

**“A STUDY TO EVALUATE THE EFFECTIVENESS OF
HAND AND FOOT MASSAGE ON PAIN AMONG POST
CAESAREAN MOTHERS AT SELECTED HOSPITALS, IN
MADURAI DISTRICT.”**

**M.Sc (NURSING) DEGREE EXAMINATION BRANCH- III
OBSTETRICS AND GYNAECOLOGICAL NURSING, MATHA
COLLEGE OF NURSING, VAANPURAM, MANAMADURAI,
SIVAGANGAI DISTRICT.**



A dissertation submitted to

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

CHENNAI – 600032

In partial fulfilment for the degree of

MASTER OF SCIENCE IN NURSING

SEPTEMBER – 2020

CERTIFICATE

This is to certify that this dissertation titled “**A STUDY TO EVALUATE THE EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG POST CAESAREAN MOTHERS AT SELECTED HOSPITALS, IN MADURAI DISTRICT.**” is a bonafide work done by **Mrs.ASHA.B**, Matha College of Nursing, Vaanpuram, Manamadurai-630606, submitted to the Tamilnadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the university rules and regulations towards the award of the degree of **MASTER OF SCIENCE IN NURSING, BRANCH-III, OBSTETRICS AND GYNAECOLOGICAL NURSING**, Under our guidance and supervision during the academic period from 2018 – 2020.

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ABSTRACT

Title: “A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District.”

Objectives: To assess the pain among post caesarean mothers in experimental and control group. To evaluate the effectiveness of hand and foot massage on pain among post caesarean mothers in experimental group. To find out the association between pains with their selected demographic variables among post caesarean mothers in experimental and control group. **Hypotheses:** There will be a significant difference on pain among post caesarean mothers in experimental group before and after hand and foot massage at $p \leq 0.05$ level. There will be a significant difference in post-test score on pain among post caesarean mothers in experimental and control group at $p \leq 0.05$ level. There will be a significant association between pain with their selected demographic variables among post caesarean mothers in experimental and control group at $p \leq 0.05$ level. **Conceptual Framework:** Wall & Melzack’s Gate Control Theory **Methodology:** Quantitative approach quasi Experimental – pre test post test control group design was used. 60 samples were selected by non randomized purposive sampling technique. Pretest was conducted by Numerical Pain Intensity Scale to assess the pain among post caesarean mothers to both groups. Massage was given in experimental group 20 minute once a day first 2 post operative days, no intervention for control group. The post test was conducted on the day evening for both groups. **Results:** The findings revealed that the pre and post test mean difference was day-I 68 and 35 and day- II 61 and 26 with t-value is 1.69 which is highly significant ($p < 0.001$) **Conclusion:** The statistical evidence proved that the massage technique was very much effect in reducing post caesarean pain.

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INTRODUCTION

CHAPTER I

INTRODUCTION

“Every pain is a gift. Every pain is an opportunity.”

Maxime lagace.

A **mother** is the female parent of a child. Mothers are women who inhabit or perform the role of bearing some relation to their children, who may or may not be their biological offspring. Thus, dependent on the context, women can be considered mothers by virtue of having given birth, by raising their children, supplying their ovum for fertilisation, or some combination thereof. Such conditions provide a way of delineating the concept of motherhood, or the state of being a mother.

Motherhood is a gift for every woman. 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 types 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.

"Motherhood" can be differentiated from mothering, actually caring for children, and also from the biological events, pregnancy, birth, and lactation, associated with maternity.

Caesarean sections are lifesaving if you need them. In some situations, a C-section is not only preferable but mandatory situations involving conditions like placenta previa, in which going into labor would precipitate life-threatening hemorrhaging, or cord prolapse, which can cause the death of a baby if a C-section is not performed in a manner of minutes. But in most instances, the surgery is not the preferred mode of delivery. Evidence and expert consensus are

consistent on the message that C-sections, on average, come with greater risks than vaginal births: more blood loss, more chance of infection or blood clots, more complications in future pregnancies, a higher risk of death. Even if serious complications don't occur, C-section recovery tends to be longer and harder.

Caesarean section is one of the commonly performed surgical procedures in obstetric and is certainly one of the oldest operations in surgery.

A C-section typically takes 45 minutes to an hour. It may be done with a spinal block, where the woman is awake, or under general anaesthesia. A urinary catheter is used to drain the bladder, and the skin of the abdomen is then cleaned with an antiseptic. An incision of about 15 cm (6 inches) is then typically made through the mother's lower abdomen. The uterus is then opened with a second incision and the baby delivered. The incisions are then stitched closed. A woman can typically begin breastfeeding as soon as she is out of the operating room and awake. Often, several days are required in the hospital to recover sufficiently to return home.

An approximately one third of caesarean sections are performed electively and two third are performed as emergency procedures. Primary caesarean sections have a major contribution in determining the future obstetric course of a woman. Among the primary caesarean deliveries the most common indication for an elective procedure is breech presentation and for an emergency procedure includes labour dystocia and 6 non-reassuring foetal heart rate tracings.

Caesarean section was originally a surgical solution to solve the problems associated with difficult labour, but now there are no controls over its use. This increasing popularity has led to a rapid growth in the number of Caesarean section operations worldwide. The percentage of births delivered by Caesarean section has increased in the United Kingdom from 18% in 1997

to 25% in 2010, and in the United States, the percentage has increased from 27% in 1997 to 31.8% in 2011 (Curran et al., 2016). A survey by the World Health Organization showed that the average percentage of deliveries by Caesarean section in developed countries has reached 25%, which is considerably greater than the 15% recommended by the World Health Organization (Curran et al., 2016). In Asia, the ratio is even higher. In Iran, the proportion of Caesarean section operations is close to 40%, and in some areas the proportion is as high as 52.8% (Khadem and Khadivzadeh, 2009). In China, the percentage has reached 34.9% (Tian, 2017), however, in some rural areas, this proportion is even higher.

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.

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.

Dr. Meha K. Patel, (2019) the study was conducted in using modified Robson's ten group classification system at GMERS Gotri Medical College, Vadodara, and Gujarat, India. Totally 1531 deliveries in a year of 2019, out of them 456 was cesarean section, the main contributions to overall caesarean rate was 40.78%.

The study was conducted at the postnatal caesarean ward of El-Shatby Maternity University Hospital in Alexandria Governorate. The study Subjects were selected by using the

non probability sampling technique where a purposive sample of 70 post caesarean section women were recruited according to inclusion criteria. The study subjects were equally assigned to one of two groups: a control and experimental group. Each group comprised 35 women. Three tools were used for data collection. Socio-demographic & clinical profile structured interview schedules, Johansson Pain-0- Meter Scale (JPOM) and a modified version of Chamber Price pain rating scale (CPPRS).

Many measures are used to reduce post Lower Segment Caesarean Section pain; the quick and easier method people go for is the use of analgesics to reduce pain. Pain relief medications reduce pain but cause a variety of unpleasant side effects. But we cannot even neglect these discomforts as it may cause serious effect on physical and psychological aspect of post C-section mothers. There are some simple, effective, low cost methods to reduce post Lower Segment Caesarean Section pain, they are the non-pharmacological methods.

Non-pharmacological pain relief method is a good option for the obstetric nurse to manage post-caesarean pain. Examples of those methods include massage, relaxation techniques, calming music, mind-body practices, herbal remedies, mentalism, and therapeutic touch. Such techniques have verified their efficiency in soothing pain level. Natural almost instinctive way to care.

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.

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 methods to reduce pain among post operative patients.

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.

1.1 Need for the study

The National Family and Health Survey have shown that there is a significant increase in the rate of caesarean births in India. While the WHO recommends the rate of caesarean delivery to be 10-15%, the number was 17.2% for India during the period from Jan 2015 to Dec 2016. This is higher than the rate seen in rich countries such as the Netherlands and Finland. The report says that if this trend continues, India could soon have the largest number of C-section births in the world.

Caesarean birth rates continue to rise worldwide with recent (2016) reported rates of 24.5% in Western Europe, 32% in North America, and 41% in South America. The objective of this systematic review is to describe the long-term risks and benefits of caesarean delivery for mother, baby, and subsequent pregnancies.

Caesarean birth rate in India has crossed WHO threshold of 15%, says study. Experts blame unregulated market & increasing trend of women opting for it. Since 2008-09, caesarean-section deliveries — also known as C-section — have doubled in India at both government and private hospitals. According to data collected by the Union Ministry of Health and Family Welfare under the Health Management Information System (HMIS), over 14 per cent of the total births in 2018-19 took place through a C-section — around 19 lakh births out of the total 1.3 crore — in public hospitals. In private hospitals, C-sections have quadrupled from 4 lakh in 2008-09 to 20.5 lakh in 2018-19. A decade ago, these surgeries accounted for 17 per cent of the total births at private hospitals, which have now doubled to 33.8 per cent.

Caesarean section (C-section) is a major obstetric intervention introduced in late Nineteenth century to save lives of women and their newborns from life-threatening pregnancy and childbirth related complications. The population-based C-section rate is considered as a process indicator in maternal health to monitor progress. World Health organisation (WHO) has recommended that the population based C-section rate should lie between 5 and 15 percent to have an optimal impact. Nevertheless, the past decade has observed a tremendous increase in population based all-cause C-section rates globally. Recent data from both developed and developing countries have documented the average rate of 27% C-section during year 2013.

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.

One of the complementary therapy methods to reduce pain is foot and hand massage. Massage is a systematic and rhythmic form of touch, using certain manipulations of the soft tissues of the body in order to promote patients' comfort, well-being and pain relief. Foot and hand massage stimulates the nerve fibers to produce pain-relieving endorphins. Since the highest concentration of pain receptors are in the hands and feet (each of the extremities has more than 7,000 nerve endings), foot and hand massage and neurons' stimulation may be a good technique for assuaging pain after caesarean section.

The study was conducted in the caesarean section postnatal rooms at Benha University Maternity hospitals. Sample: It was involved 148 mothers, divided into 74 mothers as control group that received post caesarean section hospital routine care for pain relief and 74 mothers as intervention group that received 10 minutes foot massage for pain relief every 6 hours, 12 hours, and 18 hours. There was significant relieving of pain level among intervention group compared to control group at different assessment times ($p < 0.001$). Findings indicated that, the most cited description of pain among the study group mothers were fearful, tender, heavy and stabbing pain. While, the most prominent factors that aggravating pain were sitting, walking and carrying of the newborn. Also, more than half of subjects among control and less than half of intervention groups reported that, they had information about post caesarean section incision pain relief measures. There was better satisfaction among mothers in the intervention group regarding post caesarean section pain relief measures than among the control group subjects. Recommendations: The health education training program for nurses about foot massage because it is an inexpensive pain relief measure, with no harm to mothers. In addition, there is need for further studies in this area also studies to investigate the health team attitude regarding this method.

The Series tracks trends in C-section use globally and in nine regions based on data from 169 countries from WHO and UNICEF databases. Globally, C-section use has increased by 3.7% each year between 2000-2017 - rising from 12% of live births (16 million of 131.9 million) in 2000, to 21% of live births (29.7 million of 140.6 million) in 2015.

Caesarean sections are becoming an increasingly used mode of delivery and as per NFHS 4 data the caesarean section rate in India is 17.2%. The NFHS 4 found that in Tamil Nadu the overall caesarean section rate is 34.1% with a rate of 32.3% in the rural area and 36.1% in the urban area year of 2018. The caesarean section rates in the rural and urban areas of Tamil Nadu are similar and were attributed to an almost equal access to health care service.

National Health Systems Resource Centre Data Management & Analysis This data analysis is primarily presented to facilitate the use of this information by District level Programme in year of 2018. Tamilnadu - District – Madurai.C- Section deliveries private and public rate is Elective C-section no-688 and Emergency- 8339, totally 9,027.

1.2 Statement of the problem

“A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District.”

1.3 Objectives of the study

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

1.4 Hypotheses

H₁: There will be a significant difference on pain among post caesarean mothers in experimental group before and after hand and foot massage at $p \leq 0.05$ level.

H₂: There will be a significant difference in post-test score on pain among post caesarean mothers in experimental and control group at $p \leq 0.05$ level.

H₃: There will be a significant association between pain with their selected demographic variables among post caesarean mothers in experimental and control group at $p \leq 0.05$ level.

1.5 Operational definitions

Effectiveness:

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

Hand and foot massage:

A method of hand and foot massage was given by stroking, effleurage, pulling and squeezing, arch press and completion the hand and foot to stimulate circulation and promote a sense of wellbeing. Hand and foot massage will be given to the women, for 20 minutes (5 minutes in each extremity) once a day for 2 days from the first post-operative day.

Pain:

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

Lower Segment Caesarean Section: It refers to a surgically made incision on the lower segment of a pregnant uterus in order to deliver the baby safely.

Mothers: It refers to mothers who have delivered baby by a surgical incision on the abdomen and uterus from first and second day of post lower Segment Caesarean Section period, irrespective of her parity.

1.6 Assumptions:

It was assumed that,

1. The mothers those who have undergone caesarean section have pain.
2. Massage would be effective in reduce the pain.

1.7 Delimitations:

The study was limited to,

1. Women who have undergone caesarean section are included 1st and 2nd postoperative day.
2. 6 weeks of data collection.
3. 60 samples only.

1.8 Projected outcome

This study was conducted to evaluate the effectiveness of hand and foot massage on pain among post caesarean 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.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Literature review is standard requisition of scientific research. It means reading and writing the pertinent information of the attempt in research topic. It also support and explain why the proposed topic is taken for research and avoids unnecessary duplication explore the feasibility and illuminate the way of new research.

Review of literature is a key step in research process. Nursing research may be considered as a continuing process in which knowledge gained from earlier studies is an integral part of research in general. In review of literature a researcher analysis existing knowledge before delivering into a new study and when making judgment about application of a new knowledge in nursing practice. The literature review is an extensive, systemic, and critical review of the most important published scholarly literature on particular topic.

Part I –Review of literature

Part II -Conceptual frame work

Part I -Review of Literature

The literature was reviewed and presented under the following heading.

2.1 Literature related to post caesarean pain.

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

2.1 Literature related to post caesarean pain:

Andrew Kintu et al. (2019) conducted a descriptive hospital based survey on to assess the severity of post caesarean section pain and to identify analgesic medications used to control post caesarean section pain and resultant patient satisfaction on about 333 post caesarean mothers at National Referral Hospital in Kampala. The data was collected by a questionnaire. Subjective assessment of the participants' pain was done using the numerical pain scale (0 to 10) and 24 h after surgery with 0 having no pain and 10 having experienced the worst pain. Pain control medications used in the first 24 h following caesarean section at this hospital included diclofenac only, pethidine only, tramadol only and multiple pain medications. There were mothers who did not receive any analgesic medication. The highest pain scores were reported at 6 h (median: 37; (IQR: 37.5). 68% of participants reported they were satisfied with their pain control.

Quart Ui Ain et al. (2018) done on experimental, randomized controlled study to determine effectiveness of post natal exercises to improve incision pain and functional activities in female following caesarean section, 20 female patients were included at Pakistan Railway Hospital in collaboration with physiotherapy department. Subjects were randomly allocated in two groups; one receiving post-natal exercise plan and the other receiving routine nursing care. Numeric Pain Rang Scale used at 1st & 2nd Post-Operative Day in both groups. Mean age for interventional group was 28.10 ± 5.30 and 29.60 ± 2.54 for the control group. Mean body mass index for the interventional group was 23.84 ± 2.90 and for control group it was 22.07 ± 5.66 . Independent t test was applied to assess the difference in the ambulation of groups and was found non-significant with p value of greater than 0.05 ($p = 0.230$)

Dor. Equipe de enfermagem et al. (2017) conducted a descriptive study was conducted to measure and characterize post C-section pain and to verify its relationship with limitations of physical activities, 60 mothers in postoperative period of C-section were taken, and intensity of pain was measured with both numeric scale and McGill pain questionnaire. Limitations of physical activities were measured with a specific instrument developed for the study. All participants reported that the pain limited their movements for sitting down and standing up and characterized the pain as annoying, grasping and straining. Significantly reduces postoperative pain in ($p < 0.05$).

