EFFECTIVENESS OF FOOT MASSAGE ON REDUCTION OF LABOUR PAIN DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS IN KANTHIMATHI NURSING HOME AT TIRUNELVELI DISTRICT

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY CHENNAI

IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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BY

Mrs. J.ASHA ALICE MATHARASI

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SRI.K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

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ABSTRACT

A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain during first stage of labour among primigravida mothers in Kanthimathi nursing home at Tirunelveli was conducted by **Ms.J.Asha Alice Matharasi** in partial fulfillment of the requirement for the degree of Master of Science in Nursing at Sri.K. Ramachandran Naidu College of nursing under Tamil Nadu Dr M.G.R. Medical University, Chennai.

The objectives of the study were,

- To assess the pretest level of labour pain during first stage of labour among primigravida mothers in experimental and control group.
- To find out the effectiveness of foot massage on reduction of labour pain during first stage of labour among primigravida mothers in experimental and control group.
- To compare the pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.
- To compare the pre and post test level of labour pain during first stage of labour among primigravida mothers in control group.
- To associate the post test level of labour pain during first stage of labour among primigravida mothers in experimental and control group with their selected demographic variables.

The following hypotheses were set for the study:

All hypotheses were tested at 0.05 levels.

H_1 Mean post test level of labour pain during first stage of labour among primigravida mothers in experimental group was significantly lower than the mean post test level of labour pain in control group.

H_2 There was a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.

H_3 There was a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in control group.

H_4 There was a significant association between post test level of labour pain during first stage of labour among primigravida mothers in experimental group with their selected demographic variables.

H_5 There was a significant association between post test levels of labour pain during first stage of labour among primigravida mothers in control group with their selected demographic variables.

The study was based on Melzack and Wall Gate Control Theory Model. The quantitative research approach was used. The study was conducted in Kanthimathi Nursing Home, Tirunelveli. The design adopted for the study was quasi experimental with pre and post test control group design to evaluate the effectiveness of foot massage on reduction of labour pain during first stage of labour. Purposive sampling method was used to select 30 mothers for experimental group and 30 mothers for control group from Kanthimathi Nursing home.

The data collection tools developed for generating the necessary data were a Numerical Categorical Pain Assessment Scale to assess the reduction of labour pain. The content validity of the tool was established by five clinical experts. The reliability of Numerical Categorical Pain Assessment Scale was established by Dr. Bram Riegel, M.D. The instrument was found to be reliable. Pilot study was conducted to find out the feasibility of the study and to plan for data analysis.

Data collection was done and the data obtained were analyzed in terms of both descriptive and inferential statistics.

The significant findings of the study were:

1. There was a significant difference between mean post test level of labour pain during first stage of labour among primigravida mothers in experimental and control group ($t=8.983$, $p<0.05$)
2. There was a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group ($t=8.22$, $p<0.05$)
3. There was a significant difference between mean pre and post test level of labor pain during first stage of labour among primigravida mothers in control group ($t=2.876$, $p<0.05$).
4. There was a statistically significant association of mean post test level of labor pain during first stage of labour among primigravida mothers in experimental group with their selected demographic variables.($p < 0.05$).
5. There was a statistically significant association of mean post test level of labor pain during first stage of labour among primigravida mothers between control group with their selected demographic variables.($p < 0.05$).

On the basis of the findings of the study it is recommended that,

1. The similar study can be conducted with larger samples for better generalization.
2. A study can be conducted to assess the knowledge and practice of foot massage for labour pain management among nurse midwives.
3. A study can be conducted to assess the knowledge and attitude of complementary therapies for first stage of labour pain management among nurse midwives.

4. A study can be conducted to assess the effectiveness of other nursing measures such as music, aromatherapy, acupuncture for reduction of labour pain among primigravida mothers.
5. A study can be conducted to assess the effectiveness of foot massage on induction of labour in primigravida mothers during antenatal period.
6. A study can be conducted to assess the effectiveness of foot massage on reduction of anxiety in primigravida mothers during first stage of labour.

Recommendations based on the suggestions of the study subjects:

1. Complementary therapies should be taught to the antenatal mothers who admitted in antenatal ward.
2. Mass media should be effectively utilized for conducting health education program for midwives regarding non pharmacological approach for reduction of labour pain.
3. Health education program for midwives regarding non pharmacological approach should be conducted by professionally trained person.

Conclusion

The present study assessed the effectiveness of foot massage on reduction of labour pain among primigravida mothers during first stage of labour. The results of the study concluded that applying foot massage was effective in the reduction of labour pain in primigravida mothers. Foot massage is inexpensive, easy to apply, not painful and can enhance comfort in mother in the labour period. So, it could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to the assessment of post test level of pain by using standard scale following the intervention of foot massage can be given as a non-pharmacological measure to enhance reduction of labour pain.

CHAPTER-I

INTRODUCTION

"Whenever a woman is in labour she has pain, because her hour has come; but when she gives birth to the child, she no longer remembers the anguish because of the joy that a child has been born into the world.

(New American Standard Bible)

BACKGROUND OF THE STUDY

Labour pain is a normal physiological reaction and nature way to delivering the baby for pregnant mother. Labor pain is an unpleasant, complex and highly individualized phenomenon with both sensory and emotional components. Labour associated with human childbirth is a painful experience, irrespective of social and ethnic backgrounds **(Weisenberg & Caspi 1989; Chamberlain 1983).**

Labour may be defined as rhythmic contraction and relaxation of the uterine muscles with progressive effacement (thinning) and dilatation (opening) of the cervix, leading to expulsion of the products of conception.

Pain during labour is caused primarily by uterine muscle contractions and somewhat by pressure on the cervix. This labour pain manifests itself as cramping in the abdomen, groin, and back, as well as a tired, achy feeling all over. Some women experience pain in their sides or thighs as well. Back pain occurs in approximately 50 percent of pregnant women **(Rathmell et al., 1985).**

Other causes of pain during labour include pressure on the bladder and bowels by the baby's head and the stretching of the birth canal and vagina.

The degree of labour pain experienced during labour is related to the frequency, intensity and duration of uterine contractions and dilatation of the cervix. In addition, the position of the foetus, descent of the presenting part, stretching of the perineum and pressure on the bladder, bowel and sensitive pelvic structures also contribute to pain levels **(Melzack et al., 1986).**

A study was conducted in the United Kingdom among mothers with first stage of labour. The researcher indicated that 93.5 percent of the women described the pain as severe or unbearable **(Steer, 1986).** In Finland 80 percent of the women described it as very severe or intolerable **(Ranta, 1987).**

A cross sectional study was conducted to evaluate the experiences of pain, and studied the pain perception of labour. Through his research he found that overall childbirth can be called severely painful, but the intensity of the pain is variable. About 25 percent of first time mothers and only 11 percent of experienced mothers rated labour as horrible or excruciating. In fact nine percent of first time mothers and 24 percent of experienced mothers said they had low levels of pain. Seventeen percent of women had low levels of pain. The researcher concluded that perception of pain is highly unique and differs from one individual to another though the intensity of pain stimuli is same **(Ronald Melzack, 1988).**

There are two general approaches in Labour pain management, pharmacological and non-pharmacological methods. The non-pharmacological methods including massage, reflexology, touch therapy, relaxation, dancing, heat and cold therapy (e.g. taking a shower or hot bath), trance subcutaneous nerve stimulation and water therapy, massage, acupressure, aromatherapy and music therapy. These techniques are very effective on pain relief. The pharmacological methods of pain relieving including

receiving narcotics drugs such as Pethidine, using Entonox gas and the types of topical anesthetics such as pudendal block, paracervical block, spinal block and epidural analgesia and etc.

Pharmacological measures are often expensive and have harmful effects for reducing labour pain. In the pharmacological methods, the pain feeling would be reduced physiologically but psychological and emotional conditions of the mothers are ignored **(Rudolf Wagner**, **1989).**

The childbirth experts recommended that massage has been shown to ease pain and reduce anxiety in the first stage of labour. Massage stimulates the body to release endorphins. Endorphins are natural pain-killing and mood-lifting substances **(George Meissner**, **1990**)

An experimental study was conducted that to assess the effectiveness of ice massage for reducing labour pain. Sixty six women were recruited to participate in this study on their admission to the labour and delivery unit at Humana Hospital. Ice massage of the energy meridian L_{I4} was performed during each contraction and was carried out over a 30-minute period. Data from the Visual Analog Scale (VAS) showed a mean reduction in pain of 25.15. The researcher concluded that the intense sensory input produced by ice massage of the web between the thumb and forefinger resulted in a 50 percent reduction in labour pain **(Melzack et al., 1990).**

An experimental study was conducted that he found that foot massage had been effective on reduction of the labour pain and length. He explained that foot massage as one of the branches of the complementary medicine is a gentle art and an individual healing form and type of a prospective comprehensive treatment which

believes the individual and her disease cannot be divided into separate treatable parts, but the individual should be considered and treated as a whole person which consists of body, mind, emotions, spirit and feelings **(Mc Nill et al., 1991)**.

Foot massage affects the physiological and psychological stimulation points. Foot massage in the pregnancy period, labour and postpartum period can be usable for treating many physiological conditions such as nausea, pregnancy vomiting, constipation, headache and low back pain even in the breastfeeding period. In the foot massage intervention, with massage and skin contrast, enkephalins and endorphins are secreted and can reduce the anxiety and pain. Generally, foot massage techniques would stop the neural transmission of the pain message to the brain and subsequently the perception of pain relief through control gate **(Nancy LN, 1992)**.

Based on several studies about using complementary therapies or non pharmacological methods for labour pain very few studies with detailed design have been done on using complementary medicine in pregnancy and labour. However, many of the effective complementary medicine methods such as massage, reflexology, touch therapy, heat and cold therapy, water therapy, aromatherapy and music therapy which are done by the midwives, are also using to reduce the labour pain.

NEED FOR THE STUDY

The wealth of the nation is its healthy population. The mother contribution in creating a healthy population is beyond explanation. So mother should be kept physically emotionally and socially healthy.

Labour pain can be considered as one of the human's physiological behavioral process which its creation cycle has remained unchanged from the beginning of the human creation.

Labour pain may have adverse physiological and psychological consequences that hyperventilation, leading to hypocapnia and respiratory acidosis in respiratory tract. Increases cardiac output and blood pressure via sympathetic activity; this may be problematic in cardiac disease and pre-eclampsia. Increased venous return associated with uterine contractions may also contribute. In neuro endocrine system there is increased maternal catecholamine secretion with risk of utero placental constriction. Effect of labour pain on gastro intestinal system emptying and acidity is unclear, although delayed emptying and increased acid secretion. Psychologically severe labour pain has been implicated in contributing to long-term emotional stress.

Women in labour be massaged because massage not only eases pain and reduces anxiety, but shortens labours and lowers new mothers' risk of experiencing postpartum depression. Massage is a very helpful technique for reducing pain during labour.

Randomized controlled trial examined the effects of music on sensation and distress of pain in Thai primiparous women during the active phase of labour. Women in the intervention group listened to soft music without lyrics for three hours starting early in the active phase of labour. Dual visual analog scales were used to measure sensation and distress of pain before starting the study and at three hourly post tests. Sensation and distress significantly increased across the three hours in both groups (p<.001), except for distress in the music group during the first hour **(Eva Saldanha, 2003).**

The study were reported that nurses can provide some complementary therapy to labouring women for greater pain relief during the active phase when contractions are strong.

Foot massage also one of the complementary therapy is useful for normalizing the functioning of glands in the body. Foot massage is believed to boost circulation and assist digestion. Someone suffering from sinus congestion may find quick respiratory relief when getting a foot massage. One might wonder how it is possible that applying pressure to a point on the foot can actually relieve pain in other places of the body. Nevertheless, a person experiencing back pain, a migraine headache or arthritis pain may get natural pain relief from a foot massage. Some injured athletes use a foot massage as a way to accelerate healing **(Wisconsin, 2003).**

When a woman has passed her due date to give birth, a foot massage may be an effective natural way to induce labour. One point is located just inside the heel of each foot. Another is located in the arch of the foot, just in front of the heel. A third is found between the big and second toes. According to Maternity Accupressure.com, all of these points should already feel tender to the touch. Firm pressure should be administered and released when a contraction begins. A foot massage is also very useful during delivery **(Jessica Loeb, 2004).**

Scientific studies were conducted, between 80 and 90 percent of women who were massaged during labour pains reported that the massage reduced or relieved their pains, made them feel psychologically supported, and reduced their anxiety about labour and delivery. It's known that thoughts and emotions can play a role in making pain worse or helping to alleviate it. By relieving anxiety and conveying reassurance, the act of touching and massaging a person who is in pain can cause the pain to

lessen. The result of the studies shown that women who were massaged during labour pain relaxed more and reported a reduction of pain or a reduction in the intensity of pain **(Michel Tournaire, 2006).**

Shoulder massage also can help a labouring woman to breathe more rhythmically. Stroke from the shoulders to the elbows, and use your thumbs to massage in small firm circles behind the shoulder blades to relieve knots of tension. You can use a similar technique on the lower back during early labour, before contractions become very intense **(Yonneau, 2007).**

A scientific study conducted by American College of Obstetrician and Gynecologists issued a statement on foot massage for reduction of labour pain. The study findings were foot massage, with strong firm strokes from ankles to toes, or using thumbs to make circles on the soles of the feet, can help to relieve anxiety and tension during early labour **(Saria Tasnim, 2007).**

A lower back massage can help to counteract the pain of strong contractions. Use the heel of the hand to massage very firmly over the base of the spine and the surrounding muscles. A woman who has had an epidural and is lying in bed may still appreciate a hand massage. Stroke each hand in turn, sweeping both sides of the hand from the wrist to the fingertips. Make small circles all over the palms, and gently pull each finger.

Touch can be helpful in relieving many kinds of pain, not just labour pain, because when the body is touched in a kind and gentle way, the brain is stimulated to release endorphins, neurotransmitters that reduce pain and improve a person's mood (**Elaine Zwelling ,2008).**

Thus, the researcher is concluded that it was essential to manage labour pain in primigravida mothers provide them comfort and felt the need to conduct a study on labour pain reduction. This made the investigator interested to use the complementary threpy for reduction of labour pain among primigravida mothers. There are many pharmachological measures available to reduce labor pain but may bring more side effects.

Since there had not been much study on foot massage for labour pain reduction and delivery pain control. So the researcher decided to conduct this study to assess the effectiveness of foot massage on reduction of labour pain during first stage of labour pain among primigravida mothers who were admitted in labour ward of Kanthimathi Nursing Home.

STATEMENT OF THE PROBLEM

A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain during first stage of labour among primigravida mothers admitted in Kanthimathi Nursing Home at Tirunelveli District, Tamilnadu.

OBJECTIVES

- To assess the pre test level of labour pain during first stage of labour among primigravida mothers in experimental and control group.
- To find out the effectiveness of foot massage on reduction of labour pain during the first stage of labour among primigravida mothers in experimental and control group.
- To compare the pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.

