and Srilanka during 2007-2008, and found that 27% births were delivered by caesarean section. Rates of caesarean section in many countries have increased beyond the WHO recommended level of 15%, almost doubling in the last

decade, especially in high-income areas such as Australia, France, Germany, Italy, North America and UK. Similar trends have also been documented in developing countries such as Brazil, China and India, especially for births in private hospitals. Birth by Caesarean sections, has now started to increase, globally. Nearly one in every two births in China women is delivered by caesarean section, the rate is around two in five in Thailand and Vietnam and nearly one in five in India**. (Times of India, 2010)**

Pain is a complex, multifaceted phenomenon. It is an individual, unique experience that may be difficult to describe or explain, and often difficult for others to recognize and understand. Pain often leads to debilitation, diminished quality of life and depression. Pain management challenges every healthcare team member, for there is no single universal treatment. **(Black MJ, 2001)**

Surgery can lead to many problems like pain, anxiety, nausea and vomiting. Among these, pain is the major post-operative problem .The post-caesarean section pain is characterized as acute, that is, it presents a subtle beginning with a predictable end, and is closely related to the damage caused to the tissue due to the inflammatory reactions derived from a traumatic process, which produce pain. **(Tribioli RA, 2003)**

Acute and unrelieved pain can cause physical and mental complications, delayed recovery and prolonged hospitalization. Although analgesia is used to relieve pain, its complication, unavailability, necessity of taking low drug and also ineffectiveness of using analgesia alone to relieve pain has focused today's nursing system on complementary treatments and non pharmacological Interventions**. (Degirmen N, et al., 2010)**

It is very important to control the analgesic load after caesarean section since it can pass through breast milk to the baby. A combination of complementary and

alternative therapy with analgesics can reduce the analgesic use, it minimizes side effects and is cost effective along with comforting the patient**. (Lowdermilk, 2007)**

It takes a long to recover from caesarean than from vaginal birth. The mother feels that they are handicapped by lack of mobility and pain. It is difficult for them to establish their maternal roles in the first few days after caesarean section as the pain relief with analgesics are inadequate**. (Orshan SA., 2008)**

Kolawole and Fawole, (2003) conducted a study on Postoperative pain management following caesarean section in University of llorin Teaching Hospital (UITH), llorin, Nigeria. Prospective descriptive design was used to assess the effectiveness of various common methods of analgesia used in hospital following caesarean section. This study was conducted over a period of 18 months. Pain assessment was carried out by 4-point Verbal Rating Scale of No pain, Mild, Moderate, and severe pain. The first 24hrs postoperatively was particularly painful for the patient with 79.6% and 54.6% reporting moderate to severe pain in the recovery room and day 1 respectively. The study results concluded that the pain remains a significant problem following surgical operation in our environment.

The new emerging measures in pain management are complementary therapies. The complementary interventions include cutaneous stimulation, massage, cold and hot therapies, transcutaneous electrical nerve stimulation, distractions, relaxation techniques, guided imagery and hypnosis. Complementary strategies based on sound research findings are needed to aid in post operative pain relief, along with pain medications**. (Wang, et.al., 2004)**

The word massage is derived from the Latin word “Massa” or green massein” or “masso” meaning to touch, handle, squeeze or knead. Massage or touch therapy is

natural almost instinctive way to care. By lightly touching, rubbing, the entire body causes comfort both physically and psychologically. **(Montague, 2001)**

Literature review reveals that the practice of massage originated from China, India and flourished in Persia. In India, massage therapy is licenced by The Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) under the Ministry of Health and Family Welfare (India) in March 1995. Massage therapy is based on Ayurveda, the ancient medicinal system that evolved around 600 BC. In ayurveda, massage is part of a set of holistic medicinal practices, contrary to the independent massage system popular in some other systems.

The purpose of massaging is to give comforts such as general relaxation in body, Reducing pain perception, good sleep, by affecting the locomotor system and the nervous system as well as cardiovascular system. Foot and hand massage is one of the cheapest and cost effective method to reduce pain among post operative patients.

Linsans Y.T, (2006) conducted a study in Eskisehir maternity hospital to assess the effect of hand and foot massage to control pain after caesarean section. The study result shows that there is an increased effect for hand and foot massage for pain after surgery. Most post operative patients experienced extreme pain and discomfort after a surgery. The level of pain and heart rate decreased while respiratory rate improved among those who underwent massage.

Need for the Study:

The incidence of caesarean section is steadily rising. In the last few decades, the caesarean section rates have increased dramatically in the developed countries. Thirty-two percent of all births in the United States occur by Caesarean section. The operations have been increasing steadily; and have become the most common surgery in American hospitals**. (Bhasin Rajourna S.K, 2007)**

The World Health Statistics (WHS), 2012, released on Wednesday, said 9% of all births in India were by Caesarean section. The latest figure has gone up to 5% since nearly one in 10 women in India, who gave birth between 2005 and 2010, had gone under the surgical knife. Deliveries through Caesarean are steadily increasing in India raising doubts on whether doctors are needlessly exposing women and infants to surgical risk. **(Times of India, 2012)**

A consistent increase has been observed in the rate of Caesarean section deliveries in most of the developed countries and in many developing countries, including India, over the last few decades. The pain presented after a caesarean section makes the recovery difficult and delays mother's contact with the newborns, besides being an obstacle to a good breastfeeding position, self-care, newborn care and to perform daily activities, such as sitting down, standing up, walking and performing personal hygiene activities. The effective management of postoperative pain is a fundamental human right and should be the cornerstone of ethical, patient centred nursing practice**. (Garton, et al., 2003)**

Alternative and complementary therapies are commonly used treatment modalities for pain relief in present days as it does not have side effects and also it is effective. These are a group of therapies and practices used in place of conventional medicines or used together with conventional medicines, for the purpose of increasing comfort or relaxation, maintaining, improving or restoring health and harmony of the body, mind, and spirit, improving coping mechanisms, reducing stress, relieving pain and/or increasing the client's sense of wellbeing. Massage is becoming a cost effective, non invasive approach to 'meaningful pain relief. **(American Holistic Nurses Association)**

An article published by kneaded bodyworks explained that, postnatal massage can relieve the stress of delivery by facilitating recovery of the postpartum woman and providing emotional support for the transition into motherhood. Regular foot massage therapy is especially helpful for post-cesarean mothers who are recuperating from major abdominal surgery, as well as the strain of pregnancy. Foot and hand massage has the potential to assist in pain relief. Massaging the feet and hands stimulates the mechanoreceptors that activate the "nonpainful" nerve fibers, preventing pain transmission from reaching consciousness. **(Kneaded Bodyworks Wellness Center)**

Wang HL, et.al., (2004) conducted an evaluative study at Clarion Health Partners Methodist Hospital in Indiana, to evaluate the effectiveness of hand and foot massage to decrease pain among postoperative patients including gastrointestinal, urological, gynaecological, head, neck or plastic surgery. The study design used for this study was pre-test post-test study design. The aim of the study is to investigate whether a 20-minute foot and hand massage [five minute in each extremity] could produce reduction of pain perception and sympathetic responses among postoperative patients. A convenience sample of 18 patients completed the Modified Brief Pain Inventories (mBPIs). The study result showed that a 56% decrease in pain intensity from 4.5 to 2.3 ($t=8.15$, $p<0.001$). Pain distress decreased from 4.00 to 1.88 ($t=5.683$, $p<0.001$). The heart rate also significantly decreased. The study findings concluded that the foot and hand massage appears to an effective, inexpensive, low risk, flexible, and easily applied strategy for pain management for postoperative patients.

Jaine Franz, (2004) conducted a study to evaluate the effect of foot massage on pain and physiological parameters on 62 women undergone caesarean section in Mayo clinic, UK. The massage group received a 30-minute foot massage in two

sessions, with 24-hours interval. The severity of pain in first session of foot massage was lower than control group, the severity of pain after second sessions was significantly reduced in case group in compare with control group. Diastolic blood pressure and respiratory rate did not vary between experimental and control groups. Thus the study results concluded that Foot massage appears to be a useful method for reducing pain in patients after caesarean section.

The researcher had found that many of the postnatal mothers, after a caesarean section suffered from pain. The researcher also noticed that most of the mothers were not able to breastfeed the babies because of increased pain after caesarean section. Physiological responses to pain create harmful effects that prolong the body's recovery after surgery. Patients routinely report mild to moderate pain even though pain medications have been administered. Complementary strategies based on sound research findings are needed to supplement postoperative pain relief using pharmacologic management. Foot and hand massage has the potential to assist in pain relief. The feet are the hardest worker of all body parts. Each part of the foot is linked to another, often distant, part of the body, with influence extending not just to the muscles but also to the vital organs as well. Foot and hand massage appears to be an effective, inexpensive, low risk, flexible and easily applied strategy for postoperative pain management. So, the researcher had felt there is a need to conduct the study regarding pain management after caesarean section.

Statement of the Problem:

A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Postcaesarean Mothers at Selected Hospitals, Salem.

Objectives:

1. To assess the pain among postcaesarean mothers in experimental and control group.
2. To evaluate the effectiveness of hand and foot massage on pain among postcaesarean mothers in experimental group.
3. To find out the association between pain with their selected demographic variables among postcaesarean mothers in experimental and control group.

Operational Definitions:

Evaluate:

It refers to the statistical measurement of pain among postcaesarean mothers in experimental group after hand and foot massage.

Effectiveness:

Effectiveness refers to the extent to which hand and foot massage technique reduces the pain among postcaesarean mothers as measured by numerical pain intensity scale.

Hand and Foot Massage:

It refers to manipulation of feet and hands of the post caesarean mothers by stroking, effleurage, pulling, squeezing and arch press by both palms of the investigator for 5 minutes in each extremities, adding to a total of 20 minutes for 2 times a day (morning and evening after 2hours of administration of pain medication) with liquid paraffin for first 2 days.

Pain:

Pain is a subjective feeling that is experienced by mothers from the day of caesarean section and first two days of hospitalization and is assessed by using numerical pain intensity scale.

Postcaesarean Mothers:

Both primi and multi mothers who have undergone elective caesarean section.

Assumption:

It was assumed that:

1. The mothers those who have undergone caesarean section may have some amount of pain.
2. Massage would be a complementary measure that will help to reduce the pain.

Hypotheses:

H_1: There will be a significant difference on pain among postcaesarean mothers in experimental group before and after hand and foot massage at $p \leq 0.05$ level.

H_2: There will be a significant difference in post-test score on pain among postcaesarean mothers in experimental and control group at $p \leq 0.05$ level.

H_3: There will be a significant association between pain with their selected demographic variables among postcaesarean mothers in experimental and control group at $p \leq 0.05$ level.

Delimitations:

The study was limited to,

1. women who have undergone elective caesarean section with spinal anesthesia after 4 hours of surgery.
2. 4 weeks of data collection.
3. 60 samples only.

Projected outcome:

This study was conducted to evaluate the effectiveness of hand and foot massage on pain among postcaesarean mothers. Findings of this study will provide an

opportunity for nurses for evidence based practice and will help them to implement complementary and alternative modalities to nursing practice.

Conceptual Framework:

Polit and Hungler, (1965) state that a conceptual framework is inter related concept on abstraction that is assembled together in some rational scheme by virtue of their relevance to a common scheme. It is a device that helps to stimulate research and the extension of knowledge by providing both direction and impetus. The present study was aimed at determining the effectiveness of hand and foot massage on pain among postcaesarean mothers. The conceptual frame work of this study was derived from gate control theory of pain.

Gate Control Theory of Pain:

The most widely used and accepted theory is that of **Melzack & Wall, (1965)**. These researchers have established that gentle stimulation actually inhibits the sensation of pain. Their gate control theory states that a neural or spinal gating mechanism occurs in the substantia gelatinosa of the dorsal horns of the spinal cord. The nerve impulses received by nociceptors, the receptors for pain in the skin and tissue of the body, are affected by the gating mechanism. It is the position of the gate that determines whether or not the nerve impulses travel freely to the medulla and the thalamus, thereby transmitting the sensory impulse or message, to the sensory cortex. The pain impulses will be carried out by the small diameter slow conducting A-delta and C fibers. Impulses travelled through small diameter fibers will open the "pain gate' and the person feels pain. Pain gate is also receiving impulses produced by stimulation of thermo receptors or mechanoreceptors transmitted via large diameter; myellinated A-delta fibers inhibit superimpose the small diameter impulses.

If the gate is closed, there is little or no conduction, for example distraction, counselling and massage techniques are ways to release endorphins, which close the gate. This prevents or reduces the client's perception of pain. If the gate is open, the impulses and messages pass and are transmitted freely. Therefore, when the gate is open, pain and sensation is experienced.