Shaman Bhardwaj et al. (2017) conducted a double-blind study to compare the efficacy of local subcutaneous wound infiltration of ropivacaine alone with ropivacaine plus dexmedetomidine for postoperative pain relief following lower segment caesarean section at American Society of Anaesthesiologists. Sixty post caesarean mothers included in this study. In postoperative period, pain was assessed using visual analog scale. One group receiving local wound infiltration with ropivacaine plus dexmedetomidine until postoperative 12 h (601.54 ± 111.65) compared with that of group receiving ropivacaine alone (735.85 ± 158.43). Based on this, a sample size of 54 patients was needed to detect 10% difference with 90% power and α of 0.05. Dexmedetomidine added to ropivacaine for the surgical wound infiltration significantly reduces postoperative pain and rescue analgesic consumption in patients undergoing LSCS patients.

Dr. Bhuvana Krishnaswamy et al. (2016) conducted a comparative study to evaluate efficacy and safety of piroxicam and tramadol in post-caesarean section pain. A total of 120 primigravidae women aged between 20-35 years selected by simple random sampling technique. They were assigned to two groups of 60 women each. Group 1 received single dose of injection piroxicam 20mg and group 2 injection tramadol hydrochloride 100mg intramuscularly immediately after recovery from anaesthesia. Pain intensity was measured using

Visual Analogue Scale and 2, 4, 8, 12 and 24 hours post-operatively, Sedation and nausea was significantly higher in tramadol group ($p < 0.001$), 46.66% of patients graded their satisfaction score as good and 15% as excellent in piroxicam group. Intra-muscular piroxicam was effective in reducing post-caesarean pain for 24 hours with minimal.

Natalia de Carvalho Borges et al. (2016) the study is a part of a prospective open cohort, in a city from the central region of Brazil. Aim of this study was to investigate the incidence and predicting factors of postoperative pain after caesarean section, 1,062 women selected by random sampling technique, we used the 11-point Numerical Pain Scales. We performed logistic analysis to identify predictors of moderate to severe postoperative pain. The incidence of moderate-severe postoperative pain was 78.4% (CI: 95%: 75.9%–80.8%). were significantly associated with moderate-severe postoperative pain report. The intrathecal morphine with fentanyl added to bupivacaine was a protective factor against this pain.

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

W. Shebi Moll et al. (2020) conducted a Quasi experimental study, to evaluate the effectiveness of Hand and Foot massage on level of pain perception among Lower Segment Caesarean Section mothers at selected Hospital, in Kanyakumari District. 60 lower segment caesarean section mothers are selected by purposive sampling technique. The participants were divided into two groups 30 each in study group and control group. The structured questionnaire was developed to collect the data. Pre test was done for both the groups by using Numerical Pain Rating Scale. Hand and foot massage was given for 30 minutes to the study group for 5 days (Morning). Post test was done for both the study group and control group. The estimated paired 't' value was 1.70 which was significant at $p < 0.05$. This shows that the hand and foot massage is effective in reducing the level of pain perception among Lower Segment Caesarean Section mothers.

Jayanthi Babu et al. (2019) had done a true experimental study, to assess the level of pain in incision site among post-caesarean mothers at obstetrical care units at MGMCRI, Puducherry. 90 post caesarean mothers are selected by simple random sampling technique (lottery method). Then they are divided into three groups, each group as 30 respondents, Hand massage was given to group I, foot massage to group II, and no intervention for group III. Data was collected structured questionnaire and Pain was assessed by numerical pain rating scale. In the intervention for group I (hand massage) after the assessment of pre test level of pain was, the first time of intervention was performed for 10 minutes in each hand and post test level of pain was assessed immediately. The second time of intervention was performed at an interval of 60 minutes and post test level of pain was assessed. In the intervention for group II (foot massage) after the assessment of pre test level of pain, the first time of intervention was performed for 10 minutes in each foot and post test level of pain was assessed immediately. The second time of intervention was performed at an interval of 60 minutes and post test level of pain was assessed. In group III (control group) after the assessment of pre test level of pain, mothers were under their daily routine, and after 20 minutes, post test level of pain was assessed. After 60 minutes of interval, again post test level of pain was assessed. It was highly statistically significant at $p < 0.001$ level in group I and group II. There is a significant difference between pre- and post test 1 values of pain level in both group I and group II. From this study, hand massage and foot massage should be followed by the obstetrical care unit nurses as evidence-based practice for reducing pain during post-caesarean period.

Sharma Komal, Kumari Rekha (2019) conducted a quasi experimental study to determine the effectiveness of foot and hand massage on reducing post caesarean pain among the post natal mother at SNSR, sharda university, Greater noida. 60 mothers are selected by simple Random technique. 30 in experimental group and 30 in control group. Data was collected structured questionnaire and Pain was assessed by numerical pain rating scale. Intervention

was performed for 20 minutes for 5 minutes in each extremity. It was highly statistically significant at 0.05% level in experimental group. Hand massage and foot massage can be used in post-caesarean period.

Eva Yunitasari et al. (2018) had done a quasi-experimental study with non-randomized control group pre test-post test design, to investigating the effectiveness of hand, foot massage and combinational on pain intensity in post caesarean patients at Pringsewu general hospital, Lampung. 51 respondents participated in this study. Then they are divided into three intervention groups, each group as many as 17 respondents. Group A (hand massage), B (foot massage) and C (hand and foot massage). Structured questionnaire on knowledge was used for data collection. Pain was assessed by numerical pain scale method. There is a significant difference in the intensity of pain before and after with p-value 0, 0005. Mean difference hand massage 1,058; foot massage 0.882; and the combination of hand and foot massage -0.882. It is suggested that hand massage is more effective in lessening the pain intensity among post section patients comparing to the other two groups. The hand massage could be used as an independent nursing intervention on pain distraction among post section caesarean patients besides foot massage and combination groups.

Saatsaz et al. (2016) conducted a single-blind clinical trial to determine the effect of massage on post-caesarean pain. 156 primiparous women had undergone elective caesarean section. The participants were randomly divided into three groups, including a hand and foot massage group, a foot massage group and a control group (n = 52 per group). The patients' intensity of pain, were measured numerical pain scale before, immediately after and 90 min after the massage. Structured questionnaire on knowledge was used for data collection. A significant reduction was observed in the intensity of pain immediately and 90 min after massage (P < 0.001). As an effective nursing intervention presenting no side-effects, hand and foot massage can be helpful in the management of postoperative pain and.

Masoumeh Kordi. (2016) Randomized clinical trial was conducted on 80 women referring to the maternity ward for elective cesarean in Omolbanin Hospital, Mashhad, Iran. The aim of the study was to determine the effect of hand and foot massage on pain among post caesarean mothers. The 10 point numerical 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 ($P>0.05$). Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesics ($p<0.001$).

Morvarid Irani et al. (2015) Conducted a single-blinded, randomized clinical trial to determine the effect of foot and hand massage on pain, patients after caesarean section at Omolbanin Hospital, Mashhad, Iran. 80 mothers selected through convenience sampling method. Subsequently, the participants were randomly assigned to two groups, and the visual analog scale was used to determine the level of pain and anxiety. Each foot and hand was massaged for five minutes, and then the levels of pain and anxiety were evaluated before the intervention and immediately, 60 and 90 minutes after the intervention. The findings of this study showed that there was no significant difference between the two groups concerning their levels of pain and anxiety before the massage ($P>0.05$). However, the levels of pain and anxiety significantly decreased in the intervention group, immediately, 60 and 90 minutes after the intervention.

Zahrr Abbaspoor et al. (2014) 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 post caesarean mothers. Eighty women who had an elective caesarean section and who met inclusion criteria were selected. The numerical pain scale was used to measure the pain intensity before, immediately and 90 minutes after conducting 5

minutes of foot and hand massage. 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 ($p < 0.001$).

Hanan A. et al. (2014) did an intervention study, to investigate the utilization of natural measures on relieving post caesarean incision pain at Ain Shams Maternity University Hospital. 150 women's are selected by random sample. It is divided into two groups, 75 control and 75 intervention groups. Data was collected by structured interviewing questionnaire method, numerical rating scale is used for assessment of pain ranging from 0 (no pain) to 10 (worst pain imaginable). The researcher applied the massage without using no special equipment, which includes petrissage, kneading, and friction applied to the patient's hands and feet using classical massage techniques for 20 minutes. A statistically significant difference in mean of pain level among study groups at 6, 12, 18 hours after delivery, ($p < 0.00$). The present study concluded that foot and hand massage as natural pain relief measures highly minimizes post caesarean section incision pain.

A. Ramadan et al. (2013) conducted a quasi experimental study to assess the effect of hand and foot massage on relieving mother's post caesarean section incision pain, at Benha University Maternity hospitals. It was involved 148 mothers, selected by convenience sample type, divided into 74 mothers as control group that received post caesarean section hospital routine care for pain relief and 74 mothers as intervention group that received 10 minutes hand and foot massage for pain relief every 6 hours, 12 hours, and 18 hours. Tools of data collected by structured interviewing questionnaire numerical pain scale was used to assess the pain intensity. There was significant relieving of pain level among intervention group compared to control group at different assessment times ($p < 0.001$). There was better satisfaction among mothers in the intervention group

regarding post caesarean section pain relief measures than among the control group subjects.

2.3 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 ones a day 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 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 T11-T12 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.

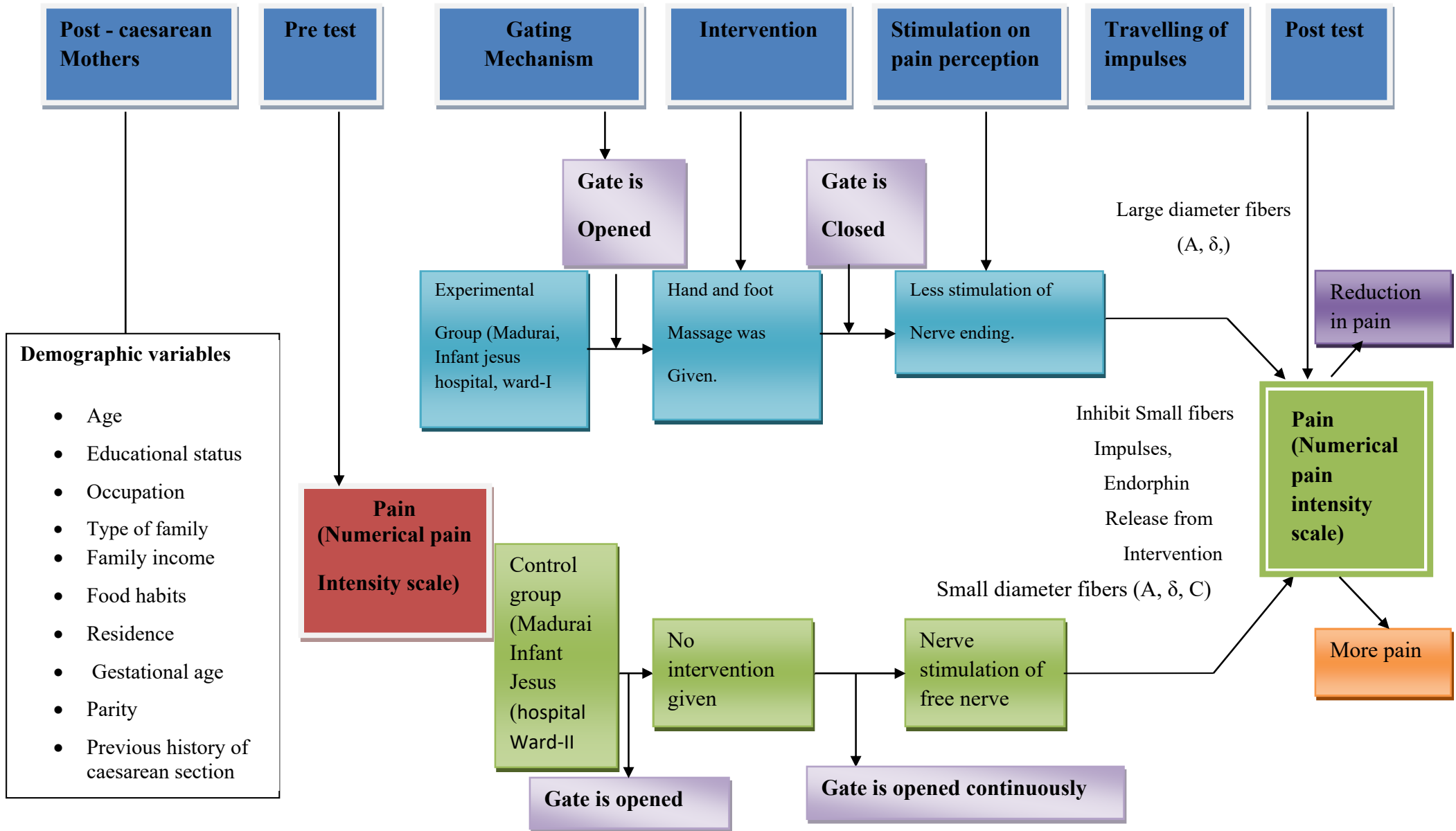


Figure-1.1: Conceptual Framework based on Wall & Melzack's Gate Control Theory (1965)

METHODOLOGY

CHAPTER-III

RESEARCH METHODOLOGY

This chapter deals with the Methodology followed Research methodology includes to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District.

It is the systematic way of doing a research to solve a problem. It comprises of the research approach, research design, statistical methods used for analyzing the data and the logic behind it. (Kothari CR, 2003). On the whole it gives a general pattern of gathering and processing the research data.

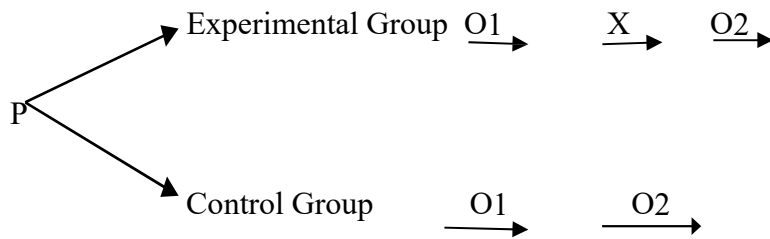
3.1 Research approach

A Research approach tells the researcher about the collection of data that is, what to collect, how to collect, and how to analyze .It also helps the researcher with suggestion of possible conclusions to be drawn from this data.

Quantitative implementive and evaluative Approach was adopted in the present study as the investigation is aimed at evaluating the effectiveness of hand and foot massage.

3.2 Research design

The research design adopted for this study was quasi experimental pre and post-test control group design. It is diagrammatically represented as,



Key:

P - Purposive sampling

O1 - Pre test of experimental group.

X - Administered hand and foot massage to the experimental group.

O2 - Post test of experimental group.

O1 - Pre test of control group.

O2 - Post test of control group

3.3 Research variables

Independent Variable

In this study Independent variable refers to Hand and foot massage on post caesarean mothers.

Dependent Variable

In this study dependent variable refers to Post-Caesarean pain.

Demographic Variables

This section deals with demographic data of the mothers. Age, education, occupation, Family type, Family Income, Food habits, Residence, parity, gestational age, and previous history of caesarean section.

3.4 Setting of the study

The study was conducted in Infant Jesus maternity hospital Madurai, which situated in the heart of the Madurai city. This Hospital has the infrastructure like one maternity outpatient department and general medicine. The large labour room attached with waiting room for mother who waiting for delivery. The maternity wards are separated like general ward, special ward and deluxe ward. There is a well equipped operation theatre, scrubbing room and utility room. They are nearly 80-100 outpatient come for regular Antenatal checkups, client with gynaecological disorders, family planning and infertility treatment. They conduct about 15-20 delivery per week.

3.5 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 post caesarean mothers.

Accessible Population

It refers to the aggregate of cases which confirm to the designed criteria. In this research, the accessible populations were the post caesarean mothers in Madurai Infant Jesus Hospital.

3.6 Sample

Sample in this study was post caesarean mothers those who met inclusion Criteria Infant Jesus Hospital, Madurai.

3.7 Sample Size

Sample size was 60. (30 Experimental group, 30 Control group).

3.8 Sampling technique

The samples were selected by using non randomized Purposive sampling technique.

3.9 Sampling criteria

The study sample was selected by the following inclusion and exclusion criteria.

Inclusion Criteria

- Post caesarean mothers in the first and second post operative day.
- Mothers who underwent caesarean section.
- Mothers who are willing to participate in this study.

Exclusion Criteria

- Mothers with neuromuscular problems in lower extremities.
- Mothers with cardiovascular, respiratory and psychological problems.
- Mother with skin disorder.