- ❖ To compare the pre and post test level of labour pain during the first stage of labour among primigravida mothers in control group.
- ❖ To associate the post test level of labour pain during the first stage of labour among primigravida mothers in experimental and control group with their selected demographic variables.

HYPOTHESES

H_1 Mean post test level of labour pain during first stage of labour among primigravida mothers in experimental group will be significantly lower than the mean post test level of labour pain in control group.

H_2 There will be a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.

H_3 There will be a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in control group.

H_4 There will be a significant association between post test level of labour pain during first stage of labour among primigravida mothers in experimental group with their selected demographic variables.

H_5 There will be a significant association between post test levels of labour pain during first stage of labour among primigravida mothers in control group with their selected demographic variables.

OPERATIONAL DEFINITIONS

Assess:

It refers to systematically and continuously collecting, validating and communicating the data regarding reduction of labour pain among primigravida mothers by Numerical categorical pain assessment scale.

Effectiveness

It refers to outcome of foot massage on reduction of labour pain among primigravida mothers.

Foot Massage

It refers to the systematic therapeutic stroking, rubbing and pressing over the foot muscles ankles and toes to reduce labour pain for ten minutes for three times with interval of 15 – 20 minutes.

Labour Pain

It refers to regular and rhythmic pain experienced by primigravida mother during labour.

Primigravida mothers:

It refers to the mother who is going to deliver the baby for the first time.

First stage of labor:

It refers to the period from the beginning of painful regular uterine contractions and cervical dilatations of 3 to 4 cm.

ASSUMPTIONS

- Foot massage may reduce the labour pain.
- Most of the mothers have severe labor pain during first stage of labour.

DELIMITATIONS

- The study was delimited to four weeks.
- The study was delimited to 60 primigravida mothers.

PROJECTED OUTCOME

- Application of foot massage will reduce labour pain among primigravida mothers.
- The findings of the study will help the nurses to provide foot massage to reduce the labor pain**.**

CONCEPTUAL FRAMEWORK

The conceptual framework for research study presents the measures on which the purpose of the proposed study is based .The frame work provider the perspective from which the investigator views the problem.

The present study is aimed to helping the primigravida mothers in reducing their labour pain by administration of foot massage who undergone normal vaginal delivery.

The study is based on the concept that applying foot massage in sole of the foot for reduction of labour pain during delivery among primigravida mothers. The investigator adopted the Melzack and Wall gate control theory of pain as a base for developing conceptual framework.

The gate control theory put forward by Ronald Melzack and Patrick wall and they proposed the gate control theory of pain in 1962, and gain in 1965.

The gate control theory of pain proposed that the transmission of nerve impulses from afferent fibers to spinal cord transmission (T) cells is modulated by a gating mechanism in the spinal dorsal horn. This gating mechanism is influenced by the relative amount of activity in large- and small-diameter fibers, so that large fibers tend to inhibit transmission (close the gate), whereas small fibers tend to facilitate transmission (open the gate). In addition, the spinal gating mechanism is influenced by nerve impulses that descend from the brain. When the output of the spinal T cells exceeds a critical level, it activates the Action System those neural areas that underlie the complex, sequential patterns of behavior. Gate-control theory that afferent stimuli, especially pain, entering the substantia gelatinosa are, modulated so that transmission to neurons is blocked by inhibitory agents.

According to the gate control theory body can block a painful stimulus (close the gate) and thereby reduce pain or prevent pain. This theory draws from the presence of two types of nerve fibers. The large nerve fibers transfer pressure, non-damaging heat and cold and send signals quickly. The small nerve fibers transfer pain, light touch and extreme heat and cold and send signals more slowly. To activate the long nerve fibers they prevent the slower moving small nerve fibers from sending pain signals.

Comfort measures based on this theory can be used at any time without practice and include ice packs, warm cloths, pressure and the labour tub or shower. The drawback to these techniques is the tendency for the nerves to habituate (get used to) the sensation in about 15 to 20 minutes.

Physical pain is not a direct result of activation of pain receptor neurons but rather its perception is modulated by interaction between different neurons, it is based on the release of endorphin will block the transmission of pain signal. Endorphin are a group of internally secreted opiate like substance released by signal from the cerebral cortex. They attach to opiod receptors and blocks pain transmission.

Gate control theory thus explains how stimulus that activates only nonnocieceptive nerve (such as rubbing) can inhibit pain. The pain seems to lessened when the area rubbed because activation of nonnociceptive (Aβ) fibers inhibits the firing of nociceptive ones in the laminar Aβ and C fibers.

The investigator was modified the conceptual framework of wall and metzack gate control theory according to the study .During the first stage of labour there are certain variables like age, education, work pattern, type of family, income, religion, area of living, height, weight, weeks of gestation) may influence uterine contraction.

The conceptual framework model is grouped under three major headings like:

1. Perception of labour pain.
2. Intervention, stimulation on pain receptors.
3. Travelling of impulses.

Due to uterine contraction nociceptive fibers (small diameter fibres Aβ, C) are stimulated. Afferent pain receptive nerves, those that bring signals to the brain, comprise at least two kinds of fibers a fast, relatively thick, myelinated. Aβ fibers that transmit the message quickly with intense pain and small, unmyelinated slow 'C' fiber that carries the longer term throbbing and chronic pain. These fibers stimulate the nerve endings and travels through the pain receptors to the brain. During this phase gate is open in both experimental and control group of primigravida mothers.

By providing foot massage therapy to the experimental group on foot, there is release of endorphins from the inter neurons and blocks the pain receptor of the brain. It also stimulate of nociceptive fiber (Aβ fibre). Large diametr Aβ fibers are nociceptive (do not transmit pain stimuli) and inhibits the effects of timing by Aβ and C fibers and inhibits transmission of pain stimuli.

The central nervous system receives stimuli from Aβ fibers and regulates it. There by the gate is closed. So the pain perception is decreased among experimental group of primigravida mothers who are in labour pain.

In control group foot massage therapy was not given. The nerve endings are paining the stimuli to the brain and pain is perceived by mother at the time of labour pain. The pain is perceived as high due to the stimulation of nociceptive fibers (Aβ and C).The central nervous system has centers at which pain stimuli can be regulated.

Some areas in the dorsal horn of the spinal cord that are involved in receiving pain from Aβ and C fibers called laminae. During this time the “gate is open”. So the pain perception is high among control group of primigravida mothers who are in first stage of labour.

It gives a clear cut idea that the primigavida mother who are in experimental group receiving foot massage to reducing labour pain.

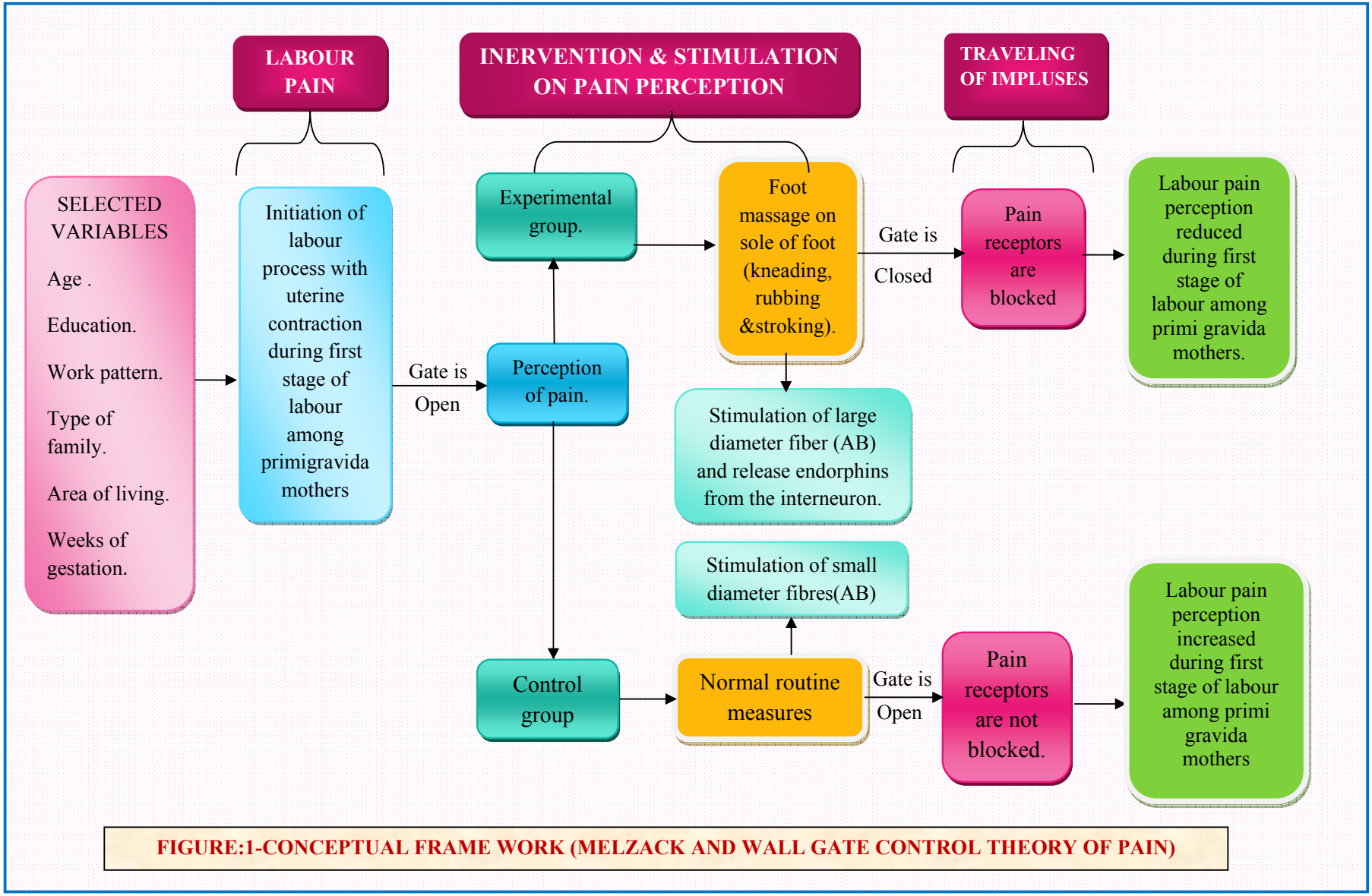

FIGURE:1-CONCEPTUAL FRAME WORK (MELZACK AND WALL GATE CONTROL THEORY OF PAIN)

CHAPTER II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest (**Polit & Beck, 2006).**

The review of literature in the research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practices or to provide a basis for conducting a study **(Burns, 1997)**.

The review of literature is organized under the following sections:

Section-A: Studies related to labour pain.

Section-B: Studies related to management of reduction of labour pain.

Section-C: Studies related to foot massage on reduction of labour pain.

SECTION-A: STUDIES RELATED TO LABOUR PAIN

Chin J Integr Med (2001) conducted astudy to observe the effect of acupoint Sanyinjiao (SP_6) moxibustion (S-Mox) on the duration of the first labor stage and uterine contractive pain in primiparae.Sixty primipara women in labor were equally assigned according to their choice to three groups. Women in the S-Mox group received bilateral S-Mox for 30 min, women in the non-acupoint group received moxibustion (Mox) applied on non-acupoints for 30 min, and those in the control group did not receive Mox intervention. The duration of the first labor stage was recorded and the degree of labor pain was estimated by a visual analogue scale (VAS) before and after Mox.The duration of the first stage active phase in the S-Mox group

was significantly shorter than that in the other two groups (P<0.05, P<0.01); the VAS score after Mox was lower in the S-Mox group, showing a statistical difference in comparison with the control group (P<0.05).Applying S-Mox could markedly shorten the active phase of the first stage of labor and lower the VAS score of uterine contractive pain.The researcher concluded that its mechanism was worthy of further study.

Sohinee Bhattacharya et al., (2002) conducted the epidemiological study aimed to analyse retrospective data on the distribution of different types of labour analgesia used by women in order to examine the rates of the use of epidural, opioid and Entonox or no analgesia for pain relief in labour in each year were calculated. Maternal, pregnancy, labour and delivery characteristics were compared among the users of three different analgesics by univariate and multivariate analyses. Results of this study was among the 81,418 deliveries, 12,659 (15.5%) women had epidural, 33,819 (41.5%) had used opioids and 26,974 (33.1%) received either Entonox or no analgesia at all. The women who received epidural analgesia were younger, shorter and heavier and had larger babies (OR = 1.05, 95% CI 1.01, 1.08). Three quarters of them were primigravida and had longer periods of gestation. They were also more likely to have suffered pregnancy related complications (OR = 2.11, 95% CI 1.8, 2.4). Labour was more likely to have been induced (OR = 2.8, 95% CI 2.6, 2.9) and to have lasted longer in this group of women. Women in this group were 5 times more likely to have an instrumental delivery (95% CI 4.9, 5.1) and 7 times more likely to have a Caesarean section (95% CI 5.7, 9.3).The researcher concluded that non epidural analgesia was found to be the most popular choice for pain relief in labor.

Michelle Hileman (2002) conducted the study of hydrotherapy and water birth and their effects on perinatal outcomes are complimentary fields of inquiry. The following final project was written for a course entitled Critical Inquiry II offered through Philadelphia University. Two students of class 6 have collaborated on sections of their final projects regarding hydrotherapy and water birth. Included in this document are the abstracts these students have written for their individual final projects, which presents current scientific evidence as well as evidence-based clinical practice guidelines for the implementation of hydrotherapy for labor and water birth in the clinical setting.

Barnetson. L (2003) was conducted a study to evaluation of midwifery aromatherapy service for mothers in labor. In this study 8058 mothers who experienced a low risk and spontaneous labour and birth, to those whose labour was induced. In the study a total of 10 essential oils were used, plus a carrier oil, which were administered to the participants via skin absorption and inhalation. The study found little direct evidence that the practice of aromatherapy per se reduces the need for pain relief during labour. The report of this study suggests that aromatherapy can be effective in reducing maternal anxiety, fear and pain during labour. Aromatherapy is an inexpensive care option. Out of 8058 mothers, 1% (100) recorded an associated symptom.

Manizheh Pirdel, (2005) was carried out descriptive-comparative study to explore selected aspects of labor stress and specifically study the relationship between environmental factors and pain perception among parturient women in Tabriz Alzahra Hospital during 2005-2006. In this study, 300 primiparous and 300 multiparous women who were admitted for vaginal delivery, were randomly selected and

interviewed. The data were collected by a questionnaire and the intensity of pain was determined by Visual Analogue Scale (VAS).Result findings revealed that significant positive correlations were found between pain and tension from environmental factors in primiparous ($r=0.16$, $p < 0.01$) and in multiparous ($r=0.22$, $p<0.05$) women. Furthermore, primiparous women believed that a crowded delivery room (70%) and restriction of movement and mobility (67%) contributed to their environmental stresses. Multiparas women believed that noise in the delivery ward (84%) and restrict of fluid intake (78%) increased their stresses. The researcher concluded that Performance of routine diagnostic tests in hospitalized pregnant woman, provision of invasive medical care during labor process and a noisy and crowded environment all influence the mother's experience and perception of pain.