Many non pharmacological procedures such as hydrotherapy, music therapy (distraction), application of heat or ice, massage, vibration, TENS and movement stimulate the nerve endings connected with large diameter fibres which can produce a reduction of pain by closing the pain gate. Based on the principle of gate control theory, the following conceptual framework was developed. Methods used to reduce pain are influenced by selected demographic variables such as age, education, occupation, parity and previous history of caesarean section.

Pain:

Pain is a subjective feeling experienced by mothers from the day of caesarean section and first two days of hospitalization and is assessed by using numerical pain intensity scale.

Intervention:

Hand and foot massage was given for 5 minutes in each extremity, adding to a total of 20 minutes for 2 times a day with liquid paraffin for first 2 days in experimental group.

Stimulation of Pain Receptors:

Surgical trauma to the uterus due to Caesarean Section stimulates pain receptors in lower abdomen and lumbar area of the back. In control group there was more stimulation of pain receptors in these areas due to the close contact between the contracting uterus and abdominal and lower back structures. In case of experimental

group(Hand and foot massage), there was less stimulation of free nerve ending in the lower abdomen and lumbar area of back compared to the control group due to the distraction caused by hand and foot massage.

Travelling of Pain Impulses:

Normally pain impulses are travelling through small short conducting A-delta and C fibers. Impulses from stimulation will be distracted by hand and foot massage and decrease in pain perception produce a reduction of pain by closing the pain gate in experimental group.

Gating Mechanism:

Pain impulses after the Caesarean Section are transmitted through the spinal nerve segment of T_{11}-T_{12} and accessory lower thoracic and upper lower sympathetic nerves, which are travelled through (A-delta and C) small diameter and slow conducting amyelinated fibers and reach the pain gate and open the gate thus the mother perceives pain in the lower abdomen and lower back. Impulses from hand and foot massage travel through fast conducting myelinated A-delta fibers which impose small fibers and close the pain gate.

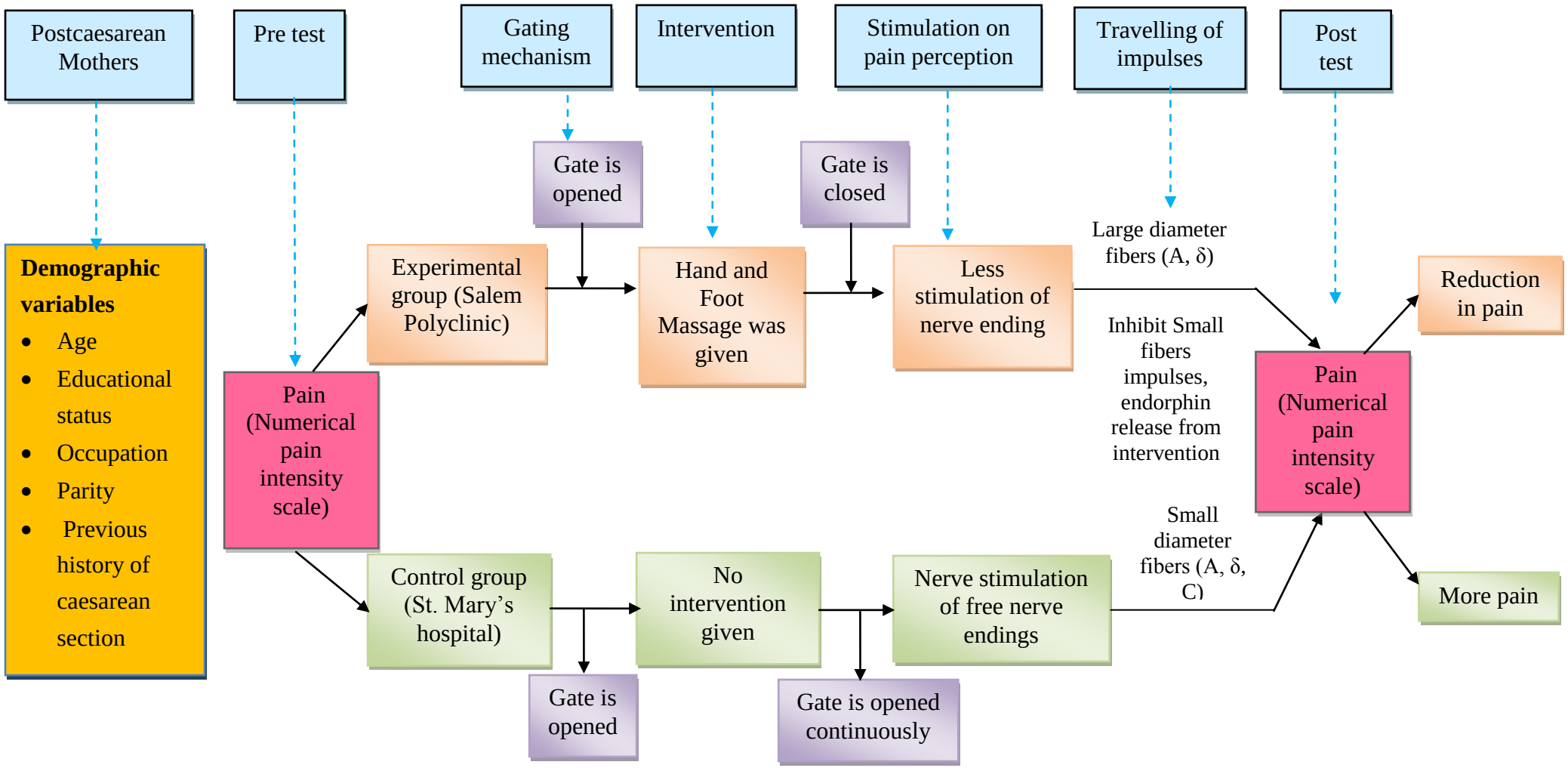

Figure-1.1: Conceptual Framework based on Wall & Melzack's Gate Control Theory (1965)

Summary:

This chapter dealt with need for the study, statement of the problem, objectives, assumptions, operational definition, hypotheses and conceptual framework.

CHAPTER – II

REVIEW OF LITERATURE

Review of literature provides the background for understanding the significance of new study. It equips the investigator to be familiar with the existing studies, provides basis for future investigator and also helps in the development of methodology.

The literature was reviewed and presented under the following headings,

- Literature related to postcaesarean pain.
- Literature related to alternative and complementary therapies on postcaesarean pain.
- Literature related to hand and foot massage on other variables.
- Literature related to effectiveness of hand and foot massage on post caesarean pain.

1. Literature related to postcaesarean pain:

Abbey J. Hardy-Fairbanks, et.al., (2013) conducted a prospective cohort study at Israel. The aim of the study was to assess the pain at rest and with activity, and the unpleasantness and location of pain on postpartum days 1 and 2. The tool used for the study was visual analogue pain scale. Informed consent was received from 126 samples. Out of them, 48 underwent caesarean delivery and 78 had vaginal delivery. The study findings concluded that there was no statistically significant differences in pain at rest and pain unpleasantness were found between groups on postpartum day 1, but women undergone caesarean section reported more pain with activity than those who had a vaginal delivery ($p < 0.0002$). On postpartum day 2, postcaesarean women reported significantly more pain when compared with those with a vaginal delivery ($p < 0.04$).In multivariate regression analyses, caesarean delivery was the most

significant predictor of activity-related pain on postpartum day 1 ($p< 0.00001$). The study result reveals that women undergone caesarean section required twice the dosage of analgesics on postpartum day 1 and four times greater amounts on postpartum day 2 relative to those with a vaginal delivery ($p< 0.01$ and $p< 0.001$).

C. S. L. Chooi, et.al., (2013) conducted a descriptive study at maternity care hospital in South America. The aim of the study was to determine how pain scores compare with comfort scores and the patients pain perception and experiences after caesarean section. 300 women were randomized before post-anaesthesia review. Group P women were asked to rate their pain on a (0–10) point verbal numerical rating scale (VNRS), where '0' was 'no pain' and '10' was 'worst pain imaginable'. Group C women were asked to rate comfort on a (0–10) point VNRS, where '0' was 'no comfort' and '10' was 'most comfortable'. All women were asked whether the Caesarean wound was bothersome, unpleasant, associated with tissue damage, and whether additional analgesia was desired. The median (inter-quartile range) VNRS pain scores was higher than inverted comfort scores at rest, 2 (1, 4) *vs* 2 (0.5, 3), p=0.001, and movement, 6 (4, 7) *vs* 4 (3, 5), $p<0.001$. Group P women were more likely to be bothered by their Caesarean section, had greater VNRS 'Bother' scores, 4 (2, 6) *vs* 1 (0, 3), $P<0.001$, perceived postoperative sensations as 'unpleasant' [relative risk (RR) 3.05, 95% confidence interval (CI) 2.20, 4.23], $p<0.001$, and related to tissue damage rather than healing and recovery (RR 2.03, 95% CI 1.30, 3.18), $P=0.001$. Group P women were also more likely to request additional analgesia (RR 4.33, 95% CI 1.84, 10.22), $p<0.001$.

Chin, et.al., (2012) was conducted a descriptive study at an academic medical center Chicago. The aim of the study was to assess the symptom experience of postpartum pain after cesarean birth, reflecting the 4 dimensions (sensory, affective,

cognitive, and behavioral) and 2 types (nociceptive and neuropathic) of pain after caesarean birth. 30 samples were selected. Data were collected at 24 to 48 hours after birth and at 6 weeks of postpartum. The tools used for the study were McGill Pain Questionnaire and open ended interview. The study concluded that the participants reported mild pain intensity on a (0-10) scale, at 24 to 48 hours mean pain score was 2.75 (+/- 1.8) and at 6 weeks 1.1 (+/- 2.4). In spite of these mild pain scores, most participants described their pain as aching, cramping and tender for many, these descriptions persisted upto 6 weeks. Most participants experienced their pain and were satisfied with their pain level. Pain affected the participant's actions such as lifting and affected their roles with partners and children. Participants selected pain descriptors associated with nociceptive (e.g., cramping, tender) and neuropathic (e.g., aching) pain at both visits and it concluded that the symptom experience of pain is multidimensional, individual, and complex.

Lígia de Sousa, (2009) conducted a descriptive study at maternity hospital of Complexo, Brazil. The aim of the study was to measure and characterizes post caesarean section pain and to verify its relationship with limitations of physical activities. Sixty women in the post operative period of caesarean section were selected. Pain was measured with both the Numeric Scale and the McGill Pain Questionnaire. Limitations of physical activities were measured with a specific instrument developed for the study. Sitting down and standing up were the physical activities with the highest pain scores. All participants reported that the pain limited their movements for sitting down and standing up and characterized the pain as "annoying", "grasping" and "straining." The post-caesarean section pain was characterized according to the time standard, location and pain type. The results found that 50% of participants described the pain as rhythmic, 45% as continuous, and 5%

as brief. Most of the parous women describe the pain as continuous and found localized pain (75%) around the section area and mixed pain-either superficial or deep (41.7%), the most reported post caesarean section pain was rated as moderate. The pain led to limitations of physical activities for sitting down, standing up, and walking.

Karlstrom A, et.al., (2007) conducted a descriptive survey in Central Swedish Hospital, maternity unit. The sample consisted of 60 women undergoing caesarean birth. Data were collected through a questionnaire and the pain was assessed by using a Visual Analog pain scale and women's birth experience measured on a seven-point Likert scale. Women reported high levels of experienced pain during the first 24 hours. 78% percent of the women scored greater than or equal to 4 on the Visual Analog Scale, which can be seen as inadequately treated pain. There was no difference between elective and emergency caesarean births in the levels of pain. In spite of high levels of pain, women were pleased with the pain relief. The study results concluded that the risk of a negative birth experience was 80% higher for women undergoing an emergency cesarean birth compared with elective cesarean birth and also postoperative pain negatively affected breastfeeding and infant care.

2. Literature related to alternative and complementary therapies on postcaesarean pain:

Ettis S, (2012) conducted a quasi experimental study in selected hospital at Mangalore. The aim of the study was to assess the effect of Benson's relaxation therapy on pain intensity of postcaesarean mothers. Sixty samples were selected and intervention is given for 3 days every 12hrs for 5mins. The visual analogue scale was used to measure the pain intensity before and after post caesarean for 3 days. The study results showed that the mean of pain before intervention was 7.47(severe) was

decreased to 4.57(moderate). The study results found that there is a significant reduction in pain intensity before and after intervention at control and intervention group ($p= 0.00$; $\alpha=0.05$). Thus, the Benson relaxation therapy can reduce the pain intensity among client with caesarean section.

