

**EFFECTIVENESS OF FOOT REFLEXOLOGY ON PAIN  
PERCEPTION DURING FIRST STAGE OF LABOUR  
AMONG PRIMIGRAVIDA MOTHERS AT  
KOVAI MEDICAL CENTRE AND  
HOSPITAL, COIMBATORE**

**Reg. No: 30104422**

**A DISSERTATION SUBMITTED TO THE TAMILNADU  
Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN  
PARTIAL FULFILLMENT OF REQUIREMENT  
FOR THE DEGREE OF MASTER OF  
SCIENCE IN NURSING**

**APRIL 2012**

**EFFECTIVENESS OF FOOT REFLEXOLOGY ON PAIN PERCEPTION DURING  
FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS AT KOVAI  
MEDICAL CENTRE AND HOSPITAL,COIMBATORE.**

**APPROVED BY THE DISSERTATION COMMITTEE ON FEBRUARY 2011**

**1. RESEARCH GUIDE:**

---

**DR. O.T. BUVANESWARAN**  
**M.A., M.Phil., Ph.D.,**  
Head, Department of Medical Sociology,  
KMCH College Of Nursing,  
Avinashi Road,  
Coimbatore – 641 014.

**2. CLINICAL GUIDE:**

---

**Mrs.R.INDUMATHI, M.Sc (N)**  
Associate Professor,  
Obstetrics and Gynecological Nursing,  
KMCH College Of Nursing,  
Avinashi Road,  
Coimbatore – 641 014.

**3. MEDICAL EXPERT :**

---

**Dr.R.RENUKA DEVI,**  
**M.D(O & G),,DNB.,**  
Consultant Obstetrician & Gynecologist,  
Kovai Medical Centre & Hospital,  
Avinashi Road,  
Coimbatore – 641 014.

**A DISSERTATION SUBMITTED TO THE TAMILNADU  
Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN  
PARTIAL FULFILLMENT OF REQUIREMENT  
FOR THE DEGREE OF MASTER OF  
SCIENCE IN NURSING**

**APRIL 2012**

## **CERTIFICATE**

This is to certify that dissertation entitled **“EFFECTIVENESS OF FOOT REFLEXOLOGY ON PAIN PERCEPTION DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS AT KOVAI MEDICAL CENTER AND HOSPITAL, COIMBATORE”** is submitted to the faculty of Nursing, The Tamilnadu Dr. M.G.R. Medical University, Chennai by **Ms. MOHANA. M** in partial fulfillment of requirement for the degree of Master of Science in Nursing. It is the bonafide work done by her and the conclusions are her own. It is further certified that this dissertation or any part thereof has not formed the basis for award of any degree, diploma or similar titles.

**Prof. DR. S. Madhavi, M.Sc., (N), Ph.D,**  
Principal & Head of the Department of  
Medical & Surgical Nursing,  
KMCH College of Nursing,  
Coimbatore – 641 014.  
Tamilnadu

## ACKNOWLEDGEMENT

First and foremost, I put my shoes off from my feet and bow before supreme power of world, the **ALMIGHTY GOD** as I testify of him, who alone is most worthy to receive thanks,praise, eminence, honour and power for his constant direction and benevolence that I had unceasingly experienced and rest assured during the period of my study.

I express my special thanks to our chairman **Dr. Nalla G. Palaniswami, M.D.,AB (USA)**.,and our Trustee **Dr. Thavamani D Palaniswami, M.D.,AB (USA)**., for giving me the good fortune to undertake my PG programme in this esteemed institution and granting me permission to conduct this study.

I express my heartfelt greatfulness to **Prof. DR. S. Madhavi, M.Sc. (N),Ph.D, Principal, KMCH college of Nursing** for her thoughtfulness, generosity, excellent contribution, encouragement and kindly suggestion to complete the study and make this a successful one.

I am exceedingly thankful to **Dr.R.Renuka devi, M.D(O&G)„DNB., Consultant Obstetrician and Gynecology, Kovai Medical Center and Hospital**, for advocacy, favors, guidance, fortitude & readiness to spend her time even in her engaged schedule.

It is my privilege to owe my genuine & sincere thanks to our research guide **DR.O.T.Buvaneswaran,M.A.,M.Phil.,PhD., Head of the Department of Medical Sociology** for his priceless guidance and help in the statistical analysis of the data, which was the gist for this study.

My sincere thanks to **Prof. Sivagami Ramanathan, M.Sc., (N), Vice Principal, KMCH college of Nursing**, for her valuable advice, suggestion & support for successful completion of this study.

I extent my special thanks to **Prof. Mrs.Renuka,M.sc(N), HOD of the department of Obstetrics & Gynecological Nursing** for giving content validity of the tool and her special inspiration to achieve this great task.

It is my privilege to express my deep heartfelt thanks to **Mrs. Indumathi.R, M.Sc., (N), Associate Professor, Obstetrics & Gynecological Nursing Department, KMCH college of Nursing**, who spend her valuable time and energy, and augmented to the overall vision of the study. Without her beneficial guidance, effort, constant observations and cherished attention, many of the task necessary to produce this study would never have been completed.

It is my privilege to express my sincere thanks to **Mrs. Padma. P, M.Sc., (N) Assistant Professor, and Mrs.Manavalam, M.Sc.,(N) Lecturer**, for their reasoning, valuable advice and healthy commentary.

I extend my deep heartfelt thanks to **Mrs.Bhuvaneshwari, MA, MA, M.phil, M.phil, B.Ed., Assistant Professor in Sociology & English** for editing the manuscript of this study.

I extremely thankful to **Mrs. Jane Ebenezer, Nursing Supervisor, OBG ward** and her team who made necessary arrangements to conduct the study.

I owe my thanks to **Mr.Damodharan, chief librarian and assistant librarians** for their immense help and facilitation in search of references.

I also extend my sincere thanks to all my samples who offered their cooperation throughout the study.

My special thanks to **My parents & My family members** for nurturing my dreams into reality and their continuous support in every walks of my life.

And at last, I want to extend my thanks to **My friends & My classmates** for their help, encouragement support for the success of this study.

## TABLES OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
<b>I</b>	<b>INTRODUCTION</b>	1
	NEED FOR THE STUDY	3
	STATEMENT OF THE PROBLEM	5
	OBJECTIVES OF THE STUDY	5
	OPERATIONAL DEFINITION	5
	ASSUMPTION	6
	HYPOTHESIS	6
	CONCEPTUAL FRAME WORK	7
<b>II</b>	<b>REVIEW OF LITERATURE</b>	11
<b>III</b>	<b>METHODOLOGY</b>	
	RESEARCH DESIGN	18
	VARIABLES UNDER THE STUDY	18
	SETTING OF THE STUDY	19
	POPULATION OF THE STUDY	19
	SAMPLE SIZE	19
	SAMPLING TECHNIQUE	19
	CRITERIA FOR SAMPLE SELECTION	19
	DETAILS OF INTERVENTION	20
	DEVELOPMENT AND DESCRIPTION OF THE TOOL	20
	TESTING OF THE TOOL	21
	PILOT STUDY	21
	PROCEDURE FOR DATA COLLECTION	22
	STATISTICAL ANALYSIS	22
<b>IV</b>	<b>DATA ANALYSIS AND INTERPRETATION</b>	23
<b>V</b>	<b>DISCUSSION,SUMMARY,CONCLUSION,IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS</b>	44
	<b>ABSTRACT</b>	51
	<b>REFERENCES</b>	52
	<b>APPENDICES</b>	

## LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1.	Distribution of subjects according to demographic variables	24
2.	Distribution of subjects according to obstetrical variables	29
3.	Distribution of subjects according to pretest pain perception score between experimental & control groups.	31
4.	Distribution of subjects according to posttest pain perception scores between experimental & control groups.	33
5.	Comparison of mean pre test and post test pain perception between experimental and control groups.	35
6.	Comparison of mean pre and post test pain perception within the experimental group	37
7.	Association between pre-test pain perception score and demographic variables in experimental group.	38
8.	Association between pre-test pain perception score and demographic variables in control group.	39
9.	Association between post-test pain perception score and demographic variables in experimental group.	40
10.	Association between post-test pain perception score and demographic variables in control group.	41
11.	Association between pre-test pain perception score and obstetrical variables in experimental group.	42
12.	Association between pre- test pain perception score and obstetrical variables in control group.	42
13.	Association between post-test pain perception score and obstetrical variables in experimental group.	43
14.	Association between post-test pain perception score and obstetrical variables in control group.	43

## LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1.	Conceptual framework - Modified Ernestine Wiedenbach's Helping Art Of Clinical Nursing Theory	10
2.	Distribution of subjects according to their Age group	26
3.	Distribution of subjects according to their Education	26
4.	Distribution of subjects according to their Occupation	27
5.	Distribution of subjects according to their Age at marriage	27
6.	Distribution of subjects according to their child birth information	28
7.	Distribution of subjects according to Gestational age.	30
8.	Distribution of subjects according to Pretest pain perception score.	32
9.	Distribution of subjects according to Posttest pain perception score.	34
10.	Comparison of mean pretest and posttest pain perception score in the experimental group.	36
11.	Comparison of mean pretest and posttest pain perception score in the control group.	36



## LIST OF APPENDICES

<b>APPENDIX</b>	<b>TITLE</b>
A	Data collection tools: <ul style="list-style-type: none"><li>* Demographic Variables</li><li>* Obstetrical Variables</li><li>* Numerical pain intensity scale.</li></ul>
B	Description of Intervention
C	Copy of letter seeking permission
D	Copy of foot reflexology certificate
E	Copy of letter seeking content validity
F	Copy of certificates of content validity
G	List of Experts

## **CHAPTER – I**

### **INTRODUCTION**

**“Childbirth is more admirable than conquest, more amazing than self-defence and as courageous as either one”**

**- Gloria Steinem**

Childbirth is the culmination of a human pregnancy or gestation period with the birth of one or more newborn infants from a woman's uterus. The process of normal childbirth is categorised into four stages: Shortening & Dilatation of cervix, Descent & Birth of the infant, Birth of the placenta and Observation of postnatal mother for one hour after birth. In many cases, with increasing frequency, childbirth is achieved through caesarean section, removal of the neonate through a surgical incision in the abdomen.

Labour is accompanied by intense and prolonged pain. Pain levels reported by labouring women vary widely. Pain levels appear to be influenced by fear and anxiety levels. Some other factors may include experience with prior childbirth, age, ethnicity, preparation, physical environment and immobility (Albers, 2007).

Giving birth is one of the most extra ordinary experiences of a woman's life. Yet after all the months of careful preparation and anticipation, the moment of birth is almost never what expected. Labour may be easier or more physically demanding than imagined. The condition of mother, foetus and policies of the hospital will determine what actually happens. Most expectant mothers spend a great deal of time during the 40wks of pregnancy, thinking ahead to the actual delivery. Each woman's labour is in some ways unique. An individual woman's experience may even vary from pregnancy to pregnancy. Anyone who delivers babies know all too well that labour can always surprise them. As doctors may expect a woman to deliver quickly and find that her labour takes a long time. While another woman whom we think will take forever, may deliver rapidly. Still, in the vast majority of pregnant women, labour progresses in a predictable pattern. It passes through easily discernible stages at a fairly standard rate.

Some women prefer to avoid analgesic medication during childbirth. They can still try to alleviate labour pain using psychological preparation, education, massage, acupuncture, TENS, hypnosis and water therapy in a tub or shower. Some women like to have someone to support them during labour & birth such as the father of the baby, the woman's mother, a sister, a close friend, a partner or a doula. The human body has a chemical response to pain by releasing endorphins. Endorphins are present before, during and immediately after child birth. Some homebirth advocates

believe that this hormone can induce feelings of pleasure and euphoria during childbirth reducing the risk of maternal depression some weeks later (Terenius, 1981).

Pain during labour is caused primarily by uterine muscle contractions and somewhat by pressure on the cervix. This pain manifest 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. Other causes of pain during labour include pressure on the bladder and bowel by the baby's head and the stretching of birth canal and vagina (Lowe, 2002). Although labour is often thought of as one of the more painful events in human experience, it ranges widely from woman to woman. Women experience labour pain differently. For some, it resembles menstrual cramps; for others, severe pressure and for others, extremely strong waves that feel like diarrheal cramps. In addition, first time mothers are more likely to give their pain a higher rating than women's who had babies before. The intensity of labour pain is not always the determining factor that drives women to seek pain persist with each contraction.

The first and most straight forward cause of pain in childbirth would be due to physical source of pain. The extent to which these discomforts overwhelm the mother will depend on her sensitivity in the tissues involved, her overall health and position of the baby. The mother can work to positively influence some of these factors, but there are many she cannot control.