3.10 Description of tool and technique

The tool consists of two sections.

Section A: Deals with socio demographic data of the samples.

Section B: Numerical Pain Intensity Scale.

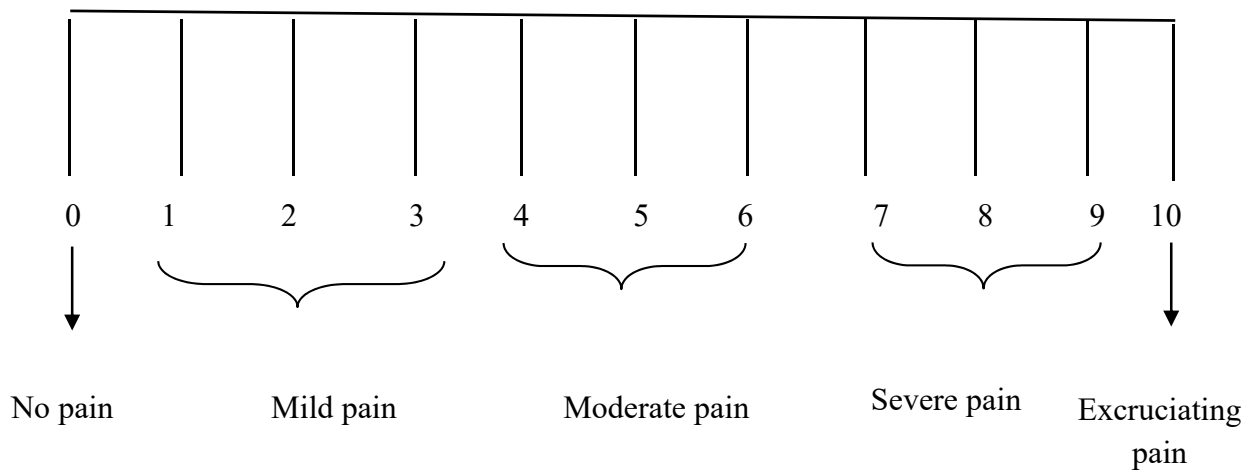
Section A

It consist of socio demographic variables such as Age, education, occupation, Family type, Family Income, Food habits, Residence, parity, gestational age, and previous history of caesarean section.

Section B

Numerical Pain Intensity Scale to assess the pain among post caesarean mothers.

3.11 Scoring Procedure



Data Description

0 - No pain

1-3 - Mild pain

4-6 - Moderate pain

7-9 - Severe pain

10 - Excruciating pain.

Testing of the tool

3.12 Content validity

The tool used in this study was Numerical pain scale and socio demographic profile which were validated by 5 experts including 4 Nursing experts in the field of Obstetrics and Gynaecological Nursing and 1 Medical expert in Obstetrics and Gynaecological department. The experts were requested to the relevance, sequence and adequacy of the items in the interview schedule. The tool was first drafted in English. Tool was translated to Tamil by an expert. Language validity was established by retranslation of tool in to English.

3.13 Reliability

Reliability of the tool was established by inter-ratter method. It was tested on 6 post caesarean mothers and it was found $r = 1$, which indicates reliability of the tool. Hence, the tool was considered for preceding the study.

3.14 Pilot study

Formal written permission was obtained from Infant Jesus Hospital to conduct pilot study from 20.01.2020 to 25.01.2020. Purposive sampling technique was used to select 6 post caesarean mothers, were assigned to experimental and control group from Infant Jesus Hospital ward I and Ward II. After obtaining verbal consent from the post caesarean mothers, demographic details were collected by using structured interview schedule. I plan to do my pre test on the first post operative day of my samples done by using numerical pain intensity scale, for experimental and control group. Then hand and foot massage was given by stroking, effleurage, pulling and squeezing, arch press and completion for 5 minutes in each extremities, total duration of 20 minutes and once a day for first 2 post operative days. 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.

3.15 Data collection procedures

Formal permission was obtained from the Professor and Head of the Department, of Obstetrics and Gynaecology, Matha College of nursing, Manamadurai, Principal and Head of the Department in college of nursing, the Managing Director of Infant Jesus, in Madurai. The data was collected for a period of 6 weeks. The researcher visited the postnatal ward and the samples that fulfilled the inclusive criteria were selected by non randomized purposive sampling technique. After obtaining verbal consent from the post caesarean mothers, the demographic variables were collected by using structured interview schedule. The pre-test 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, arch press and completion for 5 minutes in each extremities, total duration of 20 minutes and once a day for first 2 post operative days. 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.

3.16 Plan for data analysis

The data were planned to be analyzed in terms of the objectives of the study using descriptive and inferential statistics.

Descriptive statistics

1. Frequency and percentage distribution was used to analysis the socio-demographic variables of Post caesarean mother, Infant Jesus hospital Madurai.
2. Mean and standard deviation was used for assessing the pre-test and post-test level of Post caesarean mother, Infant Jesus hospital Madurai.

Inferential statistics

1. Paired t-test was used to examine the pre-test and post-test level of Post caesarean mother, Infant Jesus hospital Madurai.
2. Chi-square analysis was used to find out the association between levels of Post caesarean mother, Infant Jesus hospital Madurai.

3.17 Protection of human rights

The investigator obtained approval from dissertation committee of Matha College of Nursing. Permission was obtained from the Director of medical service of Infant Jesus Hospital, Madurai. An oral and written consent was obtained from all the study subjects and data collected was kept confidential. The subjects were informed that they can withdraw from the study at any time if they are not willing. Confidentiality and privacy was maintained throughout the study.

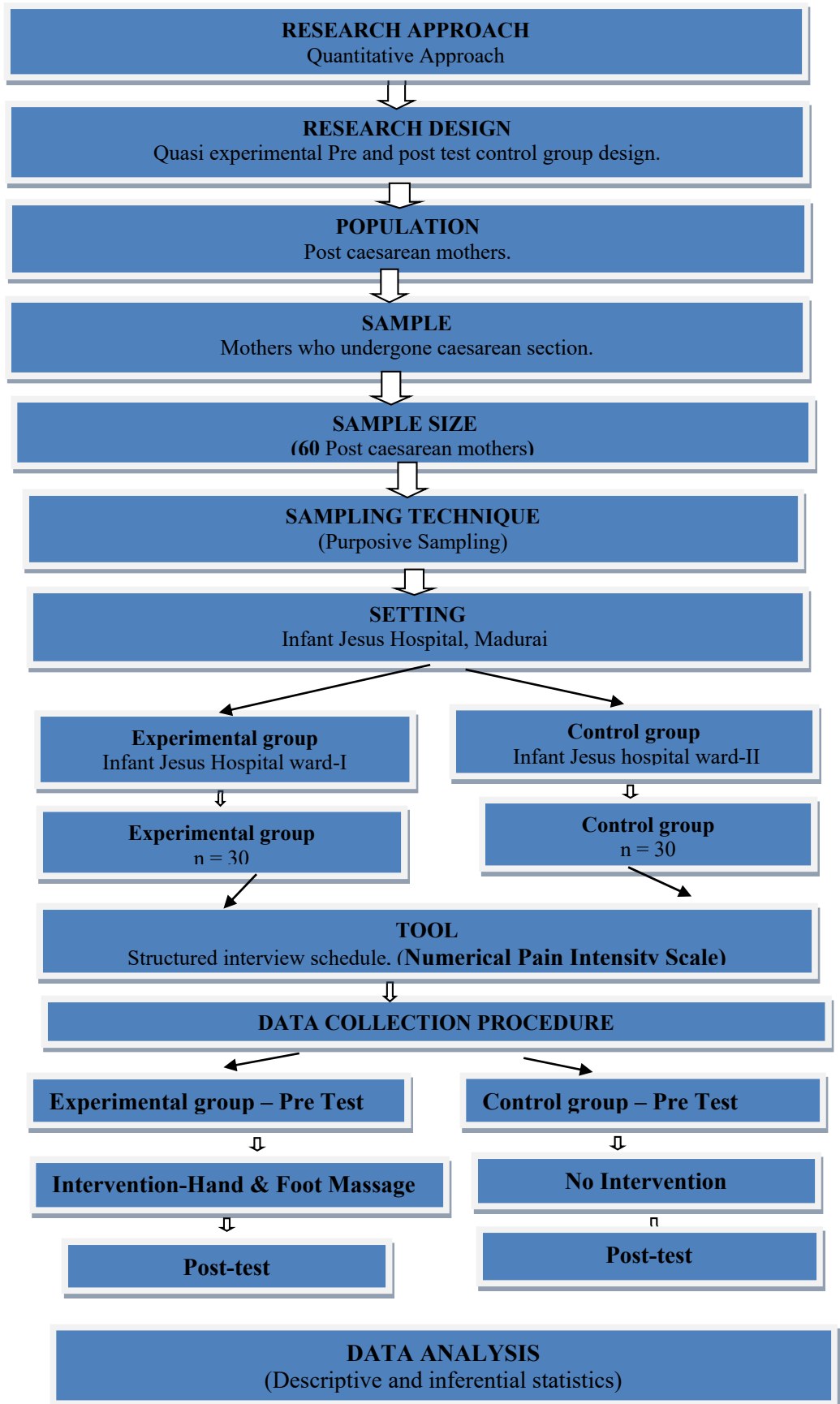


Figure 2: Schematic representation of research methodology

DATA ANALYSIS AND INTERPRETATION

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

The chapter deals with the analysis and interpretation of the data collected to evaluate the Effectiveness of hand and foot massage on pain among post caesarean mothers in Private Hospital, in Madurai.

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

Organization of the data

The analysis and interpretation of data was organized under the following section

Section-A:

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

Section-B:

Distribution of post caesarean mothers according to their pre test scores on pain in experimental and control group.

Section-C:

Effectiveness of hand and foot massage on pre test and post test scores of pain among post caesarean mothers in experimental group.

Section-D:

Association of pain among postcaesarean mothers with their selected demographic variables in experimental and control group.

Section I

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

Table 1 Frequency and percentage distribution of socio demographic variables in experimental and control group.

n=60

S.No	Socio Demographic variables	Experimental Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
1	Age in years				
	A) 18-20	5	16.6	6	20.0
	B) 21-25	11	36.7	13	43.3
	C) 26-30	12	40.0	9	30.0
	D) 31-35	2	6.7	2	6.7
2	2. Educational status				
	A) No formal education	2	6.6	3	10.0
	A) Primary education	20	66.7	17	56.7
	C) Higher secondary education	6	20.0	6	20.0
	D) Graduate	2	6.7	4	13.3
3	Occupation				
	A) Employed	20	66.7	11	36.7
	B) Unemployed	10	33.3	19	63.3
4	Type of family				
	A) Nuclear family	24	80.0	18	60.0
	B) Joint family	6	20.0	12	40.0

5	Family income				
	A) Less than Rs. 5000	11	36.7	17	56.7
	B) Rs.5001-6000	7	23.3	8	26.6
	C) Rs.6001-7000	5	16.7	2	6.7
	D) Rs.7001 and above	7	23.3	3	10.0
6	Food habits				
	A) Vegetarian	6	20.0	9	30.0
	B) Non-vegetarian	24	80.0	21	70.0
7	Residence				
	A) Rural	20	66.7	17	56.7
	B) Urban	10	33.3	13	43.3
8	Parity				
	A) Primi Gravida	14	46.7	15	50.0
	B) Multi Gravida	16	53.3	15	50.0
9	Gestational Age				
	A) 35 weeks	11	36.7	10	33.3
	B) 36 weeks	12	40.0	15	50.0
	C) 37 weeks	7	23.3	5	16.7
	D) 38 weeks	-	-	-	-
10	Previous history of caesarean section				
	A) Yes	13	43.3	14	46.7
	B) No	17	56.7	16	53.3

In the aspect of age, majority of the post caesarean mothers 12(40.0%) were belongs to the age of 26-30 years, 11(36.7) were belongs to the age 21-25 years, 5(16.7) were belongs to the age of 18-20 and the least were 2(6.7) belongs to the age of 31-35 years and above in experimental group and in the control group 13(43.3) were in 21-25 years, 9(30.0) were in 26-30 years, 6(20.0) were in 18-20, and 2(6.7) post caesarean mothers between 31-35 years of age group.

Based on educational status, 20 (66.7%) were had primary education, 6 (20.0%) were higher secondary education, 2 (6.7%) were graduate and 2 (6.7%) were no formal education in formal education. In control group 17 (56.7%) were had primary education, 6 (20.0%) were higher secondary education, 4 (13.3%) were graduate and 3 (10.0%) were in formal education.

Based on occupation, most of the mother, 20 (66.7%) were employed and 10 (33.3%) were unemployer in experimental group. In control group most of the mother, 19 (63.3%) were unemployed and 11 (36.7%) were employer.

Regarding the types of family, most of the mothers 24 (80%) were from nuclear family and remaining 6 (20%) were from joint family in experimental group. Similarly in control group, most of the mothers 18 (60%) were from nuclear family and remaining 12 (40%) were from joint family.

About family income of mother, most of their salary in experimental group 11 (36.7%) less than Rs. 5000, 7 (23.3%) earned Rs. 5001-6000, 7 (23.3%) earned 7001 and above and 5 (16.7%) earned Rs. 6001-7000. In control group 17 (56.7%) less than Rs. 5000, 8 (26.7%) earned Rs. 5001-6000, 3 (10.0%) earned 7001 and above and 2 (6.7%) earned Rs. 6001-7000 per month.

Regards to food habits of mothers, most of them had 24 (80.0%) were non-vegetarian and 6 (20.0 %) were vegetarian in experimental group. In control group, most of them had 21 (70.0%) were non-vegetarian and 9 (30.0 %) were vegetarian.

In regards to Residence, most of the mothers 20 (66.6%) residing in rural area and 10 (33.3%) were residing in urban area in experimental group. Similarly in control group, 17 (56.7%) living in rural area and 13 (43.3%) living in urban area.

Based on parity, most of the mothers, 16 (53.3%) of them are multi gravida and 14 (46.7%) are multi gravid in experimental group. In control group 15(50.0%) of them are primi and 15 (50.0%) are multi gravid.

According to gestational age, 12 (40.0%) of them 36 weeks, 11 (36.7%) of them 35 weeks, 7 (23.3%) of them 37 weeks and none of them in 38 weeks in experimental group. In control group 15 (50.0%) of them 36 weeks, 10 (33.3%) of them 35 weeks, 5 (16.7%) of them 37 weeks and none of them in 38 weeks of gestation.

Related to Previous history of caesarean section, in experimental group most of them 17 (56.7%) have no previous history of caesarean section and 13 (43.3%) of them have previous history of caesarean section. In control group 16 (53.3%) have no previous history of caesarean section and 14 (46.7%) have previous history of caesarean section.