Taavoni S, (2006) was conducted a study to evaluate the effectiveness of use of a birth ball on labor pain, contractions, and duration of the active phase of labor. Sixty primiparous women aged 18 to 35 years were divided into birth ball and control groups. Pain scores were measured by a visual analogue scale. The result of the study mean pain scores in the birth ball group were significantly lower than the mean pain scores in the control group ($P < .05$). There were no significant differences between duration of the active phase of labor or the interval between uterine contractions in the 2 groups ($P > .05$). The researcher concluded that the use of a birth ball had no effect on the duration of the active phase of labor, the duration of uterine contractions, or the interval between contractions, this complementary treatment could reduce the intensity of pain during the active phase of labor.

Dr Masoud Roudbari, (2009) was conducted the study to assess the effect of oral castor oil, on the initiation of labor in post term pregnancy. This clinical trial

included 30 pregnant women at≥41 weeks, experiencing their 2nd to 5th singleton pregnancy, without uterine contraction and a Bishop Score of 4 or less before intervention, and with no medical or obstetric problem. Patients were randomly assigned to experimental and control groups. Patients of experimental group received a single dose of castor oil (60 ml, PO), with fruit juice. Two groups were followed for 24 hours and were advised to avoid using enema, intercourse, laxatives, herbal, chemical or traditional drugs for induction of labor. Data were collected by means of interview, observation and delivery characteristics forms. The results of this study showed that labor pain was started earlier in experimental group than in control group (p=0.003). Mean Bishop Scores in experimental and control groups were 4.4±0.63 and 2.66±0.72 respectively. The length of the first stage of labor in experimental group was less than that of control group (p=0.002). The rate of normal delivery in experimental group was higher than that of control group (p=0.003). The researcher concluded that labor pain begins earlier within 24 hours after taking castor oil.

Ronald Melzack (2010) was conducted a cross sectional study to evaluate the experiences of pain, and studied the pain perception of labour. Through his research he found that overall childbirth can be called severely painful, but the intensity of the pain is variable. About 25 percent of first time mothers and only 11 percent of experienced mothers rated labour as horrible or excruciating. In fact nine percent of first time mothers and 24 percent of experienced mothers said they had low levels of pain. Seventeen percent of women had low levels of pain. The researcher concluded that perception of pain is highly unique and differs from one individual to another though the intensity of pain stimuli is same.

SECTION-B: STUDIES RELATED TO MANAGEMENT OF REDUCTION OF LABOUR PAIN

Taghinejad et al., (2002) was conducted a comparative study on the effects of massage and music therapies on the severity of labour pain in the Iran province of western Iran. Hundred and one primigravida who were hospitalized for vaginal delivery were recruited and randomly stratified into two groups of either massage or music therapies. Pain was measured using the visual analog scale and the two groups were compared in terms of pain severity before and after the interventions. The result of the study revealed that mothers in the massage therapy group had a lower level of pain compared with those in the music therapy group ($p = 0.009$). The researcher concluded that massage therapy was an effective method for reducing and relieving labour pain compared with music therapy.

Gabriella Bering Liisberg (2003) conducted descriptive study in Gentofte County Hospital 103 mothers chose reflexology as an alternative to both pain killing drugs and to labour stimulating and inducing drugs. Selected sample was sixty-eight women who chose reflexology with no analgesic drugs, sixty one (89.71%) stated that reflexology had helped reduce pain, six (8.82%) felt no effect, and, one had increased pain in spite of reflexology treatment. Four of the sixty-one women who were helped by reflexology also required pain medication. Of forty-nine women who chose reflexology to stimulate labour, twenty-four gave birth without additional drug treatment. Fourteen women who were went for surgical delivery, received reflexology treatment between 30 and 60 minutes of birth. Eleven (78.57%) were then able to discharge the placenta. The other three had it surgically removed. All participants, except one, found the reflexology treatments extremely pleasant.

Cyna AM & McAuliffe GL (2005) they examined the evidence regarding the effects of hypnosis for pain relief during childbirth. They were searched for clinical trials where hypnosis during pregnancy and childbirth was compared with a non-hypnosis intervention, no treatment or placebo. Five RCTs and fourteen Non-Randomized Comparisons (NRCs) studying 8395 women were identified where hypnosis was used for labour analgesia. The study findings revealed that Four RCTs including 224 patients examined the primary outcomes of interest. One RCT rated poor on quality assessment. Meta-analyses of the three remaining RCTs showed that, compared with controls, fewer parturients having hypnosis required analgesia, relative risk=0.51 (95% confidence interval 0.28, 0.95). Of the two included NRCs, one showed that women using hypnosis rated their labour pain less severe than controls ($P<0.01$). The other showed that hypnosis reduced opioid (meperidine) requirements ($P<0.001$), and increased the incidence of not requiring pharmacological analgesia in labour ($P<0.001$).

Hince (2005) stated in his randomized controlled trial he examined the effects of music on sensation and distress of pain in Thai primiparous women during the active phase of labour. The gate control theory of pain was the theoretical framework for this study. Randomization with a computerized minimization program was used to assign women to a music group or a control group. Women in the intervention group listened to soft music without lyrics for three hours starting early in the active phase of labour. Dual visual analog scales were used to measure sensation and distress of pain before starting the study and at three hourly posttests. While controlling for pre-test scores, one-way repeated measures analysis of covariance indicated that those in the music group had significantly less sensation and distress of pain than did the control group (F (1, 107) = 18.69, $p < .001$, effect size = .15, and F (1, 107) = 14.87, p

< .001, effect size = .12), respectively. Sensation and distress significantly increased across the three hours in both groups ($p < .001$), except for distress in the music group during the first hour. Distress was significantly lower than sensation in both groups ($p<.05$). In this controlled study, music a mild to moderate strength intervention consistently provided significant relief of severe pain across three hours of labour and delayed the increase of affective pain for one hour. The researcher concluded that nurses can provide soft music to labouring women for greater pain relief during the active phase when contractions are strong.

Hamadan & Iran (2006) conducted a study regarding relaxation technique for reduction of labour pain. They were selected using convenience sampling and were divided randomly in two groups. The first group (control) received routine way of ward during their labour and the second group (test) went through the relaxation technique after training. The intensity of pain was determined using a standard pain number rating scale, and the behavioral reactions were recorded using an observational checklist. The statistical analysis of data showed significant difference in intensity of pain between the two groups (P = 0.0001). Also there was a significant difference in behavioral reactions between the two groups (P < 0.0001). Since the relaxation technique is easy to perform and without any risk and also has low expenses it is recommended for pain relief during labour.

Bette L. Waters et al., (2008) stated that the use of ice massage of the acupressure energy meridian point Large Intestine 4 (L_{I4}) to reduce labour pain during contractions. L_{I4} is located on the medial midpoint of the first metacarpal, within three to four mm of the web of skin between the thumb and forefinger. A one-group, pre-test, posttest design was chosen, which used 100-mm Visual Analog Scales (VAS)

and the McGill Pain Questionnaire (MPQ) ranked numerically and verbally to measure pain levels; the pre-test served as the control. Study participants were Hispanic and white Medicaid recipients who received prenatal care at a women's clinic staffed by certified nurse-midwives and obstetricians. Participants noted a pain reduction mean on the VAS of 28.22 mm on the left hand and 11.93 mm on the right hand. The post-delivery ranked MPQ dropped from number 3 -distressing to number 2-discomforting. The study results suggest that ice massage is a safe, noninvasive, non-pharmacological method of reducing labour pain.

Chung UL et al., (2008) conducted an experimental study to determine the effect of L_{I4} and BL_{67} acupressure on labour pain and uterine contractions during the first stage of labour. A total of 127 parturient women were randomly assigned to three groups. The study stated that there has been research-based evidence to support the positive effects of acupressure in the area of obstetric nursing. Each group received only one of the following treatments, L_{I4} and BL_{67} acupressure, light skin stroking, or no treatment only. Data collected from the VAS and external fetal monitoring strips were used for analysis. Findings indicated that there was a significant difference in decreased labour pain during the active phase of the first stage of labour among the three groups. Results of the study confirmed the effect of L_{I4} and BL_{67} acupressure in lessening labour pain during the active phase of the first stage of labour.

McCourt and Brocklehurst (2009) research on massage therapy for maternal pain and anxiety in labour is currently limited to four small trials. Each used different massage techniques, at different frequencies and durations, and relaxation techniques were included in three trials. Given the need to investigate massage interventions that

complement maternal neurophysiological adaptations to labour and birth pain(s), they designed a pilot Randomised Controlled Trial (RCT) to test the effects of a massage programme practised during physiological changes in pain threshold, from late pregnancy to birth, on women's reported pain, measured by a Visual Analogue Scale (VAS) at 90 min following birth. To control for the potential bias of the possible effects of support offered within preparation for the intervention group, the study included three arms – intervention was received massage program with relaxation techniques, placebo received music with relaxation techniques and control group received usual care. The placebo offered a non-pharmacological coping strategy, to ensure that use of massage was the only difference between intervention and placebo groups. There was a trend towards slightly lower mean pain scores in the intervention group but these differences were not statistically significant. These findings suggest that regular massage with relaxation techniques from late pregnancy to birth is an acceptable coping strategy that merits a large trial with sufficient power to detect differences in reported pain as a primary outcome measure.

Marie Barbosa Davim, (2009) was conducted the descriptive study to evaluate the effectiveness of non-pharmacological strategies on pain relief of parturients. The Analogous Visual Scale (AVS) was used on 30 parturients attended at the Humanized Labour Unit of a School-Maternity Hospital Brazil. Of the six NFS (respiratory exercises, muscular relaxation, lumbossacral massage, shower washing, deambulation and pelvic swing), two were excluded post-test (deambulation and pelvic swing) for not being accepted by the parturients. The result of the study were respiratory exercises, muscular relaxation, lumbossacral massage, and shower washing which reached satisfactory acceptation and applicability rates, were found to be effective in relieving pain of these parturients

Peter Brocklehurst (2009) conducted a study to assess the effectiveness of Intradermal Water Blocks in Decreasing Labor Pain and Suffering.Low back pain in an experimental group who received intradermal water blocks and a control group who received either a using saline or an alternative nonpharmacologic method like TENS, movement, massage, and baths. Pain relief lasted 45 to 120 minutes, and most women stated they would want to use intra dermal water blocks again during a subsequent birth. One study compared the efficacy of 3 different treatments to decrease low back pain: intra dermal water blocks, TENS, and usual care, including massage, ad lib baths, and movement. Even though the water blocks were effective in decreasing low back pain, more in the usual care group wanted to repeat the treatment they received and had the lowest requests for pain medication. The studies result shown that the intradermal water blocks were effective in decreasing severe low back pain in most laboring women within minutes.

Wagner (2009) was conducted an experimental study to determine the effect of heat therapy on labour pain and the time of labour in primigravida women referring to the affiliated hospitals of Babol University of Medical Sciences. In this study, 64 nulliparous women were randomly divided into two groups The control group received routine care but the heat therapy group used warm bag for the low back since the cervix dilated about three to four cm to the end of the first stage of labour. The results of this study revealed that heat affects the intensity of pain in the first and second stages of labour and shortens the first and third stages of labour.

SECTION-C: STUDIES RELATED TO FOOT MASSAGE ON REDUCTION OF LABOUR PAIN

Nematollah et al., (1999) was carried out a study to evaluate the effect of foot massage on relieving labor pain and its harmful sequel such as anxiety during labour among sixty primigravida women. Cases were randomly assigned to experimental and control groups. The experimental group received foot massage intervention. The nurse-rated Present Behavioral Intensity (PBI) was used as a measure of labour pain. Anxiety was measured by the Visual Analogue Scale for Anxiety (VASA). The intensity of pain and anxiety between these two groups were assessed during first stage of labour. In both groups, there was an increase in pain intensity and anxiety level as labour progressed. Results of T-test analysis demonstrated that the experiment group had significantly lower pain reaction during first stage of labor.(P=0.002,) and anxiety levels were significantly different between two groups (P=0.00). Eighty seven percent (n=26) of cases in experimental group expressed that foot massage was helpful, provided pain relief and psychological support during labour (P<0.40). Our findings revealed that foot massage is a cost effective nursing intervention that can decrease pain and anxiety during labour.

Maryam Kianpour (2000) conducted a quasi-experimental study to assess the effectiveness of foot massage on reduction of labour pain, 88 primiparous mothers referred to selected hospitals of Isfahan for vaginal delivery. They were selected by using simple random sampling method. The intervention was general and specific foot massage in the active phase of labour. PRI was assessed before the intervention and four times after the intervention 3-5 cm, 6-8 cm and 9-10 cm dilatations and second stage of labour. The findings of the study revealed that there was no significant difference between groups before intervention. In the foot massage group, there was a

significant difference between the PRI before and after the four stages intervention ($p < 0.001$). PRI was different significantly between studied groups after intervention ($p < 0.001$). The results of the study were foot massage can lead to decrease in the labour pain.

Gabriella Bering Liisberg (2002) conducted a study on foot massage on reduction of labour pain. Of 593 women who gave birth at Gentofte County Hospital 103 chose foot massage as an alternative to both pain killing drugs and to labour stimulating and inducing drugs. Of sixty-eight women who chose foot massage with no analgesic drugs, sixty one 89.71 percent stated that foot massage had helped reduce pain six 8.82 percent felt no effect, and, one had increased pain in spite of foot massage treatment. Four of the sixty-one women who were helped by reflexology also required pain medication. Of forty-nine women who chose reflexology to stimulate labour, twenty-four gave birth without additional drug treatment. Fourteen women who were candidates for surgical delivery, received foot massage treatment between 30 and 60 minutes of birth. Eleven 78.57 percent were then able to discharge the placenta. The other three had it surgically removed. All participants, except one, found the foot massages treatments extremely pleasant.

Coban A and Sirin A (2004) was conducted the study was carried out to evaluate the effect of foot massage therapy on relieving pain and its harmful sequel such as anxiety during labour. This clinical trial was performed on sixty nulliparous women selected randomly who were expected to have a normal childbirth in the Jiroft City Hospital. Cases were randomly assigned to experimental (n=30) and control (n=30) groups. The experimental group received foot massage intervention. The nurse-rated Present Behavioral Intensity (PBI) was used as a measure of labour pain.