The second cause of pain is poor body mechanics. Athletes learn quickly there is a right way and a wrong way to move. The right way is only using the muscles necessary for the task & keeping the other body muscles relaxed. Another body mechanic issue is posture and positioning. Every position you put your body in changes the pressure points of every part of your body. Selecting position that minimises external pressure on the uterus, back and pelvic floor allow the process of labour to proceed more smoothly. There are some positions which minimize discomforts during labour and others that increase discomforts. In addition, there are some positions which improve the effectiveness of labour and some that hinder effective labouring.

The third cause of pain in our body's natural response to stress. As part of the normal stress response, uterine contractions are decreased and available oxygen for the uterus and baby are also decreased. Dr.Dick read (1987) first theorized about the effect of fear and stress on labour as the fear – tension pain cycle. The basic premise is a women's fear increases her anxiety and muscular tension which increases the pain she feels. The increase in pain then increases her fear with increases her anxiety and muscular tension further increasing her pain. The cycle continues until the women are able to stop it.

Because the three causes of pain interact during labour, an effective natural pain management strategy will address all three causes of pain. First, you must minimize your potential

physical causes of pain by proper nutrition, exercise and managing any health problems you may have. In addition, you should learn comfort measures to help and manage the physical discomforts. Secondly, the mother must learn proper posing techniques to help to lessen the influence of bad body mechanics preventing unnecessary pain. Third, need to work through the fears about labour before it begins. The women should be ready to use various relaxation techniques to prevent anxiety during labour. Pain control during labour should be a woman centered strategies & not a medically oriented one. There is much evidence to suggest that women are not always more satisfied by a birth experience that is pain free (Fairly et.al, 1999).

## **NEED FOR THE STUDY**

Women experience different levels of pain during childbirth. The reality of childbirth is that it involves some physical hurt. The physical and psychological techniques promoted in childbirth preparation classes can dramatically influence the perception of pain and the confidence in dealing with labour difficulties. These pain relief measures have the inherent advantage of not producing any chemical disruption in the mother's body which could then affect the baby or the birthing process.

Good labour support helps a woman throughout labour. Physical and emotional comfort, information, guidance and communication with the health care staff are valuable to the labouring women and can greatly reduce her anxiety and need for pharmacological interventions.

Labour pain can be eased or worsened by numerous physical, psychological, social and environmental factors. A woman experiences greater pain when she feels afraid, anxious that something is wrong, helpless or embarrassed over her behaviour or appearance. Her pain is also likely to be worse if she lacks understanding of the birthing process and the reasons for the procedures and practices commonly used in the hospital (Herr et.al, 2007).

Most women have at least some worries about pain in labour. A recent study found that 67% of women were a "bit worried" 12% very worried & 23% not at all worried about the pain of labour (Green, 1993).

When a labouring woman knows how to help herself and feels well cared for, her pain tends to be more manageable and her need for pain medication is less. A woman generally experiences less pain when she understands the birthing process and agrees with the use of the usual procedures; when the birth environment is comfortable, calming and free from disturbances; when she feels respected and cared for by her support team and the staff; when she is reassured that the sensations of labour are normal; and when she is encouraged to use her self- help comfort measures.

The labouring woman can use relaxation techniques, rhythmic breathing or mooning, attention focusing, movements, position, biofeedback, yoga, reflexology, massage etc for pain reduction. There are numerous techniques for managing pain in labour. They do not take away all pain but when combined with caring and skilled labour support, these techniques enable many women to cope successfully with their pain. Some women use these techniques in combination with pain- relieving medications; others rely totally on the techniques. These methods work based on the gate control theory of pain (Arenson & Drake, 2007)

An experimental study was conducted to assess the effectiveness of reflexology at the SP6 point on labour pain and the process of active phase of labour. The study revealed that all variables decreased after the intervention. The study concluded that pressure on SP6 point reduced the duration and severity of pain in the active phase of labour (Sorrig & Kirsten, 1995). Another study demonstrated that reflexology showed an effective analgesia rate of 94.4% (Zhang changlong, 2001).

Reflexology is the application of pressure on the hands or feet at points used for pain reduction. Reflexologist believe that there are points on the feet that corresponds to organs or structures of the body and that gentle manipulation or pressing on certain parts of the foot may be helpful to anesthetize other parts of the body. A person trained in the technique should apply pressure during childbirth. It reduces pain by giving relaxation and releasing endorphins (O'Mathuna 2007).

The investigator have chosen one of the non pharmacological technique i.e. foot reflexology to reduce the pain during childbirth because most of the caesarean section occurs due to the intolerance of pain during childbirth. Moreover, the mothers cry, scream and struggled a lot due to the intense pain. The nurse should be in a ideal position to help mothers. Hence the investigator has decided to do her project in the non pharmacological management during childbirth.

#### **STATEMENT OF THE PROBLEM:**

Effectiveness of foot reflexology on pain perception during first stage of labour among primigravida mothers at Kovai medical centre & hospital, Coimbatore.

#### **OBJECTIVES:**

Objectives were to

1. assess the pain perception of primigravida mothers during the first stage of labor before & after providing foot reflexology on experimental and control group.
2. determine the effectiveness of foot reflexology on pain perception of the primigravida mothers within the experimental groups.

3. associate the pain perception of the primigravida mothers with selected demographic variables.

#### **OPERATIONAL DEFINITION:**

1) **EFFECTIVENESS:**

It refers to the outcome of foot reflexology on the pain perception among the primigravida mothers during first stage of labour.

2) **FOOT REFLEXOLOGY:**

It is the technique in which the pressure point of foot is pressed by the thumb of investigator that promotes relaxation.

3) **PAIN PERCEPTION:**

Pain is an unpleasant sensory & emotional experience perceived and reported by the mother during first stage of labour.

4) **FIRST STAGE OF LABOUR:**

It refers to a mother with regular rhythmic uterine contraction and the cervical os dilatation of 4- 7cm.

5) **PRIMIGRAVIDA MOTHERS:**

It refers to the normal full term mother who has conceived for the first time.

#### **ASSUMPTION:**

- 1) The intensity of pain perception varies from mother to mother.
- 2) Foot reflexology results in relaxation by promoting comfort & stimulating the pressure points.

#### **HYPOTHESIS:**

There is a significant reduction in pain perception during the first stage of labour among primigravida mothers who receive foot reflexology than those who do not receive.

## CONCEPTUAL FRAMEWORK

Theoretical model for this study was based on wiedenbach's helping art of clinical nursing theory. She first established her ideas in 1964 in clinical nursing: a helping art. She further redefined her theory in "nurses' wisdom in nursing theory" published in 1970 by the American journal of nursing.

### I) HELPING ART OF CLINICAL NURSING THEORY:

- Wiedenbach proposes a prescriptive theory for nursing, which is described as a conceiving of a desired situation and the ways to attain it.
  - Prescriptive theory directs action towards an explicit goal.
  - It consists of three factors: central purpose, prescription and realities.
  - A nurse develops a prescription based on a central purpose and implements it according to the realities of the situation.
- a) **CENTRAL PURPOSE:** It refers to what the nurse wants to accomplish. It is the overall goal toward which a nurse strives: it transcends the immediate intent of the assignment or task by specifically directing activities towards the patient's good.
  - b) **PRESCRIPTION:** It refers to the plan of care for a patient. It specifies the nature of the action that will fulfill the nurse's central purpose and the rationale for that action. The action specified by the prescription can be voluntary or involuntary. After the prescription, the nurse can implement it through the nursing care plan.
  - c) **REALITIES:** It refers to the physical, physiological, emotional & spiritual factors that come into play in a situation involving nursing actions.

The five realities identified by wiedenbach are agent, recipient, goal, means & framework.

Agent - Practicing nurse or a designee.

Recipient - One who receives a nurse's action.

Goal - Nurse's desired outcome.

Means - Activities and devices used by the nurses to achieve the goal.

Framework - Facilities in which nursing is practiced.

## **II) NURSING PRACTICE:**

- Wiedenbach views nursing as an art based on goal-directed care.
- Factual & speculative knowledge, judgement & skills are necessary for effective nursing practice.
- Wiedenbach's vision of nursing practice closely parallels the assessment, implementation & evaluation steps of the nursing process.
- According to wiedenbach, nursing practice consists of identifying a patient's need for help, ministering the needed help, validating that the need for help was met and co-ordinating the activities.

### **a) IDENTIFICATION:**

Involves viewing the patient as an individual with unique experience and understanding the patient's perception of condition. Determines a patient's need for help based on the existence of a need whether the patient realizes the need, what prevents the patient from meeting the needs and whether the patient cannot meet the need alone.

### **b) MINISTRATION:**

It refers to provision of needed help, requires an identified need and a patient who wants help.

### **c) VALIDATION:**

It refers to a collection of evidence that shows a patient's needs have been met and that his functional ability has been restored as a direct result of the nurse's action.

### **d) CO-ORDINATION:**

It refers to reporting, consulting & conferring.

## **III) APPLIED THEORY FOR THIS STUDY:**

### **Central purpose:**

The central purpose of this study is to reduce the perception of pain among primigravida mothers during the first stage of labour through foot reflexology.

### **Prescription:**

The investigator plans one of the complementary therapies to accomplish the central purpose. Thus the investigator selected foot reflexology as a non-pharmacological measure during the first stage of labour especially in the active phase to reduce the pain perception of primigravida mothers.



**Realities:**

- Agent – Investigator.
- Recipient – Full term primigravida mothers during the active phase of labour.
- Goal – Reduce the pain perception of mothers during the first stage of Labour.
- Means – Foot reflexology.
- Framework – Labour room of KMCH, cbe.

**Identification:**

The patient's perception of pain was identified by means of data collection tools. The tools consist of demographic variables, obstetrical information & numerical pain intensity scale.

**Ministration:**

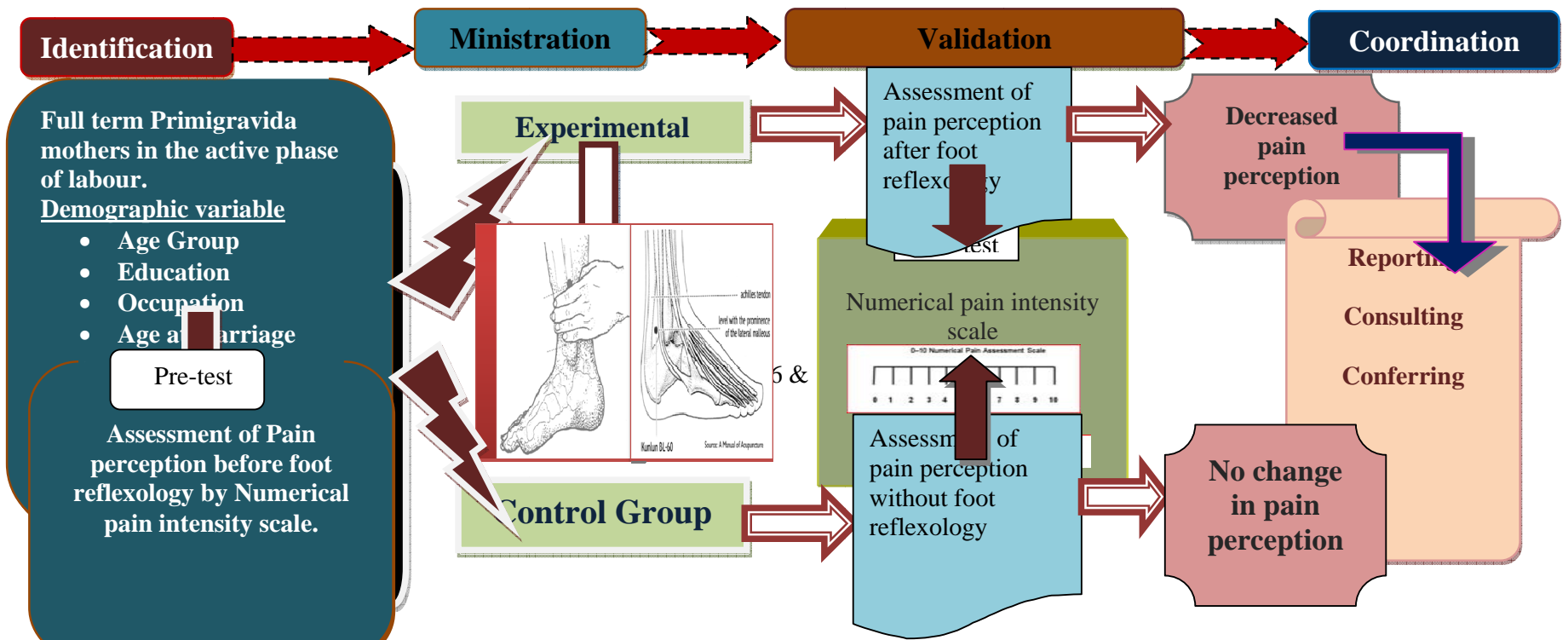
It refers to the administration of foot reflexology during the first stage of labour to reduce the pain perception among primigravida mothers in experimental group.