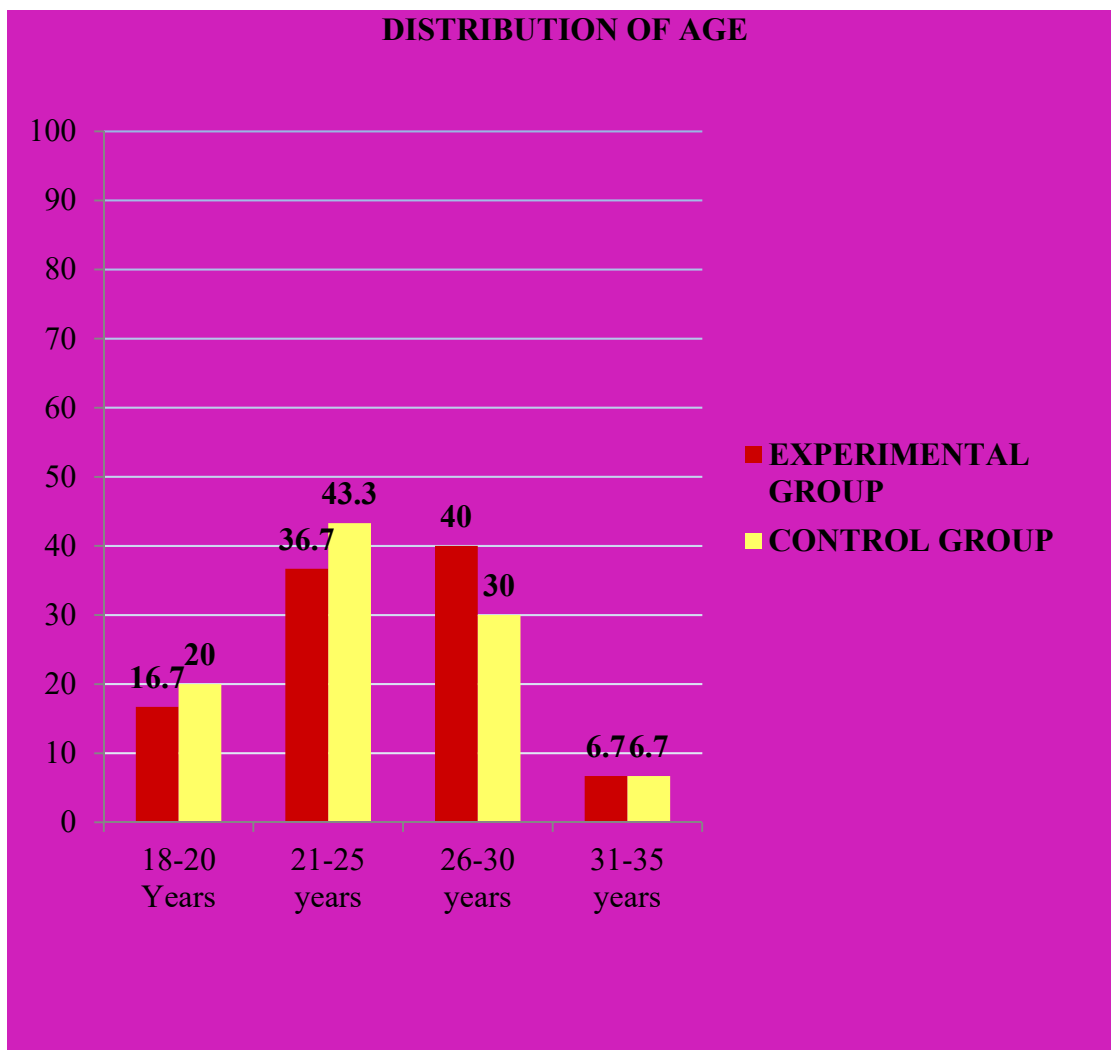


Figure 1: Percentage distribution according to their age in years both in Experimental and control group.

The above bar diagram shows that in experimental group the higher percentage of subjects 12(40.0%) was in between 26-30 years of age group, 11(36.7) was in the age of 21-25 years, 5(16.7) between the age of 18-20 years and the least were 2(6.7) was in the age of 31-35 above, in control group most of the subjects 13(43.3) was in between 21-25 years of age group, 9(30.0) in between 26-30 years of age group, 6(20.0) was in between 18-20 years of age group and the least were 2(6.7) was in the age of 31-35 years.

DISTRIBUTION OF EDUCATION

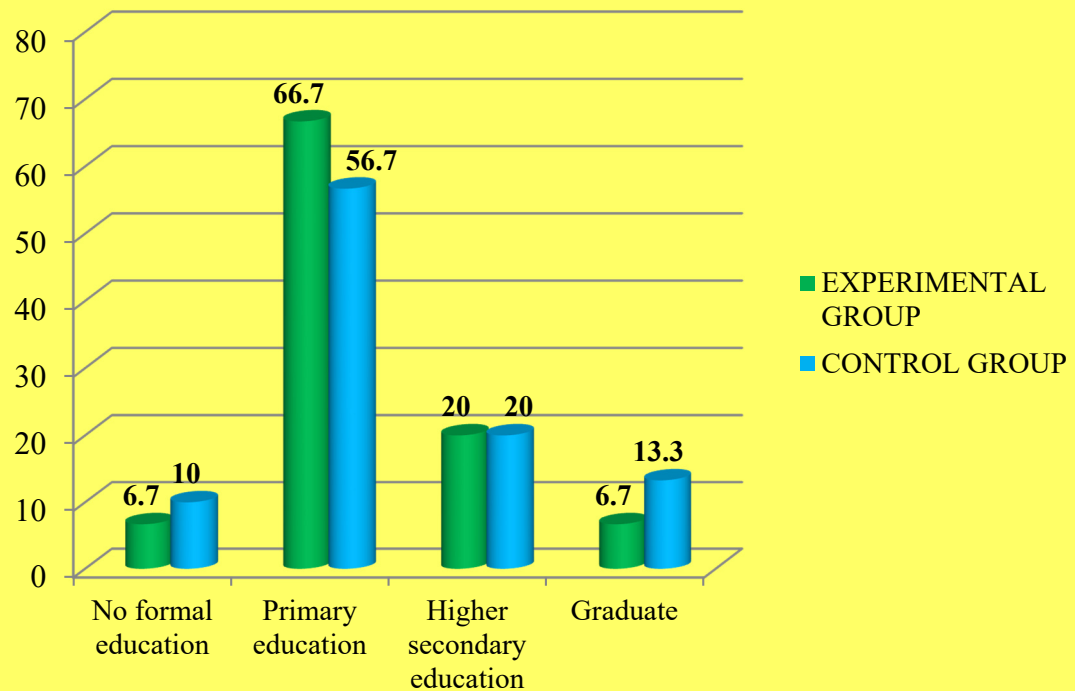


Figure 2: Percentage distribution based on educational status both in Experimental and control group.

The above cylindrical bar diagram that in mothers in experimental group most of the mothers 20 (66.7%) were had primary education, 6 (20.0%) were higher secondary education, 2 (6.7%) were graduate and 2 (6.7%) were no formal education in formal education. In control group 17 (56.7%) were had primary education, 6 (20.0%) were higher secondary education, 4 (13.3%) were graduate and 3 (10.0%) were in formal education.

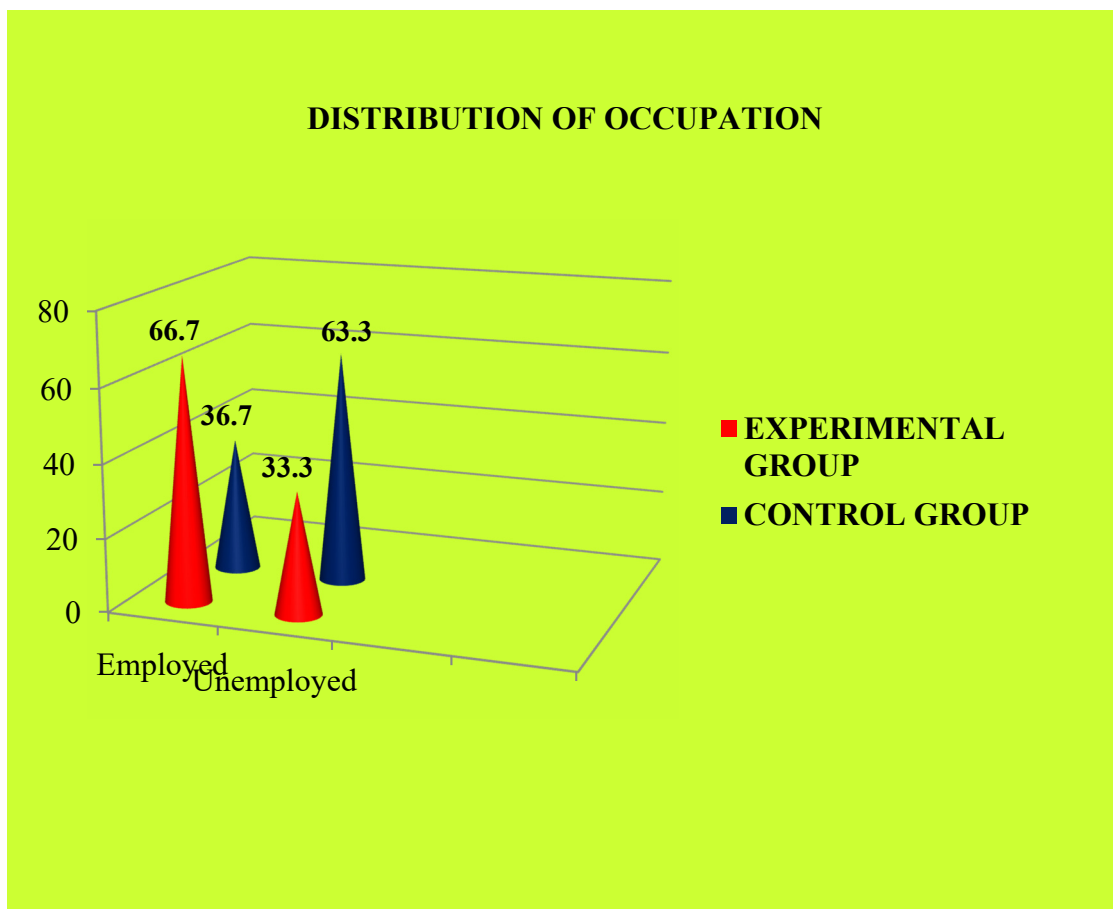


Figure 3: Percentage distribution based on occupation of mother both in Experimental and control group.

The above cone diagram shows that most of the mothers in experimental group, 20 (66.7%) were employed and 10 (33.3%) were unemployer in experimental group. In control group most of the mother, 19 (63.3%) were unemployed and 11 (36.7%) were employer.

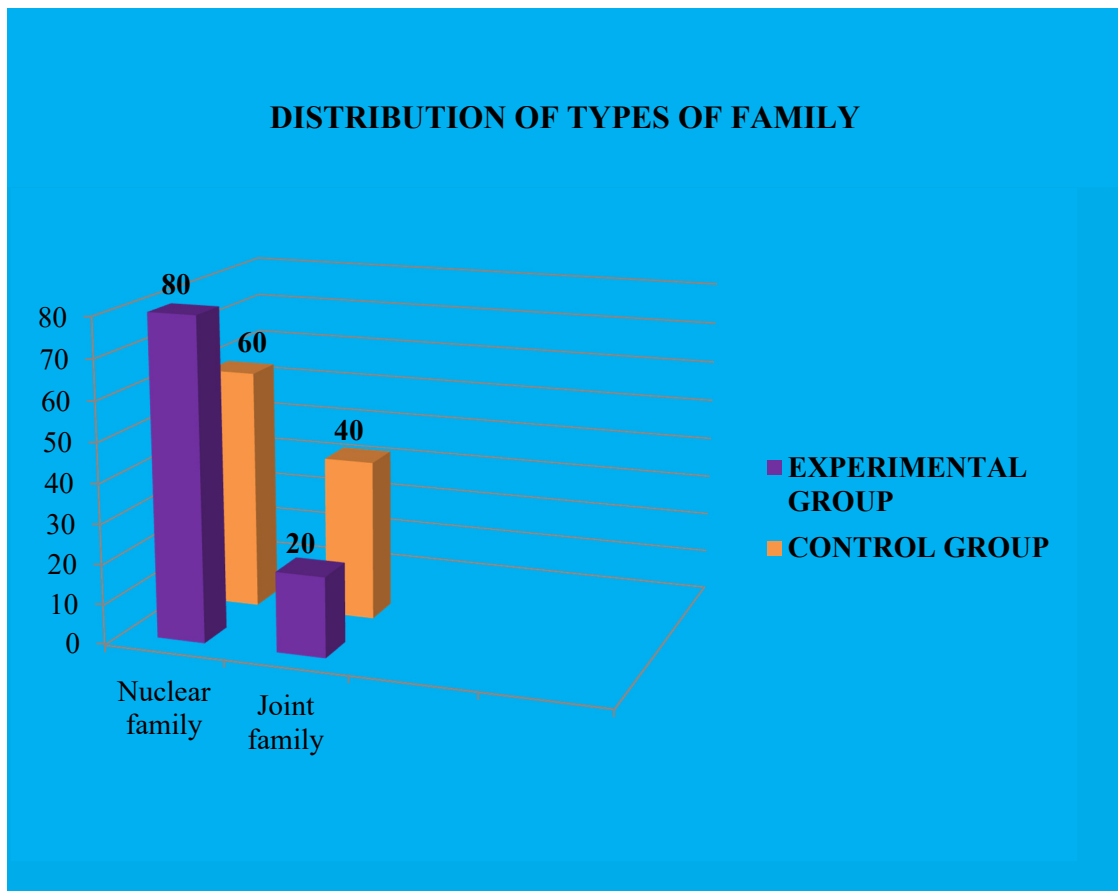


Figure 4: Percentage distribution based on family type both in experimental and control group.

The above bar diagram illustrates that most of the mothers 24 (80%) were from nuclear family and remaining 6 (20%) were from joint family in experimental group. Similarly in control group, most of the mothers 18 (60%) were from nuclear family and remaining 12 (40%) were from joint family.

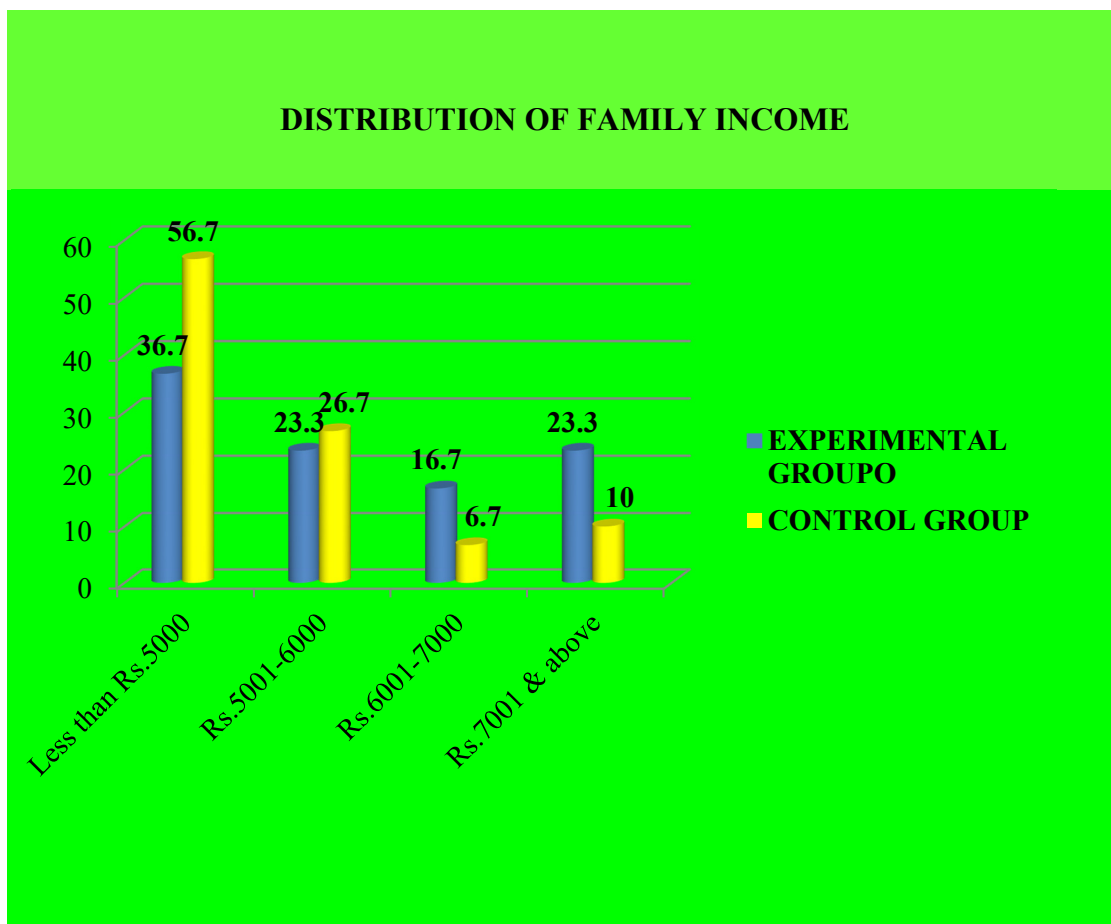


Figure 5: Percentage distribution based on family income both in experimental and control group.

The above cylindrical diagram shows that most of the family income in experimental group 11 (36.7%) less than Rs. 5000, 7 (23.3%) earned Rs. 5001-6000, 7 (23.3%) earned 7001 and above and 5 (16.7%) earned Rs. 6001-7000. In control group 17 (56.7%) less than Rs. 5000, 8 (26.7%) earned Rs. 5001-6000, 3 (10.0%) earned 7001 and above and 2 (6.7%) earned Rs. 6001-7000 per month.