Niaz Hadi, (2011) conducted a experimental study at Tabriz Taleghani Teaching Centre in Pakistan. The aim of the study was to evaluate the effect of (aromatherapy)lavender essence on postcaesarean pain .In a single-blind clinical trial, 200 term pregnant women with planned elective caesarean were recruited in a 12 month period of time. They were randomized in two groups, 100 patients in each group. One group received lavender essence (the case group) and the other group received clinically neutral aromatic material (the control group) thorough oxygen mask for 3 min 3 hr after receiving similar intravenous analgesics. The Visual Analogue Scale (VAS) was employed to determine the level of post CS pain. The VAS was documented half an hour after first intervention. Eight and 16 hrs later, the aromatherapy was repeated and half an hour after each intervention, corresponding VAS was documented. The study concluded that mean VAS decreased significantly by 16 hrs after the first intervention in both groups ($p<0.001$) and aromatherapy by using lavender essence is a successful and safe complementary therapy in reducing pain after caesarean pain.

Liu YC, **et al., (2009)** conducted an experimental study at the Department of Obstetrics, Medical University Hospital at China. The aim of this study was to evaluate the effects of acupuncture or electro-acupuncture on post-caesarean pain. Sixty women, who had spinal anesthesia during caesarean section, were randomly assigned to the control group, the acupuncture group, and the electro-acupuncture group. After the surgery, acupuncture or electro-acupuncture was applied. The study

results showed that the acupuncture group and the electro-acupuncture group could delay the time of requesting morphine up to 10 - 11 minutes when compared with the control group. The total dose of PCA used within the first 24 hours was 30% - 35% less in the acupuncture group and the electro-acupuncture group when compared with the control group, which was indicated in statistical significance.

Arastirma, (2009) conducted a experimental study at selected hospital Mangalore. The aim of the study was to evaluate the effectiveness of music therapy on pain among postcaesarean mothers. The sample size was 100 and randomly allocated into two groups (50 in each group).Group 1, patients listened to music through a headphone for 1hour immediately before surgery where as in group-2, patient did not listen to any music during the same period. In the postanaesthesia care unit, patients were connected to I.V. PCA device when they were able to respond to commands. The patient's level of satisfaction with perioperative care was assessed by Visual Analogue Scale and the severity of postoperative pain was assessed by VAS. The study results shows that the postoperative tramadol consumption, total amount of tramadol consumption, additional analgesic use and all VAS values were lower in group-1($p<0.05$). Apgar score was significantly greater in group-1. This study result implies that music therapy given before surgery decreases postoperative pain and analgesics requirements.

Amin Ebneshahidi, et al., (2008) conducted a study to evaluate the effect of patient selected music on early postoperative pain, anxiety and hemodynamic profile among postcaesarean mothers. The sample size was 80 who were undergoing elective C.S.surgery enrolled randomly to listen 30 minutes of music or silence by head phones postoperatively. Pain and Anxiety were measured with visual Analogue Scale. The study results reveals that the pain score and postoperative cumulative opioid

consumption were significantly lower among patients in the music group ($p<0.05$). Finally it concluded that the postoperative use of patient selected music in Caesarean section could alleviate the pain and reduce the need for other analgesics, thus improving the recovery and early contact of mothers with their children.

3. Literature related to effectiveness of hand and foot massage on other variables:

Charlton, (2010) conducted a quasi-experimental study at University Hospital, Korea. The aim of the study was to evaluate the effect of foot reflexology on nausea, vomiting and fatigue on breast cancer patients undergoing chemotherapy. The subjects consisted of 34 patients with 18 in the experimental group and 16 in control group. 1 pre-test and 2 post tests were conducted to measure nausea, vomiting and fatigue. For the experimental group, foot reflexology, which consisted of 4 phases for 40 minutes, was given by a researcher and 4 research assistants. The collected data were analysed by repeated measures like ANOVA and the SPSS WIN 10.0 programme. The study results showed that there was a statistically significant reduction in nausea, and vomiting in the experimental group compared to the control group over two different times. In addition, there was a statistically significant difference in fatigue in the experimental group compared to the control group over two different times.

Shermeh S, (2009) conducted a quasi-experimental study was done in Tehran, Iran. The aim of the study was to find out the effect of foot reflexology on sternotomy pain of patients who have undergone Coronary artery bypass graft surgery. The study consisted of 90 patients who were randomly divided into three groups such as case, control and placebo. The reflexology group received 10-minutes of left foot massage in desired location, twice a day with 6-hours of interval for 2

consecutive days. The placebo group undertook 10-minutes of right foot massages and the control group received no intervention. Pain was assessed at specific time interval using visual analogue scale. The study results showed the mean of pain intensity before and after intervention in three groups had a significant difference ($p<0.001$). Average of pain intensity in the case group before the intervention was 6.4(±2.1) and after intervention was 3.4(±5.1). The mean of pain intensity in control group before and after intervention was respectively 5.1(±1.7) and 5(±1.9). Independent t-test showed a significant reduction in intensity of postoperative pain between case and control groups ($p<0.001$). The study concluded that foot reflexology appears to be a useful method for reducing the sternotomy pain in patients after Coronary artery bypass graft surgery.

Gramke HF, et.al., (2007) conducted a quasi experimental study in Urology Ward, CMC Vellore in 2008. A sample of 30 patients was selected from the Urology Ward where patients underwent major and minor urological surgeries. Each patient was given 30-45 minutes of foot massage, pre- and post-assessment of pain was done using visual analogue scale, using a ten-point scale with scoring 0-10 and the interview schedule using a Likert scale with scoring 0-3. The study results showed after foot massage the pain level of 19 patients (63.3%) were reduced from severe to moderate and for (6.6%) was reduced from moderate to mild and for 9 patients (30%) it remained in same level and there was a significant difference between pre and post intervention in reduction of pain at ($p<0.01$).

Simranjeet Kaur, et.al., (2003) conducted a study in the Cardio-thoracic unit, Kasturba Hospital, Manipal. The aim of the study was to assess the effectiveness of hand-foot massage on post operative pain among open heart surgery patients. The study design was a Randomized Control Trial. Thirty patients were selected based on

sampling criteria and were randomly allocated to the experimental (n=15) and control group (n=15). Preoperative pain was measured for both the groups using Numerical Pain scale and Observational checklist for behavioural response to pain. In the post operative period, 20 minutes of Hand-foot massage was given to the experimental group along with the routine care and the control group received only the routine care. The study results concluded that there was a significant difference was found based on numerical pain scale ($p=0.02$) and observational checklist for behavioural response to pain ($p<0.01$) in the level of pain between the experimental and control group. Hence, it was concluded that hand-foot massage was effective in reducing post operative pain in open heart surgery patients. .

Kothari CR, (2003) conducted an experimental study at Massachusetts general hospital Boston. The aim of the study was to evaluate the effect of foot massage and relaxation on decreasing anxiety, pain and nausea. Eighty seven cancer patients were given 10 minutes of foot massage which includes slow, firm, gentle stroke towards the heart from the base of the toes up to the foot and lower limb to the knee. The tool used for the study was visual analogue scale. It was found to have significant effect on the perception of pain and nausea. Pain levels were decreased significantly after the foot massage ($p=0.01$). The findings for a reduction in nausea and an increase in relaxation were equally significant, no change occurred in control group.

Park KS, (2002) conducted a study in a university hospital in Seoul, Korea. The aim of the study was to find out the effect of foot massage on pain among post-abdominal operative patients. A non equivalent control pretest post test design was adopted. 40 patients who were operated under general anaesthesia were selected. The tool used was VAS and vital signs were measured with PR, SBP and DBP. Collected data were analysed by the chi-square, Fisher's Exact Test, t-test and repeated

measures ANOVA. The study result concluded that severity of pain decreased significantly in the experimental group as compared to the control group following foot massage (t=-3.37, p=.002). The PR in the experimental group was lower than that in the control group following foot massage (F=7.73, P=.008). The SBP in the experimental group was lower than that in control group following foot massage (F=25.75, P=.000).

Halme J, et.al., (2000) conducted a randomized controlled study at Anaesthetic Department, Stepping Hill Hospital, Stockport, England. The aim of the study was to examine the effect of foot massage on patients' perception of care received following laparoscopic sterilization as day care patients. Fifty-nine women were randomly allocated into two groups. The experimental group received foot massage and analgesia postoperatively while the control group received only analgesia postoperatively. Each participant was asked to complete a questionnaire on the day following surgery. The study result showed that there was no significant overall difference in the pain experienced by the two groups; however, the mean pain scores recorded following surgery showed a significantly different pattern over time, such that the experimental group consistently reported less pain following a foot massage than the control group ($p<0.001$).

Kesslring A, et.al., (2000) conducted an interventional study at University hospital, Hyderabad. The aim of the study was to evaluate the foot reflexology (FR) affects wellbeing, voiding, bowel movements, pain, and/or sleep in women who underwent an abdominal operation. One hundred and thirty subjects were randomised into three groups. For five days they were exposed to fifteen minutes of FR, foot/leg massage (FM) or talking respectively. Results showed a better ability to void the bladder after the indwelling catheter was removed in the FR-group (p=0.024).

However, compared to the others, the FR-group slept the worse ($p<0.020$). The FM-group did better than the others in subjective well-being ($p<0.006$) and experienced less pain ($p=0.011$). There were no differences among the groups in the domain of post-operative bowel movements. The study concludes that FR may be effective, if women have problems voiding after an indwelling catheter was removed also FR may be effective in reducing pain. FM may be offered post-operatively as a soothing nursing intervention.

4. Literature related to effectiveness of hand and foot massage on post caesarean pain:

Zahrr Abbaspoor, et al., (2011) conducted a randomized controlled study in Mustafa Khomeini hospital, Elam, Iran. The aim of the study was to determine the effect of hand and foot massage on pain among postcaesarean mothers. Eighty women who had an elective caesarean section and who met inclusion criteria were selected. The visual analog pain scale was used to measure the pain intensity before, immediately and 90 minutes after conducting 5 minutes of foot and hand massage. Vital signs were measured and recorded. The study results reveals that the pain intensity was found to be reduced after intervention compared with the intensity before the intervention ($p< 0.001$).Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesics ($p<0.001$).

Khoshtrash Mehrnoosh, (2010) conducted an experimental study in Alzahra Hospital Rasht city. The aim of the study was to investigate the effect of foot reflexology on pain in caesarean section patients. Sixty two women who were undergone caesarean section were randomly divided into two groups of case and control. The reflexology group received a 30-minute of foot massage in two sessions, with 24-hours interval. Data gathering tool included a demographic form, step-visual

analogue scale and pain score form. The study result concluded that there was no demographical difference between two groups and they were matched completely. In case group, severity of pain after first stage of foot reflexology was significantly lower than before reflexology session and also in control group respectively ($p<0.001$, $p<0.0001$). In general, foot reflexology appears to be a useful method of reducing pain.

Nuriye Degirmen, et.al., (2010) conducted a study at a hospital in Turkey. The aim of the study was to evaluate the effectiveness of foot and hand massage. 281 patients who undergone caesarean section were selected by random sampling method and evenly divided into three groups. Those patients who were a control group, foot and hand massage group, and a foot massage group, each of which included 25 patients. The study result showed that pain intensity in foot and hand massage group was 5.76+1.23 in pretest scores was significant decrease after the massage intervention (3.00+1.08)at $p<.001$, in foot and hand massage group when compared with control group.

Ghanbari A, (2009) conducted a randomized control trial study at Alzahra educational center in Iran. The aim of the study was to assess the effect of foot reflexology on pain and physiological parameters after caesarean section. Sixty two women were randomly divided into two groups of case and control. The reflexology group received a 30-minute foot massage in two sessions, with 24-hours interval. Data gathering tool included a demographic form, step-visual analogue scale, pain score and physiological parameters form, and chronometer. The study result showed there was no demographical difference between two groups and they were matched completely. In case group, severity of pain after foot reflexology was lower than control group. After foot reflexology in case group, systolic blood pressure was

decreased. The mean pulse rate was decreased significantly. Diastolic blood pressure and respiratory rate did not vary between case and control groups. The study concluded that foot reflexology appears to be a useful method for reducing pain in post operative patients.

Chacko L, (2008) conducted an experimental study in selected hospital at Mangalore. The aim of the study was to find out the impact of foot massage on the level of pain, heart rate and blood pressure among patients with abdominal surgery like hysterectomy, laparotomy and caesarean section. Pre-experimental one group pre test post test design was used for the study. Sample consisted of 30 post operative patient with abdominal surgery who met the inclusion criteria. Tools were observation checklist and numerical pain scale to assess the pain intensity, sphygmomanometer stethoscope to assess blood pressure and heart rate. The study findings showed that there was a significant difference in level of pain between the pre and post test massage sessions immediately and after 10 min of foot massage (t_{29}=17.02,t_{29}=12.59, $p<0.05$) for observation checklist and (t_{29}=17.02.t_{29}=23.23, t_{29}=9.86 $p<0.05$)for numerical pain scale. There was a significant difference in heart rate measured between pre and post foot massage session immediately and 10 min of massage (t_{29}=6.630,t_{29}=7.577,t_{29}=2.442 $p<0.05$). Diastolic blood pressure had significant difference between pre and post foot massage session immediately after 10 min of foot massage (t_{29}=9.845 t_{29}=11.46.t_{29}=7.38 $p<0.05$). There was a significant association between pre foot massage pain and selected variable such as age, (x^2=0.109) and type of surgery (x^2=0.670, $p>0.05$). The study results concluded that foot massage is an effective non pharmacological method for reducing post-operative pain.