**Validation:**

Refers to the evaluation of outcome. Positive outcome indicate that the pain perception reduced after foot reflexology. Negative outcome indicate that there is no change in the pain perception of mothers.

**Co-ordination:**

It refers to reporting, consulting & conferring.



**Figure: 1 Conceptual Framework Based On Modified Wiedenbach Clinical Nursing Practice Model (1970)**

## **CHAPTER – II**

### **REVIEW OF LITERATURE**

A literature review is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical & methodological contribution to a particular topic. This chapter deals with the information collected from various sources relevant to the particular study. These resources were act as a basis to work out the project.

Research literature were reviewed and organized under the following headings.

- Literature related to non pharmacological management of labour pain.
  
- Literature related to foot reflexology on SP6 & BL60 points.

#### **Literature related to non pharmacological management of labour pain:**

**Bergh et.al., (2011)** conducted a study to compare the pain matcher (PM) with the visual analogue scale (VAS) for the assessment of labour pain and the effect of pain relief treatment. Randomized control trail was adopted. Pain intensity was assessed from 57 women with labour pain treated with acupuncture or sterile water injection. Pain intensity was assessed immediately after a uterine contraction before and 30, 60, 90, 120, 150 and 180 minutes after treatment. The result showed that a weak correlation ( $r = 0.13$ ,  $P < 0.05$ ). The pain meter detected changes in pain intensity to a lower degree than the VAS. The study concluded that VAS is more sensitive than the PM for recording changes in pain intensity when assessing the effects of treatment on labour pain.

**Smith et.al., (2011)** conducted a study to examine the effects of aromatherapy for pain management in labour on maternal & perinatal morbidity. Randomized control trails comparing aromatherapy with placebo, no treatment or other non-pharmacological forms of pain management in labour. Two trials were included in the review. The trial found no difference between groups for the primary outcomes of pain intensity, assisted vaginal birth and caesarean section. There were more babies admitted to neonatal intensive care in the control group of one trial but this difference did not reach statistical significance. Study concluded that the role of aromatherapy is effective for labour pain management

**Smith et.al., (2011)** conducted a study to examine the effects of acupressure for pain management in labour. Published and unpublished randomised controlled trials comparing acupressure with placebo, no treatment or other non-pharmacological forms of pain management in labour. Meta-analysis was performed, using risk ratios for dichotomous outcomes & mean differences for continuous outcomes. 13 trials were included. Pain intensity was reduced in the

acupressure group compared with a placebo control and a combined control. Study concluded that acupressure may have a role with reducing pain, increasing satisfaction with pain management & reduced use of pharmacological management.

**Taa vani et.al., (2011)** conducted a study to assess the effect of birth ball usage on pain in the active phase of labour. Sixty primiparous women aged 18 to 35 yrs were divided into birth ball and control group. Randomized controlled trail was used. Pain scores were measured by a visual analogue scale. Mean pain scores in the birth ball group were significantly lower than the mean pain scores in the control group ( $P < 0.05$ ). There were no significant differences between duration of the active phase of labour or the interval between uterine contractions in the 2 groups ( $P > 0.05$ )

**Yu-hsiang liu et.al., (2010)** conducted a study to assess the effect of music on pain reaction during labour. Sixty primiparous expected to have a normal spontaneous delivery were randomly assigned to either experimental group ( $n=30$ ) or control group ( $n=30$ ). A self report visual analogue scale was used to assess pain. Pain between groups was compared during the latent phase (2-4cm) and active phase (5-7cm) separately. Results revealed that compared with control group, experimental group had significantly lower pain during the latent phase of labour.

**Davim et.al., (2009)** conducted a study to assess the effectiveness of non-pharmacological strategies in relieving labour pain. 100 parturient were included. Non-pharmacological strategies include breathing exercises, muscle relaxation, lumbosacral massage and showers. A visual analogue scale was used for data collection. Most parturient were between 20 and 30yrs old (60%), had incomplete primary level of education (85%), family income of up to 2 minimum salaries (74%) and 78% had a companion with them at the hospital. A significant difference was observed in pain relief after using non- pharmacological strategies, showing reduced pain as cervix dilatation increased. The above strategies were effective in reducing the intensity of pain in the studied parturient.

**Dowswell et.al., (2009)** conducted a study to assess the effect of TENS on pain in labour. Randomized control trail was used. The search identified 25 studies; we excluded 6 studies and included 19 studies including 1671 women. Fifteen examined TENS applied to the back, two to acupuncture points and two to the cranium. Overall, there is little difference in pain ratings between TENS and control group. Although women receiving TENS to acupuncture points were less likely to report severe pain. The majority of women using TENS said that they would be willing to use it again in a future labour. Study concluded that TENS reduces pain in labour and it does not seem to have any impact on other outcomes for mothers & babies.

**Songporn Chuntharapat et.al., (2008)** conducted a study to assess the effect of yoga program during pregnancy on maternal comfort, labour pain and birth outcomes. A randomized

control trial was conducted using 74 primigravida mothers who were equally divided into two groups. The yoga program involved six, 1 hr session at prescribed weeks of gestation. A variety of instruments were used to assess maternal comfort, labour pain & birth outcomes. Result showed that experimental group was found to have higher levels of maternal comfort during labour & 2 hr post labour and experienced less subject evaluated labour pain than the control group.

**Micheal Tournaire & Anne Theau Yanneau (2007)** conducted a study to evaluate the effectiveness of complementary and alternative medicine on pain during labour with conventional scientific methods using electronic data bases. Randomized controlled trail was used. Result revealed that there is an efficacy found for acupressure and sterile water block. Most results favoured some efficacy for acupuncture & hydrotherapy. Studies for other complementary or alternative therapies for labour pain control have not shown their effectiveness.

**Khoda karami & Safarzadeh (2006)** conducted a study to assess the effect of massage therapy on severity of pain & outcome of labour in primipara mothers. The cases were primiparous women with single foetus in the age range of 20 to 34 with cervical dilatation of 4 cm & less and gestational age of 38 to 42 wks. Group is divided in to experimental & control group randomly. Severity of pain was measured in visual analogue scale & the questionnaires were filled at the cervical dilatation of 4, 8 & 10 cm. Massage therapy was done using effleurage method. Result demonstrated that the mean of pain severity at the first stage of labour was significantly different between experimental group & control group, at the start of active phase ( $P = 0.009$ ), end of transitional phase ( $P=0.014$ ) & end of the first stage ( $P=0.01$ ). Also the duration of the first stage of labour was different in experimental & control group.

**Cyna & McAuliffe (2004)** conducted a study to assess the efficacy of hypnosis on labour & delivery pain. Five RCTs & 14 non-randomized comparisons studying 8395 women were identified, where hypnosis was used for labour analgesia. One RCT rated poor on quality assessment. Meta-analysis of the three remaining RCTs showed that, compared with controls, fewer parturient having hypnosis required analgesia, relative risk is 0.51. Of the two included NRCTs, one showed that women using hypnosis rated their labour pain less severe than controls ( $P < 0.01$ ). The other showed that hypnosis reduced opioids requirements ( $P < 0.001$ ) and increased incidence of not requiring analgesia in labour.

**Pan Duchene (2004)** conducted a study to assess the effect of biofeedback on pain of childbirth. Forty primigravidae mothers were randomly assigned to either an experimental group or a control group. All subjects were monitored during the labour & delivery period for their reports of pain using a visual analogue scale & a verbal descriptor scale. Result showed that women using biofeedback during childbirth reported significantly lower pain from admission to labour & delivery

( $P < 0.55$ , VDS;  $P < 0.01$ , VAS) at delivery ( $P < 0.005$ , VDS) and 24 hrs postpartum ( $P < 0.01$ ; VDS). Result suggests that biofeedback may be effective in reducing levels of acute pain experienced by childbearing pain.

**Prasertcharoensuk & Thinkhamrop (2004)** conducted a study to examine the effectiveness of complementary and alternative therapies for pain management in labour. The trials included three trials of hypnosis ( $n=189$ ), one involving audio-analgesia ( $n=25$ ), one trial of music ( $n=30$ ) and the other one as a control group. Women receiving hypnosis were more satisfied with their pain management in labour compared with controls. No differences were seen for women receiving music or audio analgesia. Hypnosis may be beneficial for the management of pain during labour.

**Yildirim & Sahin (2004)** conducted a study to assess the effect of breathing & skin stimulation techniques on labour pain perception. The study was conducted among 40 mothers who were in their 38<sup>th</sup> to 42<sup>nd</sup> week of pregnancy, not at high risk and expected to have normal vaginal delivery. Information's about labour, breathing techniques & massage were provided to the experimental group women at the beginning of latent phase. Data were obtained through the visual analogue scale, inspection forms & postnatal interview form. Result demonstrated that nursing support & education concerning breathing exercise & cutaneous stimulation techniques were effective in reducing the pain perception during labour.

**Waters & Raisiler (2003)** conducted a study to assess the use of ice massage of acupressure energy meridian point large intestine 4 (LI4) to reduce labour pain during contractions. LI4 is located on the medial midpoint of the first metacarpal within 3 to 4mm of the web of skin between thumb & forefingers. Visual analogue scales and the McGill pain questionnaire were used to measure pain. The result showed a pain reduction mean on the VAS is 28.22 on the left hand & 11.93 on the right hand. The post delivery ranked MPQ dropped from number 3 (distressing) to number 2 (discomforting). Study suggests that ice massage is a safe, non invasive, non pharmacological method of reducing labour pain.

**Ramnero & Hanson (2002)** conducted a study to assess the effect of acupuncture treatment during labour with regard to pain intensity, degree of relaxation and outcome of delivery. Forty six parturient were randomized to receive acupuncture treatment during labour. Parturient who received acupuncture had significantly better degree of relaxation & the mean difference is 0.93. The main effect of acupuncture during labour is analgesic or relaxing.

**Sylvia.T.Brown & Carol Douglas (2001)** conducted a study to examine which non-pharmacological pain relief techniques. Labouring women use most and the effectiveness of the

chosen techniques, 10 pharmacological strategies were rated by forty six samples. Result showed that breathing techniques, relaxation, acupuncture and massage were found to be more effective.

**Kathryn (1999)** conducted a study to assess the effectiveness of continuous support provided by a trained laywoman (doula) during childbirth on obstetrical & postpartum outcomes. Twelve individual randomized control trials have compared obstetrical & postpartum outcomes between doulas supported women & women who did not receive doula support during childbirth. The result showed that doula supported mother's rate child birth as less difficult & painful than do women not supported by a doula. Labour support by fathers does not appear to produce similar obstetrical benefits.

**Fausto.J.Molina et.al., (1997)** conducted a study to evaluate the relationship between the parturient position and her abdominal & lumbar pain during the first stage of labour. 100 parturient were randomly assigned to alternatively assume the horizontal or the vertical position for 15mts. Their pain was measured at 2-3, 4-5, 6-7 & 8-9cm dilatation. Pain intensity was measured by Argentine pain questionnaire's present pain intensity & the Huskisson's visual analogue scale. The result revealed that a majority of patients felt less abdominal & lumbar pain, either continuous or due to contractions. The effect was more remarkable when dilatation exceeded 5cms & less intense during the first half of the first stage of labour.

#### **Literature related to foot reflexology on SP6 and BL60 points:**

**Jian-Mei Cui et.al., (2011)** conducted a study to examine the effect of acupoint SP6moxibustion on the first stage of labour and uterine contraction pain in primipara mothers. 60 primipara women in labour were equally assigned according to their choice to three groups: women in the S-mox group received bilateral S-mox for 30mts, women in the non-acupoint group received moxibustion applied on non- acupoints for 30mts and those in the control group did not receive mox intervention. Result showed that the duration of the first stage in the S-mox group was significantly shorter than the other 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 SP6 moxibustion shorten the active phase of labour & lower the VAS score of uterine contraction pain.

**Hjelmstedt et.al., (2010)** conducted a study to evaluate the effect of pressure on SP6 during the active phase of labour on nulliparous women. Seventy one women were randomized to receive pressure at SP6 point on both legs during contractions over a 30mt period. 71 women received light touch at SP6 on both legs during the same period of time and 70 women received standard care. Visual analogue scale was used to assess the pain perception before treatment, immediately after treatment & at 30, 60 and 120mts after treatment. The result showed that a

reduction of in-labour pain was found in the pressure group and was most noticeable immediately after treatment (Pressure group Vs control group;  $P < 0.001$ ; Experimental group Vs touch group:  $P < 0.001$ ). Pressure on SP6 point seems to reduce pain during the active phase of labour in nulliparous women giving birth.