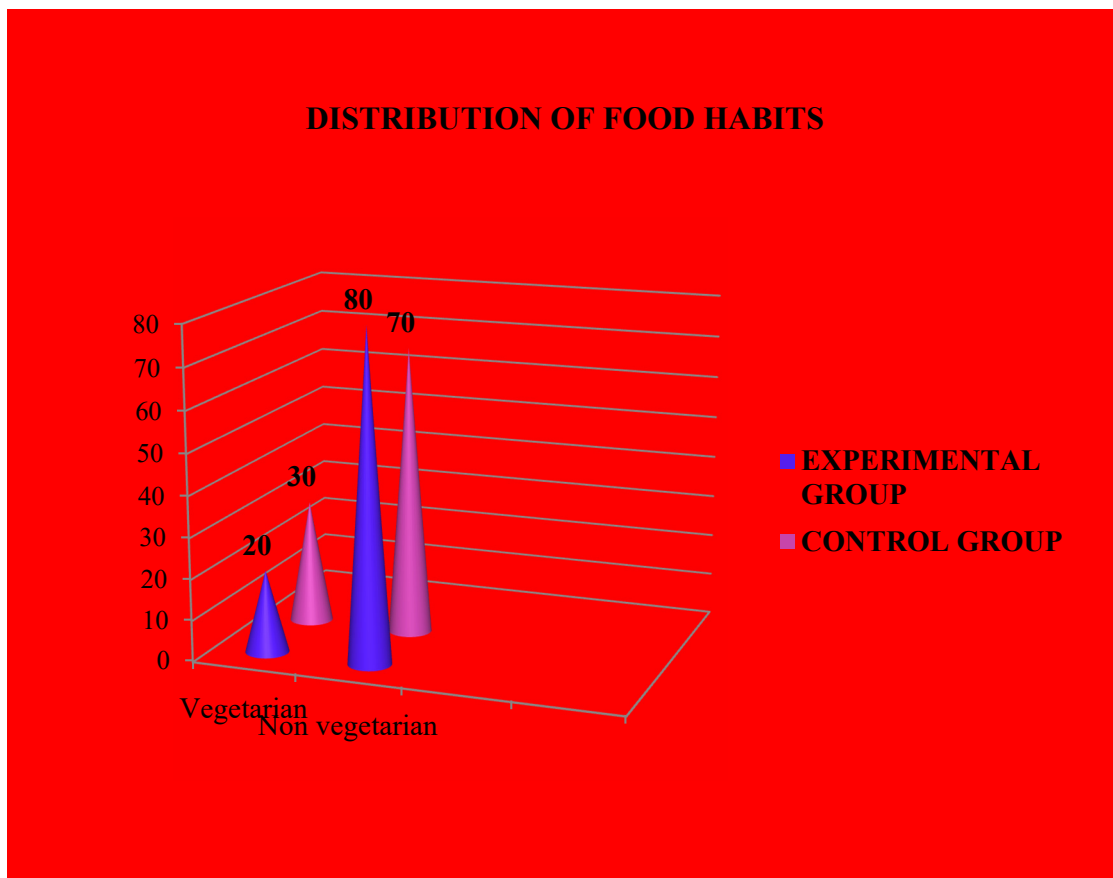


Figure 6: Percentage distribution based on food habits both in experimental and control group.

The above cone diagram shows that most of them had 24 (80.0%) were non-vegetarian and 6 (20.0 %) were vegetarian in experimental group. In control group, most of them had 21 (70.0%) were non-vegetarian and 9 (30.0 %) were vegetarian.

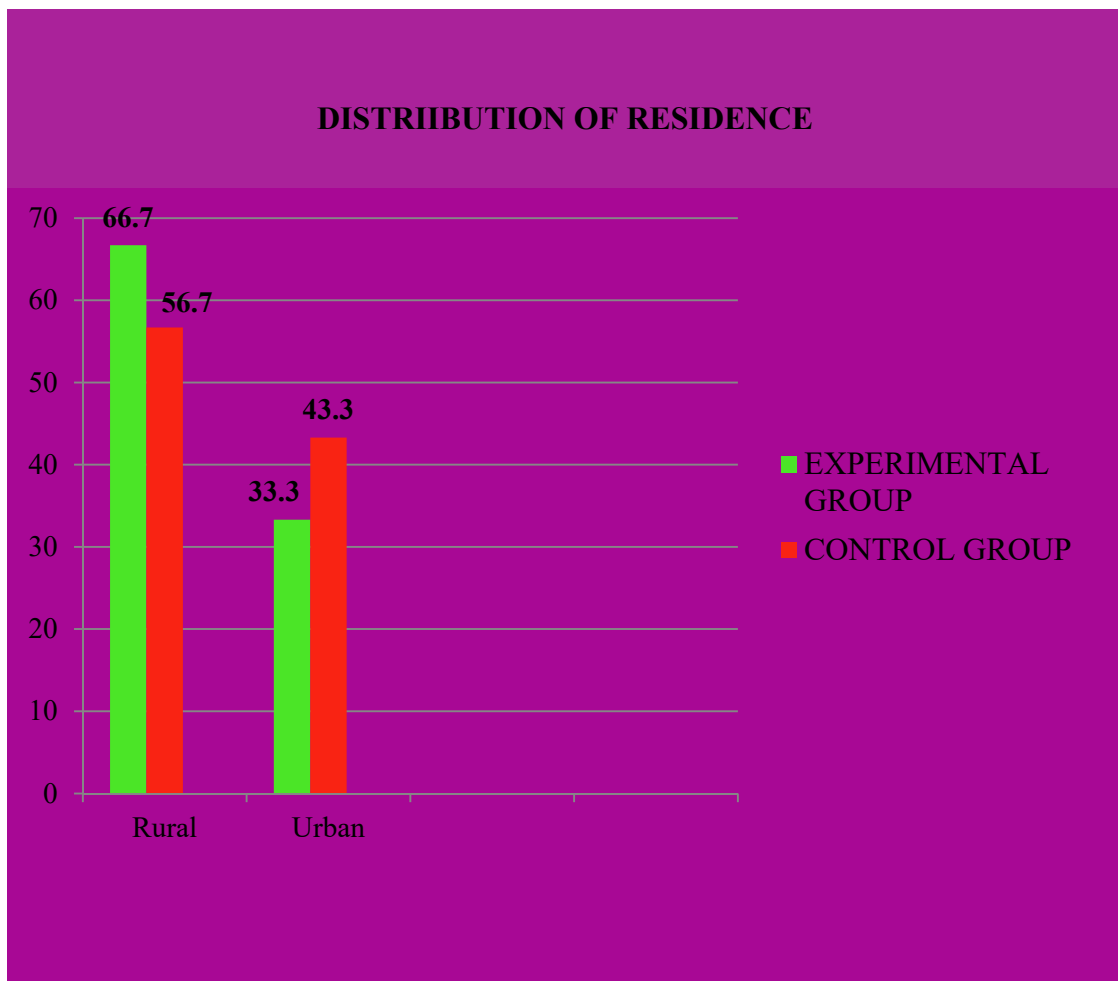


Figure 7: Percentage distribution according to their Residence both in Experimental and control group.

The above bar diagram shows that most of the mothers 20 (66.6%) residing in rural area and 10 (33.3%) were residing in urban area in experimental group. Similarly in control group, 17 (56.7%) living in rural area and 13 (43.3%) living in urban area.

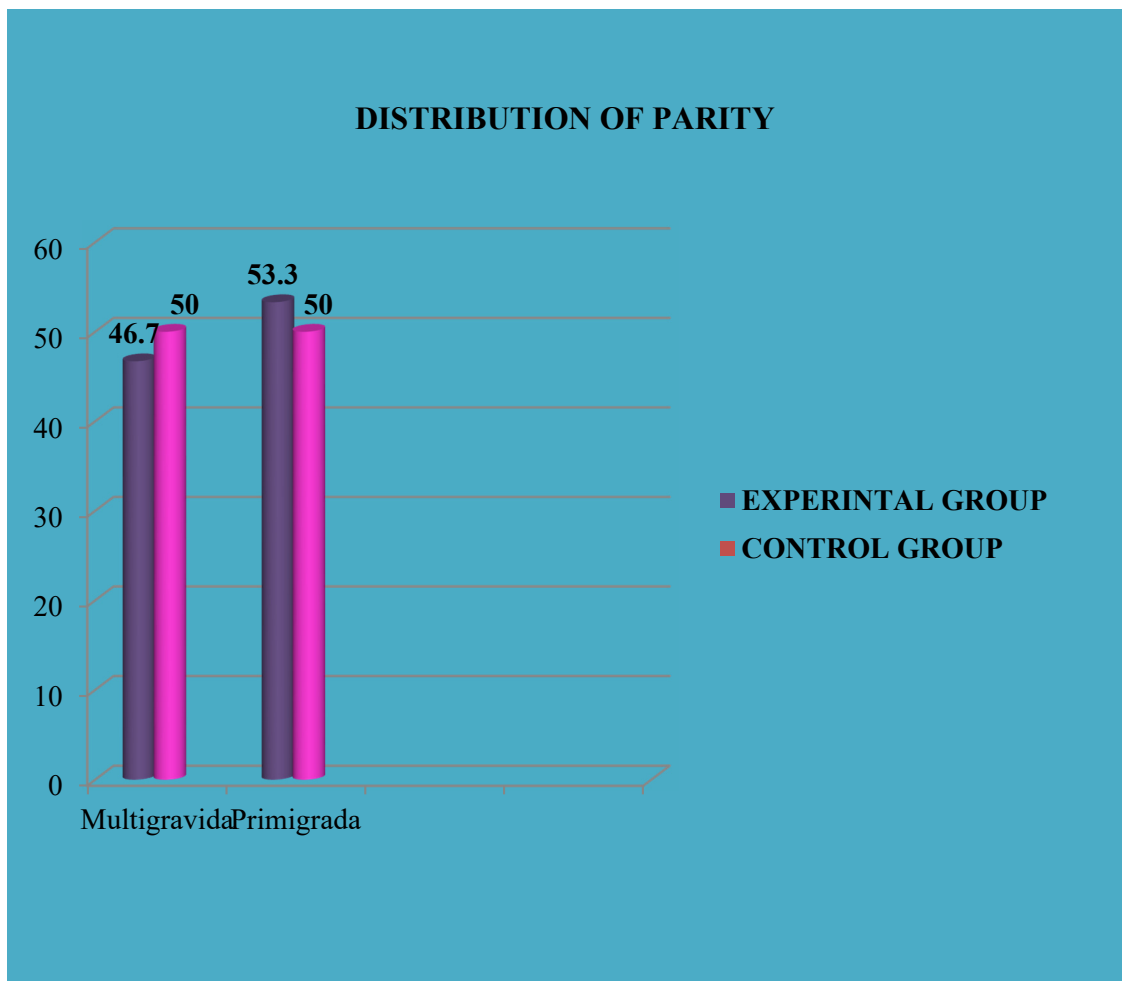


Figure 8: Percentage distribution according to their parity both in Experimental and control group.

The above cylindrical diagram shows that most of the mothers, 16 (53.3%) of them are multi gravida and 14 (46.7%) are multi gravid in experimental group. In control group 15(50.0%) of them are primi and 15 (50.0%) are multi gravid.

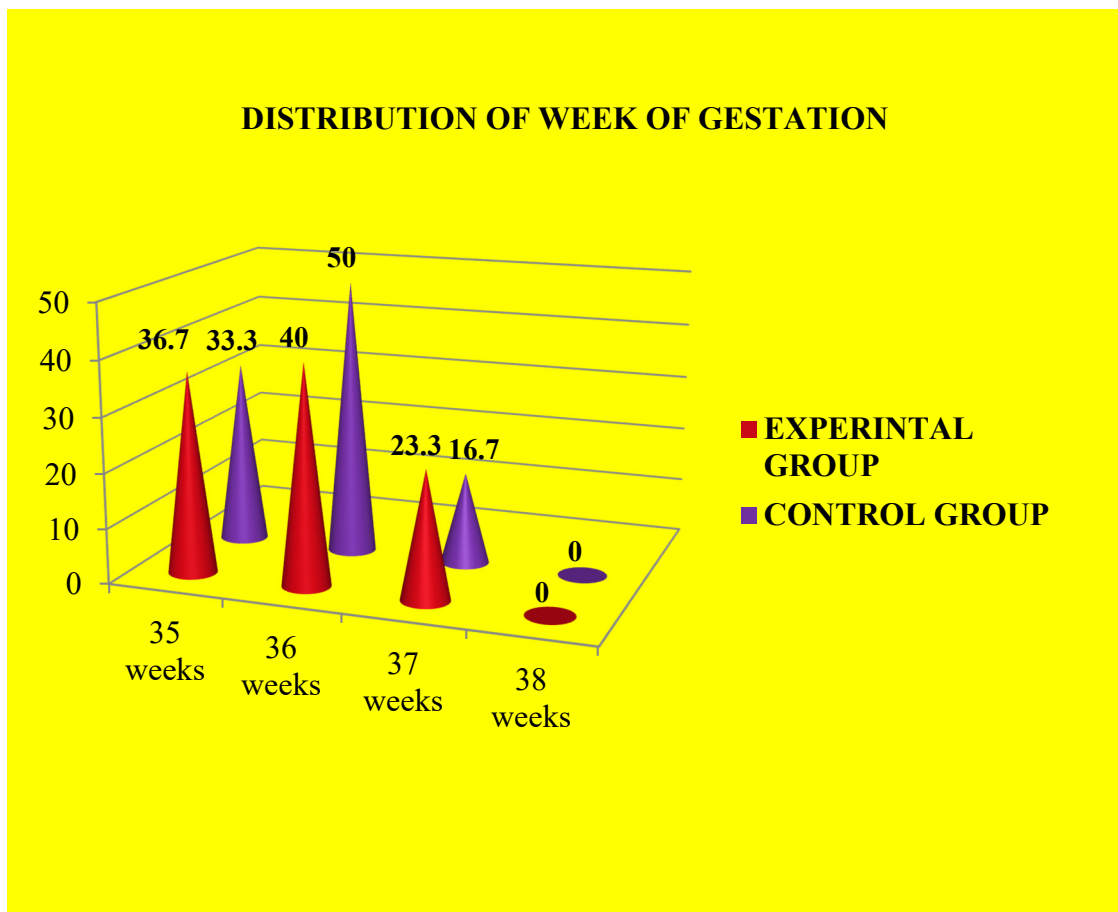


Figure 9: Percentage distribution according to their week of gestation both in Experimental and control group.

The above cone diagram shows that 12 (40.0%) of them 36 weeks, 11 (36.7%) of them 35 weeks, 7 (23.3%) of them 37 weeks and none of them in 38 weeks in experimental group. In control group 15 (50.0%) of them 36 weeks, 10 (33.3%) of them 35 weeks, 5 (16.7%) of them 37 weeks and none of them in 38 weeks of gestation.