Hanan, et.al., (2005) conducted a study in Ain Shams Maternity University Hospital. The aim of the study was to investigate the utilization of natural measures on relieving post caesarean incision pain. The study design is an intervention study design. The study sample involved 150 mothers and they were randomly divided into 75 mothers as control group who received post caesarean section hospital routine analgesics for pain relief and 75 as intervention group who received foot and hand massage for 20 minutes. Tools used for data collection were a structured interviewing questionnaire sheet, a numerical rating scale and short form McGill pain questionnaire. The study results showed that there was a statistically significant difference in mean of pain level among study groups at 6, 12, 18 hours after delivery, ($p<0.00$). Also there was a statistical significant difference between mean of pain score before and after massage immediately and one hour after massage.

Jamileh Mokhtari, (1999) conducted a comparative study at hospital, Delhi. The aim of the study was to compare the impact of foot reflexology massage & Benson relaxation on severity of pain after caesarean section. A quasi-experimental time series design and clinical trial was used. Non probability convenience method of sampling was used. Samples were placed into two groups: foot reflexology massage and Benson relaxation and a control group. Pain was measured using a standard numerical pain scale. Comparison of the mean of pain severity was separately significant between two groups and measured group ($P<0.05$). Difference between the mean of pain severity also was significant between foot reflexology massage and Benson relaxation ($P=0.0001$). The study concluded that foot reflexology massage and Benson relaxation were effective on decreasing pain severity after caesarean section.

CHAPTER-III

METHODOLOGY

The methodology of research indicates the general pattern of organizing the procedure for the gathering valid and reliable data for the purpose of investigation. **(Polit, D.F, and Hungler, 2003)**

Research Approach:

Quantitative evaluative research approach was adopted for this study.

Research Design:

Research design is a master plan specifying the methods and procedures or collecting and analyzing the needed information. **(Ahuja R, 2001)**

Quasi experimental research design(pre test and post test control group design)

E	**O_1**	**X**	**O_2**
C	**O_1**		**O_2**

E: Experimental group.

C: Control group.

$O_{1:}$ Pre test score on pain.

X: Hand and Foot Massage.

$O_{2:}$ Post test score on pain.

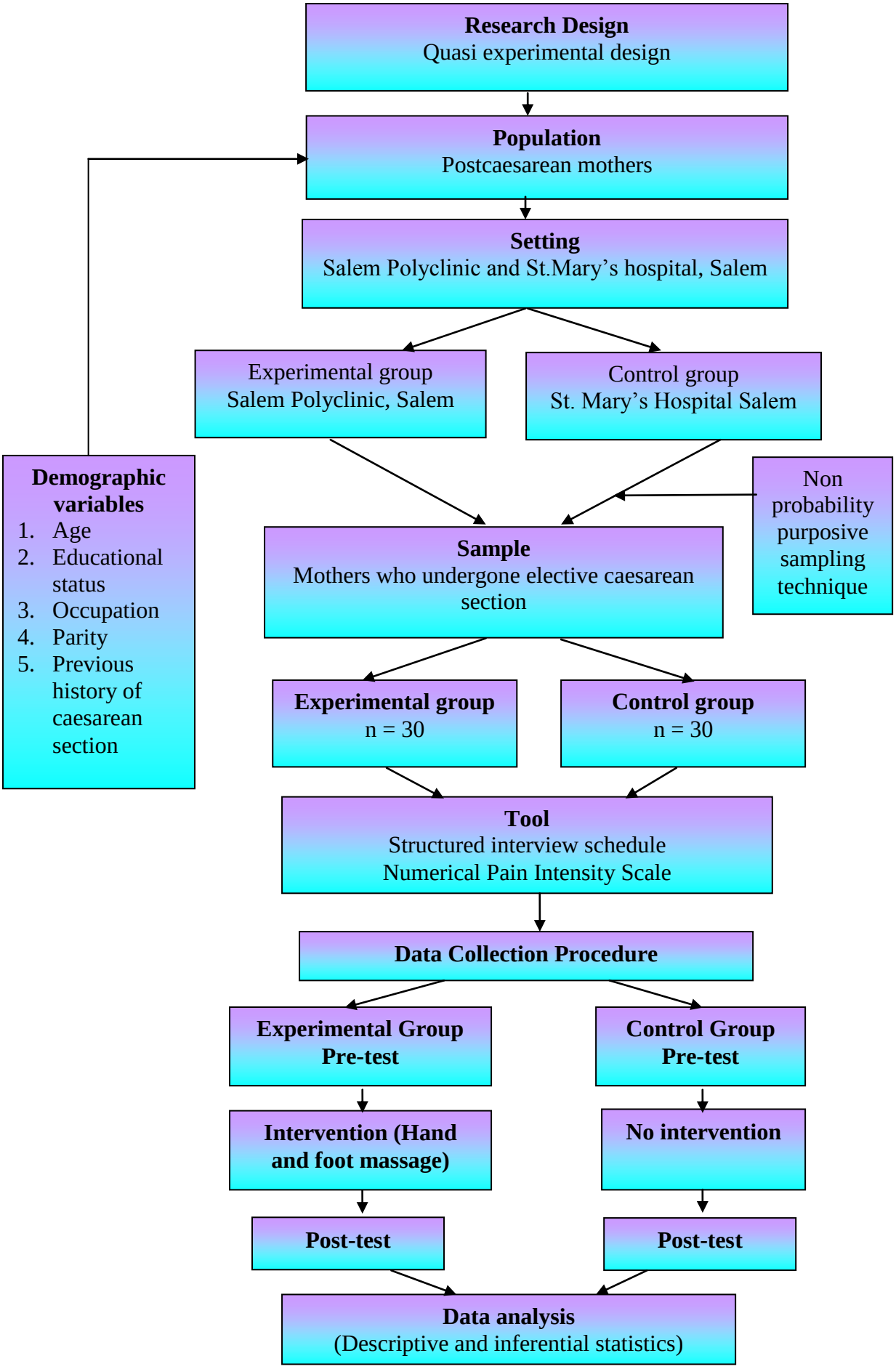

Figure-3.1: Schematic Representation of Research Design

Population:

Population may be classified into two types,

1. Accessible population
2. Target population

Target Population:

It refers to the population that the researcher wishes to make it generalization. In this research the target population is the postcaesarean mothers.

Accessible Population:

It refers to the aggregate of cases which confirm to the designed criteria. In this research, the accessible populations were the postcaesarean mothers in Salem Polyclinic and St. Mary's hospital, Salem.

Description of the Setting:

Setting is the location and condition in which data collection takes place for the study. **(Polit and Hungler, 2003)**

The postcaesarean mothers were selected from Salem Polyclinic and St.Mary's Hospital which are located 2 kms away from Salem New Bus stand.

Sampling:

Sampling refers to the process of selecting the portion of population to represent the entire population. **(Polit and Hungler, 2003)**

Sample:

Samples of the study were mothers undergone elective caesarean section at selected hospitals, Salem.

Sample size:

Sample size was 60 postcaesarean mothers, 30 in experimental group, and 30 in control group.

Sampling Technique:

The samples were selected by using Non probability purposive sampling technique.

Criteria for Sample Selection:

Inclusive Criteria:

- Post caesarean mothers after 4 hours of surgery (out of the effect of anesthesia) and first two days of hospitalization.
- Mothers who underwent elective caesarean section with spinal anesthesia.
- After 2 hours of administration of pain medication**.**
- Mothers who are able to follow the instructions.

Exclusive Criteria:

- Mothers with neuromuscular problems in lower extremities.
- Mothers with cardiovascular, respiratory and psychological problems.
- Mothers who are not willing to participate in the study.

Variables:

Independent variable: Hand and Foot massage.

Dependent variable: Pain.

Extraneous variables: Age, education, occupation, parity and previous history of caesarean section.

Description of Tool:

The structured interview schedule was prepared by the investigator after an extensive study of the related literature and with the guidance of experts.

The tool for collection of data consists of two sections, Section A and Section B.

Section-A: Demographic variables

The structured interview schedule was used to collect demographic variables such as age, education, occupation, parity and previous history of caesarean section.

Section-B: Numerical Pain Intensity Scale

It consists of Numerical Pain Intensity Scale to assess the pain among postcaesarean mothers.

Scoring Procedure:

Table-3.1: Scoring Procedure

Score	Level of pain
0	No pain
1 – 3	Mild pain
4 – 6	Moderate pain
7 – 9	Severe pain
10	Worst possible pain

Level of pain was assessed before and after the interventions. The postcaesarean mothers were placed a score between 0 to 10 after the verbalization about pain.

Validity and Reliability:

Validity:

Validity refers to the degree to which an instrument measures what it is supposed to be measured. **(Polit and Hungler, 2003)**

Validity of the tool was established with the consultation of the guide and experts. The tool was validated by One Medical Expert in the field of Obstetrics and

Gynaecology and 5 Nursing Experts. The tool was found adequate and suggestions in demographic variables given by the experts were incorporated.

Reliability:

Reliability of an instrument is the degree of consistency with which an instrument measures an attributes. **(Polit and Hungler, 2003)**

Reliability of the tool was established by inter-rater method. It was tested on 6 postcaesarean mothers and it was found r = l, which indicates reliability of the tool. Hence, the tool was considered for proceeding the study.

Pilot Study:

Formal written permission was obtained from Managing Director of Vijaya Hospital and St.Mary's Hospital to conduct pilot study from 22.7.2013 to 27.7.2013. Non probability purposive sampling technique was used to select 6 postcaesarean mothers, 3 were assigned to experimental group from Vijaya Hospital and 3 were assigned to control group from St. Mary's Hospital. After obtaining verbal consent from the postcaesarean mothers, demographic details were collected by using structured interview schedule. After 4hrs of recovery from aneasthesia the pretest was done by using numerical pain intensity scale and every time before intervention, for experimental and control group. Then hand and foot massage was given by stroking, effleurage, pulling and squeezing and arch press with the help of liquid paraffin for 5 minutes in each extremities, total duration of 20 minutes at 4 hours after recovery from anaesthesia, and twice a day for first 2 days (morning and evening after 2 hours of administration of pain medication. Post test was done after the massage by using the same scale for experimental group and control group. The intervention was not given for control group.

Method of Data Collection:

Ethical consideration:

Oral consent was obtained from the postcaesarean mothers who are willing to participate in the study.

Data collection procedure:

Formal written permission was obtained from the Managing Director of Salem Polyclinic and St. Mary's Hospital, Salem to conduct the study from 29.7.2013 to 27.8.2013. The data was collected for a period of 4 weeks. The researcher visited the postnatal ward and the samples who fulfilled the inclusive criteria was selected by Non-Probability Purposive sampling technique. After obtaining verbal consent from the postcaesarean mothers, the demographic variables were collected by using structured interview schedule. After 4hrs of recovery from aneasthesia the pretest was done by using numerical pain intensity scale and every time before intervention, for experimental and control group. Then hand and foot massage was given by stroking, effleurage, pulling and squeezing and arch press with the help of liquid paraffin for 5 minutes in each extremities, total duration of 20 minutes at 4 hours after recovery from anaesthesia, and twice a day for first 2 days (morning and evening after 2 hours of administration of pain medication). Post test was done after the massage by using the same scale for experimental group and control group. The intervention was not given for control group.

Plan for Data Analysis:

A master data sheet was prepared with the responses given by the samples and the data was analysed using statistical methods such as descriptive analysis using frequency and percentage distribution and inferential analysis mean, standard deviation, independent 't' test and chi-square.

Summary:

This chapter dealt with the methodology which consists of research approach, the description of settings, sample and sampling technique, sample size, characteristics of the sample, selection and development of study instrument, validity and reliability, pilot study, method of data collection and plan for data analysis.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The statistical analysis is a method of rendering quantitative information and elicits meaningful and intelligible form of research data. Analysis and interpretation of data of this study was done using descriptive and inferential statistics. **(Polit and Hungler, 2003)**

This chapter deals with analysis and interpretation of data collected to evaluate the Effectiveness of hand and foot massage on pain among postcaesarean mothers. The purpose of the analysis is to reduce the data to a manageable and interpretable form, so that the research problem can be suited and tested.

The data was collected through structured interview schedule and Numerical Pain Intensity Scale, which was analyzed by using descriptive and inferential statistics.

Data Analysis:

The data was analyzed by using descriptive and inferential statistics.

Section-A:

Distribution of postcaesarean mothers according to their demographic variables in experimental and control group.