**Mahboubeh Valini et.al., (2010)** conducted a study to assess the effect of reflexology on the pain and certain outcomes of the labour on primiparous women. Quasi- experimental design was adopted. 88 primiparous mothers referred to selected hospitals were selected using simple random sampling method and then randomized into two groups. Data collection tools were the demographic data questionnaires, profile & outcome of the labour and the short form of the Mc Gill questionnaire for pain rating index. The intervention was general & specific reflexology in the active phase of labour. PRI was assessed before the intervention and four times after the intervention (3-5cm; 6-8cm and 9-10 cm dilatations & second stage of labour). In the reflexology group, there was a significant difference between the PRI before and after the 4 stages intervention ( $P < .001$ ). PRI was different significantly between studied groups after intervention ( $P < .001$ ). The study concluded that Reflexology can lead to decrease in the labour pain and it can be replaced as an alternative for pharmacological methods.

**Maryam Kashnian and Shahali (2009)** conducted a study to assess the effect of pressure at the SP6 on the active phase of labour. A randomized clinical trial was performed on 120 eligible nulliparous women who were at the beginning of active phase of labour. Women were divided in to two groups. Case group ( $n=60$ ) received pressure at SP6 (above the ankle) for 30 minutes during contraction. Result showed that the severity of pain in the case group was less than control group ( $P=.003$ ). Pressure at SP6 reduced the duration and severity of active phase of labour.

**Lee et.al., (2004)** conducted a study to assess the effect of SP6 pressure on labour pain and length of delivery time in women during labour. Randomized clinical trial was used. Severity five women in labour were randomly assigned to either SP6 pressure ( $n=36$ ) or SP6 touch control ( $n=39$ ) group. 30 minute pressure or touch on SP6 acupoint was performed. Labour pain was measured four times using a structured questionnaire, a subjective labour pain scale (UAS); before intervention, immediately after the intervention and 30 and 60 minutes after the intervention. Result showed that there were significant differences between the groups in subjective labour pain score at all times points following the intervention. Immediately after the intervention ( $P=.012$ ), 30 minutes after the intervention ( $P=.021$ ) and 60 minutes after the intervention ( $P=.012$ ). It showed that SP6 pressure was effective for decreasing labour pain.



**Gabriella Bering Liisberg (1989)** conducted a study to assess the effect of reflexology on labour pain. Survey technique was used in selected hospitals. Among 593 women who gave birth, 103 choose reflexology as an alternative to both pain killing drugs and to labour stimulating and inducing drugs, of 61 woman who choose 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 inspite of reflexology treatment. All participants except one found that reflexology treatment extremely pleasant.

## **CHAPTER - III**

### **METHODOLOGY**

This chapter explains the methodology adapted by the researcher to assess the effectiveness of foot reflexology on pain perception during the first stage of labour among primigravida mothers at KMCH, Coimbatore. It deals with research design, variables under the study, setting of the study, population, criteria for selection of the sample, sample size, sampling technique, development & description of the tool, pilot study, details of intervention, procedure for data collection and statistical analysis.

#### **RESEARCH DESIGN:**

Quasi experimental, pre test post-test control group design was adopted for this study.

E	O1	X	O2	O3	X	O4	O5	X	O6
C	O1		O2	O3		O4	O5		O6

E - Experimental group

C - Control group

O1 O3 O5 - Pretest pain assessment

X - Intervention .

O2 O4 O6 - post test pain assessment

#### **VARIABLES UNDER THE STUDY:**

In this study, Independent variable was the foot reflexology and the dependent variable was the pain perception during first stage of labour.

#### **SETTING OF THE STUDY:**

This study was conducted in the labour room of Kovai Medical Centre and Hospital, Coimbatore. KMCH is one of the renowned and reputed institutions in Coimbatore. KMCH is a multispecialty hospital consisting of 750 beds with various specialities like cardiology, neurology, orthopaedics, interventional radiology, paediatrics, obstetrics & gynaecology etc. out of these 750 beds , 60 beds are occupied by the obstetrics cases include antenatal ward, postnatal ward & the labour room separately. Labour room consists of 3 labour tables. In KMCH nearly 110 mothers undergo normal vaginal delivery per month. On average, 5-7 mothers admitted in labour room for safe confinement per day. Among them, usually 4 mothers undergo normal delivery.

## **POPULATION OF THE STUDY:**

All the primigravida mothers who were admitted in labour room for safe confinement during the study period.

## **SAMPLE SIZE:**

Sample size of this study was 60 mothers. Among the 60 mothers, 30 mothers were selected as a experimental group & the another 30 members were selected as a control group.

## **SAMPLING TECHNIQUE:**

Non-probability, purposive sampling technique was used to select the samples of experimental & control group from the population.

## **CRITERIA FOR SAMPLE SELECTION:**

### **Inclusion criteria:**

1. The primigravida mothers admitted for normal vaginal delivery in the labour room.
2. The primigravida mothers were in the active phase of labour i.e.4 – 7 cms of cervical dilatation.

### **Exclusion criteria:**

1. The mothers for whom analgesics like Entonox and pethidine were administered during the first stage of labour.
2. High risk pregnancies.

## **DETAILS OF INTERVENTION:**

Reflexology means the art of reducing pain by applying pressure on SP6 & BL60 points with the help of one's thumb or unpointed things. The mechanism behind reflexology is that the pressure on these points stimulates the brain to release endorphins & other chemicals to reduce pain.

## **TECHNIQUES USED IN FOOT REFLEXOLOGY:**

Phase of intervention are

- 1) Pre interventional phase
- 2) Interventional phase
- 3) Post interventional phase

## DEVELOPMENT & DESCRIPTION OF THE TOOL:

It consists of three sections.

Section A: Demographic profile.

Section B: Obstetrical profile

Section C: Pain assessment scale.

Section A:

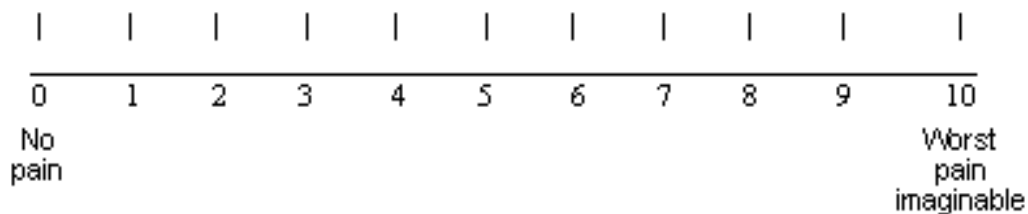
It includes Age, Education, Occupation, Religion, Age at marriage & Child birth information.

Section B:

It consist of Last menstrual period , Expected date of delivery , Obstetrical score, Gestational age , Date & time of onset of labour, Foetal heart rate, Membrane, Cervical dilatation, Medications , Maternal vital signs & Uterine contraction.

Section C:

Numerical pain intensity scale was used for this study to assess the pain perception of mother during the first stage of labour. The scale consists of scores from 0 to 10.



0 no pain

1-2 mild pain

3-4 moderate pain

5-6 severe pain

7-8 very severe pain

9-10 worst possible pain

## **TESTING OF THE TOOL:**

### **Content validity:**

The tools were given for content validity to the hands of experts in the field of nursing, medicine & reflexology. All the valuable comments, suggestions and corrections from the experts were considered & the tools found to be valid.

### **PILOT STUDY:**

Pilot study was conducted for a period of one week on primigravida mothers. Six samples were selected, three as an experimental group and the remaining as a control group. After analysis, the result showed that the tool was found to be effective.

### **PROCEDURE FOR DATA COLLECTION:**

Before data collection, prior permission was obtained from the chairman, Kovai Medical Centre & Hospital to conduct the study. Researcher submitted an application and gave reassurance to follow the rules & regulations held by the institution and also that the study will not create any personal & professional inconvenience to anyone. Similarly, proper permission was obtained from my clinical & medical guide.

The study was conducted for a period of six weeks. The eligible samples to participate in this study were identified by the investigator.

The purpose of the study was properly explained to the mothers & obtained the oral consent. Initially the demographic & obstetrical variables were collected from the mothers in the first stage of labour. After 3cm of cervical dilatation, when the contraction starts pre-test pain assessment score was obtained by using numerical pain intensity scale for both control & experimental group. After that, the foot reflexology was applied for the five succeeding contractions. Post test pain score was obtained at the next contraction following intervention by using the same pain assessment scale. For the control group, the post test was obtained without intervention. The investigator repeated the procedure two times for both control and experimental group at an half an hour intervals.

### **STATISTICAL ANALYSIS:**

The collected data was analysed by descriptive and inferential statistics. The descriptive statistics was mean, standard deviation & percentage. The inferential statistics such as Paired t test was used for comparing the pain perception between control and experimental group. Chi- square test was used to associate the pain perception with demographic variables.

## **CHAPTER – IV**

### **DATA ANALYSIS AND INTERPRETATION**

The collected data regarding foot reflexology on pain perception among primigravida mothers during first stage of labour were organized, analysed & interpreted as follows:

- SECTION A** : Distribution of subjects according to demographic variables.
- SECTION B** : Distribution of subjects according to obstetrical variable.
- SECTION C** : Distribution of subjects according to pre-test pain perception score of experimental & control groups.
- SECTION D** : Distribution of subjects according to post-test pain perception score of experimental & control groups.
- SECTION E** : Comparison of mean pre test and post test pain perception score between experimental and control groups.
- SECTION F** : Comparison of pre test and post test pain perception score within the Experimental group.
- SECTION G** : Association of pain perception with selected demographic variables in the experimental & control groups.
- SECTION H** : Association of pain perception with selected obstetrical variables in the experimental & control groups.

**SECTION – A**

**Table 1: Distribution of subjects according to demographic variables:**

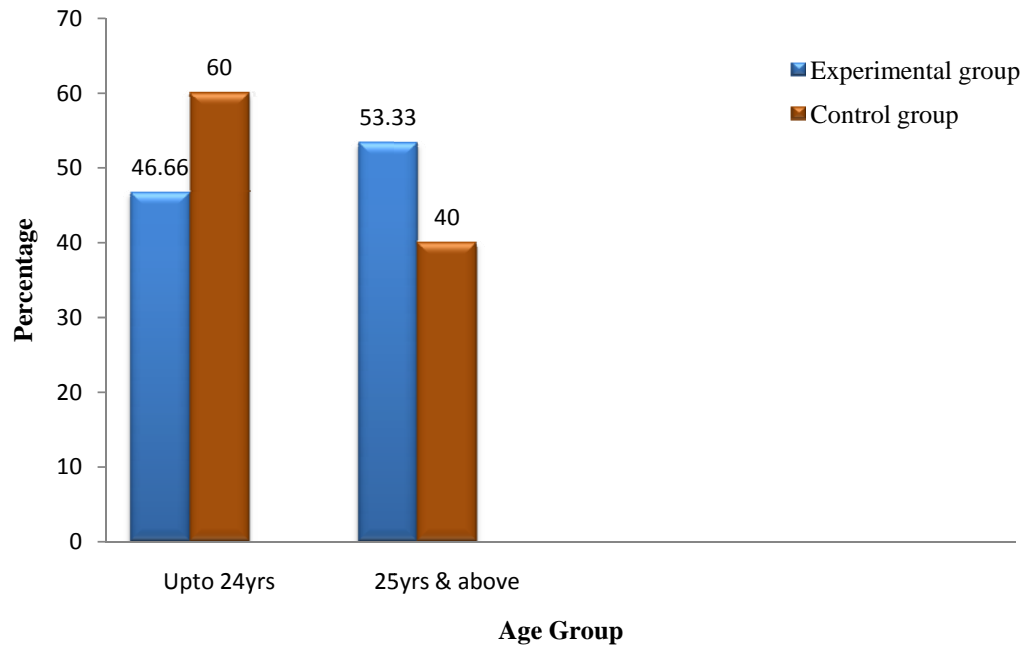
S.NO	Demographic variables	Number of subjects			
		Experimental Group (n=30)	Percentage (%)	Control group (n=30)	Percentage (%)
1.	<b>AGE GROUP</b>				
	Up to 24 years	14	46.66	18	60
	25years & above	16	53.33	12	40
2.	<b>EDUCATION</b>				
	Upto higher secondary	3	10	13	43.33
	Degree	16	53.33	9	30
	Pg degree & above	11	36.67	8	26.67
3.	<b>OCCUPATION</b>				
	House wife	23	76.67	29	96.67
	Employed	7	23.33	1	3.33
4.	<b>AGEAT</b>				
	<b>MARRAIGE</b>	11	36.67	15	50
	Up to 22 years	19	63.33	15	50
	23years & above				
5.	<b>CHILDBIRTH INFORMATION</b>				
	Obtained	15	50	17	56.67
	Not obtained	15	50	13	43.33

Table 1 describes the distribution of subjects according to demographic variables.