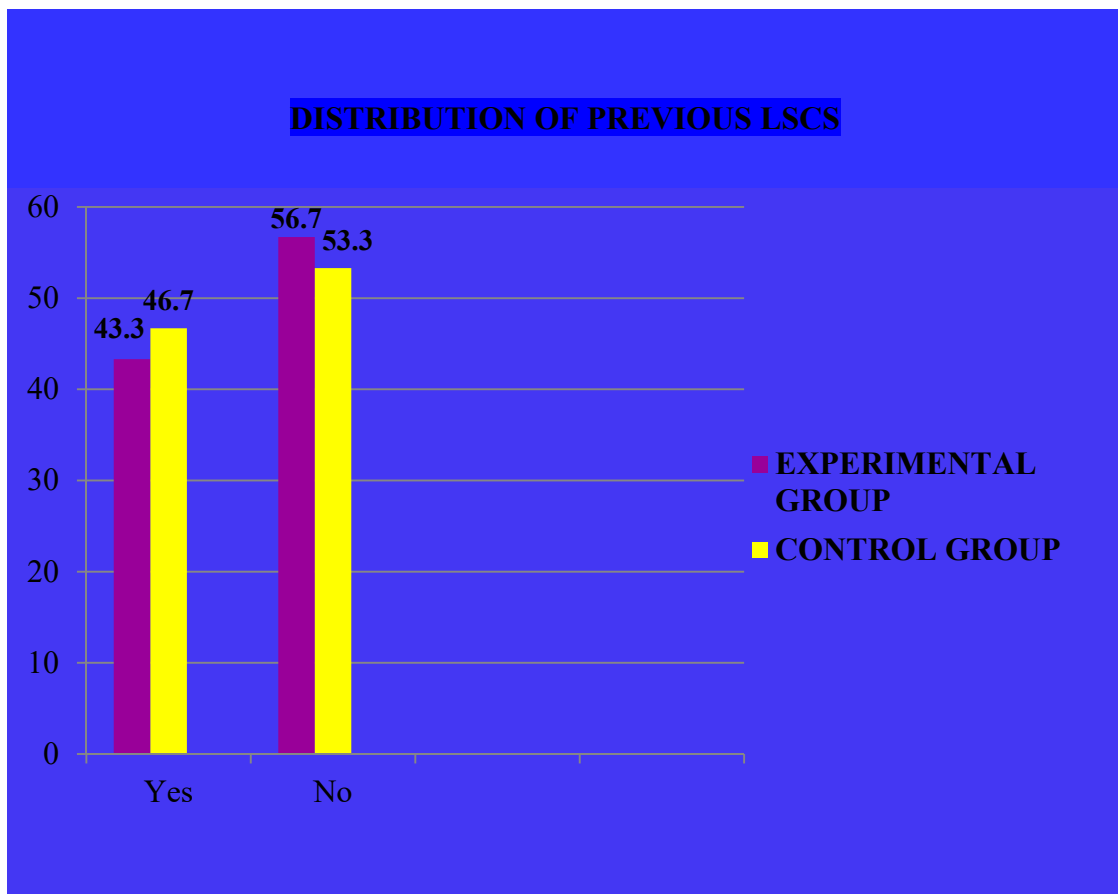


Figure 10: Percentage distribution according to their previous LSCS both in Experimental and control group.

The above bar diagram shows that in experimental group most of them 17 (56.7%) have no previous history of caesarean section and 13 (43.3%) of them have previous history of caesarean section. In control group 16 (53.3%) have no previous history of caesarean section and 14 (46.7%) have previous history of caesarean section.

Section- II

Description of post caesarean mother according to the level pain.

Table-2: Frequency and percentage distribution of level of pain on the 1st And 2nd day before and after intervention in experimental group.

		n = 30							
Sl.No	LEVEL OF PAIN	EXPERIMENTAL GROUP							
		DAY-1				DAY-2			
		Pre test		Post test		Pre test		Post test	
		f	%	f	%	f	%	f	%
1	No pain	---	---	---	---	---	---	---	---
2	Mild pain	---	---	19	63.3	---	---	22	73.3
3	Moderate pain	20	66.7	11	36.7	21	70	8	26.7
4	Severe pain	10	33.3	---	---	9	30	---	---
5	Excruciating pain	---	---	---	---	---	---	---	---
OVERALL		30	100	30	100	30	100	30	100

The table 2 shows that the pre-test level of pain in experimental group on day - I, 20 subjects (66.7%) had moderate level of pain and 10 subjects (33.3%) had severe level of pain and none of the subject had no mild and excruciating pain. In the post test level of pain in experimental group 19 subjects (63.3%) had mild level of pain and 11 subjects (36.7) had moderate level of pain and none of the subject had no severe and excruciating pain. And day – II the pre test level of pain 21 subject (70%) had moderate level of pain, and 9 subjects (30%) had severe level of pain and none of the subject had no mild and excruciating pain. In the post test level of pain in experimental group 22 subjects (73.3%) had mild level of pain and 8 subjects (26.7) had moderate level of pain and none of the subject had no severe and excruciating pain.

DISTRIBUTION OF SUBJECT BASED ON DAY I & II IN EXPERIMENTAL GROUP

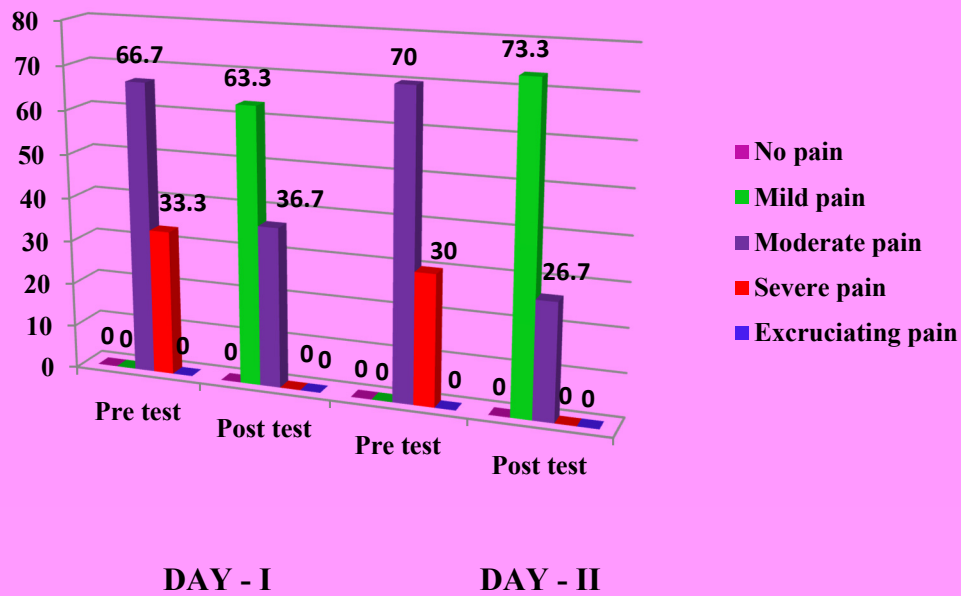


Figure-11: Percentage distribution according to level of pain on day I and II and pre test and post test in the experimental group.

The above bar diagram shows that out of 30 subjects (66.7%) had moderate level of pain and (33.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (63.3%) had mild level of pain and (36.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among day - I. And day – II the pre test level of pain subject (70%) had moderate level of pain, and (30%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test level of pain subjects (73.3%) had mild level of pain and (26.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among experimental group.

Table-3: Frequency and percentage distribution of level of pain on the 1st

And 2nd day before and after intervention in control group.

n = 30

Sl. No	LEVEL OF PAIN	CONTROL GROUP							
		DAY-1				DAY-2			
		Pre test		Post test		Pre test		Post test	
		f	%	f	%	f	%	f	%
1	No pain	---	---	---	---	---	---	---	---
2	Mild pain	---	---	---	---	---	---	---	---
3	Moderate pain	14	46.7	13	43.3	19	63.3	20	66.7
4	Severe pain	16	53.3	17	56.7	11	36.7	10	33.3
5	Excruciating pain	---	---	---	---	---	---	---	---
OVERALL		30	100	30	100	30	100	30	100

The table 3 shows that the pre-test level of pain in control group on day - I, 14 subjects (46.7%) had moderate level of pain and 16 subjects (53.3%) had severe level of pain and none of the subject had no mild and excruciating pain. In the post test level of pain in control group 13 subjects (43.3%) had moderate level of pain and 17 subjects (56.7%) had severe level of pain and none of the subject had no mild and excruciating pain. And day – II the pre test level of pain 19 subject (63.3%) had moderate level of pain, and 11 subjects (36.7%) had severe level of pain and none of the subject had no mild and excruciating pain. In the post test level of pain in control group 20 subjects (66.7%) had moderate level of pain and 10 subjects (33.3) had severe level of pain and none of the subject had no mild and excruciating pain.

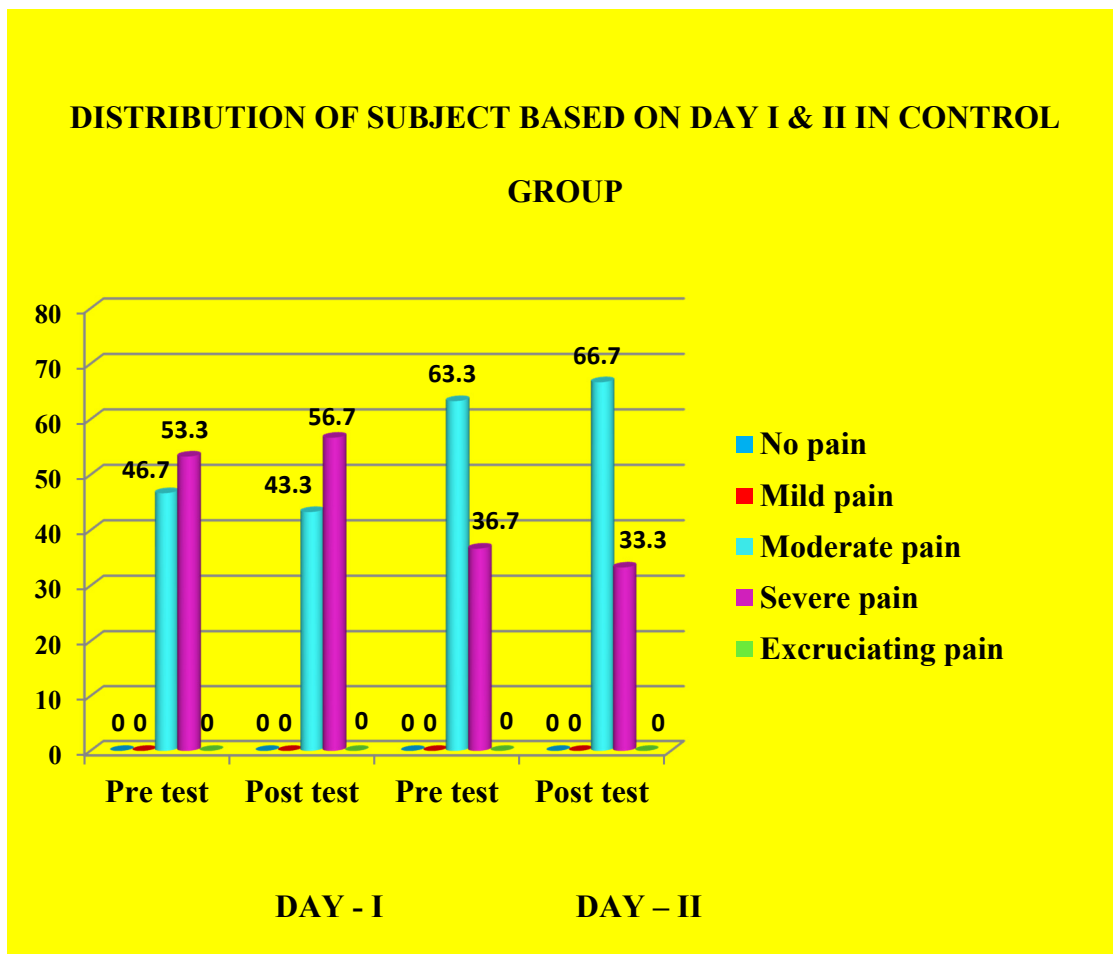


Figure-12: Percentage distribution according to level of pain on day I and II and pre test and post test in the control group.

The above cylindrical diagram shows that out of 30 subjects (46.7%) had moderate level of pain and (53.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (43.3%) had moderate level of pain and (56.7) had severe level of pain and none of the subject had no pain, mild and excruciating pain among day - I. And day – II the pre test level of pain subject (63.3) had moderate level of pain, and (36.7%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test level of pain subjects (66.7%) had moderate level of pain and (33.3) had severe level of pain and none of the subject had no pain, mild and excruciating pain among control group.

Section-III

Comparison of level of pain on the 1st and 2nd day before and after intervention in experimental and control group.

Table-4

n = 60

LEVEL OF PAIN	DAY 1								DAY 2							
	Experimental Group				Control Group				Experimental Group				Control Group			
	PRE		POST		PRE		POST		PRE		POST		PRE		POST	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
No pain	---	---	--	---	--	---	--	---	--	---	--	---	--	---	---	---
Mild pain	---	---	19	63.3	--	---	--	---	--	---	22	73.3	--	---	---	---
Moderate pain	20	66.7	11	36.7	14	46.7	13	43.3	21	70	8	26.7	19	63.3	20	66.7
Severe pain	10	33.3	--	---	16	53.3	17	56.7	9	30	--	---	11	36.7	10	33.3
Excruciating pain	---	---	--	---	--	---	--	---	--	---	--	---	--	---	---	---
overall	30	100	30	100	30	100	30	100	30	100	30	100	30	100	30	100

The above table reveals that subjects (66.7%) had moderate level of pain and (33.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test subjects (63.3%) had mild level of pain and (36.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among day - I. And day – II the pre test level of pain subject (70%) had moderate level of pain, and (30%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test subjects (73.3%) had mild level of pain and (26.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among experimental group. And control group (46.7%) had moderate level of pain and (53.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test subjects (43.3%) had moderate level of pain and (56.7) had severe level of pain and none of the subject had

no pain, mild and excruciating pain among day - I. And day – II the pre test level of pain subject (63.3) had moderate level of pain, and (36.7%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test subjects (66.7%) had moderate level of pain and (33.3) had severe level of pain and none of the subject had no pain, mild and excruciating pain among control group.

Section-IV

Effectiveness of hand and foot massage on pain among post caesarean mothers.

Table-5: t-test to assess the effectiveness of hand and foot massage on pain among post caesarean mothers in experimental and control group.

n =60

GROUP	DAY	PRE TEST			POST TEST			Difference in Mean %	Paired 't'
		MEAN	MEAN %	SD	MEAN	MEAN %	SD		
Experimental Group	1 st Day	6.8	68	1.3	3.5	35	0.9	33	11.3* P < 0.05
	2 nd Day	6.1	61	1.4	2.6	26	0.7	35	11.3*
Control Group	1 st Day	6.6	66	1.5	6.5	65	1.5	1	-
	2 nd Day	5.9	59	1.6	5.8	58	1.3	1	-

Note: * - Significant at 5% level for 29 df (i.e. P < 0.05 't' value is 1.69)

The above table reveals that experimental group day I mean score was decreased in the level of pain in post cesarean mother from 68 to 35 and day II 61 to 26. In control group day I from 66 to 65 and day II 59 to 58. It shows that the significant level of post cesarean pain at 0.05 level (t = 1.69) among experimental group after intervention. Hence hand and foot massage was effective in reducing the level of pain in post cesarean mothers. Control group had no significant changes in the level post cesarean pain.

**ASSOCIATION OF EXPERIMENTAL GROUP POST PAIN SCORE AMONG
POST CAESAREAN MOTHERS WITH THEIR SELECTED DEMOGRAPHIC
VARIABLES**

n = 30

Sl. No	Demographic variables	Sample (n)		Pain level of respondents				Chi-square value (χ^2)
				< Median		> Median		
		No. (30)	%	No. (16)	%	No. (14)	%	
1.	Age							0.45 df = 3 NS P>0.05
	a) 18- 20	5	16.6	3	18.7	2	14.3	
	b) 21 – 25	11	36.7	5	31.3	6	42.8	
	c) 26 – 30	12	40.0	7	43.7	5	35.7	
	d) 31 – 35	2	6.7	1	6.3	1	7.2	
2.	Educational status							1.77 df = 3 NS P>0.05
	a) No formal education	2	6.6	1	6.3	1	7.2	
	b) Primary education	20	66.7	11	68.7	9	64.2	
	c) Higher secondary education	6	20.0	3	18.7	3	21.4	
	d) Graduate	2	6.7	1	6.3	1	7.2	
3.	Occupation							0.06 df = 1 NS P>0.05
	a) Unemployed	10	80.0	5	31.3	5	35.7	
	b) Employed	20	20.0	11	68.7	9	64.3	
4.	Type of family							1.21 df = 1 NS P>0.05
	a) Nuclear family	24	70	14	87.5	10	71.4	
	b) Joint family	6	30	2	12.5	4	28.6	
5.	Family income							2.06 df = 3 NS P>0.05
	a) Rs. Less than 5000	11	36.7	5	31.3	6	42.8	
	b) Rs. 5001 – 6000	7	23.3	4	25	3	21.4	
	c) Rs. 6001 – 7000	5	16.7	4	25	1	7.2	
	d) Rs. 7001 and above	7	23.3	3	18.7	4	28.6	

Sl. No	Demographic variables	Sample (n)		Knowledge level of respondents				Chi-square value (χ^2)
				< Median		> Median		
		No. (30)	%	No. (16)	%	No. (14)	%	
6.	Food habits							8.57 df = 1 S P<0.05
	a) Non-Vegetarian	24	80.0	16	100	8	57.2	
	b) Vegetarian	6	20.0	0	0	6	42.8	
7.	Residence							8.11 df = 1 S P<0.05
	a) Rural	20	66.7	7	43.7	13	92.8	
	b) Urban	10	33.3	9	56.3	1	7.2	
8.	Parity							0.02 df = 1 NS P>0.05
	a) Prime Gravida	14	46.7	6	37.5	8	57.2	
	b) Multi Gravida	16	53.3	10	62.5	6	42.8	
9.	Gestational Age							0.82 df = 3 NS P>0.05
	a) 35 weeks	11	36.7	7	43.7	4	28.6	
	b) 36 weeks	12	40.0	6	37.5	6	42.8	
	c) 37 weeks	7	23.3	3	18.8	4	28.6	
	d) 38 weeks	0	0	0	0	0		
10.	Previous history of caesarean section							0.07 df = 1 NS P>0.05
	a) Yes	13	43.3	6	37.5	7	50	
	b) No	17	56.7	10	62.5	7	50	

Note: S- Significant at 5% level ($P<0.05$); NS – Not Significant at 5% level ($P>0.05$)

The above table reveals that there was significant association between selected socio demographic variable such as food habit and residence, and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, parity, gestational age, and previous history of caesarean section among post caesarean mothers in experimental group.