Anxiety was measured by the Visual Analogue Scale for Anxiety (VASA). The intensity of pain and anxiety between these two groups were compared in the latent phase (cervix dilated 3-4cm), active phase (cervix dilated 5-7cm) and transitional phase (cervix dilated 8-10cm) of labour. In both groups, there was an increase in pain intensity and anxiety level as labour progressed. Results of the studies T-test analysis demonstrated that the experiment group had significantly lower pain reaction in all three phases (Phase1 P=0.000, Phase2 P=0.002, Phase3 P=0.000) and anxiety levels were significantly different between two groups only in latent phase (P=0.00). Eighty seven percent (n=26) of cases in experimental group expressed that foot massage was helpful, provided pain relief and psychological support during labour (P<0.40). Our findings suggest that massage is a cost effective nursing intervention that can decrease pain and anxiety during labour and nurses intervention to perform massage could have positive effect on delivery experience. The researcher suggested that foot massage be used for decreasing pain and anxiety during labour.

Gowri Motha (2005) conducted a study for thirty-seven of 64 pregnant women, who were offered free foot reflexology, completed the set course of ten treatments. The effects of foot reflexology on labour outcomes were perceived as outstanding. The result of the study was some mother had labour times of only two hours, some three hours. The 20 to 25 year olds had an average time of first stage labour of five or six hours. The 26 to 30 year olds seemed to have the longest labours. In total, the average first stage was five hours, second stage 16 minutes, and third stage seven minutes. This is compared to textbook figures of 16 to 24 hours first stage, and, one to two hours second stage.

Chang MY et al., (2006) was conducted a randomized controlled study stated that effects of foot massage on pain and anxiety during labour. Sixty primiparous women expected to have a normal childbirth at a regional hospital in southern Taiwan were randomly assigned to either the experimental (n=30) or the control (n=30) group. The experimental group received foot massage intervention whereas the control group did not. The nurse-rated Present Behavioral Intensity (PBI) was used as a measure of labour pain. Anxiety was measured with the Visual Analogue Scale or Anxiety (VASA). The intensity of pain and anxiety between the two groups was compared in the latent phase (cervix dilated 3-4 cm), active phase (5-7 cm) and transitional phase (8-10 cm). Anxiety levels were only significantly different between the two groups in the latent phase. Twenty-six of the 30 (87%) experimental group subjects reported that foot massage was helpful, providing pain relief and psychological support during labour. The study findings suggested that foot massage is a cost-effective nursing intervention that can decrease pain and anxiety during labour.

Dr.Jane McGrath (2006) conducted a quasi, experimental study to assess the effectiveness of foot massage on reduction of labour pain. Eighty mothers were selected for the study sample. In that 40 mothers received foot massage and another 40 mothers received normal routine care. Labour pain commenced in a mean of 6.67 hours ($\pm$3.63) for experimental group, a mean of 8.41 hours ($\pm$5.13) in control group (P=0.09). The researcher concluded that foot massage is a complimentary therapy for reducing labour pain.

Hiller (2007) conducted a randomized study to assess the effectiveness of foot massage on reduction of labor pain in turkey hospital. Fourty (40) primipara mothers were selected. samples were randomly assigned to the experimental group (n=20) and control (n=20) group. The researcher has used a visual analog scale to assess the pain level of mothers during labor. Paired t-test, unpaired t-test and ANOVA measures were used to find out the significant relationships. The researcher concluded that foot massage was effective in reducing the level of labour pain($p<0.001$).

Waterman (2008) conducted a true experimental study to assess the effectiveness of foot massage in reducing the level of labor pain. Sixty (60) multipara mothers selected & assigned to experimental group (n=30) and control group (n=30). The researcher has used a visual analog scale to assess the level of labor pain. 80% of mothers reported that foot massage has reduced the level of labor pain. So the researcher concluded that foot massage was effective complementary therapy in reducing the level of labor pain during delivery.

Chimmin (2010) conducted a quasi experimental study to assess the effects of foot massage on perception of labor pain during labour. Purposive sampling technique was used to select the samples. Fifty (n=50) primipara mothers were selected. The repeated ANOVA measures were used to find the significant relationship. The researcher concluded that ten (10) minutes of foot massage was effective on reducing the level of labor pain among experimental group compared to the control group.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and to gather and analyze information in a systematic fashion (**Polit & Hungler, 2008).** Methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation. This chapter describes the methodology followed to assess the effectiveness of foot massage on reduction of labour pain, among primigravida mother.

It includes research approach, research design, variables, settings, population, sample, sample size, sampling technique, criteria for sample selection, development and description of tools, content validity, reliability, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

Quantitative research approach was used in the study.

RESEARCH DESIGN

Research design adopted for this study was quasi- experimental pre and post test design

Group	Pre-test	Intervention	Posttest
Experimental	O_1	X	O_2
Control	O_1	--	O_2

Figure 2: Schematic Representation of Quasi- Experimental Design

Key

O_1 - Pre test level of labour pain in experimental group.

O_2 - Post test level of labour pain in experimental group

X - Application of foot massage.

O_1 - Pre-test level of labour pain in control group

O_2 - Post test level of labour pain in control group

In this study, the pre assessment level of labour pain of the experimental group and control group were measured by using Numerical categorical pain assessment scale followed by implementastion of foot massage for ten minutes with the interval of 30 minutes in experimental group. At the end of three application of foot massage, the post assessment level of labour pain were obtained from the mothers of both experimental group and control group by using the same scale.

VARIABLES

Independent Variables

Effectiveness of foot massage

Dependent Variables

Reduction of labour pain among primigravida mothers during first stage of labour.

SETTING OF THE STUDY

The study was conducted in labour ward of the Kanthimathi Nursing Home, Tirunelveli Town, Tirunelveli District. It is a 150 bedded hospital situated at the heart of the city. It comprises various functioning departments like ICU unit and surgical unit. Mainly they have maternity ward including Antenatal ward, postnatal ward,

labour room and operation theatre. It has a separate new born resuscitation unit which functions round the clock. Around 125 deliveries took place per month in the hospital, out of which 75 deliveries were normal delivery.

POPULATION

The study population consisted of primigravida mothers during first stage of labour admitted in labour ward.

SAMPLE

The study samples were primi gravida mothers during first stage of labour who was admitted in the labour ward at Kanthi Mathis Hospital, Tirunelveli, District and who fulfilled the inclusive criteria.

SAMPLE SIZE

The sample size was sixty primigravida mothers. Out of which, thirty were in control group and thirty were in experimental groups**.**

SAMPLING TECHNIQUE

The samples were selected by using purposive sampling technique .Around 1080 deliveries took place per year. Out of those 250 deliveries was lower segment caesarean section. Hundred and Twenty Five deliveries took place per month in the hospital, out of which 75 deliveries were normal delivery. The researcher selected 60 antenatal mothers who were admitted in labour ward with labour pain during first stage of labour. Out of sixty samples thirty were selected for experimental group and thirty were selected for control group.

CRITERIA FOR SAMPLE SELECTION

Inclusive Criteria

- Primigravida mothers with no high risk pregnancy.
- Primigravida mother who all have completed 37 to 42 weeks of gestation.
- Primigravida mothers who were admitted in labour ward with labour pain during first stage of labour.

Exclusive Criteria

- Mothers who were not willing to participate.
- Mothers with medical disorder and psychiatric disorders

DEVELOPMENT AND DESCRIPTION OF TOOL

Section -A:

Questionnaire used to collect demographic data from the samples which consist of six items. They were age, education, occupation, type of family, area of living, weeks of gestation.

Section -B:

Zero to ten numerical categorical pain assessment scales was used to assess the pre and post test level of reduction of labour pain among primigravida mothers during first stage of labour pain. Pain level is zero to ten. Seven to ten score which indicate severe pain. Four to six score indicates moderate pain. One to three score which indicate mild pain.

INTERVENTION

Place the mother in lithotomy position comfortably. Wash the feet thoroughly and adopt a comfortable position that allows the mother to reach all parts of the foot. Apply oil or skin lotion for lubrication when carrying out the massage in the foot.Always pay equal attention to both feet while massaging. Start on the right foot and then move to the left. Place the thumbs on the foot, one slightly higher than the other. Then, use the pad of alternate thumbs to massage the area all over the fleshy areas of the inner foot, making small rotational movements. Use light pressure and slide the hands down the foot from the toes to the heel, then up from the heel to the toes. Rotate the foot clockwise then anticlockwise.Stretching the skin backwards beneath both sides of the ankle bone massage one foot at a time. Foot massage apply 5 to 10 minutes wait for 15-20 minutes and assess level of labour pain reduction. Apply the foot massage for four times with the duration of 15 to 20 minutes. After application of foot massage post test level of labour pain reduction was assessed by using combined numerical categorical Scale.

CONTENT VALIDITY

The content validity of the tool was established on the basis of opinion of one medical expert and three nursing experts in the field of obstetrics and gynecological nursing. Slight modifications were done as per the suggestion of the experts in the tool.

RELIABILITY

The reliability of tool was tested by investigator and other nursing expert. The reliability of the tool was determined by using inter-rater observer technique. The reliability score obtained was r = 0.8. Hence the tool was considered highly reliable for proceeding with the study.

PILOT STUDY

The pilot study was a trial run for the major study. The tools were used for the pilot study to test feasibility and practicability. The pilot study was conducted in the labour ward in Ramalakshmi hospital for four days from 29.03.2010 to 02.04.2010 from 9am to 5pm among six antenatal mothers. The researcher got permission from principal and research ethical committee of Sri K.Ramachandran Naidu College of Nursing. A formal permission was obtained from the chief doctor in Ramalakshmi hospital. The mothers selected for the pilot study were not included in the main study.

The investigator introduced her to the mothers and established rapport with the mothers. Data pertaining to demographic variables were collected by interview method. The investigator selected the samples by using purposive sampling method. The investigator assessed the pre-test level of labour pain by using numerical categorical Pain assessment scale. Once after started the labour pain assessed the pre test level of labour pain by Numerical Categorical Pain assessment Scale. The investigator gave foot massage to three mothers for four times during the first stage of labour for duration of ten minutes with the interval of 15-20 minutes. Control group were not received foot massage. The investigator assessed the post test level of labour pain for both experimental and control group.

The pilot study analysis revealed that there was a significant difference in labour pain between experimental and control group of primigravida mothers at $p<0.05$ level. Therefore it was feasible and practicable to conduct the main study. There was no modification made in the tool after the pilot study.

PROCEDURE FOR DATA COLLECTION

The researcher got permission from principal and research ethical committee of Sri K.Ramachandran Naidu College of Nursing. Formal permission was obtained from the chief doctor in Kanthimathi Nursing Home, Tirunelveli district for conducting the main study. Data collection period was four weeks from 03.04.2010 to 30.04.2010 from 9am-5pm. The investigator collected data for seven days in a week and totally four weeks period was utilized for the data collection. At any time whenever the samples comes to the hospital the researcher received telephone call. The investigator selected 60 samples out of which 30 samples were in experimental group 30 were in control group by using purposive sampling technique. Per day two-three samples were taken for the study.

During the data collection procedure the investigator introduced her to the mothers and obtained consent from antenatal mothers. They were assured that no physical or emotional harm would be done in the course of the study.

Data pertaining to the demographic variables were collected by interview method. The investigator used numerical categorical pain assessment scale for assessing labour pain. Pre test level labour pain was obtained from the mothers for four contractions in both experimental and control group. Followed by pre test assessment, foot massage was given for experimental group, and control group received normal hospital routine care, foot massage was not given to the control group. Along with the hospital routine foot massage applied for 5-10 minutes on both legs with the interval of 15-20 minutes for experimental group.

The post test level of labour pain obtained after foot massage from experimental group with the interval of 20 minutes. The researcher took minimum two hours to collect data from both the experimental and control group of each study samples.

PLAN FOR DATA ANALYSIS

The data were analyzed by using descriptive and inferential statistics.

Descriptive Statistics

1. The frequency and percentage distribution was used to analyze the demographic variables among primigravida mothers in experimental and control group with reduction of labour pain.
2. The frequency and percentage distribution was used to assess the pre and post test level of labour pain reduction among primigravida mothers in experimental and control group.
3. Mean and Standard deviation was used to assess the pre and post test level of labour pain reduction among primigravida mothers in experimental and control group.

Inferential Statistics

1. Paired‘t’ test was used to compare the pre and post test level of labour pain among prigravida mothers in experimental and control group.
2. Unpaired‘t’ test was used to compare the post test level of labour pain among prigravida mothers in experimental and control group.
3. Chi-Square was used to find out the association of the effectiveness of foot massage on reduction of labour pain among primigravida mother in experimental and control group with their selected demographic variables.

PROTECTION OF HUMAN SUBJECT

The proposed study was conducted after the approval from research committee of the college. Permission was sought from the director of KanthiMathi Nursing Home. The written consent of each individual was obtained before data collection. Assurance was given to the study participant's regarding the confidentiality of the data collected.

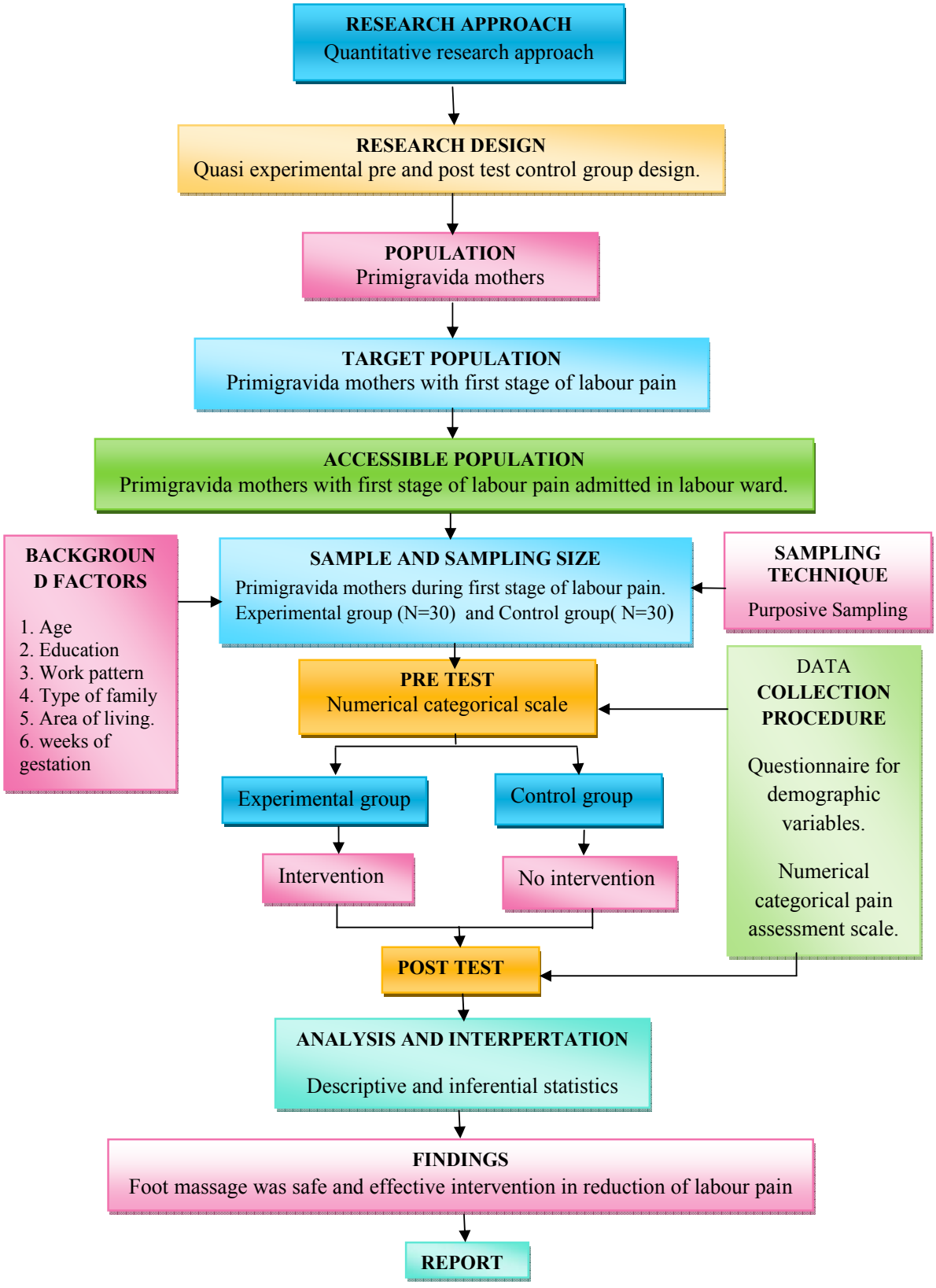

Figure 3 : SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

This chapter deal with the analysis and interpretation of data related to assessment of the effectiveness of foot massage on reduction of labour pain during first stage of labour among primigravida mothers at kanthimathi nursing Home, Tirunelveli.