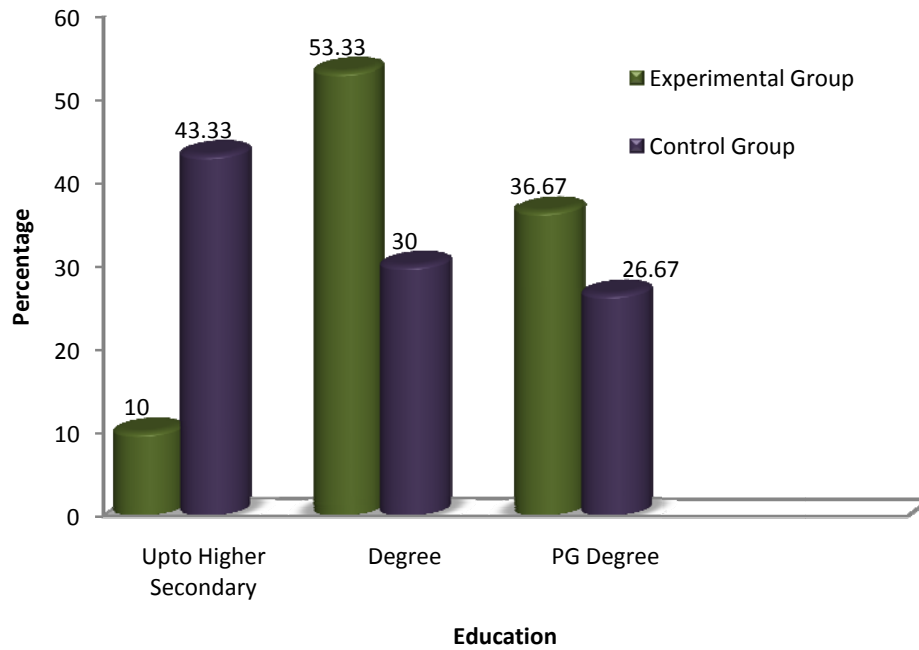
Out of 30 samples in the experimental group, most of them 16 (53.33 per cent) were in the age group of 25 yrs & above. Regarding education, majority 16(53.33 per cent) had degree education. According to occupation, 23(76.67 per cent) were house wife. On the basis of age at marriage, most of the respondents, 19(63.33 per cent) were in the category of 23years & above. Regarding child birth information, samples were equally distributed i.e. 15 samples in each category of child birth information: obtained & not obtained.

Among the 30 samples in the control group, majority 18 (60 per cent) were in the age group up to 24 yrs. Regarding education,13(43.33 per cent) belongs to the category of up to higher secondary. According to occupation, 29 (96.67 per cent) were house wife. On the basis of age at marriage, the samples were equally distributed i.e. 15 samples (50 per cent) in both groups: up to 22yrs and 23yrs & above. Regarding the child birth information, most of the respondents, 17 (56.67 per cent) obtained the information.

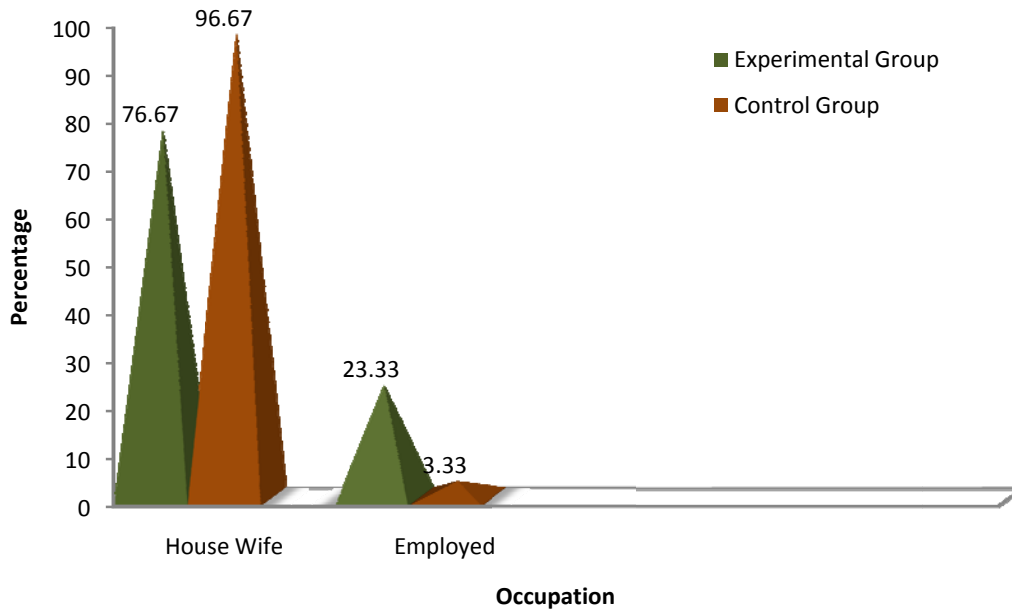




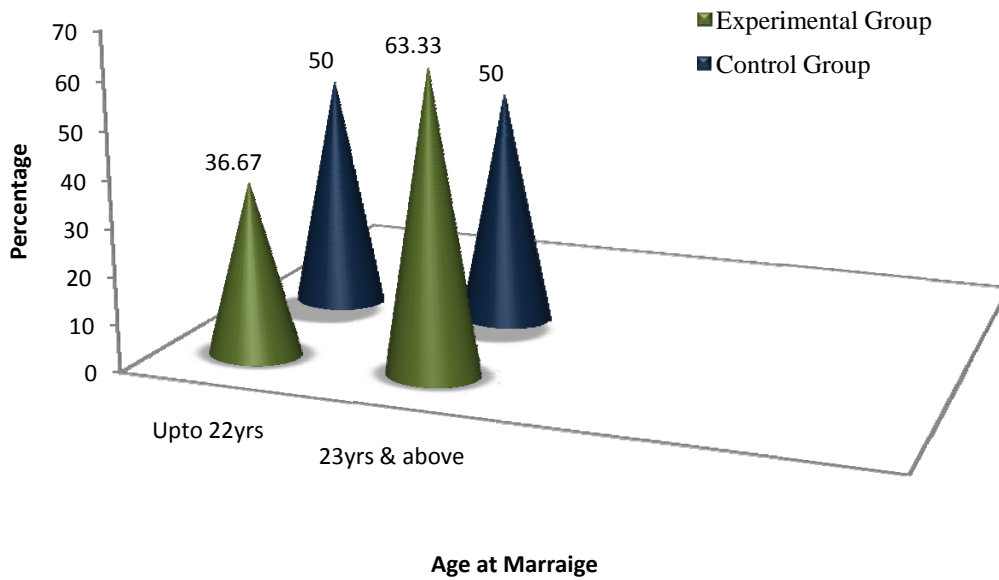
**Figure 2: Distribution of subjects according to their age group.**



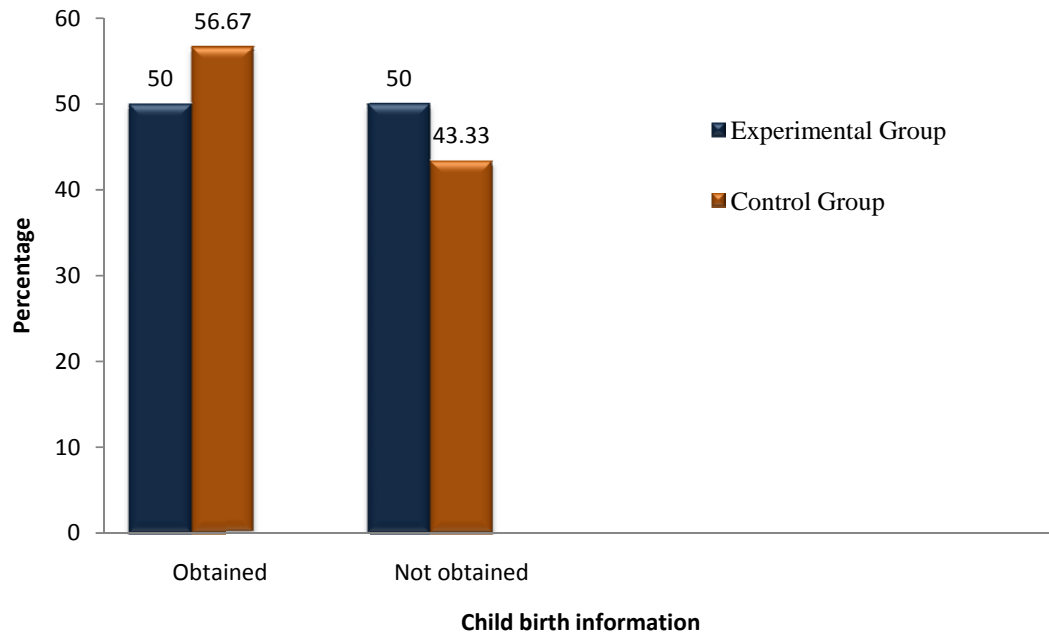
**Figure 3: Distribution of subjects according to their Education.**



**Figure 4: Distribution of subjects according to their Occupation.**



**Figure 5: Distribution of subjects according to their Age at marriage.**



**Figure 6: Distribution of subjects according to their Child birth information.**

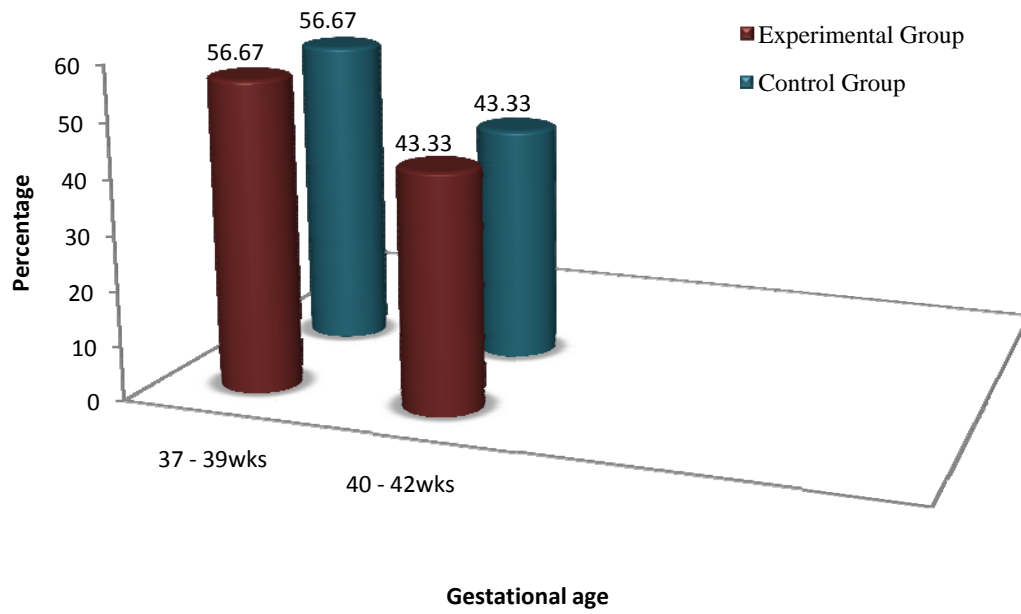
## SECTION – B

**TABLE 2: DISTRIBUTION OF SUBJECTS ACCORDING TO OBSTETRICAL VARIABLE:**

S.No	Obstetrical Variable	Number of subjects			
		Experimental group (n=30)	Percentage (%)	Control group (n=30)	Percentage (%)
1.	<b>GESTATIONAL AGE</b>				
	37-39 weeks	17	56.67	17	56.67
	40 -42 weeks	13	43.33	13	43.33

Table 2 describes the distribution of subjects according to gestational age.

Among 30 subjects, majority 17 (56.67 per cent) were between the gestational age 37-39wks and remaining 13 (43.33 per cent) were between the gestational age 40-42wks in both experimental and control group.



**Figure 7: Distribution of subjects according to Gestational age.**

## SECTION – C

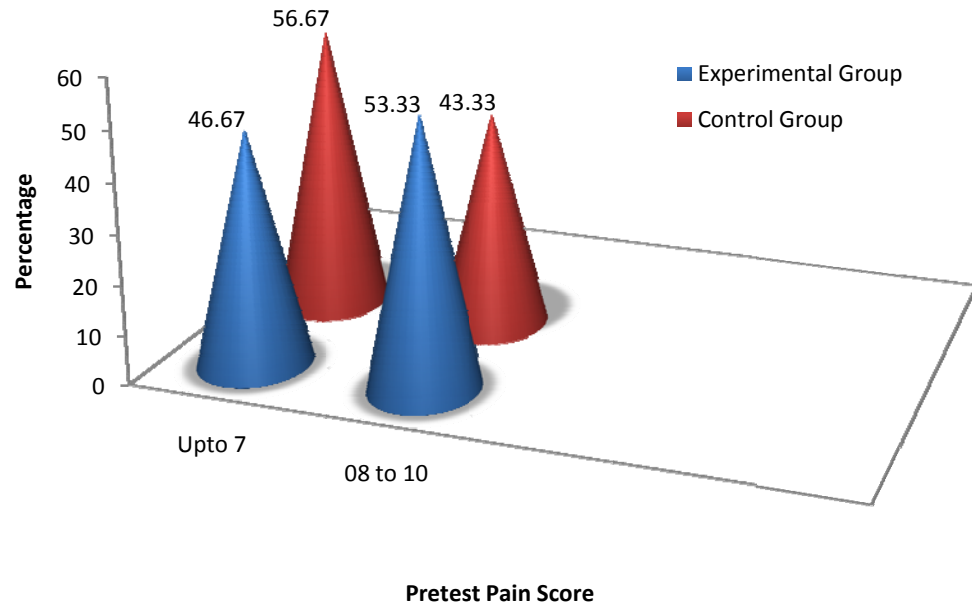
**TABLE 3: DISTRIBUTION OF SUBJECTS ACCORDING TO PRE TEST PAIN PERCEPTION SCORE OF EXPERIMENTAL AND CONTROL GROUPS.**

S.No	Pre test pain score	Experimental group		Control group	
		(n=30)	(%)	(n=30)	(%)
1.	Up to 7	14	46.67	17	56.67
2.	08 - 10	16	53.33	13	43.33

Table 3 describes the distribution of subjects according to pre-test pain perception score of control and experimental group.