**ASSOCIATION OF CONTROL GROUP POST PAIN SCORE AMONG
POST CAESAREAN MOTHERS WITH THEIR SELECTED
DEMOGRAPHIC VARIABLES**

n = 30

Sl. No	Demographic variables	Sample (n)		Pain level of respondents				Chi-square value (χ^2)
				< Median		> Median		
		No. (30)	%	No. (14)	%	No. (16)	%	
1.	Age							0.71 df = 3 NS P>0.05
	a) 18- 20	6	20.0	2	14.2	4	25.0	
	b) 21 – 25	13	43.3	7	50.0	6	37.6	
	c) 26 – 30	9	30	4	28.6	5	31.2	
	d) 31 – 35	2	6.7	1	7.2	1	6.2	
2.	Educational status							3.93 df = 3 NS P>0.05
	a) No formal education	3	10	1	7.2	2	12.5	
	b) Primary education	17	56.7	9	64.2	8	50.0	
	c) Higher secondary education	6	20.0	1	7.2	5	31.3	
	d) Graduate	4	13.3	3	21.4	1	6.2	
3.	Occupation							0.74 df = 1 NS P>0.05
	a) Unemployed	11	36.7	4	28.6	7	43.7	
	b) Employed	19	63.3	10	71.4	9	56.3	
4.	Type of family							1.42 df = 1 NS P>0.05
	a) Nuclear family	18	60.0	10	71.4	8	50.0	
	b) Joint family	12	40.0	4	28.6	8	50.0	
5.	Family income							6.17 df = 3 NS P>0.05
	a) Rs. Less than 5000	17	56.7	11	78.4	6	37.6	
	b) Rs. 5001 – 6000	8	26.6	1	7.2	7	43.7	
	c) Rs. 6001 – 7000	2	6.7	1	7.2	1	6.2	
	d) Rs. 7001 and above	3	23.3	1	7.2	2	12.5	

Sl. No	Demographic variables	Sample (n)		Knowledge level of respondents				Chi-square value (χ^2)
				< Median		> Median		
		No. (30)	%	No. (14)	%	No. (16)	%	
6.	Food habits							0.40 df = 1 NS P>0.05
	a) Non-Vegetarian	21	70.0	11	78.5	10	62.5	
	b) Vegetarian	9	30.0	3	21.5	6	37.5	
7.	Residence							5.12 df = 1 S P<0.05
	a) Rural	17	56.7	11	78.5	6	37.5	
	b) Urban	13	43.3	3	21.5	10	62.5	
8.	Parity							13.39 df = 1 S P<0.05
	a) Prime Gravida	15	50.0	2	14.3	13	81.2	
	b) Multi Gravida	15	50.0	12	85.7	3	18.6	
9.	Gestational Age							0.41 df = 3 NS P>0.05
	a) 35 weeks	10	33.3	4	28.6	6	37.5	
	b) 36 weeks	15	50.0	7	50.0	8	50.0	
	c) 37 weeks	5	16.7	3	21.4	2	12.5	
	d) 38 weeks	0	0	0	0	0		
10.	Previous history of caesarean section							1.15 df = 1 NS P>0.05
	a) Yes	14	46.7	8	57.2	6	37.5	
	b) No	16	53.3	6	42.8	10	62.5	

Note: S- Significant at 5% level (P<0.05); NS – Not Significant at 5% level (P>0.05)

The above table reveals that there was significant association between selected socio demographic variable such as residence and parity, and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, food habit, gestational age, and previous history of caesarean section among post caesarean mothers in control group.

DISCUSSION

CHAPTER – V

DISCUSSION

Based on the objectives of the study and hypothesis, this chapter deals with the detailed discussion of the results of the data interpreted from the statistical analysis. The purpose of the study was A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District.

The sample consists of 60 post caesarean mothers selected by purposive sampling technique. The level of pain assessed by numerical pain scale, gate control model was used to explain the effectiveness of hand and foot massage on pain among post caesarean mothers.

Discussion of socio demographic variables

In the aspect of age, majority of the post caesarean mothers 12(40.0%) were belongs to the age of 26-30 years, 11(36.7) were belongs to the age 21-25 years, 5(16.7) were belongs to the age of 18-20 and the least were 2(6.7) belongs to the age of 31-35 years and above in experimental group and in the control group 13(43.3) were in 21-25 years, 9(30.0) were in 26-30 years, 6(20.0) were in 18-20, and 2(6.7) post caesarean mothers between 31-35 years of age group.

Based on educational status, 20 (66.7%) were had primary education, 6 (20.0%) were higher secondary education, 2 (6.7%) were graduate and 2 (6.7%) were no formal education in formal education. In control group 17 (56.7%) were had primary education, 6 (20.0%) were higher secondary education, 4 (13.3%) were graduate and 3 (10.0%) were in formal education.

Based on occupation, most of the mother, 20 (66.7%) were employed and 10 (33.3%) were unemployed in experimental group. In control group most of the mother, 19 (63.3%) were unemployed and 11 (36.7%) were employer.

Regarding the types of family, most of the mothers 24 (80%) were from nuclear family and remaining 6 (20%) were from joint family in experimental group. Similarly in control group, most of the mothers 18 (60%) were from nuclear family and remaining 12 (40%) were from joint family.

About family income of mother, most of their salary in experimental group 11 (36.7%) less than Rs. 5000, 7 (23.3%) earned Rs. 5001-6000, 7 (23.3%) earned 7001 and above and 5 (16.7%) earned Rs. 6001-7000. In control group 17 (56.7%) less than Rs. 5000, 8 (26.7%) earned Rs. 5001-6000, 3 (10.0%) earned 7001 and above and 2 (6.7%) earned Rs. 6001-7000 per month.

Regards to food habits of mothers, most of them had 24 (80.0%) were non-vegetarian and 6 (20.0 %) were vegetarian in experimental group. In control group, most of them had 21 (70.0%) were non-vegetarian and 9 (30.0 %) were vegetarian.

In regards to Residence, most of the mothers 20 (66.6%) residing in rural area and 10 (33.3%) were residing in urban area in experimental group. Similarly in control group, 17 (56.7%) living in rural area and 13 (43.3%) living in urban area.

Based on parity, most of the mothers, 16 (53.3%) of them are multi gravida and 14 (46.7%) are multi gravid in experimental group. In control group 15(50.0%) of them are primi and 15 (50.0%) are multi gravid.

According to gestational age, 12 (40.0%) of them 36 weeks, 11 (36.7%) of them 35 weeks, 7 (23.3%) of them 37 weeks and none of them in 38 weeks in experimental

group. In control group 15 (50.0%) of them 36 weeks, 10 (33.3%) of them 35 weeks, 5 (16.7%) of them 37 weeks and none of them in 38 weeks of gestation.

Related to Previous history of caesarean section, in experimental group most of them 17 (56.7%) have no previous history of caesarean section and 13 (43.3%) of them have previous history of caesarean section. In control group 16 (53.3%) have no previous history of caesarean section and 14 (46.7%) have previous history of caesarean section.

Discussion of the study based on its objectives

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

The present study reveals that, (66.7%) had moderate level of pain and (33.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (63.3%) had mild level of pain and (36.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among day - I. And day – II the pre test level of pain subject (70%) had moderate level of pain, and (30%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test level of pain subjects (73.3%) had mild level of pain and (26.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among experimental group, in control group (46.7%) had moderate level of pain and (53.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (43.3%) had moderate level of pain and (56.7) had severe level of pain and none of the subject had no pain, mild and excruciating pain among day - I. And day – II the pre test level of pain subject (63.3) had moderate level of pain, and (36.7%) had severe level of pain and none of the subject had no pain, mild and excruciating pain.

In the post test level of pain subjects (66.7%) had moderate level of pain and (33.3) had severe level of pain and none of the subject had no pain, mild and excruciating pain.

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 post caesarean mothers in experimental group.

After the intervention out of 30 post caesarean mothers in experimental group mean of pre test and post test of day-I 68 and 35 and day- II 61 and 26. Respectively standard deviation of the pre test and post test of day-I 1.3 and 0.9 and day- II 1.4 and 0.7. The mean difference was day I and II 33 and 35. The calculated 't' value is 1.69 which is highly significant $p < 0.001$ level and it indicate that the intervention is very much effect.

The present study was supported by **Wang HL and Keck, (2014)** 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 H2 was retained at $p\leq 0.05$ level.

H₁: There will be a significant difference on pain among post caesarean mothers in experimental group before and after hand and foot massage at $p\leq 0.05$ level.

H₂: There will be a significant difference in post-test score on pain among post caesarean mothers in experimental and control group at $p\leq 0.05$ level.

The third objective of the study was to find out the association between pains with their selected demographic variables among post caesarean mothers in experimental and control group.

Statistical significance was calculated by using Chi square test. The study reveals that there was significant association found between the post test levels of pain such as food habit and residence, and there was no significant association between socio demographic variable such as age, educational status, and occupation, type of family, family income, parity, gestational age, and previous history of caesarean section among post caesarean mothers in experimental group. In control group there was significant association between post test level of pain such as residence and parity, and there was no significant association between socio demographic variable such as age, educational status, and occupation, type of family, family income, food habit, gestational age, and previous history of caesarean section.

There is significant association between the post test level pain score and selected socio demographic variable such as food habit (($2=8.57$) residence (($2=8.11$), and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, parity, gestational age, and previous history of caesarean section among post caesarean mothers in experimental group. In control group there was significant association between post test level of pain such as residence(($2=5.12$), parity($2=13.39$) and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, food habit, gestational age, and previous history of caesarean section.

This study was consistent with the study conducted by **Manjula.B, (2014)**, Sri Gokulam College of Nursing, Salam. There is a significant association between educational status and pain among post caesarean mothers in experimental group. Hence H₃ is retained at $p \leq 0.05$ level. There is no significant association between demographic variables and pain among postcaesarean mothers in control group. Hence H₃ is rejected at $p \geq 0.05$ level.

H₃: There will be a significant association between pain with their selected demographic variables among post caesarean mothers in experimental and control group at $p \leq 0.05$ level.

**SUMMARY, CONCLUSION,
IMPLICATIONS AND
RECOMMENDATIONS**

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter presents the summary of the study and conclusion drawn, clarifies the limitation of the study, the implications and the recommendations, different areas like nursing practice, nursing education, nursing administration and nursing research.

Summary of the study statement of the problem

“A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District.”

Objective of the study were

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

The following hypotheses were tested

H₁: There will be a significant difference on pain among post caesarean mothers in experimental group before and after hand and foot massage at $p \leq 0.05$ level.

H₂: There will be a significant difference in post-test score on pain among post caesarean mothers in experimental and control group at $p \leq 0.05$ level.

H₃: There will be a significant association between pain with their selected demographic variables among post caesarean mothers in experimental and control group at $p \leq 0.05$ level.

The study assumptions were

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

The conceptual model of this study was based on gate control system model. The study was conducted by using quasi- experimental - pretest posttest control group design. The population of the study was post caesarean mothers, Madurai. Purposive sampling technique was used to select the sample. The study consists of 60 post caesarean mothers. A Pilot study was conducted among 6 subjects at selected hospitals in Madurai, to find out the feasibility and practicability for conducting the study. After testing the validity and reliability, the tool was used for data collection. The participants of the pilot study were excluded from the main study. Data gathered were analyzed by using both descriptive and inferential statistics.

Major findings of the study were

In the aspect of age, majority of the post caesarean mothers 12(40.0%) were belongs to the age of 26-30 years, 11(36.7) were belongs to the age 21-25 years, 5(16.7) were belongs to the age of 18-20 and the least were 2(6.7) belongs to the age of 31-35 years and above in experimental group and in the control group 13(43.3) were in 21-25 years, 9(30.0) were in 26-30 years, 6(20.0) were in 18-20, and 2(6.7) post caesarean mothers between 31-35 years of age group.

Based on educational status, 20 (66.7%) were had primary education, 6 (20.0%) were higher secondary education, 2 (6.7%) were graduate and 2 (6.7%) were no formal education in formal education. In control group 17 (56.7%) were had primary education, 6 (20.0%) were higher secondary education, 4 (13.3%) were graduate and 3 (10.0%) were in formal education.

Based on occupation, most of the mother, 20 (66.7%) were employed and 10 (33.3%) were unemployer in experimental group. In control group most of the mother, 19 (63.3%) were unemployed and 11 (36.7%) were employer.

Regarding the types of family, most of the mothers 24 (80%) were from nuclear family and remaining 6 (20%) were from joint family in experimental group. Similarly in control group, most of the mothers 18 (60%) were from nuclear family and remaining 12 (40%) were from joint family.

About family income of mother, most of their salary in experimental group 11 (36.7%) less than Rs. 5000, 7 (23.3%) earned Rs. 5001-6000, 7 (23.3%) earned 7001 and above and 5 (16.7%) earned Rs. 6001-7000. In control group 17 (56.7%) less than Rs. 5000, 8 (26.7%) earned Rs. 5001-6000, 3 (10.0%) earned 7001 and above and 2 (6.7%) earned Rs. 6001-7000 per month.

Regards to food habits of mothers, most of them had 24 (80.0%) were non-vegetarian and 6 (20.0 %) were vegetarian in experimental group. In control group, most of them had 21 (70.0%) were non-vegetarian and 9 (30.0 %) were vegetarian.

In regards to Residence, most of the mothers 20 (66.6%) residing in rural area and 10 (33.3%) were residing in urban area in experimental group. Similarly in control group, 17 (56.7%) living in rural area and 13 (43.3%) living in urban area.

Based on parity, most of the mothers, 16 (53.3%) of them are multi gravida and 14 (46.7%) are multi gravid in experimental group. In control group 15(50.0%) of them are primi and 15 (50.0%) are multi gravid.

According to gestational age, 12 (40.0%) of them 36 weeks, 11 (36.7%) of them 35 weeks, 7 (23.3%) of them 37 weeks and none of them in 38 weeks in experimental group. In control group 15 (50.0%) of them 36 weeks, 10 (33.3%) of them 35 weeks, 5 (16.7%) of them 37 weeks and none of them in 38 weeks of gestation.

Related to Previous history of caesarean section, in experimental group most of them 17 (56.7%) have no previous history of caesarean section and 13 (43.3%) of them have previous history of caesarean section. In control group 16 (53.3%) have no previous history of caesarean section and 14 (46.7%) have previous history of caesarean section.

The present study reveals that, (66.7%) had moderate level of pain and (33.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (63.3%) had mild level of pain and (36.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among day - I. And day – II the pre test level of pain subject (70%) had moderate level of pain, and (30%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test level of pain subjects (73.3%) had mild level of pain and (26.7) had moderate level of pain and none of the subject had no pain, severe and excruciating pain among experimental group, in control group (46.7%) had moderate level of pain and (53.3%) had severe level of pain and none of the subject had no pain, mild and excruciating pain in pre test. In the post test level of pain in subjects (43.3%) had moderate level of pain and (56.7) had severe level of pain and none of the subject had no pain, mild and excruciating pain among day - I. And day

– II the pre test level of pain subject (63.3) had moderate level of pain, and (36.7%) had severe level of pain and none of the subject had no pain, mild and excruciating pain. In the post test level of pain subjects (66.7%) had moderate level of pain and (33.3) had severe level of pain and none of the subject had no pain, mild and excruciating pain.