Descriptive and inferential statistics were used for analyzing the data on the basis of the objectives of the study. The data has been tabulated and organized as follows.

ORGANIZATION OF DATA

Section-A : **Description of demographic variables of the primigravida mothers during first stage of labour with labour pain.**

- Frequency and Percentage Distribution of Demographic Variables of Primigravida mothers during First Stage of Labour

Section-B : **Assessment of the level of labour pain during first stage of labour among primigravida mothers in experimental and control group.**

- Assessment of the pre test level of labour pain during first stage of labour among primigravida mothers in experimental and control group.
- Assess the post test level of labour pain during first stage of labour among primigravida mother in experimental and control group.

Section-C : Comparison of the pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental and control group.

- Comparison of mean and standard deviation of the pre and post test level of labour pain among primigravida mothers in experimental group.
- Comparison of mean and standard deviation of the pre and post test level of labour pain among primigravida mothers in control group.
- Comparison of mean and standard deviation of the pre test level of labour pain among primigravida mothers in experimental and control group.
- Comparison of mean and standard deviation of the post test level of labour pain among primigravida mothers in experimental and control group.

Section-D : Association of post test level of labour pain during first stage of labour among experimental and Control group of primigravida mothers with their selected demographic variables.

- Association of post test level of labour pain during first stage of labour among primigravida mothers in experimental group with their selected demographic variables.
- Association of post test level of labour pain during first stage of labour among primigravida mothers in control group with their selected demographic variables.

SECTION-A: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF PRIMIGRAVIDA MOTHERS DURING FIRST STAGE OF LABOUR

Table-1: Frequency and Percentage Distribution of Demographic Variables of Primigravida mothers during First Stage of Labour (N=60)

S. No	Demographic Variables	Experimental Group (n-30)		Control Group (n=30)		Total (N=60)	
		f	%	f	%	f	%
1.	**Age**						
	15-20 years	8	26.7	11	36.7	19	32
	21-25 years	15	50	12	40	27	45
	26-30 years	6	20	6	20	12	20
	31-30 years	1	3.3	1	3.3	2	3
2.	**Educational Status**						
	Illiterate	3	10	1	3.7	4	7
	Primary education	8	26.7	6	20	14	23
	Secondary education	12	40	15	50	27	45
	Graduate & above	7	23.3	8	26.7	15	25
3.	**Work Pattern**						
	Sedentary	10	33.3	14	46.7	24	40
	Moderate	14	46.7	11	36.7	25	42
	Heavy	6	20	5	16.7	11	18
4.	**Type of Family**						
	Nuclear family	14	46.7	16	53.3	30	50
	Joint family	13	43.3	11	36.7	24	40
	Extended family	3	10	3	10	6	10
5.	**Area of Living**						
	Urban	10	33.3	11	36.7	21	35
	Rural	9	30	13	43.3	22	36.7
	Semi-urban	11	36.7	6	20	17	28.3

Table 1: Cont…….

S. No	Demographic Variables	Experimental Group (n-30)		Control Group (n=30)		Total (N=60)	
		f	%	f	%	f	%
6.	**Weeks of Gestation**						
	37-38	18	60	18	60	36	60
	39-40	10	33.3	11	36.7	21	35
	41-42	2	6.7	1	3.3	3	5

Table-1 describes about the frequency and percentage distribution of demographic variables of primigravida mothers with respect to age, education status, work pattern, type of family, area of living and weeks of gestation of primigravida mothers.

In the experimental group on analysis of age 8 (26.7%) of mothers belongs to 15-20 years; 15 (50) of mothers belongs to 21-25 years; 6 (20%) of mothers belongs to less than 26-30 years of age and 1 (3.3%) of mothers belongs to 31-35 years.

In the experimental group on analysis of educational status 3 (10%) mothers were illiterate; 8 (27%) had completed their primary education; 12 (40%) had completed their secondary education and 7 (23%) of them had completed their graduation.

In the experimental group with regard of work pattern 10 (33%) were sedentary workers, 14 (47%) were moderate workers and 6 (20%) were heavy workers.

In the experimental group with respect to type of family 14 (46.7%) of them were in nuclear family; 13 (43.3%) of them were in joint family and 3 (10%) of them were from extended families.

In the experimental group on analysis of area of living 10 (33%) of them were lived in urban area, 9 (30) of them lived in rural area, 11 (36.7%) of them lived in semi-urban area.

In the experimental group with regard of weeks of gestation 18 (60%) of them were from 37-38weeks, 10 (33.3%) of them were from 39 to 40 weeks and 2(6.7) of them were from 41 to 42 weeks of gestation.

In the control group on analysis of age 11 (37%)of mothers belongs to 15-20 years; 12 (40)of mothers belongs to 21-25 years; 6 (20%)of mothers belongs to 26-30 years of age and 1 (3%) of mothers belongs to 31-35 years .

In the control group on analysis of educational status 1 (3%) mothers were illiterate; 6 (20%) had completed their primary education; 15 (50%) had completed their secondary education and 8 (27%) of them had completed their graduation.

In the control group with regard of work pattern 14 (47%) were sedentary workers, 11 (37%) were moderate workers and 5 (17%) were heavy workers.

In the control group with respect to type of family 16 (53.3%) of them were in nuclear family; 11 (36.7%) of them were in joint family and 3(10%) of them were from extended families.

In the control group on analysis of area of living 11(36.7%) of them were living in urban area, 13(43.3) of them were living in rural area, 6 (20%) of them were living in semi-urban area.

In the control group with regard to weeks of gestation 18 (60%) of them were from 37-38 weeks, 11 (36.7%) of them were from 39-40 weeks and 1 (3.33) of them were from 41-42 weeks of gestation.

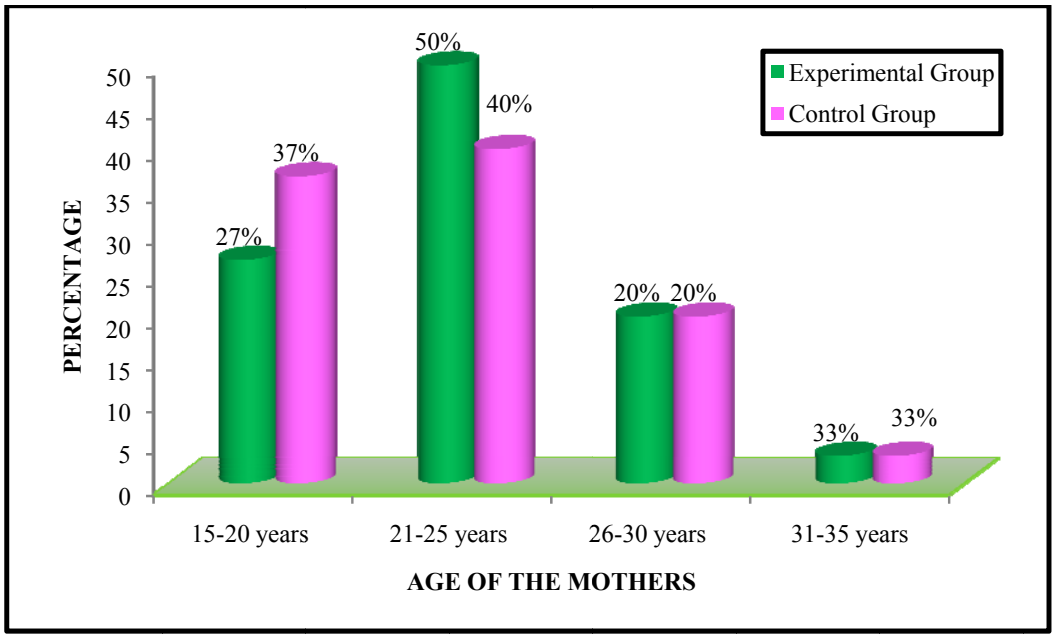

Figure-4: Percentage distribution of age among primigravida mothers in experimental and control group.

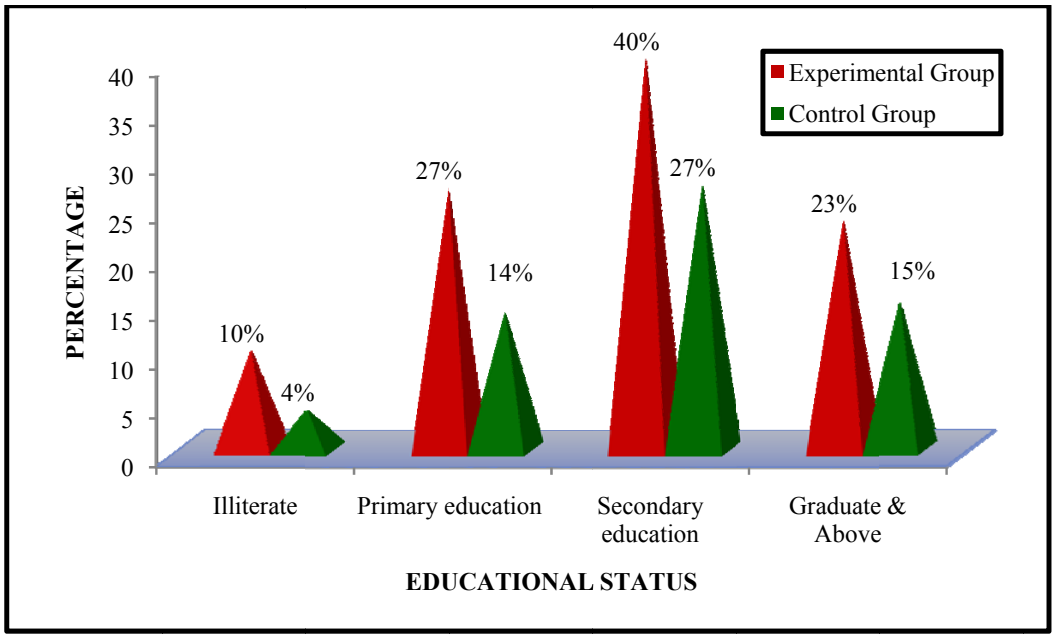

Figure-5: Percentage distribution of educational status among primigravida mothers in experimental and the control group.

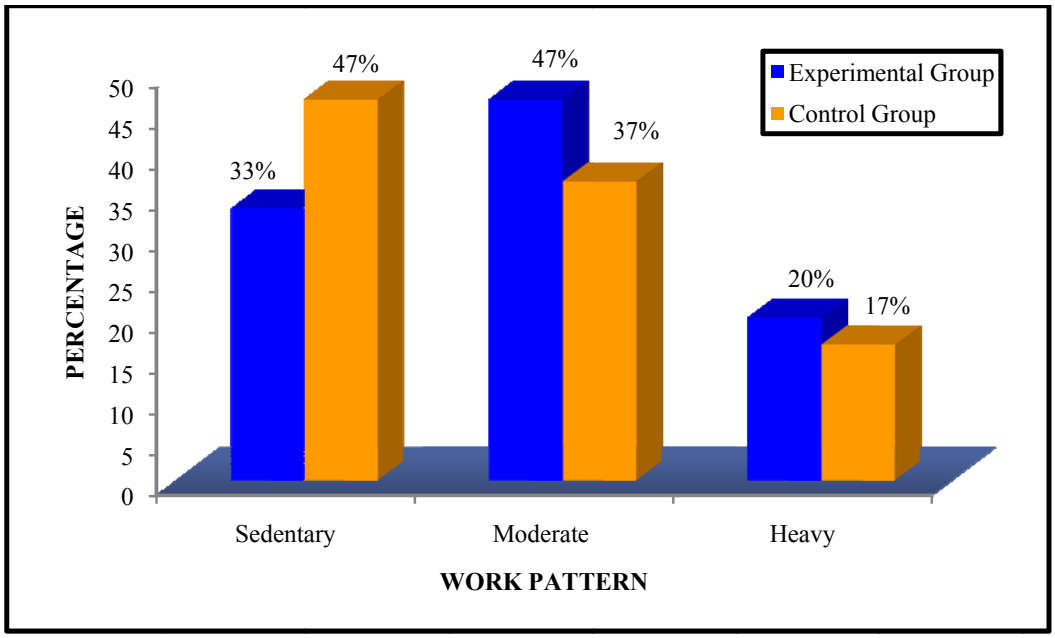

Figure-6: Percentage distribution of work pattern among primigravida mothers in experimental and control group.