In experimental group, 16 (53.33 per cent) had a pain score of 08-10 and the remaining 14(46.67 per cent) had a pain score up to 7.

Among control group, 17 (56.67 per cent) had a pain score up to 7 and the remaining 13(43.33 per cent) had a pain score of 08-10.



**Figure 8: Distribution of subjects according to Pre-test pain perception score.**

## SECTION – D

**TABLE 4: DISTRIBUTION OF SUBJECTS ACCORDING TO POST TEST PAIN PERCEPTION SCORE OF EXPERIMENTAL AND CONTROL GROUPS.**

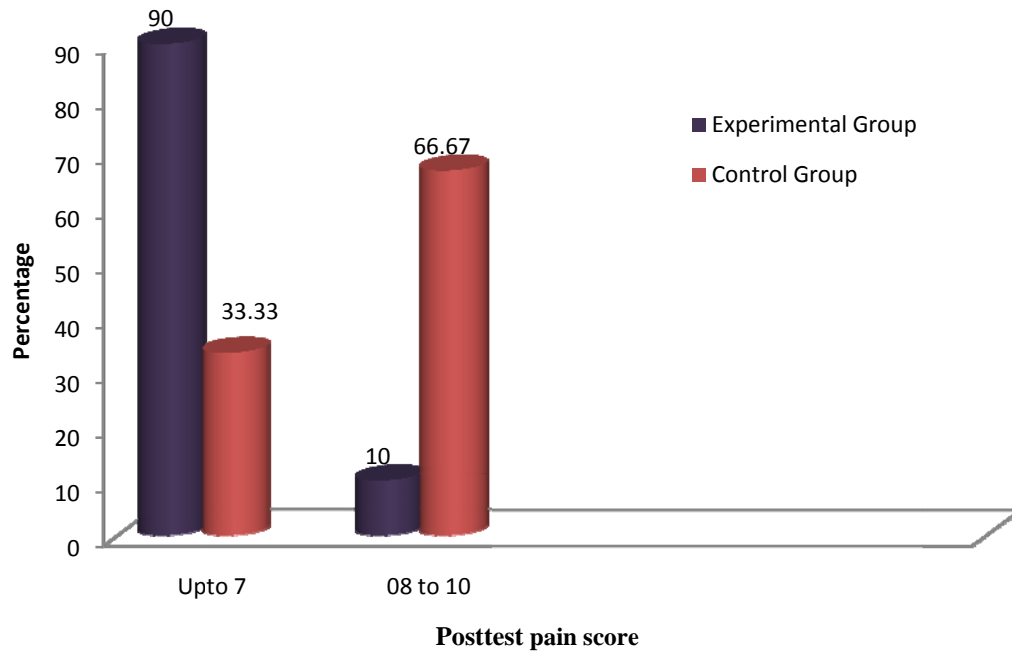
S.No	Post test pain score	Experimental group		Control group	
		(n=30)	(%)	(n=30)	(%)
1.	Up to 7	27	90	10	33.33
2.	08 - 10	3	10	20	66.67

Table 4 describes the distribution of subjects according to post test pain perception score of control and experimental groups.

In experimental group, majority 27 (90 per cent) had a pain score up to 7 and the remaining 3 (10 per cent) had a pain score of 08 – 10.

Among control group, majority 20 (66.67 per cent) had a pain score of 08-10 and the remaining 10 (33.33 per cent) had a pain score up to 7.





**Figure 9: Distribution of subjects according to Post-test pain perception score.**

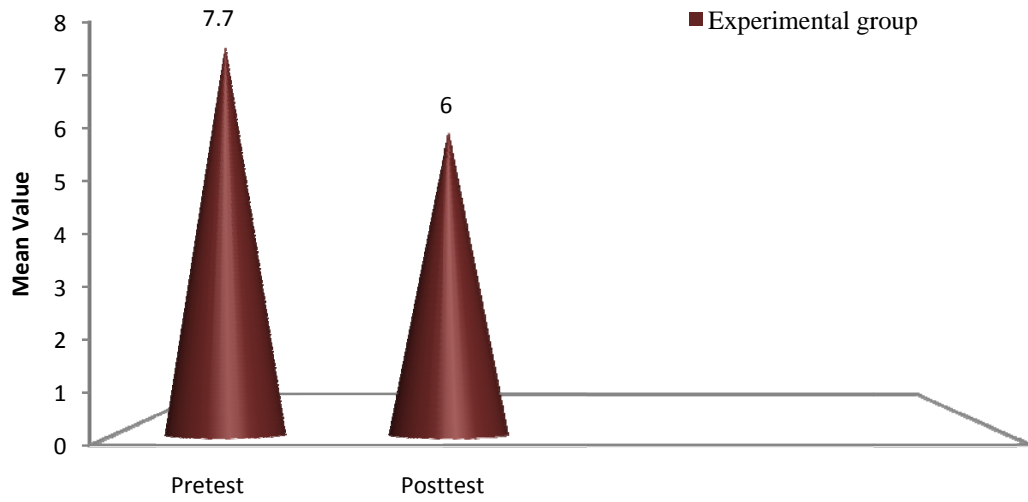
## SECTION –E

**TABLE 5: COMPARISON OF MEAN PRE AND POST TEST PAIN PERCEPTION SCORE BETWEEN EXPERIMENTAL AND CONTROL GROUPS.**

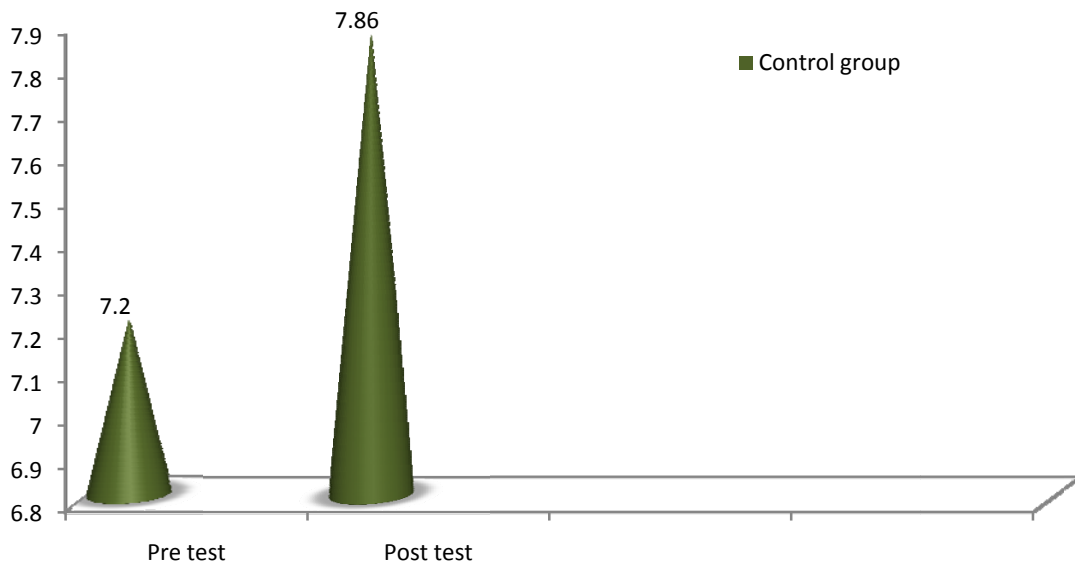
S.no	Groups	Mean Value	
		Pre test pain perception score	Post test pain perception score
1.	Experimental group	7.7	6
2.	Control group	7.2	7.86

Table 5 describes the comparison of mean pre test and post test pain perception score between the experimental and control groups.

It shows that the mean value had decreased from 7.7 to 6 in the experimental group whereas in the control group the mean score had increased from 7.2 to 7.86. It clearly indicates that clinically there is a significant difference exists in the pain perception between experimental and control groups.



**Figure 10: Comparison of mean pre-test and post-test pain perception score in Experimental group.**



**Figure 11: Comparison of mean pre-test and post-test pain perception in Control group.**

## SECTION –F

**TABLE 6: COMPARISON OF PRE AND POST TEST PAIN PERCEPTION SCORE WITHIN THE EXPERIMENTAL GROUP.**

S.no	Experimental group	Mean Value	df	't' value
1.	Pre test	7.7	29	8.55**
2.	Post test	6		

Significant at  $p < 0.01$  level

Table 6 describes pain perception in experimental group. The computed value of 't' (8.55) is more than the table value (2.462) at df (29) which is statistically significant at 0.01 level. This data shows that there is a change in pain perception of primigravida mothers after foot reflexology during first stage of labour.

## SECTION-G

**TABLE 7: ASSOCIATION BETWEEN PRE TEST PAIN PERCEPTION SCORE AND DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL GROUP.**

S.No	Demographic variables	Pain perception score		df	X <sup>2</sup>
		Up to 7	8 & above		
1.	<b>AGE GROUP</b>				
	Upto 24 years	8	6	1	1.55
	25years & above	6	10		(NS)
2.	<b>EDUCATION</b>				
	Upto higher secondary	1	2		0.51
	Degree	7	9	2	(NS)
	Pg degree & above	6	5		
3.	<b>OCCUPATION</b>				
	House wife	10	13	1	0.40
	Employed	4	3		(NS)
4.	<b>AGE AT MARRAIGE</b>				
	Upto 22 years	5	6	1	0.09
	23years & above	9	10		(NS)
5.	<b>CHILDBIRTH INFORMATION</b>				
	Obtained	6	9	1	0.53
	Not obtained	8	7		(NS)

P<0.05

NS: Non significant

Table 7 clearly shows that the pre test pain perception score of the respondents in the experimental group do not have association with demographic variables like age group, education, occupation, age at marriage and child birth information.

**TABLE 8: ASSOCIATION BETWEEN PRE TEST PAIN PERCEPTION SCORE AND DEMOGRAPHIC VARIABLES IN THE CONTROL GROUP.**

S.no	Demographic variables	Pain perception score		df	X <sup>2</sup>
		Up to 7	8 & above		
1.	<b>AGE GROUP</b>				
	Upto 24 years	9	9	1	0.81
25years & above	8	4	(NS)		
2.	<b>EDUCATION</b>				
	Upto higher secondary	7	6	2	0.53
	Degree	6	3		(NS)
PG degree & above	4	4			
3.	<b>OCCUPATION</b>				
	House wife	16	13	1	0.80
Employed	1	0	(NS)		
4.	<b>AGE AT MARRAIGE</b>				
	Upto 22 years	6	9	1	3.39
23years & above	11	4	(NS)		
5.	<b>CHILDBIRTH INFORMATION</b>				
	Obtained	10	7	1	0.07
Not obtained	7	6	(NS)		

P<0.05

NS: Non significant

Table 8 shows that the pre test pain perception score of the respondents in the control group do not have association with demographic variables like age group, education, occupation, age at marriage and child birth information.

**TABLE 9: ASSOCIATION BETWEEN POST TEST PAIN PERCEPTION SCORE AND DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL GROUP.**

S.No	Demographic variables	Pain perception score		df	X <sup>2</sup>
		Up to 7	8 & above		
1.	<b>AGE GROUP</b>				
	Upto 24 years	12	2	1	0.53
	25years & above	15	1		(NS)
2.	<b>EDUCATION</b>				
	Upto higher secondary	2	1	2	3.14
	Degree	14	2		(NS)
Pg degree & above	11	0			
3.	<b>OCCUPATION</b>				
	House wife	20	3	1	1.01
	Employed	7	0		(NS)
4.	<b>AGE AT MARRAIGE</b>				
	Upto 22 years	9	2	1	1.29
	23years & above	18	1		(NS)
5.	<b>CHILDBIRTH INFORMATION</b>				
	Obtained	15	1	1	0.37
	Not obtained	12	2		(NS)

P<0.05

NS: Non significant

Table 9 clearly shows that the post test pain perception score of the respondents in the experimental group do not have association with demographic variables like age group, education, occupation, age at marriage and child birth information.