Section-B:

a) Distribution of postcaesarean mothers according to their pre test scores on pain in experimental and control group.

Section-C:

a) Distribution of postcaesarean mothers according to their post test scores on pain in experimental and control group.
b) Distribution of postcaesarean mothers according to their pre test and post test scores on pain in experimental group.
c) Comparison between pre test and post test scores on pain among postcaesarean mothers in experimental and control group.

Section-D: Hypotheses testing.

a) Effectiveness of hand and foot massage on pre test and post test scores of pain among postcaesarean mothers in experimental group.
b) Effectiveness of hand and foot massage on pain among postcaesarean mothers in experimental and control group.
c) Association of pain among postcaesarean mothers with their selected demographic variables in experimental and control group.

Section-A

Distribution of postcaesarean mothers according to their demographic variables in experimental and control group.

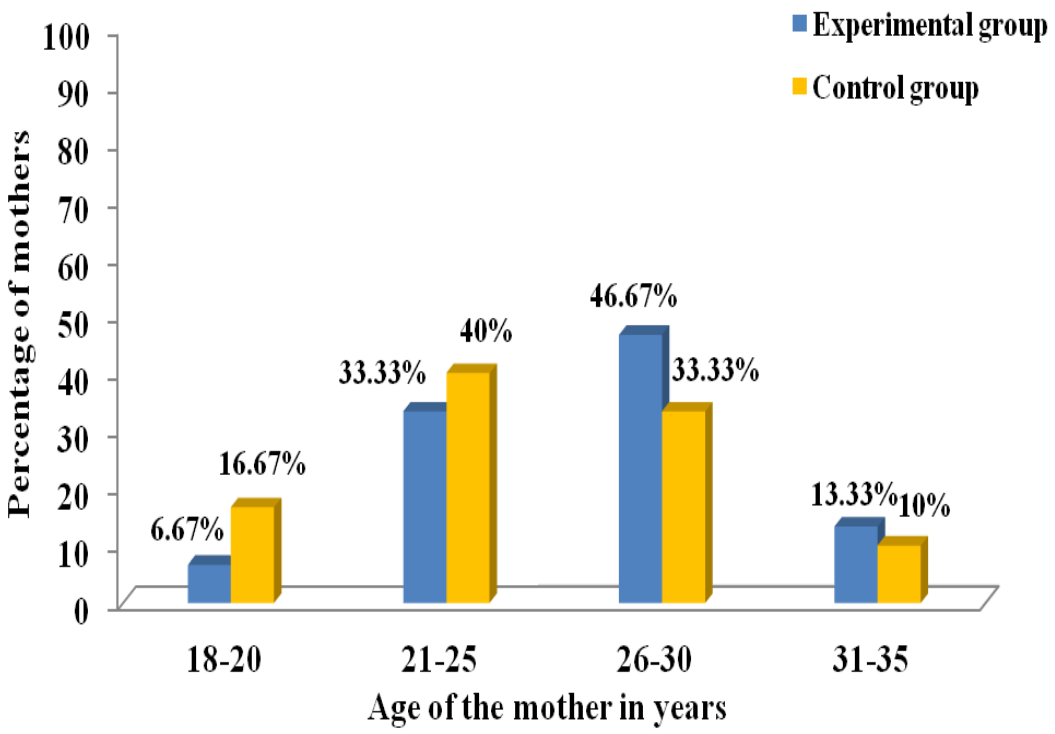

Figure-4.1: Diagram shows percentage distribution of postcaesarean mothers according to their age in experimental and control group.

The above figure represents that, in experimental group, 2(6.67%) of the postcaesarean mothers belong to the age group of 18-20 years, 10(33.33%) of them are in the age group of 21-25 years, 14(46.67%) of them belong to the age group of 26-30 and 4(13.33%) of them are in the age group of 31-35 years. In control group 5(16.67%) of them are in age group of 18-20 years, 12(40%) of them belong to the age group of 21-25 years, 10(33.33%) of them are in the age group of 26-30 years and 3(10%) of them belong to the age group of 31-35 years. This reveals that the highest percentages of postcaesarean mothers are in the age group of 26-30 years in experimental group and in control group the highest percentages are in the age group of 21-25 years.

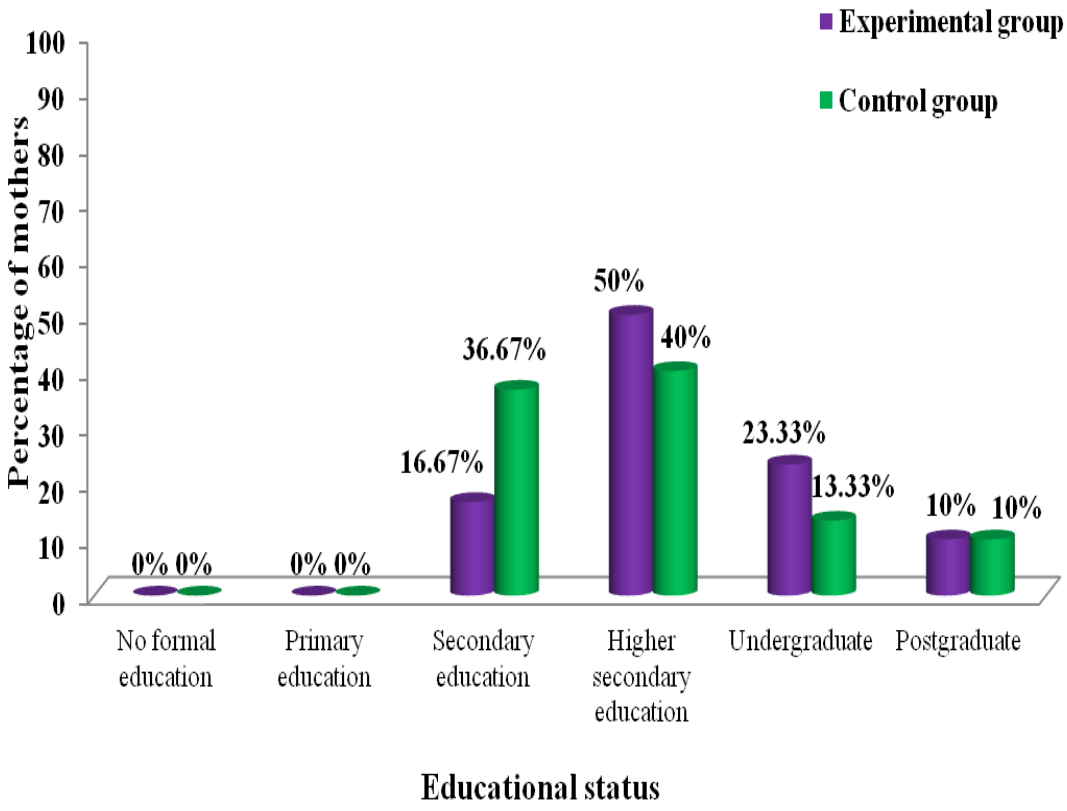

Figure-4.2: Diagram shows percentage distribution of postcaesarean mothers according to their educational status in experimental and control group.

The above figure shows that in experimental group, 5(16.67%) have completed secondary education, 15(50%) have completed higher secondary education, 7(23.33%) of them are under graduate and 3(10%) of them are post graduate. In control group 11(36.67%) have completed secondary education, 12(40%) have completed higher secondary education, 4(13.33%) of them are under graduate and 3(10%) of them are post graduate. This reveals that the highest percentage of the postcaesarean mothers have completed higher secondary education in both experimental and control group.

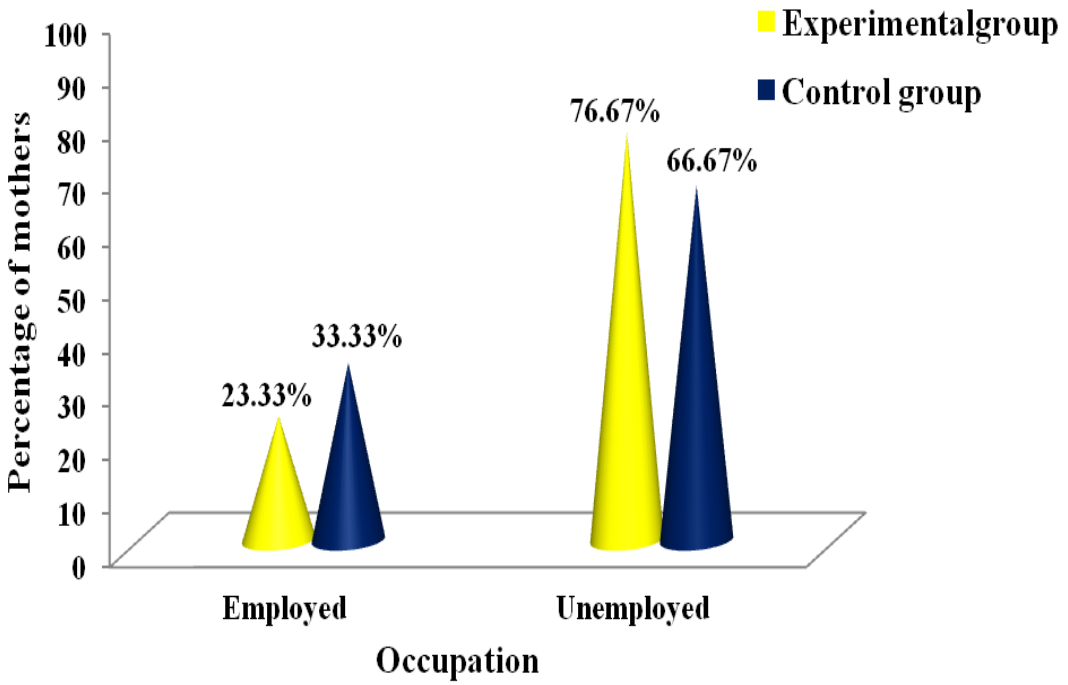

Figure-4.3: Diagram shows percentage distribution of postcaesarean mothers according to their occupation in experimental and control group.

The above diagram shows that in experimental group 7(23.33%) of them are employed, 23(76.67%) of them are unemployed. In control group 10(33.33%) of them are employed and 20(66.67%) of them are unemployed. This reveals that highest percentages of the postcaesarean mothers are unemployed in both experimental and control group.

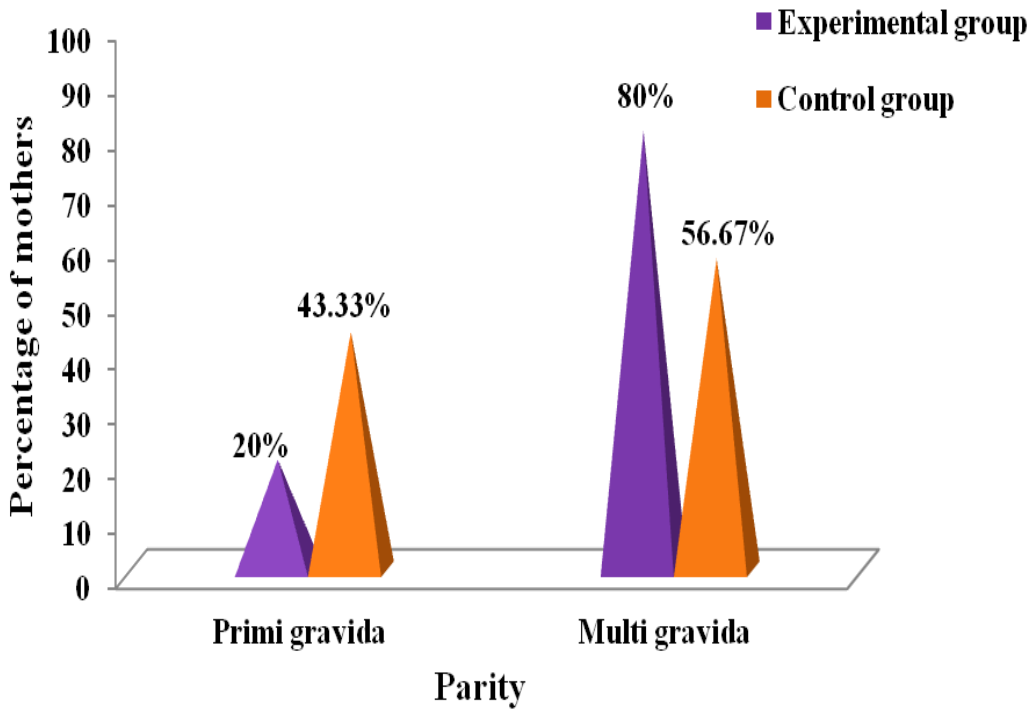

Figure-4.4: Diagram shows percentage distribution of postcaesarean mothers according to their parity in experimental and control group.