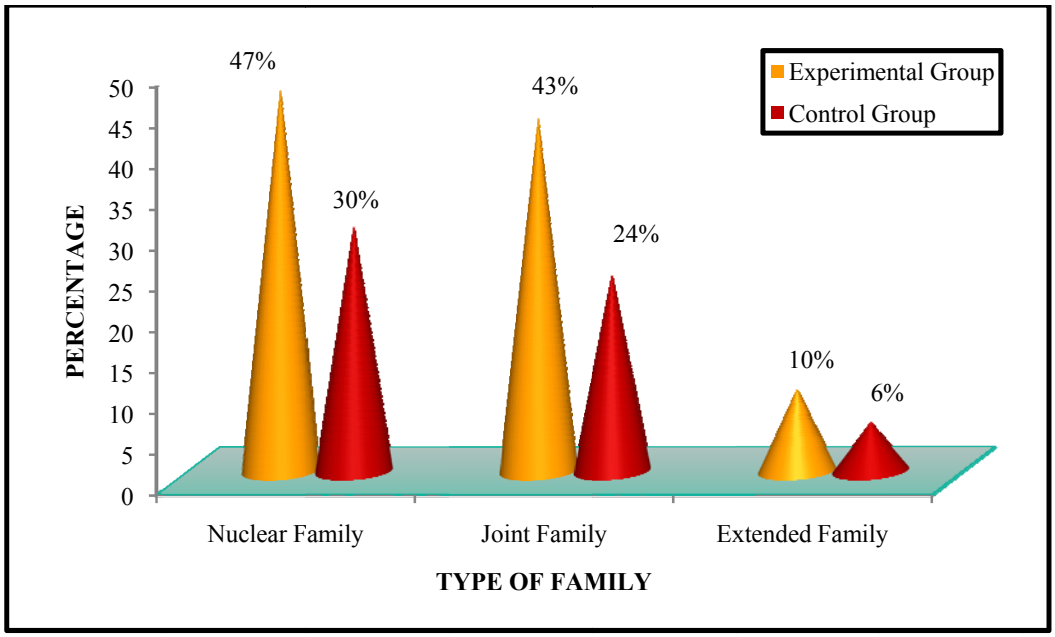

Figure- 7: Percentage distribution of type of family among primigravida mothers in experimental and control group.

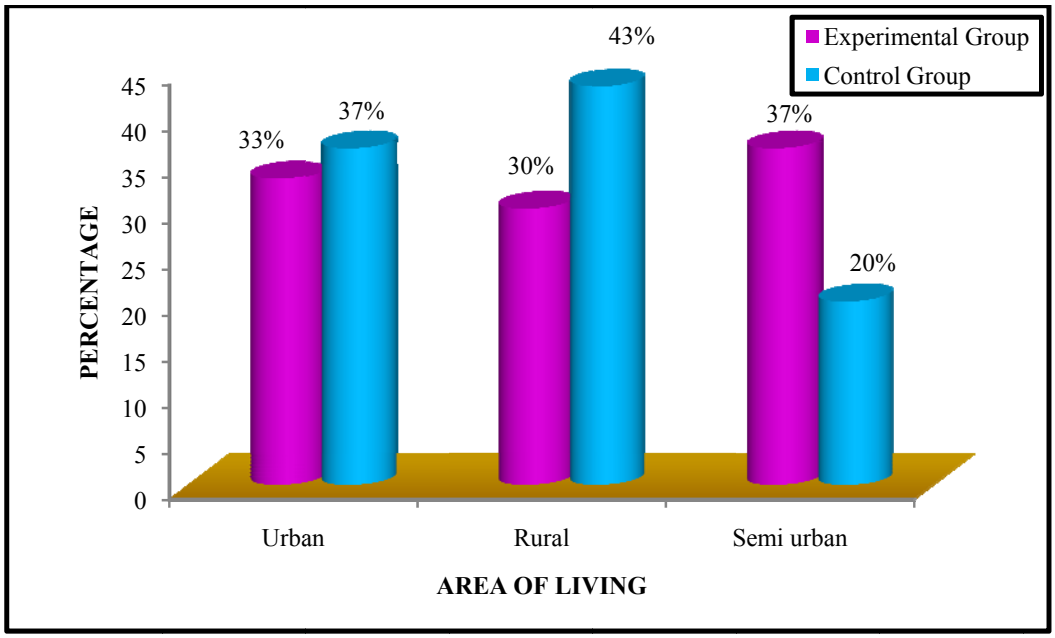

Figure-8: Percentage distribution of Area of living among primigravida mothers in experimental and control group of primigravida mother.

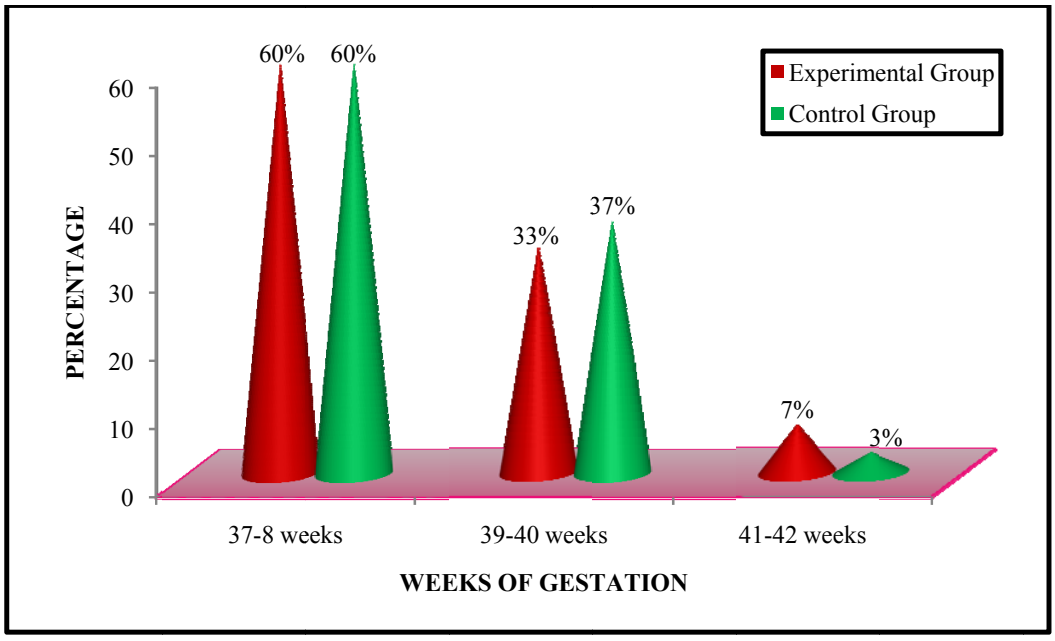

Figure-9: Percentage distribution of Weeks of gestation among primigravida mothers in experimental and the control group of primigravida mothers.

SECTION-B: ASSESSMENT OF THE LEVEL OF LABOUR PAIN DURING FIRST STAGE OF LABOUR AMONG AMONG PRIMIGRAVIDA MOTHERS IN EXPERIMENTAL AND CONTROL GROUP.

Table-2: Assessment of the Pre-test Level of Labour Pain during First Stage of Labour among primigravida mothers in experimental and Control Group.

(N=60)

S. No	Group	Level of Labour Pain							
		No pain		Mild pain		Moderate pain		Severe pain	
		f	%	f	%	f	%	f	%
1.	Experimental Group	0	0	2	6.7	10	33.3	18	60
2.	Control Group	0	0	2	6.7	12	40	16	53.3

The table 2 reveals the frequency and percentage distribution of pre-test level of labour pain among experimental and control group of primigravida mothers during first stage of labour.

With regard to the level of pain in experimental group, out of 30 mothers, 18(60%) of the mothers had severe pain, 10 (33.3%) of the mothers had moderate pain and 2 (6.7) of the mothers had mild pain.

With regard to the level of pain in control group, out of 30 mothers, 16(53.3%) of the mothers had severe pain, 12 (40%) of the mothers had moderate pain and 2 (6.7%) of the mothers had mild pain.

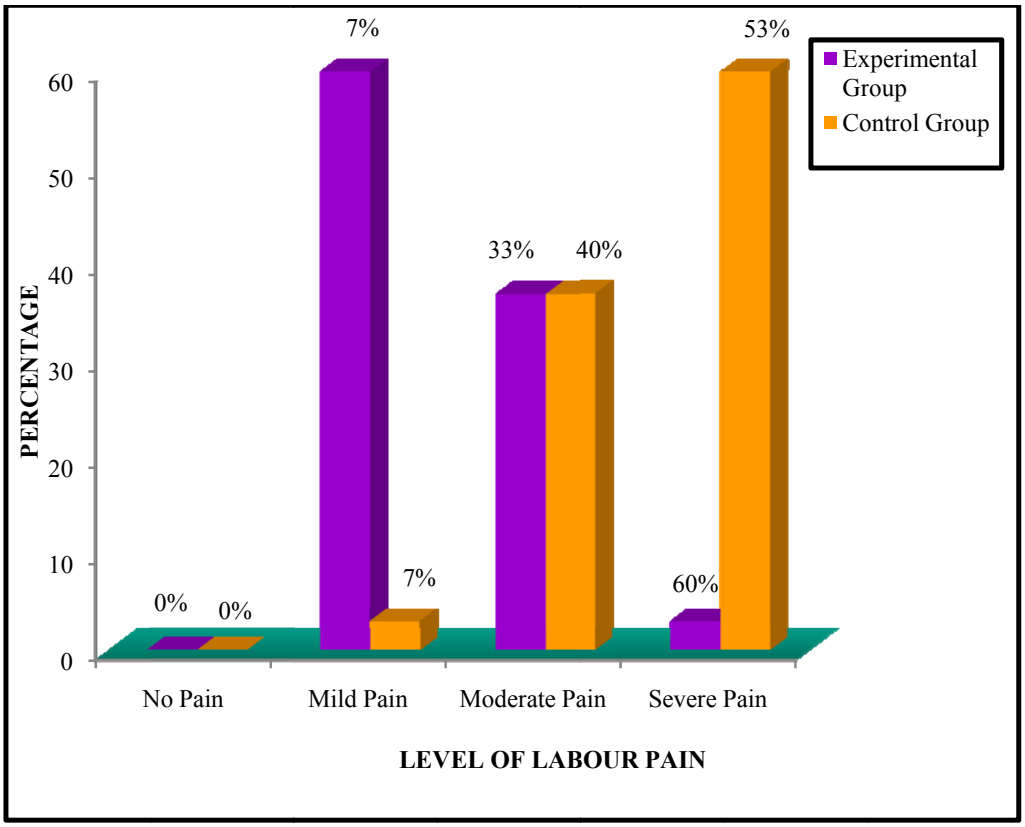

Figure-10: Percentage distribution of pre-test level of labour pain among primigravida mothers in experimental and control group.

Table-3: Mean and Standard Deviation of Pre-test Level of Labour Pain among primigravida mothers in experimental and Control Group.

(N=60)

S. No.	Group	Mean	Standard Deviation
1.	Experimental	7.49	2.76
2.	Control	5.53	3.47

Table 3 reveals the mean and standard deviation of pre test level of labour pain among primigravida mothers in experimental and control group during first stage of labour.

With regard to experimental group the pre test mean value was 7.49 with standard deviation of 2.76. In control group the mean value was 5.53 with standard deviation of 3.47.

Table-4: Assessment of the Posttest Level of Labour Pain during First Stage of Labour among Primigravida mothers in Experimental and Control Group.

(N=60)

S. No.	Group	Level of Pain							
		No Pain		Mild Pain		Moderate Pain		Severe Pain	
		f	%	f	%	f	%	f	%
1.	Experimental Group	0	0	18	60	11	36.7	1	3.33
2.	Control Group	0	0	1	3.33	11	36.7	18	60

The table 4 reveals the frequency and percentage distribution of post test level of labour pain among experimental group and control group of primigravida mothers during first stage of labour.

With regard to the level of pain in experimental group 18 (60 %) mothers were experiencing mild pain, 11 (36.7%) were experiencing moderate pain,and 1(3.3%) were experiencing severe pain.

With regard to the level of pain in control group 10 (33%) were experiencing moderate pain, 18 (60%) were experiencing severe pain and remaining 1 (3%) was experiencing mild pain.

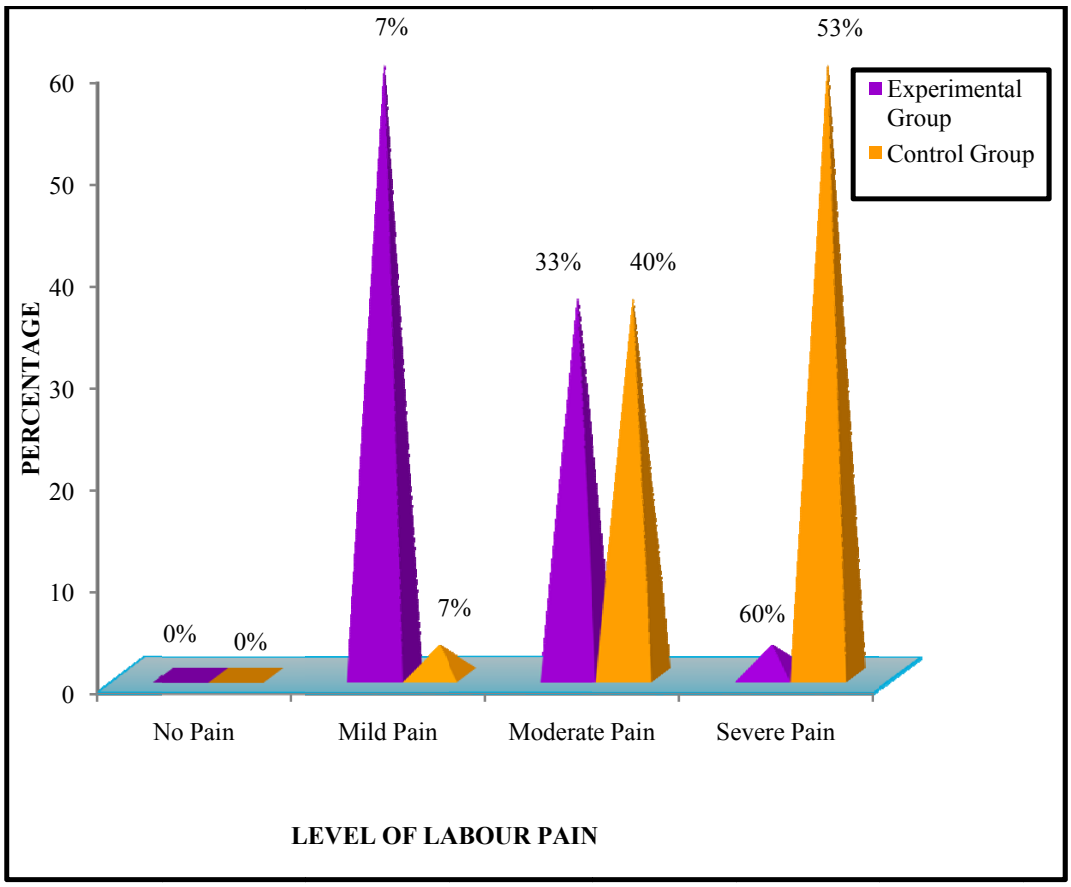

Figure-11: Percentage distribution of post test level of labour pain in experimental and control group.

Table-5: Mean and Standard Deviation of Posttest Level of Labour Pain among Primigravida mothers in Experimental and Control Group.

(N=60)

S. No.	Group	Mean	Standard Deviation
1.	Experimental group	3.16	3.41
2.	Control group	6.966	3.0

Table 5 reveals the mean and standard deviation of the post test level of labour pain among experimental and control group of primigravida mothers during first stage of labour.

With respect to experimental group the post test mean was 3.16 with standard deviation of 3.41, the mean of control group was 6.966 with standard deviation of 3.0.