**TABLE 10: ASSOCIATION BETWEEN POST TEST PAIN PERCEPTION SCORE AND DEMOGRAPHIC VARIABLES IN THE CONTROL GROUP.**

S.No	Demographic variables	Pain perception score		df	X <sup>2</sup>
		Up to 7	8 & above		
1.	<b>AGE GROUP</b>				
	Upto 24 years	3	15	1	5.62 (S)
25years & above	7	5			
2.	<b>EDUCATION</b>				
	Upto higher secondary	3	10	2	2.84 (NS)
	Degree	5	4		
Pg degree & above	2	6			
3.	<b>OCCUPATION</b>				
	House wife	9	20	1	2.08 (NS)
Employed	1	0			
4.	<b>AGE AT MARRAIGE</b>				
	Upto 22 years	2	13	1	5.4 (S)
23years & above	8	7			
5.	<b>CHILDBIRTH INFORMATION</b>				
	Obtained	7	10	1	1.08 (NS)
Not obtained	3	10			

P<0.05

NS: Non Significant

S: Significant

Table 10 shows that the post test pain perception score of the respondents in the control group do not have association with demographic variables like education, occupation and child birth information but the post test pain score have an association with variables like age group and age at marriage in the control group.



**SECTION –H**

**TABLE-11: ASSOCIATION OF PRE TEST PAIN PERCEPTION SCORE AND OBSTETRICAL VARIABLE IN THE EXPERIMENTAL GROUP.**

S.No	Obstetrical variable	Pain perception score		df	X <sup>2</sup>
		Up to 7	08 & above		
1.	<b>GESTATIONAL AGE</b>				
	37 – 39 wks	10	7	1	2.32 (NS)
	40 – 42 wks	4	9		

P<0.05

NS: Non significant.

Table 11 clearly shows that the pre test pain perception score of subjects in the experimental group do not have association with gestational age.

**TABLE-12: ASSOCIATION OF PRE TEST PAIN PERCEPTION SCORE AND OBSTETRICAL VARIABLE IN THE CONTROL GROUP.**

S.No	Obstetrical variable	Pain perception score		df	X <sup>2</sup>
		Up to 7	08 & above		
1.	<b>GESTATIONAL AGE</b>				
	37 – 39 wks	9	8	1	0.22 (NS)
	40 – 42 wks	8	5		

P<0.05

NS: Non significant.

Table 12 clearly shows that the pre test pain perception score in the control group do not have association with obstetrical variable- gestational age.

**TABLE - 13: ASSOCIATION OF POST TEST PAIN PERCEPTION SCORE AND OBSTETRICAL VARIABLE IN THE EXPERIMENTAL GROUP.**

S.No	Obstetrical variable	Pain perception score		df	X <sup>2</sup>
		Up to 7	08 & above		
1.	<b>GESTATIONAL AGE</b>				
	37 – 39 wks	15	2	1	0.13 (NS)
40 – 42 wks	12	1			

P<0.05

NS: Non significant.

Table 13 clearly shows that the post test pain perception score of subjects in the experimental group do not have association with gestational age.

**TABLE-14: ASSOCIATION OF POST TEST PAIN PERCEPTION SCORE AND OBSTETRICAL VARIABLE IN THE CONTROL GROUP.**

S.No	Obstetrical variable	Pain perception score		df	X <sup>2</sup>
		Up to 7	08 & above		
1.	<b>GESTATIONAL AGE</b>				
	37 – 39 wks	6	11	1	0.06 (NS)
40 – 42 wks	4	9			

P<0.05

NS: Non significant.

Table 14 clearly shows that the post test pain perception score of subjects in the control group do not have association with gestational age.

## **CHAPTER – V**

### **DISCUSSION, SUMMARY, CONCLUSION, IMPLICATIONS, LIMITATIONS & RECOMMENDATIONS.**

#### **DISCUSSION:**

Pain is an unpleasant, complex, highly individualized phenomenon with both sensory & emotional components. Pregnant women commonly worry about the pain they will experience during the labour & birth and how they will react to & deal with that pain (Lowe, 2002)

Labour & birth represent the end of pregnancy, the beginning of extra uterine life for the newborn & a change in the lives of the family. Vande vusse (1999) identified external forces including place of birth, preparation, types of providers (especially nurses) and procedures were influencing the perception of pain during labour.

The present study was conducted to assess the effectiveness of foot reflexology on pain perception of mothers during first stage of labour among the primigravida mothers.

#### **1) Demographic Description:**

Demographic variables included in this study are age group, education, occupation, age at marriage & child birth information.

Among 60 samples, on the basis of age, 16(53.33 per cent) belong to the age group 25yrs & above in the experimental group as well as 18 (60per cent) belong to the age group up to 24yrs in the control group. Regarding education, 16 subjects (53.33per cent) completed their degree and 13 subjects (43.33per cent) completed their education up to higher secondary in the experimental and control groups respectively. Most of the subjects among the 60 samples were house wife i.e.23 (76.67per cent) in experimental group and 29 (96.67per cent) in control group.

On the basis of age at marriage, majority of them 19 (63.33per cent) were between the age group 23yrs & above in the experimental group whereas in the control group subjects were equally divided 15 (50per cent) in the categories of up to 22yrs and 23yrs & above. According to child birth information, subjects were equally distributed 15 (50per cent) between the information received and not received categories in the experimental group. However in the control group, majority 17 (56.67per cent) were received the child birth information.

#### **2) Obstetrical information:**

Among 60 subjects, majority 17 (56.67per cent) were in the gestational age 37-39 weeks and the remaining 13 (43.33per cent) belong to the gestational age 40- 42 weeks in both experimental and control groups.

The collected data were tabulated and statistically analyzed. Based on the objectives, the results were discussed.

**3) The first objective was to assess the pain perception of primigravida mothers during the first stage of labour before & after providing foot reflexology on experimental and control group:**

Out of 30 subjects belonging to experimental group, majority 16 (53.33per cent) had a pre test pain perception score category 08-10 and the remaining 14 (46.67per cent) had a pain score up to 7 before foot reflexology. However in the control group, most of them 17 (56.67per cent) belong to the pain score up to 7 and the remaining 13 (43.33per cent) had a pre test pain perception score 08-10.

Among 30 subjects in the experimental group, regarding post test pain perception, most of the subjects 27 (90per cent) had a pain perception score up to 7 and the remaining 3 (10per cent) had a pain perception score 08-10 whereas in the control group, 20 (66.67 per cent) had a pain perception score 08-10 and the remaining 10 (33.33per cent) had a pain perception score up to 7.

**4) The second objective was to determine the effectiveness of foot reflexology on pain perception of the primigravida mothers within the experimental group.**

In the experimental group, the mean value of pre-test pain perception score was 7.7 and the mean score had decreased in the post pain perception i.e 6 whereas in the control group, the mean score had increased from 7.2 to 7.86. It indicates clinically there is a significant difference exists in the pain perception between experimental and control groups.

The paired t value between the pre test and post test score of experimental group was 8.55. The calculated value of t (8.55) is more than the table value (2.462) at df (29) which is statistically significant at 0.01 level. This data shows that there is a significant change in pain perception of primigravida mothers after foot reflexology during the first stage of labour.

**5) The third objective was to associate the pain perception of the primigravida mothers with selected demographic & obstetrical variables:**

Chi-square test was used to associate the pre-test & post-test pain perception score with demographic variables like age group, education, occupation, age at marriage & child birth information and with obstetrical variable like gestational age.

In the control group, the study result showed that the pre-test pain perception score of respondents do not have association with demographic variables like age group, education, occupation, age at marriage and child birth information.

Regarding post test pain perception score, the respondents do not have an association with demographic variables like education, occupation and childbirth information but the post test pain perception score have an association with variables like age group & age at marriage.

Regarding pre-test and post-test pain perception scores in the experimental group, the respondents do not have an association with demographic variables.

Dealing with obstetrical variable like gestational age, the pre-test and post-test pain perception scores do not have an association both in the experimental & control groups.

## **SUMMARY:**

The analgesic effect of many non-pharmacological measures is comparable to or even superior to opioids that are administered parentally. Non-pharmacological measures are relatively inexpensive & safe with few adverse reactions & than can be used throughout labour (Simkin & Bolding, 2004)

Bearing this view in mind, the researcher started to conduct a study to assess the effectiveness of foot reflexology on pain perception during first stage of labour among primigravida mothers.

The objectives of the study were to;

- assess the pain perception of primigravida mothers during the first stage of labor before & after providing foot reflexology on experimental & control groups.
- determine the effectiveness of foot reflexology on pain perception of the primigravida mothers within the experimental group.
- associate the pain perception of the primigravida mothers with selected demographic & obstetrical variables.

Various published and non published literature were reviewed by the investigator that facilitate to construct methodology and to develop tools.

This study was constructed based on Modified Wiedenbach clinical nursing practice model (1970). The research design adopted by the investigator was quasi-experimental pre-test post-test control group design. Study was conducted in the labour room of KMCH, Coimbatore.

60 mothers were selected by using non probability purposive sampling technique, the mothers were divided into experimental & control groups. The tools used for data collections include demographic variables, obstetrical variables and the numerical pain intensity scale. The data was collected for a period of 6weeks. Descriptive and inferential statistics were used to analyze the collected data.

The result showed that the hypothesis was accepted i.e. there is a significant reduction in the pain perception of primigravida mothers after foot reflexology during the first stage of labour.

## **MAJOR FINDINGS OF THE STUDY:**

- ✚ According to pre-test pain perception score, majority 16 (53.33percent) had pain score 08-10 in experimental group and in control group, 17 (56.67percent) were scored up to 7.
- ✚ According to post-test pain perception score, most of them 27(90percent) were reported up to 7 in the experimental group whereas in control group, 20 (66.67percent) had a pain perception score 08-10.
- ✚ In the experimental group, the mean score of pre-test pain perception score was 7.7 and the mean score of post-test pain perception score was 6.
- ✚ The mean value of post-test score was lower than the pre-test score in experimental group. It indicates a change in pain perception after foot reflexology.
- ✚ The t value between the pre-test and post-test pain perception score in the experimental group was 8.55.
- ✚ The calculated t value 8.55 is more than the table value (2.462) at df 29. This shows that there is a significant change in pain perception after foot reflexology.
- ✚ In the experimental group, there was no association of pain perception with demographic & obstetrical variables.
- ✚ In the control group, association exists between pain perception and some demographic variables like age group & age at marriage.

## **CONCLUSION:**

The goal of labour support is to help the women achieve her self-imagined outcomes during this life changing event. Several factors must be carefully considered because the labouring women will remember her childbirth experience for the rest of her life. (Hodnett, 1996)

The labouring and birthing process is a life threading event for many women. Nurses need to be respectful, available, encouraging, supportive & professional in dealing with all women. Nursing management for labour & birth involves assessment, comfort measures, emotional supports, information & instruction, advocacy and support (Sauls, 2007).

Findings of the study concluded that foot reflexology reduced the pain perception among primigravida mothers and acts as an effective measure to comfort the mother. Application of pressure to specific areas aimed to restore energy to the body & improve the overall conditions (O'Marthona, 2007)

## **IMPLICATIONS:**

Nurse can incorporate foot reflexology as one of the complementary therapies to reduce the pain perception among primigravida mothers. The present study results have several implications on nursing practice, nursing education, nursing administration & nursing research.

### **Nursing practice:**

- Pain during child birth is intolerable as well as unique. It affects the mother physical and psychological status. This study implies the effectiveness of foot reflexology in reducing the labor pain perception.
- The study creates awareness about complementary therapies among health professionals in reducing the pain perception of mothers during labor.
- Nurses can be skilled in administering complementary therapies to make the mother comfort & ease her childbirth experience.
- Nurses can assess the perception of pain during labor by using numerical pain intensity scale.
- Complementary therapies can be applied not only to labor pain but also to all kinds of pain.

### **Nursing education:**

- Nurse educator can take initiative to update knowledge about complementary therapies among health professionals by means of demonstration and explanation.
- Nurse educator can create awareness about foot reflexology techniques by giving reference guide.
- Nurse educator can arrange in-service education about non pharmacological modalities for labor pain management.
- Nurse educator can motivate the nursing personnel and students to use foot reflexology as a non-pharmacological measure for pain management.

### **Nursing administration:**

- Nurse administrator can plan & organize seminars, workshop & conferences about “ease of childbirth” to health care professionals.
- Nurse administrator should allocate appropriate resources for further studies.
- Nurse administrator can formulate policies to incorporate reflexology technique in the nursing intervention.
- Nurse administrator should encourage the health care personnel to participate in reflexology specialization courses.



**Nursing research:**

- This study implies to practice evidence based findings.
- This study provides a foundation for further research.
- This study favors for updating the knowledge & utilization of resources in the field of nursing practice.