The above diagram shows that in experimental group, 6(20%) of them are primi and 24(80%) are multi gravid in experimental group. In control group 13(43.33%) of them are primi and 17(56.67%) are multi gravid. This reveals that the highest percentages of the mothers are multi gravid in both experimental and control group.

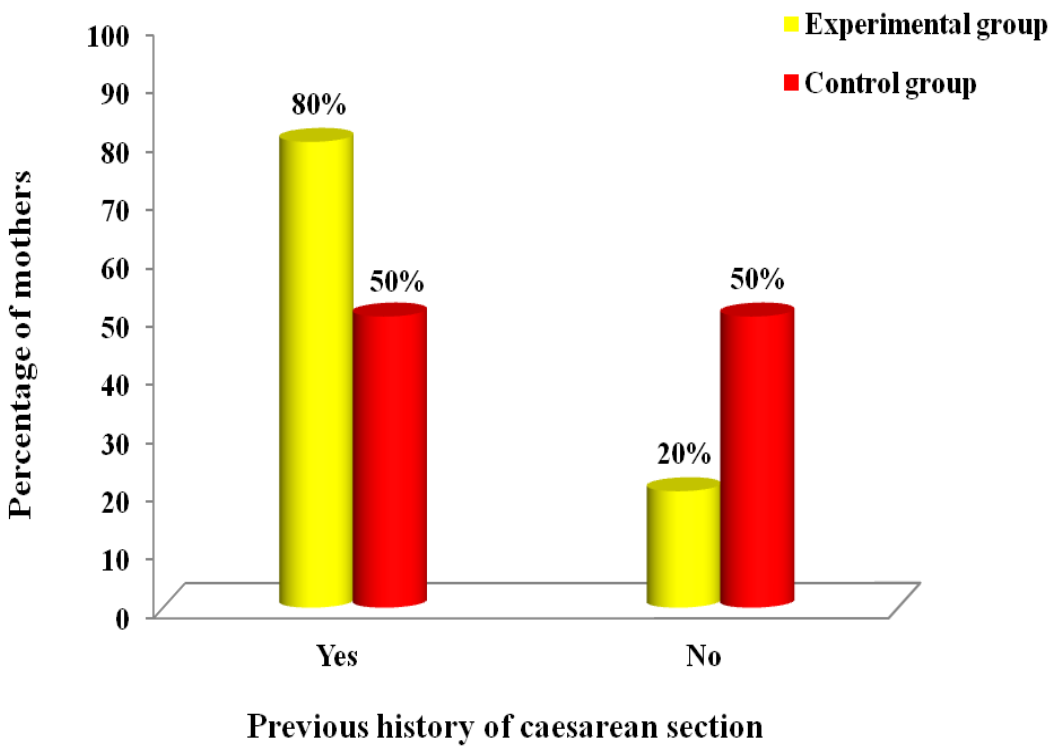

Figure-4.5: Diagram shows percentage distribution of postcaesarean mothers according to their previous history of caesarean section in experimental and control group.

The above diagram shows that in experimental group most of them 24(80%) have previous history of caesarean section and 6(20%) of them have no previous history of caesarean section. In control group 15(50%) have previous history of caesarean section and 15(50%) have no previous history of caesarean section. This reveals that the highest percentage of the postcaesarean mothers have previous history of caesarean section in experimental group whereas in control group similar percentage of them have history of both.

Section-B

a) Distribution of postcaesarean mothers according to their pre test scores on pain in experimental and control group.

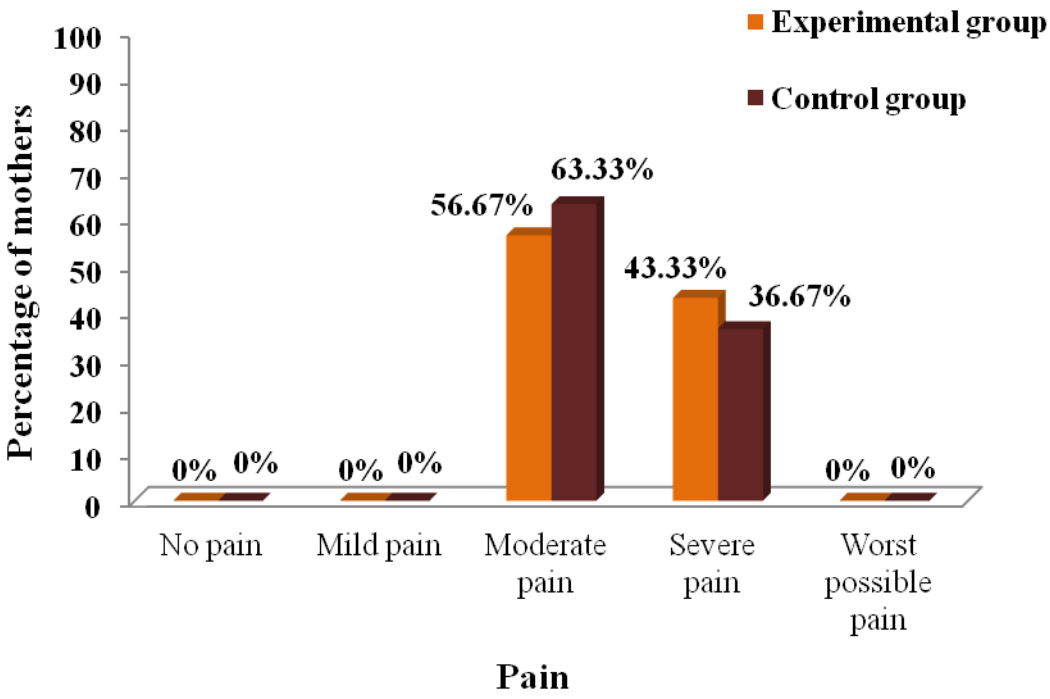

Figure - 4.6: Percentage distribution of postcaesarean mothers according to pre test score on pain in experimental and control group.

The above bar diagram reveals that pre test scores on pain among postcaesarean mothers in experimental and control group. 17(56.67%) have moderate pain and 13(43.33%) have severe pain in experimental group. In control group, 19(63.33%) have moderate pain and 11(36.67%) have severe pain. This reveals that the highest percentage of the postcaesarean mothers have moderate pain in both experimental and control group.

Section-C

a) Distribution of postcaesarean mothers according to their post test scores on pain in experimental and control group.

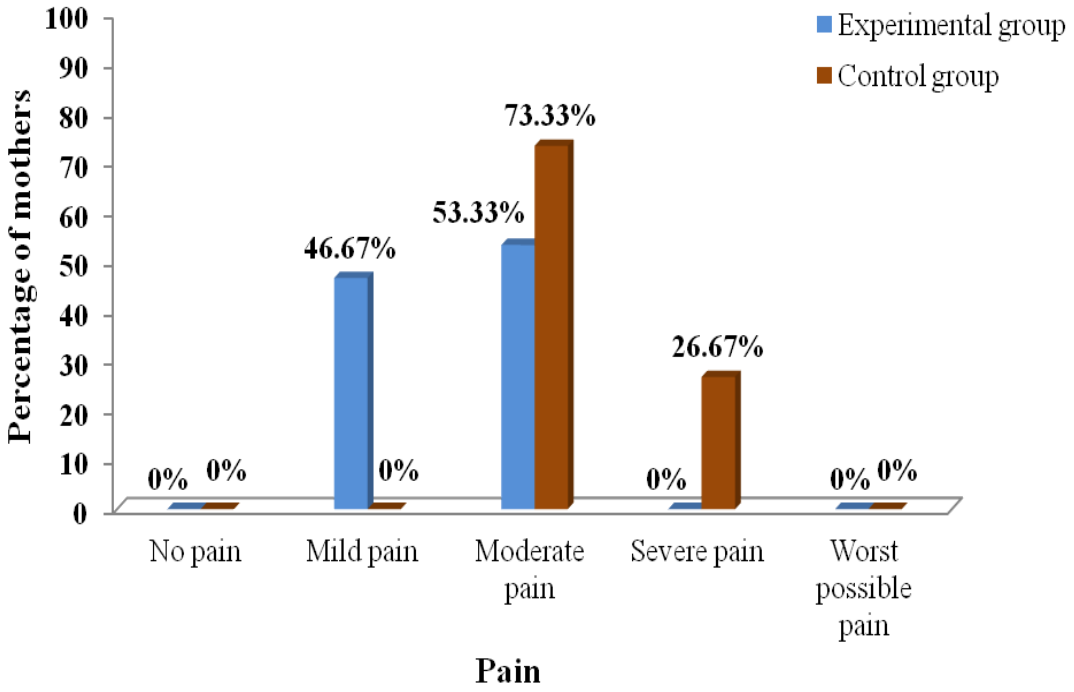

Figure- 4.7: Percentage distribution of postcaesarean mothers according to post test score on pain in experimental and control group.

The above bar diagram shows that, in experimental group 14(46.67%) of postcaesarean mothers have mild pain, 16(53.33%) have moderate pain. Whereas in control group 22(73.33%) of postcaesarean mothers have moderate pain and 8(26.67%) of them have severe pain. This reveals that none of the mothers have severe pain in experimental group when compare to control group.

b) Distribution of postcaesarean mothers according to their pre test and post test scores on pain in experimental group.

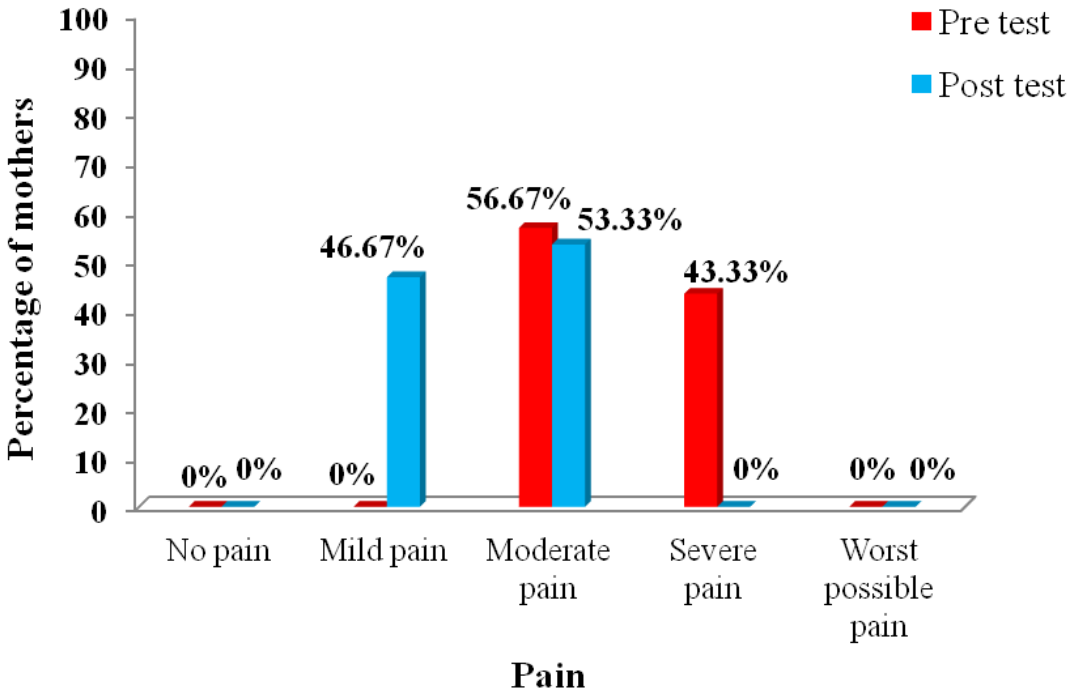

Figure- 4.8: Percentage distribution of postcaesarean mothers according to pre test and post test scores on pain in experimental group.

The above bar diagram shows that, in pre test 17(56.67%) of the postcaesarean mothers have moderate pain, 13(43.33%) of them have severe pain. Whereas in post test 14(46.67%) of the postcaesarean mothers have mild pain and 16(53.33%) of them have moderate pain. This reveals that there is reduction of pain after hand and foot massage in experimental group.

c) Comparison between pre test and post test scores on pain among postcaesarean mothers in experimental and control group.

Table-4.1:

Mean, standard deviation, mean percentage and difference in mean percentage on pain among postcaesarean mothers in experimental and control group.

n=60

Groups	Pre test			Post test			Difference in Mean %
	Mean	SD	Mean %	Mean	SD	Mean %	
Experimental group	6.4	0.56	64	3.5	0.79	35	29
Control group	6.2	0.95	62	6.1	0.65	61	1

The above table shows that in experimental group the pre test mean score is 6.4±0.56 and mean percentage is 64, whereas in post test mean score is 3.5±0.79 and mean percentage is 35 and its mean percentage difference is 29. In control group the pre test mean score is 6.2±0.95 and mean percentage is 62, whereas in post test score is 6.1±0.65 and mean percentage is 61 and its mean percentage difference is 1. Mean difference value in experimental group is higher than in control group. It reveals that the postcaesarean mothers in experimental group have reduction in pain when compare to control group.