After the intervention out of 30 post caesarean mothers in experimental group mean of pre test and post test of day-I 68 and 35 and day- II 61 and 26. Respectively standard deviation of the pre test and post test of day-I 1.3 and 0.9 and day- II 1.4 and 0.7. The mean difference was day I and II 33 and 35. The calculated 't' value is 1.69 which is highly significant $p < 0.001$ level and it indicate that the intervention is very much effect.

There is significant association between the post test level pain score and selected socio demographic variable such as food habit ($\chi^2=8.57$) residence ($\chi^2=8.11$), and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, parity, gestational age, and previous history of caesarean section among post caesarean mothers in experimental group. In control group there was significant association between post test level of pain such as residence($\chi^2=5.12$), parity($\chi^2=13.39$) and there was no significant association between socio demographic variable such as age, educational status, occupation, type of family, family income, food habit, gestational age, and previous history of caesarean section.

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 post caesarean pain management. The researcher concluded that it can be use as an effective intervention to improve the level of pain among post caesarean mothers.

Implications

The findings of the study have several implications on nursing practice, nursing administration, nursing education and nursing research that can be used in the following areas of profession.

Nursing Practice

- Hand and foot massage could be adopted in hospitals and maternity centre.
- Nurses are the key persons of the Health team, who play a major role in health promotion and maintenance. The main focus of nursing practice is to reduce the morbidity and mortality rate and to improve the quality of life.
- Different methods of massage techniques can be used to reduce the post caesarean pain.

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 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.

Nursing administration

- Nurse administrators are the back bone to provide facilities reduce the post caesarean pain.
- The nurse administrator should encourage nurses to trained varieties of alternative therapy.
- Nurse administrator should take initiative to organize continuous education for massage therapy.
- Training and implementation of different strategies needs separate allocation of resources.
- Separate budgets should be allocated for massage therapy.

Recommendations

- Keeping in view the findings of the present study the following recommendations are made.
- A similar study can be conducted on a large sample to generalize the study findings.
- A comparative study can also be done to compare the massage therapy and foot reflexology.

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APPENDIX

APPENDIX I

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT THE STUDY AT SELECTED HOSPITAL IN MADURAI - DISTRICT.



MATHA COLLEGE OF NURSING

Annasalai Road, Vaanapuram, Manamadurai - 630 606, Sivagangai District, Tamil Nadu.

(Sponsored by Matha Memorial Educational Trust)

(Affiliated to the Tamilnadu Dr. M.G.R. Medical University, Chennai - 32)

(Recognized by the Tamilnadu Nurses and Midwives Council, Chennai and Indian Nursing Council, New Delhi)

Mob : 80726 81223, 98424 41289 E-mail : nursingcollegematha@gmail.com



Date :

To

The Director,
Infant Jesus Hospital,
104-107, S Veli St,
Thavitu Sandhai,
Madurai, Tamil Nadu 625001

Respected sir/Madam,

Sub: Permission sought for to conduct a research study on Postnatal mothers after caesarian section – reg.

One of our student Mrs.Asha.B II year M.Sc Nursing (Obstetrics & Gynecological nursing speciality) has proposed to conduct a research study titled "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at Selected Hospitals, In Madurai District."

In connection with this, she would like to collect data on postnatal caesarean Mothers and also do an intervention of hand and foot massage on these mothers.

Kindly permit her to conduct the research, in your esteemed institution. She will strictly adhere to the norms and policies of your hospital.

Thanking you



Chalice Raja

Dr. CHALICE RAJA

M.B.B.S., M.S. (O.C)
REG.No: 77426
MATHA COLLEGE OF NURSING,
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Sivagangai District
105,106, SOUTH VELI STREET (THAVITTU GHANTHAI)
MADURAI - 625 001. Ph : 2336629

J.F. Sujatha
(Prof. J.F.Sujatha M.Sc(N))
Principal

APPENDIX II

ETHICAL COMMITTEE APPROVAL LETTER



MATHA COLLEGE OF NURSING

Annavasal Road, Vaanpuram, Manamadurai - 630 606, Sivagangai District, Tamil Nadu.

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(Recognized by the Tamilnadu Nurses and Midwives Council, Chennai and Indian Nursing Council, New Delhi)

Mob : 80726 81223, 98424 41289 E-mail : nursingcollegematha@gmail.com



Date :

ETHICAL COMMITTEE

The following members of the ethical committee were present at the meeting held on 10.04.2020 at 2.30 pm in Matha College of Nursing, Vaanpuram, Manamadurai

Chair Person

Dr. J. John Peter Jesudass, MBBS, FFM, Dip In Diab.

Matha Mission Hospital,
Manamadurai.

Mr. P. Jeyakumar, M.A., .B.L.,

Chairman
Matha Memorial Educational Institutions

Deputy Chairman

Prof. J.F. Sujatha. M. Sc (N)

Principal,
Matha College Of Nursing,
Vaanpuram, Manamadurai

Member Secretary

Mr. Vara Prasad Babu., M.Sc(N)

Asso. Professor,
Matha College Of Nursing,
Vaanpuram, Manamadurai

Members

Mrs. Mahalakshmi. M.Sc(N),,

Asso. Professor
Matha College Of Nursing,
Vaanpuram, Manamadurai

Mr. Rajesh Kannan, M.Sc(N),,

Asso. Professor
Matha College Of Nursing,
Vaanpuram, Manamadurai



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(Recognized by the Tamilnadu Nurses and Midwives Council, Chennai and Indian Nursing Council, New Delhi)

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Date :

RESOLUTION - 2018

It is resolved to accept Mrs.Asha.B to conduct a quasi experimental " A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post Caesarean Mothers at Selected Hospitals, In Madurai District."

. The institutional Ethics Committee expects to be informed about the progress of the study. Any changes in the protocol, patient information are to be provided and also a copy of the final report.

Yours Sincerely,

Chair Person
Ethics Committee

Yours Sincerely,

Deputy Chairman
Ethics Committee

APPENDIX III

MASSAGE THERAPY CERTIFICATE



THE VALLIAMMAL INSTITUTION (TVI)
2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009.
☎ 98942 49630; 77089 28190 email: ananthibetsy@rediffmail.com

Reg. No. PCC/58/Jan.20/394 Date: 10/01/2020



**Certificate Course in Basic Counselling Skills and
Hand and Foot Massage**

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




10/01/2020

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

APPENDIX IV

CERTIFICATE OF VALIDATION

CERTIFICATE OF VALIDATION

This is certify that the tool,

Section A: Demographic data.

Section B: Numerical pain scale.

Prepared by Mrs.Asha. B II year M.Sc (Nursing) student of matha college of Nursing,
Manamadurai, sivagangai district. Who has undertaken the study field titled of **“A Study to
Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post
caesarean Mothers at Selected Hospitals, In Madurai District.”** has been
validated by me.

SIGNATURE OF THE EXPERT:



NANE:

DESIGNATION:

Dr. CHALICE RAJA
M.B.B.S.,M.S.(O.G)
REG.No: 77426
INFANT JESUS HOSPITAL
105,106, SOUTH VELI STREET (THAVITTU CHANTHAI)
MADURAI - 625 001. Ph : 2336629

DATE:

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validated by me.

SIGNATURE OF THE EXPERT:

Sudha K.N.

NANE:

*SUDHA K.N.
M.Sc.(N) OBG*

DESIGNATION:

*ASSOC. PROFESSOR
HOD OF OBG Department.
RASS Academy college of Nursing,
Poovantti, sivagangai(D.T).*

DATE:

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validated by me.

SIGNATURE OF THE EXPERT:



NANE:

MRS. A. PONMANI

DESIGNATION:

VICE PRINCIPAL

DATE:

CERTIFICATE OF VALIDATION

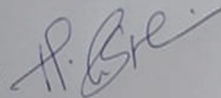
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validated by me.

SIGNATURE OF THE EXPERT:



NANE:

Mrs P-SHANTHI MSc (N)

DESIGNATION:

ASSOCIATE PROFESSOR
SHRINIDHI COLLEGE OF HEALTH SCIENCES
AND RESEARCH
POTTAPALAYAM . SIVAGANGAI

DATE:

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SIGNATURE OF THE EXPERT:

NANE: PROF. MRS. J.F. SUJATHA

DESIGNATION:

PRINCIPAL

PRINCIPAL
MATHA COLLEGE OF NURSING
JAANPURAM, MANAMADURAI-630 030
Sivagangai District

DATE:

APPENDIX V

RESEARCH TOOL ENGLISH

SECTION-I

SECTION: A

Socio demographic variables

Structured interview schedule

1. Age 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) Higher secondary education

D) Graduate

3. Occupation

A) Employed

B) Unemployed

4. Type of family

A) Nuclear family

B) Joint family

5. Family income

A) Rs. less than 5000

B) Rs. 5001-6000

C) Rs. 6001-7000

D) Rs. 7001 and above

6. Food habits

A) Vegetarian

B) Non-vegetarian

7. Residence

A) Rural

B) Urban

8. Parity

A) Primi Gravida

B) Multi Gravida

9. Gestational Age

A) 35 weeks

B) 36 weeks

C) 37 weeks

D) 38 weeks

10. Previous history of caesarean section

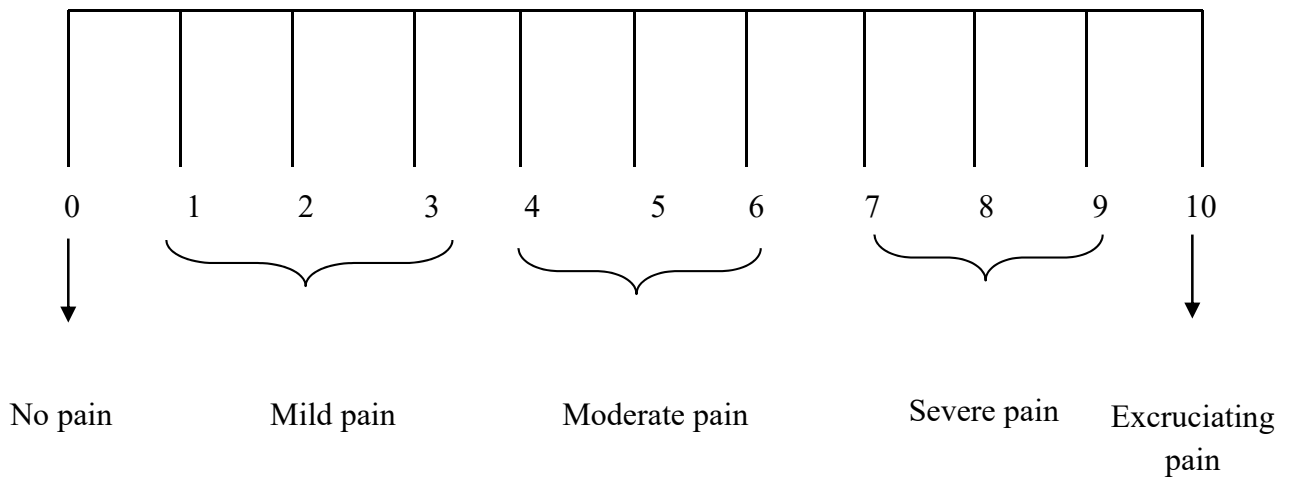
A) Yes

B) No

SECTION-B

Numerical Pain Intensity Scale to assess the pain among post caesarean mothers.

Scoring Procedure



Data Description

0 - No pain

1-3 - Mild pain

4-6 - Moderate pain

7-9 - Severe pain

10 - Excruciating pain.

APPENDX VI

RESEARCH TOOLTAMIL

பிரிவு - அ

1. வயது வருடத்தில்

- அ. 18 முதல் 20 வருடம்
- ஆ. 21 முதல் 25 வருடம்
- இ. 26 முதல் 30 வருடம்
- ஈ. 31 முதல் 35 வருடம்

2. கல்வித் தகுதி

- அ. முறையான கல்வித்தகுதி இல்லை
- ஆ. ஆரம்ப கல்வி
- இ. 12 ஆம் வகுப்பு வரை
- ஈ. பட்டப்படிப்பு

3. தொழில்

- அ. வேலையில் உள்ளவர்
- ஆ. வேலையில் இல்லாதவர்

4. குடும்ப அமைப்பு

- அ. தனிக்குடும்பம்
- ஆ. கூட்டுக்குடும்பம்

5. குடும்ப மாத வருமானம்

- அ. ரூ 5000-ம் கீழ்
- ஆ. ரூ 5001 - ரூ 6000 வரை
- இ. ரூ 6001 - ரூ 7000 வரை
- ஈ. ரூ 7001 - ம் மேல்

6. உணவு பழக்கம்

அ. சைவம்

ஆ. அசைவம்

7. வசிப்பிடம்

அ. கிராமம்

ஆ. நகரம்

8. கருத்தருத்தல்

அ. முதல் முறை

ஆ. ஒன்றுக்கும் மேல்

9. கர்ப கால வயது

அ. 35 வது வாரம்

ஆ. 36 வது வாரம்

இ. 38 வது வாரம்

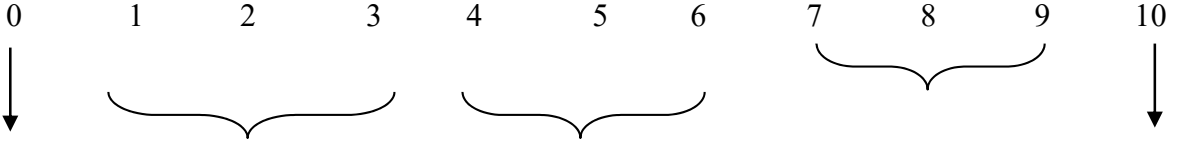
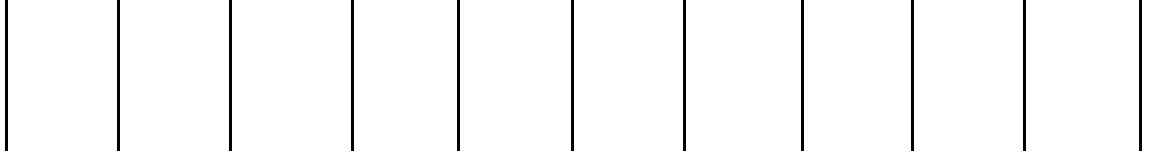
10. முந்துய பேருகால அருவை சிகிச்சை

அ. ஆம்

ஆ. இல்லை

பிரிவு - ஆ

எண் வலி மதிப்பு அளவீடு



வலி இல்லை

குறைந்த வலி

நடு நிலையான வலி

அதிக வலி

மிகவும் அதிகமான வலி

விளக்கம்

0 - வலி இல்லை

1-3 - குறைந்த வலி

4-6 - நடு நிலையான வலி

7-9 - அதிக வலி

10 - மிகவும் அதிகமான வலி

APPENDIX VII

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the tool,

Section A: Demographic data.

Section B: Numerical pain scale.

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NAME:

Shanithi . N

DESIGNATION:

Eng. B.T.

DATE:



APPENDIX VIII

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the tool,

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Section B: Numerical pain scale.

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NAME:

P. SATHIYABAMA
ப. சாதியாபாமா

DESIGNATION:

குலைமை ஆசிரியர்
உ.ஒ. நடுநிலைப்பள்ளி
வடக்கு வலையபட்டி-625 109
மேலார் வட்டம் மதுரை மாவட்டம்

DATE:

APPENDIX IX

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 once a day for first 2 post operative 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: Warm water	To clean palm and foot
2.	Towel	To wipe the palm and foot
3.	Covering sheet	To cover the mother.
4.	Screen	To provide privacy to 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.
- 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.
- 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.

APPENDIX X

CERTIFICATE OF PLAGIARISM



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Phone: +1-510-764-7610

iThenticate Plagiarism Detection Software

CERTIFICATE

This is to certify that the manuscript submitted by **ASHA.B, Matha College of Nursing, Vaanpuram, Manamadurai** with the following details has been processed using iThenticate Software and it is acceptable for submission as a thesis/ dissertation.

Reference No: 4158

Title: "A Study to Evaluate the Effectiveness of Hand and Foot Massage on Pain among Post caesarean Mothers at Selected Hospitals, In Madurai District".

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APPENDIX XI
PHOTOGRAPHS