SECTION-C: COMPARISON OF LEVEL OF LABOUR PAIN DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS IN EXPERIMENTAL AND CONTROL GROUP.

Table-6: Comparison of Mean and Standard Deviation of the Pre and Post test Level of Labour Pain during First Stage of Labour among Primigravida mothers in Experimental Group.

(N=30)

S. No	Test	Mean	Standard Deviation	Mean Difference	't' value
1.	Pre test	7.49	2.76	- 4.33	t=8.22 S
2.	Post test	3.16	3.41		

S-Significant

Table 6 shows the paired 't' test to compare pre test and post test level of labour pain during first stage of labor among primigravida mothers in experimental group.

The pre test mean value was 7.49 with standard deviation of 2.76 and the post test mean value was 3.16 with standard deviation of 3.41. The mean difference was - 4.33 and the calculated 't' value was 8.22 which shows that there was a significant difference between the pre and post test level of labour pain among the experimental group was accepted at $p<0.05$ level of significance.

Table-7: Comparison of Mean and Standard Deviation of the Pre and Post test Level of Labour Pain during First Stage of Labour among Primigravida mothers in Control Group.

(N=30)

S.No.	Test	Mean	Standard Deviation	Mean Difference	't' value
1.	Pre test	5.53	3.47	1.43	t=2.876 **NS**
2.	Post test	6.966	3.0		

NS-Non significant

Table 7 shows the paired 't' test to compare pre test and post test level of labour pain during first stage of labor among primigravida mothers in experimental group.

The pre test mean value was 5.53 with standard deviation of 3.47 and the post test mean value was 6.966 with standard deviation of 3.0. The mean difference value was 1.43. The calculated 't' value was 2.876 which shows that there was no significant difference between the pre and post test level of labour pain among the control group was rejected at $p<0.05$ level of significance.

Table-8: Comparison of Mean and Standard Deviation of the Pre-test Level of Labor pain during First Stage of Labor among Primigravida mothers in Experimental and Control Group.

(N=60)

S.No.	Test	Mean	Standard Deviation	't' value
1.	Experimental group	7.49	2.76	1.152
2.	Control group	5.53	3.47	**NS**

NS – Non Significant

Table 8 reveals the unpaired 't' test to compare the pre test level of labour pain during first stage of labour among primigravida mother experimental and control group.

With regard to the pre test level of labour pain between experimental and control group of primigravida mothers with first stage of labour pain it was found that 't' value was 1.152 indicating that there is no significant difference in pre test level of labour pain between the experimental and control group of primigravida mothers during first stage of labour pain at $p<0.001$ level.

Table-9: Comparison of Mean and Standard Deviation of the Posttest Level of Labour Pain during First Stage of Labor among Primigravida mothers Between Experimental and Control Group.

(N=60)

S. No	Group	Mean	Standard Deviation	Level of Significance 't' value
1.	Experimental group	3.16	3.41	8.983
2.	Control group	6.966	3.0	**S**

S - Significant

Table 9 reveals the unpaired 't' test to compare the post test level of labour pain during first stage of labor among experimental and control group.

With regard to the post test level of labour pain during first stage of labor among primigravida mothers between experimental and control group .It was found that 't' value was 8.983 indicating that there was significant difference in post test level of labour pain between experimental and control group of primigravida mothers at $p<0.001$ level.

SECTION-D: ASSOCIATION OF POSTTEST LEVEL OF LABOUR PAIN DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS IN EXPERIMENTAL AND CONTROL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table-10: Association of Post-test Level of Labour Pain during first stage of labour among Primigravida Mother in Experimental Group with their Selected Demographic Variables.

(N=30)

S. No	Demographic Variables	Level of Labour Pain								χ^2 Value
		No Pain		Mild Pain		Moderate Pain		Severe Pain		
		f	%	f	%	f	%	f	%	
1.	**Age**									
	15-20 years	0	0	7	23.3	1	3.3	0	0	15.325 df=3 NS
	21-25 years	0	0	8	26.7	6	20	1	3.3	
	26-30 years	0	0	2	6.7	4	13	0	0	
	31-35 years	0	0	1	3.3	0	0	0	0	
2.	**Educational Status**									
	Illiterate	0	0	1	3.3	2	6.7	0	0	7.233 df=3 NS
	Primary education	0	0	5	16.7	3	13.3	0	0	
	Secondary education	0	0	5	16.7	7	23.3	0	0	
	Graduate above	0	0	7	23.3	0	0	0	0	
3.	**Work Pattern**									
	Sedentary	0	0	7	23.3	3	13.3	0	0	2.239 df=3 NS
	Moderate	0	0	6	20	7	23	1	3.3	
	Heavy	0	0	4	13.3	2	6.7	0	0	

S. No	Demographic Variables	Level of Labour Pain								χ^2 Value
		No Pain		Mild Pain		Moderate Pain		Severe Pain		
		f	%	f	%	f	%	f	%	
4.	**Type of Family**									
	Joint	0	0	8	26.7	5	18.3	1	3.3	1.354
	Nuclear	0	0	9	30	4	13	0	0	df=2
	Extended	0	0	1	3.3	2	6.7	0	0	S
5.	**Area of Living**									
	Urban	0	0	4	13.3	6	20	0	0	4.929
	Rural	0	0	8	26.7	1	3.3	0	0	df=2
	Semi Urban	0	0	6	20	4	13	1	3.3	NS
6.	**Weeks of Gestation**									
	37-38 weeks	0	0	9	30	8	26.7	1	3.3	2.649
	39-40 weeks	0	0	7	23.3	3	10	0	0	df=2
	41-42 weeks	0	0	2	6.7	0	0	0	0	NS

NS- Non Significant, S- Significant

Table 10 shows the association of the post test level of labour pain with their selected demographic variables among experimental group of primigravida mothers during first stage of labour pain.

So these study findings shows that there was no significant association of post test level of pain among experimental group of primigravida mothers with their demographic variables except age at $p<0.05$ level.

Table-11: Association of Posttest Level of Labour Pain during First Stage of Labour among Primigravida mothers in Control Group with their Selected Demographic Variables.

(N=30)

S. No	Demographic Variables	Level of Labour Pain								χ^2 Value
		No Pain		Mild Pain		Moderate Pain		Severe Pain		
		f	%	f	%	f	%	f	%	
1.	**Age**									
	15-20 years	0	0	1	33.3	3	10	7	23.33	1.531 df=3 NS
	21-25 years	0	0	0	0	4	13.3	8	26.7	
	26-30 years	0	0	0	0	3	10	3	10	
	31-35 years	0	0	0	0	1	3.3	0	0	
2.	**Educational Status**									
	Illiterate	0	0	0	0	1	3.33	0	0	6.746 df=3 NS
	Primary education	0	0	0	0	4	13.3	2	6.7	
	Secondary education	0	0	0	0	4	13.3	11	36.7	
	Graduate above	0	0	1	3.3	2	6.7	5	16.7	
3.	**Work Pattern**									
	Sedentary	0	0	1	3.3	3	10	10	33.3	6.746 df=3 NS
	Moderate	0	0	0	0	4	13.3	7	23.3	
	Heavy	0	0	0	0	4	13.3	1	3.3	
4.	**Type of Family**									
	Joint	0	0	1	3.3	6	20	9	30	8.302 df=2 S
	Nuclear	0	0	0	0	2	6.7	9	30	
	Extended	0	0	0	0	3	10	0	0	
5.	**Area of Living**									
	Urban	0	0	0	0	4	13.3	7	23.3	1.917 df=2 NS
	Rural	0	0	1	3.33	6	20	6	20	
	Semi Urban	0	0	0	0	1	3.3	5	16.7	

S. No	Demographic Variables	Level of Labour Pain								χ^2 Value
		No Pain		Mild Pain		Moderate Pain		Severe Pain		
		f	%	f	%	f	%	f	%	
6.	**Weeks of Gestation**									
	37-38 weeks	0	0	1	3.3	4	13.3	13	43.3	3.588
	39-40 weeks	0	0	0	0	6	20	5	16.7	df=2
	41-42 weeks	0	0	0	0	1	3.3	0	0	NS

NS- Non Significant, S- Significant

Table 11 shows the association of the post test level of pain with their selected demographic variables among control group of primigravida mothers during first stage of labour pain.

So the study findings shows that there was no significant association of post test level of labour pain among control group of primigravida mothers with their selected demographic variables except type of family at $p<0.05$ level.

CHAPTER – V

DISCUSSION

This chapter deals with the discussion of the data analyzed based on the objective and hypothesis of the study. The problem stated is "A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain among primigravida mothers with first stage of labour pain who were admitted in Kanthi Mathi Nursing Home, Tirunelveli". The discussion is based on the objectives of the study and the hypothesis specified in the study.

MAJOR FINDINGS OF THE STUDY

- On analysis of age 50% of 1(3.3%) of experimental group and 40% control group were belongs to 21-25 years.
- On analysis of educational status 40% of experimental group and 50% of control group were belong to secondary education.
- With regard of work pattern 46.7% of experimental group were belong to moderate worker and 46.7% of control group were belong to sedentary worker.
- With respect to type of family 46.7% of experimental group and 53.3% of control group were belong nuclear family.
- On analysis of area of living 36.7% of experimental group were living in semi urban and 46.7% of control group were living in rural area.
- With regard of weeks of gestation 60% of experimental group and 46.7% of control group were between 37-38 weeks.

The first objective was to assess the pre test level of labour pain during first stage of labour among primigravida mothers in experimental and control group.

The analysis of pre intervention level of labour pain revealed that the majority of primigravida mothers in experimental group 18 (60%) of mothers had severe pain, 10 (33.3%) of them had moderate pain and 2(6.7%)of them had mild pain.

With regard of control group the analysis of pre intervention level of labor pain was none of them reported that no pain.16(53.3%)of them had severe pain,12(40%)of them had moderate pain.

The pre test level of labour pain mean value in experimental group was7.49 with standard deviation of 2.76 and pre test level of labour pain reduction mean value in control group was 5.53 with standard deviation of 3.47. The t' value of the pre test level of labour pain in experimental and control group was 1.152.

Hence the research hypothesis stated earlier that there is no significant in the pre and post level of labour pain during first stage of labour among primigravida mothers in experimental and control group was accepted at $p<0.05$ level.

Mrs. Priyadharshini M (2008) conducted study to assess effectiveness of foot massage on reduction of labour pain among primigravida mothers. The subjects were 60 mothers who were selected by non probability purposive sampling techniques. Numeric pain assessment scale and Spielberg State Anxiety scale was used and the level of pain and anxiety was measured during first stage of labour pain. The result was that the post test pain score was significantly low in the experimental group. The obtained't' value, 32.97, for pain was significant at $p<0.001$ level. This study supports the above findings.

The second objective was to find out the effectiveness of foot massage on reduction of labour pain during first stage of labour among primigravida mothers in experimental and control group.

The analysis of post intervention level of pain of experimental group revealed that the majority of primigravida mothers 18 (60%) of them had mild pain, 11 (36.7%) of them had moderate pain and 1 (3%) had severe pain.

The analysis of post intervention level of pain of control group revealed that the majority of primigravida mothers 18 (60%) of them had severe pain, 11(36.7%) of them had moderate pain and 1 (3%) had mild pain.

The post test level of labour pain mean value in experimental group was 3.6 with standard deviation of 3.41. The t' value of the pre and post test level of labour pain in experimental and control group was 8.983

Hence the research hypothesis stated earlier that there was a significant difference between mean post test level of labour pain during first stage of labour among primigravida mothers in experimental and control group was accepted at $p<0.05$ level.

The third objective was to compare the pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.

The pre assessment level of labour pain mean value in experimental group was 7.49, with standard deviation of 2.76. The calculated 't' value of the pre test level of labour pain experimental group was 1.52 at $p<0.05$ level of significance which

showed that there was significant difference between the post test level of labour pain among experimental group of primigravida mothers.

Hence the research hypothesis stated earlier that there was a significant difference between pre and post test levels of labour pain during first stage of labour among primigravida mothers in experimental group was accepted at P<0.001 level.

The fourth objective was to compare the pre and post test level of labour pain during first stage of labor among primigravida mothers in control group.

The pre assessment level of labour pain mean value in control group was 5.53, with standard deviation of 3.47.

The post assessment level of labor pain mean value in control group was 6.966, with standard deviation of 3.0.

The calculated 't' value of the level of labour pain reduction among control group was2.876 at p<0.05.

Hence the research hypothesis stated earlier that there was a significance difference in pre and post test levels of labour pain reduction among control group of primigravida mothers was accepted at p<0.05 level.

The fifth objective was to associate the post test level of labour pain during first stage of labor among primigravida mothers in experimental and control group with their selected demographic variables.

Association of post assessment level of labour pain reduction with demographic variables was done by using chi-squaret.

Data findings revealed that there was statistically significant association of post test assessment of level of labour pain reduction among experimental and control group of primigravida mothers with selected demographic variables except educational status, work pattern, area of living and weeks of gestation at $p<0.05$ level of significance. Hence the research hypothesis stated earlier that there was significant association of post test level of labour pain reduction among the experimental and control group of primigravida mothers with their selected demographic variables was accepted at $p<0.05$ level.

CHAPTER - VI

SUMMARY, CONCLUSION, IMPLICATION, RECOMMENDATION AND LIMITATION

This chapter deals with summary, conclusion, implications, limitations and recommendations which creates a base for evidence based practice.

SUMMARY

Child birth is one of the most beautiful experiences in the life of a women. But it may get affected if it is continued by severe pain especially in a first stage of labour pain. Pain relief is a factor of much concern of these days and is very necessary to manage well as it reduces the quality of life. If the midwife understands the nature and effect of labour pain they will be prepared to provide support and care. Physical comfort includes offering a variety of pharmacological and non-pharmacological approaches to mother for pain relief.

Foot massage therapy could be introduced as a new useful method during delivery; regarding its supportive role. It is supposed that the results of the study would introduce foot massage therapy as a non-pharmacological intervention during delivery to reduce the labour pain and causes a decrease in the number of cesarean sections, done to avoid the fear and anxiety, induced by normal vaginal deliveries in young mothers. Foot massage is a very helpful procedure to reduce pain and many other ailments. It is a type of traditional Chinese medicine in which massage is applied on the palm of foot to reduce the pain. It can be done on one- self safely or can be done by a professional. So, the investigator assessed the effectiveness of foot massage on reduction of labour pain in primigrvida mothers who admitted in Kanthimathi Nursing Home, Tirunelveli.

The objectives of the study were,

- To assess the pre test level of labour pain during first stage of labour among primigravida mothers in experimental and control group.
- To find out the effectiveness of foot massage on reduction of labour pain during the first stage of labour among primigravida mothers in experimental and control group.
- To compare the pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.
- To compare the pre and post test level of labour pain during the first stage of labour among primigravida mothers in control group.
- To associate the post test level of labour pain during the first stage of labour among experimental group and control group of primigravida mothers with their selected demographic variables.