Section-D

Hypotheses testing

a) Effectiveness of hand and foot massage on pre and post test score of pain among postcaesarean mothers in experimental group

H_1: There will be a significant difference on pain among post caesarean mothers in experimental group before and after hand and foot massage at $p < 0.05$ level.

Table-4.2:

Mean, Standard deviation and' t' value on pain among postcaesarean mothers in experimental group.

n=30

Pain	Experimental group		't' value
	Mean	SD	
Pre test score	6.4	0.56	33.72*
Post test score	3.5	0.79	

*** Significant at $p \leq 0.05$ level; table value=2.05; df=29**

The above table reveals that the mean pre test score in experimental group is 6.4±0.56 and mean post test score is 3.5±0.79. The 't' value is 33.72 which is significant at $p \leq 0.05$ level. Thus it proves that Hand and Foot Massage is effective in reducing pain among postcaesarean mothers in experimental group. Hence H_1 is retained at $p \leq 0.05$ level.

b) Effectiveness of hand and foot massage on pain among postcaesarean mothers in experimental and control group.

H_2: There will be a significant difference in post-test score on pain among postcaesarean mothers in experimental and control group at $p \leq 0.05$ level.

Table-4.3:

Mean, Standard deviation and 't' value on pain among postcaesarean mothers in experimental and control group.

n=60

Group	Mean	SD	't' value
Experimental group	3.5	0.79	15.66*
Control group	6.1	0.65	

*** Significant at $p \leq 0.05$ level; table value=2.75; df=58**

The above table reveals that the mean score in experimental group is 3.5±0.79 and mean score in control group is 6.1±0.65. The 't' value is 15.66 which is significant at $p \leq 0.05$ level. Thus it becomes evident that Hand and Foot Massage is effective in reducing pain among postcaesarean mothers in experimental group. Hence H_2 is retained at $p \leq 0.05$ level.

c) Association of pre test score on pain among postcaesarean mothers with their selected demographic variables in experimental and control group.

H_3: There will be a significant association on pain with their selected demographic variables among post caesarean mothers in experimental and control group at $p<0.05$ level.

Table – 4.4:

Chi- square test of pre test score on pain among postcaesarean mothers with their demographic variables in experimental and control group.

n=60

S.No	Demographic variables	Experimental group (n=30)			Control group (n=30)		
		χ^2	Table value	df	χ^2	Table value	df
1.	Age of the mother in years	2.54	7.82	3	1.70	7.82	3
2.	Educational status	32.1*	7.82	3	4.85	7.82	3
3.	Occupation	0.00069	3.84	1	0.06	3.84	1
4.	Parity	0.31	3.84	1	0.02	3.84	1
5.	Previous history of caesarean section	0.31	3.84	1	0.14	3.84	1

*** Significant at $p\leq0.05$ level;**

The data presented in table 4.4 shows that there is a significant association between educational status and pain among postcaesarean mothers in experimental group. Hence H_3 is retained at $p\leq0.05$ level. There is no significant association between demographic variables and pain among postcaesarean mothers in control group. Hence H_3 is rejected at $p\geq0.05$ level.

Summary:

This chapter dealt with data analysis and interpretation in the form of statistical values based on the objectives. Frequency and percentage on pain among postcaesarean mothers with their demographic variables in experimental and control group. The ‘t’ test is used to evaluate the effectiveness of Hand and Foot Massage on pain among postcaesarean mothers. The chi-square test is used to find out the association between the pain among samples with their demographic variables.

CHAPTER – V

DISCUSSION

The experimental study was done to evaluate the effectiveness of hand and foot massage on pain among postcaesarean mothers at selected hospitals, Salem.

Distribution of the demographic variables.

- In experimental group, 10(33.33%) of the postcaesarean mothers belong to the age group of 21-25 years and in control group 12(40%) of them belong to the age group of 21-25 years. This finding was supported by **Poornima, (2012)** study. In her study she reported that 13(65%) of the samples belong to the age group of 17-25 years in both experimental and control group.
- In experimental group and control group 15(50%) and 12(40%) had higher secondary education. According to **Jenny, (2009)** in her study, she reported that 33.3% of the samples in experimental group had higher secondary secondary education and 36.7% of the samples had primary education.
- In experimental group and control group 23(76.67%) and 20(66.67%) were unemployed which was supported by **Jenny, (2009)** who reported that 86.7% of the samples in experimental group were housewife.
- In experimental group and control group 24(80%) and 17(56.57%) were multi gravid which was supported by **Jenny, (2009)**. She reported that 66.7% and 63.3% were multigravida in experimental and control group.
- In experimental group and control group 6(20%) and 15(50%) had no history of previous caesarean section. These findings were lower than **Poornima,(2012)** study. She reported that 75% of the mothers had no history of caesarean section.

The first objective of the study was to assess the pain among postcaesarean mothers in experimental and control group.

Distribution of postcaesarean mothers according to pain. In experimental group 17(56.67%) had moderate pain and 13(43.33%) had severe pain whereas in control group 19(63.33%) had moderate pain and 11(36.67%) had severe pain in pre test.

The present study was supported by **Poornima, (2012)** who has done a study to assess the effectiveness of foot and hand massage in reduction of post-caesarean pain among post natal mothers in KG hospital, Coimbatore.40 samples were selected through non probability convenience sampling technique. Demographic, obstetric and pain variables were collected through interview method. Pain was assessed by Numerical pain intensity scale. 1(5%) of postcaesarean mother had moderate pain, 19(95%) mothers had severe pain. Whereas in control group, 7(35%) mothers had moderate pain and 13(65%) mother had severe pain in pretest.

Hence most of the mothers had moderate pain after caesarean section in spite of pain medication.

The second objective of the study was to evaluate the effectiveness of hand and foot massage on pain among postcaesarean mothers in experimental group.

The mean pre test score in experimental group was 6.4±0.56 and mean post test score was 3.5±0.79. The 't' value is 33.72 which was significant at $p \leq 0.05$ level. The mean post test score in experimental group was 3.5±0.79 and mean post test score in control group was 6.1±0.65. The 't' value is 15.66 which was significant at $p \leq 0.05$ level.

The present study was supported by **Wang HL and Keck, (2004)** who has done a study to determine the efficiency of foot and hand massage on reducing post

operative pain in patients who had caesarean operation at a teaching hospital, Midwest. 18 patients were selected through non probability convenience sampling. Pain intensity and pain distress was assessed by using 0 to 10 Numerical pain rating scale. The study findings showed that there was a decrease in pain intensity from 4.65 to 2.35 ($t=8.154$, $p< 0.001$) and the pain distress was reduced from 4.00 to 1.88 ($t=5.683$, $p<0.001$).

Thus it becomes evident that Hand and Foot Massage is effective in reducing pain among postcaesarean mothers in experimental group. Hence H_2 was retained at $p\leq0.05$ level.

The third objective of the study was to find out the association between pain with their selected demographic variables among postcaesarean mothers.

Association of pain among postcaesarean mothers with the demographic variables was done by using chi-square test. It was found that there was a significant association between educational status and pain among postcaesarean mothers in experimental group.

Summary:

The discussion made in this chapter was based on the objectives of the study and it was related with similar studies conducted by other investigators.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATIONS

This chapter consists of four sections. In the first two sections, the summary and the implications for nursing practice are presented. In the last two sections, the recommendations for further research and conclusions are present.

Summary:

The purpose of this study is to evaluate the effectiveness of hand and foot massage on pain among postcaesarean mothers at selected hospitals, Salem. Quasi experimental pre test and post test design was chosen for the study. Samples were selected by Non Probability purposive sampling technique. The conceptual framework for the study was based on Malzack's & Wall Gate Control Theory Model, (1965). The instrument used in this study consists of two sections. Section A consist of demographic variables and Section B consist of Numerical Pain Intensity Scale. The data was analyzed using descriptive and inferential statistics.

Major Findings of the study were summarized as follows:

- In experimental group, 14(46.67%) of them belongs to the age group of 26-30 years and 12(40%) of them belong to the age group of 21-25 years.
- In experimental group, 15(50%) had completed higher secondary education and 12(40%) had completed higher secondary education.
- In experimental group, 23(76.67%) of them were unemployed, whereas in control group 20(66.67%) of them were unemployed.
- In experimental group 24(80%) were multi gravid, whereas in control group 17(56.67%) were multi gravid.
- In experimental group 24(80%) had previous history of caesarean section and in control group 15(50%) had history of both.

- The mean pre test score in experimental group was 6.4±0.56 and mean post test score was 3.5±0.79. The 't' value is 33.72 which was significant at $p \leq 0.05$ level. Thus it proved that Hand and Foot Massage was effective in reducing pain among postcaesarean mothers in experimental group. Hence H_1 was retained at $p \leq 0.05$ level.
- The mean score in experimental group was 3.5±0.79 and mean score in control group was 6.1±0.65. The 't' value was 15.66 which is significant at $p \leq 0.05$ level. Thus it become evident that Hand and Foot Massage was effective in reducing pain among postcaesarean mothers in experimental group. Hence H_2 was retained at $p \leq 0.05$ level.
- There was a significant association found between educational status and pain among postcaesarean mothers in experimental group. Hence H_3 was retained at $p \leq 0.05$ level. There was no significant association between demographic variables and pain among postcaesarean mothers in control group. Hence H_3 was rejected at $p \geq 0.05$ level.

Conclusion:

The use of hand and foot massage reduces the pain among post caesarean mothers in experimental group compare to control group. Hence hand and foot massage was effective, in expensive, low risk, flexible and easily applied strategy for postcaesarean pain management. There was a significant association found between pain and educational status of the mothers in experimental group.

Implications:

Nursing Service:

- Hand and foot massage could be adopted in hospitals and maternity centre.
- Staff development programme need to be arranged.

Nursing Education:

- Educational programme on hand and foot massage can be arranged for staffs and students working in postnatal ward.
- Alternative pain relief management can be included in nursing curriculum.

Nursing Administration:

- The nurse administrator should coordinate her work with the midwives to practice alternative therapies (Hand and foot massage).
- Nurse administrator should organize in service education programme regarding the importance of hand and foot massage.

Nursing Research:

- Nursing research can be conducted to find out pain relief after caesarean section by using various alternative therapies.
- Research can be conducted on different settings.

Recommendations for Further Research:

- A similar study can be conducted to evaluate the effectiveness of hand and foot massage on other clinical parameters.
- A comparative study can be done to determine the effectiveness of hand and foot massage versus other therapies on postcaesarean pain.
- A similar study can be done using other alternative therapies on postcaesarean pain.

Limitation:

The researcher found difficulty while doing hand massage on mothers with venuflon.

Summary:

This chapter dealt with summary, conclusion, implications, limitation and recommendations.

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ANNEXURE - A

LETTER SEEKING PERMISSION TO CONDUCT A RESEARCH STUDY

From

Mrs.Manjula. B,

Final Year M.Sc.(N),

Sri Gokulam College of Nursing,

Salem.

To

The Principal,

Sri Gokulam College of Nursing,

Salem.

Respected Madam,

Sub: Permission to conduct Research Project–request- reg.

I, **Mrs.Manjula.B,** Final Year M.Sc(N) student of Sri Gokulam College of Nursing is conducting research project in partial fulfillment of "The Tamilnadu Dr.M.G.R. Medical University, Chennai" as part of the requirement for the award of M.Sc(N) Degree.

Topic: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Postcaesarean Mothers at Selected Hospitals, Salem"

I wish to seek permission to conduct the research study at Salem Polyclinic and St.Mary's Hospital, Salem.

Kindly do the needful.

Thanking you.

Date: Yours sincerely,

Place: Salem

(Mrs. Manjula.B)

ANNEXURE – B

LETTER REQUESTING TO CONDUCT A RESEARCH STUDY

SRI GOKULAM COLLEGE OF NURSING
3/836, Periyakalam, Neikkarapatti, Salem - 636 010.
Phone : 0427 - 6544550,2272240,2272250 Fax : 0427 - 2270200, 2447077
Email : sgcon2001@yahoo.com, sgcon2001@gmail.com

Date : .....

LETTER SEEKING PERMISSION TO CONDUCT A RESEARCH STUDY

To:

The Managing Director,

St.Mary's Hospital,

Salem.

Respected Madam,

Sub: Permission to conduct a research study request - reg.

This is to introduce **Mrs. B.Manjula,** Final year M.Sc.,(Nursing) student of our college. She is to conduct research project which is to submitted to "The Tamilnadu Dr. M.G.R. Medical University, Chennai" in partial fulfilment of University requirement for the award of M.Sc., (Nursing) Degree.

Topic: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at Selected Hospitals, Salem".