The hypotheses for the study were,

H_1 Mean post test level of labour pain during first stage of labour among primigravida mothers in experimental group was significantly lower than the mean post test level of labour pain in control group.

H_2 There was a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in experimental group.

H_3 There was a significant difference between mean pre and post test level of labour pain during first stage of labour among primigravida mothers in control group.

H_4 There was a significant association between post test level of labour pain during first stage of labour among primigravida mothers in experimental group with their selected demographic variables.

H_5 There was a significant association between post test levels of labour pain during first stage of labour among primigravida mothers in control group with their selected demographic variables.

The assumptions of this study were

1. Labour pain may predispose discomfort, pain, restlessness, fear, anxiety and fatigue.
2. Untreated labour pain among primigravida mothers may report that the discomforts, severe pain, fear, anxiety and restlessness during first stage of labour.
3. Foot massage may reduce labour pain in primigravida mothers during first stage of labour.

Review of Literature Collected for the Studies were,

The studies gathered from exclusive criteria review was depicted under the following heading.

Section-A: Studies related to labour pain.

Section-B: Studies related to management of reduction of labour pain.

Section-C: Studies related to foot massage on reduction of labour pain.

The conceptual frame work adapted for the study was based on Melzack and walls Gate control theory of pain and it provided a complete framework in order to achieve the objectives of the study.

The research design selected for the study was quasi experimental pre and post test control group design was used and the study was conducted in the labour room at Kanthi Mathi Nursing Home, Tirunelveli. The tool used for data collection consisting of demographic variables such as Age, education status, work pattern, type of the family, area of living and Weeks of gestation. Numerical categorical pain assessment scale was used to assess the level of labour pain. The pilot study was conducted in Ramalakshmi hospital, Tirunelveli and finding revealed that the tool was feasible, reliable and practicable to conduct the main study.

The tool was validated by five experts and the reliability of the tool was established by inter-rater-reliability method. The main study was conducted in Kanthi Mathi Nursing Home, Tirunelveli. The 60 primigravida mothers who fulfilled the inclusive criteria were selected for the study out of which 30 mothers were assigned to experimental group and 30 were assigned to control group through purposive sampling technique.

The pre-test level of pain was assessed using Numerical Categorical pain assessment Scale. Mothers of the experimental group were given foot massage and that of the control group was not given foot massage. The post test level of pain was assessed using the same scale. Data pertaining to the demographic variables were collected by the investigator by interview method. Both inferential and descriptive statistics were used to analyses the data.

The findings of the study revealed that the calculated 't' value was 8.933 which showed highly statistical significant difference in post test level of labour pain reduction between experimental group and control group at $p<0.05$ level. Hence the hypothesis stated that there was a significant difference between the post test level of labour pain reduction between the experimental and control group of primigravida mothers at $p<0.05$ was retained.

Association of post test assessment of level of labour pain with selected demographic variables among experimental group showed that there was a statistical significance in educational status, work pattern, type of family, area of living, weeks of gestation except age. Hence the hypothesis stated that there was significant association of post test level of labour pain among experimental group of primigravida mothers with the selected demographic variables was rejected at $p<0.005$.

Association of post test assessment level of labour pain with selected demographic variables among control group showed that there was a statistical significance in age, educational status, work pattern, type of family, area of living. weeks of gestation except type of family. Hence the hypothesis stated that there was significant association of post test level of labour pain among control group of primigravida mothers with the selected demographic variables was accepted at $p<0.005$.

CONCLUSION

The present study assessed the effectiveness of foot massage on reduction of labour pain among primigravida mothers during first stage of labour. The results of the study concluded that applying foot massage was effective in the reduction of labour pain among primigravida mothers. Foot massage is in expensive, easy to apply, not painful and can enhance comfort in mother in the labour period. So, it could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to the assessment of post test level of pain by using standard scale following the intervention of foot massage can be given as a non-pharmacological measure to enhance reduction of labour pain.

IMPLICATIONS

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

Implications for Nursing Practice

The midwives have a vital role in providing safe and effective nursing care to enhance reduction of labour pain reduction. This can be facilitated by motivating the nurse midwives to:

- have an in depth knowledge on physiological changes during normal labour and management of first stage of labour pain.
- learn about accurate assessment of pain with the use of standard and appropriate pain scales.

- develop skill in providing efficient nursing care for effective first stage of labour pain management and promote comfort.
- teach the primigravida mothers during antenatal period about the effectiveness of various non pharmacological measures for reduction of pain during labour.

Implications for Nursing Education

1. Ensure that the students learn the normal physiological changes during labour and its management.
2. Provide adequate clinical exposure for the students to give effective and safe nursing care in reduction of labour pain.
3. Make use of available literatures and studies related to non-pharmacological measures for labour pain reduction.
4. Educate the students about various complementary therapies for labour pain management.
5. Encourage the students for effective utilization of research based practices.

Implications for Nursing Administration

1. Collaborative with governing bodies to formulate standard policies and protocols to emphasize nursing care in the primigravida mothers during first stage of labour.
2. Conduct in-service programme and continuing education programme for effective labour pain management.
3. Ensure and conduct workshops, conferences, seminars on non-pharmacological methods to reduce labour pain reduction.

Implications for Nursing Research

1. As a nurse researcher, promote more research on effective management during labour pain.
2. Disseminate the finding of the research through conferences, seminars and publishing in nursing journal.
3. Promote effective utilization of research findings on first stage of labour pain management.

LIMITATIONS

1. Only limited literatures and studies were obtained from the Indian context.
2. Due to time constraints, the investigator was unable to take more than sixty samples for the study.
3. Generalization will be better if large sample included

RECOMMENDATIONS

The study recommends the following future research.

1. The similar study can be conducted with larger samples for better generalization.
2. A study can be conducted to assess the knowledge and practice of foot massage for labour pain management among nurse midwives.
3. A study can be conducted to assess the knowledge and attitude of complementary therapies for first stage of labour pain management among nurse midwives.

4. A study can be conducted to assess the effectiveness of other nursing measures such as music, aromatherapy and acupuncture for reduction of labour pain among primigravida mothers.
5. A study can be conducted to assess the effectiveness of foot massage on induction of labour in primigravida mothers during labour period.
6. A study can be conducted to assess the effectiveness of foot massage on reduction of anxiety in primigravida mothers during first stage of labour.

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APPENDIX-A

LETTER SEEKING AND GRANTING PERMISSION FOR CONDUCTING THE STUDY

SRI K. RAMACHANDRAN NAIDU
COLLEGE OF NURSING
Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University
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Sankarankovil (Tk), Tirunelveli (Dt). Ph. : 04636 - 260950, Fax : 04636 - 260377. E - Mail : srikmcon@yahoo.com

05.04.2011

To

The Director
Kanthimathi Nursing Home,
68 D, East Car Street,
Tirunelveli Town, Tirunelveli (Dt).

Mrs. Asha Alice Matharasi .J is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of M.Sc (N) degree, She needs to conduct research project.

Her chosen research project is as follows **"A study to assess the effectiveness of foot massage on reduction of labour pain among primigravida mothers admitted in labour ward at Kanthimathi Nursing Home, Tirunelveli, April 2011."**

She will abide by the rules and regulations of the hospital and adhere to hospital policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your hospital.

Further details of the proposal project will be furnished by the student personally, Confidentiality will be ensured in the research project.

Thanking you

Yours faithfully

Principal 5/4/11
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753. Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.,

Dr. (Mrs) KAVITHA CHENTHIL M.D., D.G.O.,
KANTHIMADHI NURSING HOME
TIRUNELVELI - 627 006.
REG. No. : 55250

APPENDIX-B

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Mrs. J. Asha Alice Matharasi,
M.Sc. (Nursing) I year,
Sri K.Ramachandran Naidu College of Nursing,
Karivalam (via), Sankaran Kovil,
Thirunelveli (Dt) -627 753.

To

Respected Madam,

Sub: Letter requesting opinion and suggestions for Content validity of the tool.

****

I am a Ist year M.Sc. (Nursing) student of Sri.K.Ramachandran Naidu College of Nursing, Thirunelveli. As part of my course I am doing a study on the topic mentioned below.

"**A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain among primigravida mothers in Kanthimathi Nursing Home, Tirunelveli**, **Tamil Nadu"**

The dissertation is to be submitted to the Tamil Nadu Dr.MGR. University, as a partial fulfilment for the requirement of M.Sc. (Nursing) degree.

Hence I request you to kindly evaluate the tool items and give your valuable opinion and suggestions for improvement of this tool.

I would be highly obliged and thankful to hear from you.

Thank you,

Signature and seal of validation

Yours Sincerely,

(Mrs.J. ASHA ALICE MATHARASI)

APPENDIX-C

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS:

1. **Dr. Mrs. K. Uma Maheshwari, M.B.B.S., D.G.O.,**
   Consultant Obstetrician & Gynaecologist,
   Ashok hospital,
   609,Thenkasi Road,
   Rajapalayam,
   Virudhunagar Dist – 626 117.

2. **Dr. Mrs. D. Umamaheshwari., M.B.B.S., D.G.O.,**
   Assistant Surgeon,
   Government Maternity Hospital,
   Rajapalayam,
   Virudhunagar Dist – 626 117.

NURSING EXPERTS:

3. **Mrs. Rajeshwari,**
   Ramachandrancollege of nursing,
   Ramachandran university,
   Porur,
   Chenni – 600116.

4. **Mrs. Rosalind Rachel**
   Principal,
   Indira College of Nursing,
   V.G.R Nagar, Pandur,
   Thiruvallur Dist – 631 203

5. **Mrs. Rajeshwari**
   Ramachandran College of Nursing
   Ramachandran university,
   Porur,
   Chennai- 6000116.

APPENDIX-D

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work **"A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain among primigravida mothers in Kanthimathi Nursing Home at Tirunelveli District, Tamilnadu",** done by **Mrs.J. Asha Alice Matharasi,** M.Sc. (Nursing) in Sri K.Ramachanadaran Naidu College of Nursing, Thirunelveli is edited for English language appropriateness by **Mr.S.Jeyan Dharmaraj, M.A., M.A., M.Phil.,.**

Signature:

APPENDIX-E

INFORMED CONSENT

I, **Mrs.J.Asha Alice Matharasi,** II Year, M.Sc. (Nursing) student from Sri K. Ramachandaran Naidu College of Nursing, Thirunelveli am conducting **"A quasi experimental study to assess the effectiveness of foot massage on reduction of labour pain among primigravida mothers in Kanthi Nursing Home, Tirunelveli, Tamil Nadu"** as a partial fulfilment of the requirement for the degree of M.Sc. (Nursing) under the Tamil Nadu Dr.M.G.R.Medical University. The study participants will be assessed by Combined Numerical Categorical Scale for identify the reduction of labour pain of the primigravida mothers. I assure you that the response given by you will be kept confidential. So, I request you to kindly cooperate with me and participate in this study.

Thank you.

APPENDIX-F

TOOL

Demographic Data

Section -A:

1. Age of the Mother

a. 15-20 years

b. 21-25 years

c. 26-30 years

d. 31-35 years

2. Educational Status

a. Illiterate

b. Primary education

c. Secondary education

d. Graduate and Above

3. Work Pattern

a) Sedentary

b) Moderate

c) Heavy

4. Type of Family

a) Nuclear family

b) Joint family

c) Extended family

5. Area of Living

a) Urban

b) Rural

c) Semi urban

6. Weeks of Gestation

a) 37- 38

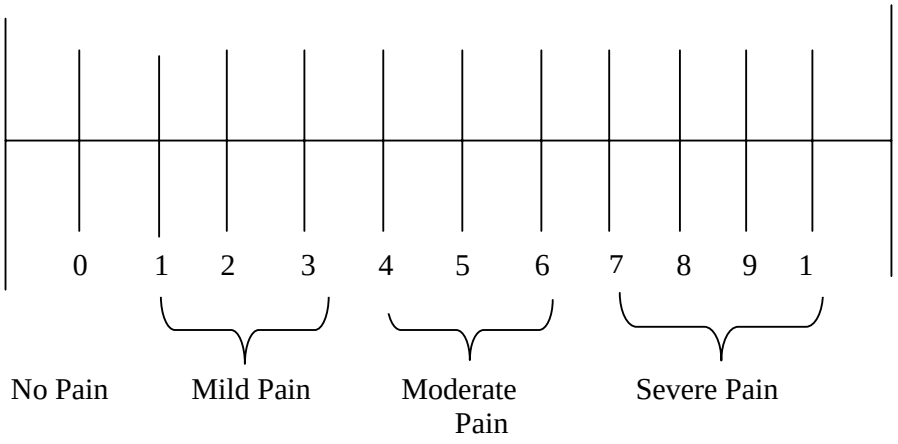
b) 39- 40

c) 41- 42

APPENDIX-G

Section -B:

PAIN ASSESSMENT SCALE



0-10 COMBINED NUMERICAL CATEGORICAL SCALE.

APPENDIX-H

SCORING KEY

Score	Nature of Pain	Descriptive Pain
0	No Pain	No pain can perform daily task.
1-3	Mild Pain	Pain tolerable. can perform daily task
4-6	Moderate Pain	Pain mildly tolerable. Makes concentration difficulty still allow function daily task.
7-10	Severe Pain	Pain intolerable.Cannot perform daily task.

APPENDIX-I

INTERVENTION GUIDE FOR FOOT MASSAGE ON REDUCTION OF LABOUR PAIN AMONG PRIMI GRAVIDA MOTHERS

INTRODUCTION

As part of research study intervention chosen for the study was foot massage on reduction of labour pain among primi gravida mothers.

PROCEDURE

Preliminaries

- Explain the procedure and its effect to the mother.
- Place the mother in the lithotomy position comfortably.
- Provide privacy.
- Assess the pre test level of foot massage on labour pain reduction by using combined numerical categorical scale.

Intervention

- Place the mother in lithotomy position comfortably.
- Wash the feet thoroughly and adopt a comfortable position that allows the mother to reach all parts of the foot.
- Anoint the feet with a skin lotion for lubrication when carrying out the massage.
- Always pay equal attention to both feet while massaging. Start on the right foot and then move to the left.

- Place the thumbs on the foot, one slightly higher than the other.
- Then, use the pad of alternate thumbs to massage the area all over the fleshy areas of the inner foot, making small rotational movements.
- Use light pressure and slide the hands down the foot from the toes to the heel, then up from the heel to the toes.
- Rotate the foot clockwise then anticlockwiseStretching the skin backwards beneath both sides of the ankle bone massage one breast at a time.
- Foot massage apply 5 to 10 minutes wait for 15- 20 minutes and assess level of labour pain reduction.
- Apply the foot massage for four times with the duration of 15 to 20 minutes.
- After application of foot massage post test level of labour pain reduction was assessed by using numerical categorical pain assessment Scale.

FIGURES

1. RUBBING OF THE FOOT

2. KNEADING THE SOLE OF THE FOOT

3. ANKLE ROTATION