I request you to kindly permit her to conduct the study in your esteemed hospital from 29.07.2013 to 27.08.2013. She will adhere to the hospital policies and regulations.

Kindly do the needful.

Thanking You,

Place: Salem

Date: 17.07.2013

Yours Sincerely,

Sr. Linda Roseline
ADMINISTRATOR
ST MARY'S HOSPITAL
ARISIPALAYAM
SALEM - 636 009.

(Dr.K.Tamizharasi)
PRINCIPAL
Sri Gokulam College of Nursing
SALEM – 636 010.

SRI GOKULAM COLLEGE OF NURSING
3/836, Periyakalam, Neikkarapatti, Salem - 636 010.
Phone : 0427 - 6544550,2272240,2272250 Fax : 0427 - 2270200, 2447077
Email : sgcon2001@yahoo.com, sgcon2001@gmail.com

Date : .....

LETTER REQUESTING TO CONDUCT A PILOT STUDY

To

The Managing Director,

Vijaya Hospital,

Salem

Respected Sir/Madam,

Sub: Permission to conduct Pilot Study – request- reg.

This is to introduce **Mrs.B.Manjula,** Final year M.Sc., (N) student of Sri Gokulam College of Nursing. She is to conduct a research project which is to be submitted to "The Tamilnadu Dr .M.G.R. Medical University, Chennai" in partial fulfilment of university requirement for the award of M.Sc (Nursing) Degree.

Topic: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at selected Hospitals, Salem.

I request you to kindly permit her to conduct the pilot study in your esteemed institution from 22.07.13 to 27.07.13. She will adhere to the institutional policies and regulation.

Kindly do the needful,

Thanking you,

Date: 17.07.2013

Place: Salem

Yours Sincerely,

(Dr.K.Tamizharasi)
PRINCIPAL
Sri Gokulam College of Nursing
SALEM – 636 010.

Allowed.
D. Narmada.
Dr. D. NARMADA, M.D. (O&G),
Regd. No : 63113,
VIJAYA HOSPITAL,
Rajaji Road, SALEM - 636 007

SRI GOKULAM COLLEGE OF NURSING
3/836, Periyakalam, Neikkarapatti, Salem - 636 010.
Phone : 0427 - 6544550,2272240,2272250 Fax : 0427 - 2270200, 2447077
Email : sgcon2001@yahoo.com, sgcon2001@gmail.com

Date : .....

LETTER SEEKING PERMISSION TO CONDUCT A RESEARCH STUDY

To:

Dr. Resmi Rao., M.B.B.S, M.D, D.G.O,

Salem Polyclinic,

Salem.

Respected Madam,

Sub: Permission to conduct a research study request - reg.

This is to introduce **Mrs. B.Manjula,** Final year M.Sc., (Nursing) student of our college. She is to conduct research project which is to submitted to "The Tamilnadu Dr. M.G.R. Medical University, Chennai" in partial fulfilment of University requirement for the award of M.Sc., (Nursing) Degree.

Topic: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at Selected Hospitals, Salem".

I request you to kindly permit her to conduct the study in your esteemed hospital from 29.07.2013 to 27.08.2013. She will adhere to the hospital policies and regulations.

Kindly do the needful.

Thanking You,

Place: Salem

Date: 17.07.2013

Yours Sincerely,

(Dr.K.Tamizharasi)
PRINCIPAL
Sri Gokulam College of Nursing
SALEM – 636 010.

Dr Rashmi Rao DGO
Consultant Obstetrician & Gynaecologist
Regn No 91752
SALEM POLYCLINIC
250, Omalur Road, Salem - 7

ANNEXURE - C

LETTER REQUESTING OPINION AND SUGGESTIONS OF EXPERTS FOR CONTENT VALIDITY OF THE RESEARCH TOOL

From

Mrs.Manjula. B,

Final Year M.Sc(N).,

Sri Gokulam College of Nursing,

Salem, Tamil Nadu.

To,

(Through proper channel)

Respected Sir/ Madam,

Sub: Requesting opinion and suggestions of experts for establishing content validity of the tool.

I **Mrs.Manjula.B,** Final Year M.Sc., (Nursing) student of Sri Gokulam College of Nursing, Salem, have selected the below mentioned Statement of the Problem for the research study to be submitted to The Tamil Nadu Dr. M.G.R. Medical University, Chennai as partial fulfillment for the award of Master of science in Nursing.

Topic: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Postcaesarean Mothers at Selected Hospitals, Salem"

I request you to kindly validate the tool developed for the study and give your expert opinion and suggestion for necessary modifications.

Thanking you,

Place: Salem Yours sincerely,

Date :

(Mrs. Manjula.B)

Enclosed:

1. Certificate of validation
2. Tool for collection of data
3. Procedure

ANNEXURE - D

TOOL FOR DATA COLLECTION

Instruction to the participants

This section consists of personal information and you are requested to give your response. The data given by you will be kept confidential.

SECTION: A

Structured interview schedule

Sample No: ☐

Date:

Demographic data

1. Age of the mother in years
   a) 18-20 ☐
   b) 21-25 ☐
   c) 26-30 ☐
   d) 31-35 ☐
2. Educational status
   a) No formal education ☐
   b) Primary education ☐
   c) Secondary education ☐
   d) Higher secondary education ☐
   e) Under graduate ☐
   f) Post graduate ☐
3. Occupation
   a) Employed ☐
   b) Unemployed ☐

4. Parity

   a) Primi ☐

   b) Multi ☐

5. Previous history of caesarean section

   a) Yes ☐

   b) No ☐

Section-B

Numerical Pain Intensity Scale

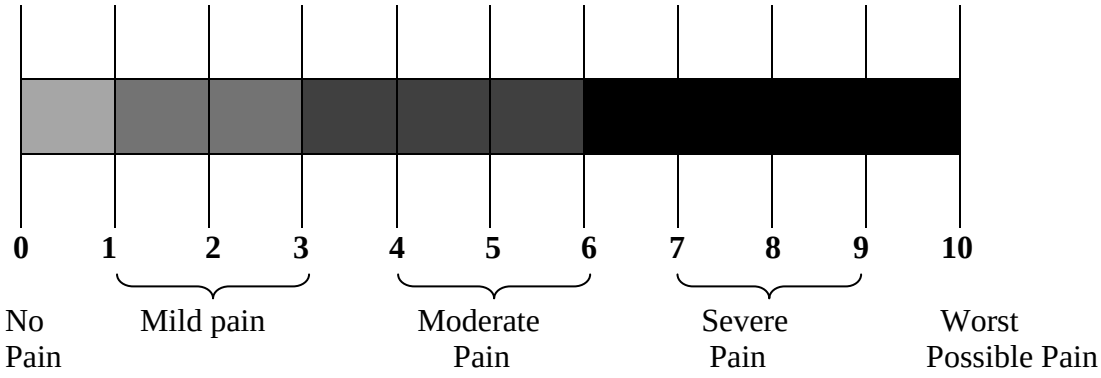
Instruction to the participants,

The Numerical Pain Intensity Scale shown to the participants before and after intervention by the investigator to evaluate the intensity of post caesarean pain.

Description of Tool

Section: B consists of Numerical Pain Intensity Scale to assess the post caesarean pain.

0 – 10 Numerical Pain Intensity Scale (American Pain Society)



Score		Level of pain
0	-	No pain
1 – 3	-	Mild pain
4 – 6	-	Moderate pain
7 – 9	-	Severe pain
10	-	Worst possible pain

PROCEDURE FOR HAND AND FOOT MASSAGE

Definition:

It refers to manipulation of feet and hands of the post caesarean mothers by stroking, effleurage, pulling, squeezing and arch press by both palms of the investigator for 5 minutes in each extremities, adding to a total of 20 minutes for 2 times a day with liquid paraffin for first 3 days.

Purposes:

- Helps to alleviate pain and improves the range of motion.
- Promotes the release of endorphins- amino acids that work as the body's natural pain killer.
- Enhances blood and lymph circulation.
- Induces relaxation and improves the quality of sleep.
- It minimizes the dose of drug intake.

Principles:

- The contact and continuity is maintained throughout the treatment.
- There should not be any friction force while performing the technique.
- Massage should be done with gentle pressure.

Pre-requisites:

The investigator should keep herself fit emotionally (confident) and physically (keep the nail trimmed, well groomed).

Articles:

S. No	Article	Purposes
1.	A tray containing: Liquid paraffin	To give massage.
2.	Tissue paper	To wipe the massage area.
3.	Ounce glass	To measure the oil.
4.	Bowl	To take the oil.
5.	Covering sheet	To cover the mother.

Techniques of hand and foot massage:

Step: 1 Stroking:

Use light pressure strokes from the wrist to the finger tips in both back and palm of the hand. Begin a long, slow, and firm, stroking motion from the bottom to the tip of the toes.

Step: 2 Effleurage:

Effleurage is the gliding manipulation of the superficial tissues. Make large half- circles stretching strokes from centre to the side using moderate pressure. Make small circles strokes (like an ‘o’) over the entire back and palm of the hand and in the foot.

Step: 3 Pull and squeeze:

Gently squeeze and roll each finger and toe between the investigator's thumb and index finger from the base to the tip.

Step: 4 Arch press:

Releases tension in the inner and outer longitudinal arches. Using the heel of hand, push hard and slide along the arch.

Step: 5 Completion:

Place the clients hand and cover it with investigators hand. Gently draw the top hand towards the investigator several times.

Preparation of the mother and unit:

- Develop a good rapport with the mother and the relatives.
- Explain the procedure to the mother and purpose of massage.
- Explain the mother in such a way that the procedure will not harm her.
- Instruct the mother to wash her hands and foot before the procedure.
- Arrange the articles near to the mother side.
- Provide privacy.
- Place the mother in a comfortable position (supine).
- Ask mother to keep her arms by side.
- Cover the mother with the covering sheet.

Steps of procedure:

- ✓ Wash hands.
- ✓ Apply liquid paraffin and starts massage the upper extremities and then the lower extremities by both palms of the investigator for 5 minutes in each extremities, adding to a total of 20 minutes.
- ✓ Stroke the palm and back of the hand and foot.
- ✓ Give effleurage with moderate pressure.
- ✓ Pull and squeeze the fingers and toes of the hand and foot.
- ✓ Give an arch press with gentle pressure.
- ✓ Complete the massage by interlock the mother's finger and toes with the investigator's fingers and draw towards several times.

After care:

- Wash hands.
- Evaluate the mother's tolerance and response.
- Record the intensity of pain.

ANNEXURE – E

CERTIFICATE OF VALIDATION

This is to certify that the tool developed by **Mrs. Manjula.B**, Final year M.Sc. Nursing student of Sri Gokulam College of Nursing, Salem (affiliated to Dr. M.G.R. Medical University) is validated and can proceed with this tool and content for the main study entitled **"A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at Selected Hospitals, Salem".**

Signature with Date

ANNEXURE - F

LIST OF EXPERTS FOR CONTENT VALIDITY

1. **Dr.P. Chellammal, M.D., D.G.O.,**
   Consultant, Obstetrician and Gynaecologist,
   Sri Gokulam Hospital,
   Salem.
2. **Dr.Akila, MS (O.G).,**
   Consultant, Obstetrician and Gynaecologist,
   Sri Gokulam Hospital,
   Salem.
3. **Mrs. Baby, M.Sc(N).,**
   Professor,
   PSG College of Nursing,
   Coimbatore.
4. **Mrs.Jansi, M.Sc(N)**
   Professor,
   Shanmuga College of Nursing,
   Salem.
5. **Mrs.Sheeba, M.Sc(N)**
   Professor,
   KG College of Nursing,
   Coimbatore.
6. **Mrs.Muthukannu, M.Sc(N)**
   Asst.Professor,
   KG College of Nursing,
   Coimbatore.
7. **Mrs. Glory,M.Sc(N)**
   Professor,
   Sara College of Nursing,
   Dharapuram.

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12.7.13.

Signature with Date

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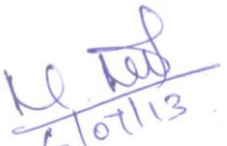

Signature with Date

ANNEXURE – G

CERTIFICATE OF EDITING

TO WHOMSOEVER IT MAY CONCERN

Certified that the dissertation paper titled "**A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Postcaesarean Mothers at Selected Hospitals, Salem**". by **Mrs.MANJULA.B,** It has been checked for accuracy and correctness of English language usage and that the language used in presenting the paper is lucid, unambiguous free of grammatical or spelling errors and apt for the purpose.

Signature with date

B. ANUSUYA, M.A., M.Ed., M.Phil
P.G. Asst. - English
Govt. Hr. Sec. School,
METTUR DAM - 636 401.

ANNEXURE – H

PHOTOS

Researcher Assessing the Pain

Researcher Providing Hand Massage

Researcher Providing Foot Massage