**LIMITATIONS:**

- ☞ The study was limited to only small groups.
- ☞ The study was limited to normal full term mothers.
- ☞ The study was limited to primigravida mothers.
- ☞ The study was limited only to the active phase of labor.
- ☞ The study was limited to particular settings.

**RECOMMENDATIONS:**

- ☞ A similar study can be conducted with large number of samples.
- ☞ A study can be conducted at various settings.
- ☞ A study can be conducted to compare various complementary therapies to reduce pain perception during the first stage of labor.
- ☞ A study can be conducted to assess the effectiveness of foot reflexology on the duration of labor.
- ☞ A comparative study can be conducted to assess the effectiveness of complementary therapies on pain perception between primigravida & multigravida mothers during first stage of labor.
- ☞ Randomization can be used to select the samples & the study can be conducted as a true experimental study.
- ☞ A study can be conducted to assess the knowledge, attitude & practice of complementary therapies among nursing personnel.
- ☞ A study can be conducted to assess the effect of video assisted teaching about complementary therapies among pregnant women to reduce the pain perception during first stage of labor.

## ABSTRACT

The present study was conducted to assess the effectiveness of foot reflexology on pain perception among primigravida mothers during first stage of labour. The study was undertaken in the year 2011-2012 in partial fulfilment of requirement for the **MASTER DEGREE OF SCIENCE IN NURSING AT KMCH COLLEGE OF NURSING**, Coimbatore which is affiliated to **THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI**.

**Objectives:** The objectives are as follows: to assess the pain perception of primigravida mothers during the first stage of labour before & after providing foot reflexology on experimental & control group, to determine the effectiveness of foot reflexology on pain perception of the primigravida mothers within the experimental group & to associate the pain perception of the primigravida mothers with selected demographic variables. **Design:** In Quasi-experimental pre-test post-test control group design. **Setting:** labour room of KMCH, Coimbatore. **Sample:** the sample size was 60, in which 30 were experimental and the remaining 30 were control group. **Sampling technique:** Non probability purposive sampling technique. **Conceptual framework:** Ernestine wiedenbach's helping art of clinical nursing theory (1970). **Data collection:** Numerical pain intensity scale was used to assess the pain perception of mothers during the active phase of labour. **Intervention:** After 3cm of cervical dilatation, when the contraction starts, pre-test pain assessment was obtained. After that, foot reflexology was applied for the five succeeding contractions to the experimental group. Post-test pain score was obtained at the next contraction following intervention. **Result:** The mean score of pre-test pain perception (7.7) was higher than the post test score (6) in the experimental group. This shows that there is significant reduction in pain perception after foot reflexology. This is proved by t test 8.55(P<0.01). It shows the foot reflexology is an effective measure in reducing the pain perception of mothers during first stage of labour. **Conclusion:** Foot reflexology is a very simple and practicable method of non pharmacological pain management measures among the primigravida mothers.

## REFERENCES

### BOOKS:

1. Adrienne,B.,Lieberman.(1992). Easing Labour Pain. (2<sup>nd</sup> ed.). Boston: Harvard Common Press.
2. Arenson,J., & Drake, P.P (2007). Maternal and Newborn Health. (1<sup>st</sup> ed.). Sudbury: Jones & Bartlett publishers.
3. Barbara Harper. (2005). Gentle Birth Choices. (2<sup>nd</sup> ed.). Vermont: Healing Arts Press.
4. Basavanthappa, B. T. (2006). Midwifery and Reproductive Health Nursing. (1<sup>st</sup> ed.) Bangalore: Jay Pee Brothers.
5. Basbarm, H., Fields, (1984). Textbook of Pain. (4<sup>th</sup> ed.). Edinburgh: Churchill Livingstone.
6. Bennett, V. R., & Brown, L. K. (2003). Myles Textbook for Midwives. (15<sup>th</sup> ed.). Philadelphia: ELBS Churchill Livingstone.
7. Burns, S. (1993). The Practice of Nursing Research. (2<sup>nd</sup> ed). Philadelphia: W.B.Saunders Company.
8. Burroughs, A., & Gloria, L.(2001). Maternity Nursing- An Introductory Text. ( 8<sup>th</sup> ed.). Philadelphia: W.B.Saunders Company.
9. David,F.,Vennell's. (2003). Reflexology for Beginners. (1<sup>st</sup> ed.). USA: Llewellyn publications.
10. Dickson, E.J., Silverman.B.L., Kaplan.J.A. (1998). Maternal Infant Nursing Care. (3<sup>rd</sup> ed.). Missouri: Mosby.
11. Dutta, D.C. (2006). Textbook of Obstetrics including Perinatology and Contraception. (6<sup>th</sup> ed.). Calcutta: New Central Book Agency (P) Ltd.
12. Francine, H., Sharron Smith Humenick. (2000). Childbirth Education. (2<sup>nd</sup> ed.). Philadelphia: Saunders.
13. Gary Cunningham,F., Kenneth,J., Steven,L., John,C., Dwight,J., Catherine,Y. (2005). Williams Obstetrics. (22<sup>nd</sup> ed.). USA: Mcgraw-Hill Companies.
14. Grantly Dickread. (2004). Childbirth Without Fear. (1<sup>st</sup> ed.). London: Pinter & Martin Ltd.
15. Gupta,S.P. (2000). Statistical Method. (8<sup>th</sup> ed.). New Delhi: Sultan Chans & Sons.
16. Judith Pence. (1997). Midwifery & Childbirth. (1<sup>st</sup> ed.). Philadelphia: Temple University Press.
17. Klossner,N.J., & Hatfield,N. (2005). Introductory Maternity Nursing. (1<sup>st</sup> ed.). New Delhi: Pearson Education.
18. Kothari, C.R. (2000). Research Methodology. (2<sup>nd</sup> ed.). New Delhi: Wishwa Prakasan.

19. Levine ,M. (1973). Introduction to clinical nursing. (3<sup>rd</sup> ed.). Philadelphia : FA Davis.
20. Lowdermilk, D. L., & Perry, S. E. (2006). Maternity Nursing. (5<sup>th</sup> ed.). Canada: Mosby.
21. Padubidri, V., & Anand, E. (2006). Textbook of Obstetrics. ( 1<sup>st</sup> ed.). New Delhi: B.I.Publication.
22. Pilliteri, A. (2007). Maternity and Child Health Nursing. (5<sup>th</sup>ed.). New York: Lippincott Company.
23. Polit, D. F., & Hungler, B. P. (1999). Nursing Research Principles and Methods. (5<sup>th</sup> ed.). Philadelphia: Lippincott Company.
24. Raile, M. A., & Marriner, A. T. (1997). Nursing Theory Utilization and Application. (6<sup>th</sup> ed.). Philadelphia: Mosby.
25. Reeder, J. S., Martin., & Koniak, G. D. (1997). Maternity Nursing: Family, New Born and Women's Health Care. (17<sup>th</sup> ed.). Philadelphia: Lippincott Company.
26. Sanjay Datta. (2001). ChildBirth & Pain Relief. (1<sup>st</sup> ed.). Jew Jessy: Next Decade Inc.
27. Susan, A., Orshan. (2008). Maternity, Newborn & Women's Health Nursing. (1<sup>st</sup> ed.). Philadelphia: Lippincott Publishers.
28. Sweet, B. R., & Tiwan, D. (2002). Maye's Midwifery :A Textbook for Midwives. ( 13<sup>th</sup> ed.). London: Bailliere Tindall.
29. Synthia Andrews., & Bobbi Dempsey. (2007). Acupressure & Reflexology for Dummies. (1<sup>st</sup> ed.). Indiana: Wiley Publishing.
30. Tina Parsons. (2007). An Holistic Guide To Reflexology. (1<sup>st</sup> ed.). China: C & C Offset Printing Co.Ltd.
31. Tomy, A. M., & Alligood, R. M. (2002). Nursing Theories and Their Work. (3<sup>rd</sup> ed.). St.Louis: Mosby.
32. Varney, H. (1999). Nurse Midwifery. (2<sup>nd</sup> ed.). London: Jones and Bariett Company.
33. Verena Schmid. (2011). Birth Pain. (2<sup>nd</sup> ed.). Great Britain: Fresh heart Publishers.
34. Wongs, D. L., Perry, S. E., Marilyn, J., Hockenberry., Lowdermilk, D. L., Wilson, D. (2006). Maternal Infant Nursing Care. (4<sup>th</sup> ed.). Missouri: Mosby.

## **JOURNALS:**

35. Bergh,I.H., Stener victorin,E.,Wallin,G.,Martensson,L.(2011). Comparison of the pain-matcher & the visual analogue scale for assessment of labour pain. *Journal of Midwifery*, 27(1), 134-139.
36. Fairlie,F.M., Marshall,L., Walker, J.J. (1999). Intramuscular opioids for maternal pain relief in labour. *British Journal of Obstetrics and Gynaecology*, 106(11), 1181-1187. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
37. Fausto, J., Molina., Pedro alvare, Z., Elsa lopez., Claudia pires. (1997). Pain in the first stage of labour: Relationship with patient's position of pain and symptom management. *Journal of pain & symptom management*, 13(2), 98-103.
38. Ferne Braverman. (2011). Labour Pain Management. *Essentials of Pain Management*. 6(3). 501-512.
39. Gowri-modha., Jane Mcgrath. (1989). Effects of reflexology on labour outcome. *Nursing Times*, 15(3).
40. Here,K.et.al. (2006). Pain assessment in the non verbal patient: Position statement with clinical practice recommendations. *Pain Management Nursing official journal of the American Society of Pain Management Nurses*, 12(2), 95-111.
41. Hielmstedt,A., Shenoy.S.T., Stener victorin.E. (2010). Effect of Pressure at SP6 point during the active phase of labour: Randomized control trial. *Journal of Alternative and Complementary Medicine*, November 89(11), 1453-1459.
42. Hodnett,E. (1996). Nursing support of the labouring women. *Journal of Obstetrics & Gynaecological Neonatal Nursing*, 25(3), 257 - 264.
43. Kathryn, D. (1999). Obstetrical and postpartum benefits of continuous support during child birth. *Journal of Women's Health and Gender Based Medicine*, 8(10), 1257-1264. Retrieved from <http://www.liebertonline.com>.
44. Lee,M.K., Chang, S.B., Kong,D.H.(2004). Effect of SP6 pressure on labour pain and length of delivery time in women during labour. *Journal of Alternative and Complementary Medicine*, December 10(6), 959-965. Retrieved from <http://lib.bioinfo.pl/paper>.
45. Lowe, N.K. (2002). Nature of labour pain. *American journal of Obstetrics and Gynaecology*, 186 (5), 16-24.
46. Maryam Kashanian., Shadab Shahali. (2009). Effect of Pressure at the SP6 point on the process of active phase of labour. *Journal of Maternal-Fetal and Neonatal Medicine*, 15(4),638-641.

47. Michel tournaire., & Anne theau-yonneau. (2007). Complementary and alternative approaches to pain relief during labour. Evidence based complementary and alternative medicine journal, 4(4), 409-417
48. Nancy,k., & Lowe. (2006). Pain & Discomforts of Labour & Birth. Journal of Obstetrics, Gynecological & Neonatal Nursing, 25(1), 82-92.
49. Nancy,K., Lowe. (2002). The Nature of Labour Pain. American Journal of Obstetrics & Gynaecology, 186(5), 16-24.
50. O'Marthuna, D.P. (2007). Reflexology for relaxation. Alternative therapies in women's health, 9(3), 17-21.
51. Pam Duchene. (2004). Effect of Biofeedback on Child birth pain. Journal of Pain and Symptom Management, 11(3), 117-123.
52. Ramnero, A., & Hanson, V. (2002). Acupuncture treatment during labour. British Journal of Obstetrics and Gynaecology, 109(6), 637-644.
53. Sauls,D. (2007). Nurses attitude toward provision of care and related health outcomes. Nursing Research, 56(2), 117-123.
54. Simkin,P., Bolding,A. (2004). Update on non-pharmacological approaches to relieve labour pain & prevent sufferings. Journal of Midwifery Women's Health, 49(6),489-504.
55. Songporn chuntharapat., Wongchan petpichetchian. (2008). Yoga during pregnancy: Effects on maternal comfort labour pain and birth outcomes. Complementary Therapies in Clinical Practice, 14(2), 105-115.
56. Sylvia, T.Brown., Carol douglas. (2001). Women's evaluation of intrapartum non pharmacological pain relief strategies used during labour. Journal of Perinatal Education, 10(3), 1-8.
57. Taavani, S., Abdoalahian, S., Hajhani, H., Novsani, L. (2011). Effect of birth ball usage on pain in the active phase of labour. Journal of Midwifery and Women's Health, 56(2), 137-140.
58. Vande vusse, L. (1999). The essential forces of labour revisited: 13Ps reported in women's stories. MCN American Journal of Maternal & Child Nursing, 24(4), 176-184.
59. Waters, B.L., & Raisiler. J. (2003). Ice massage for reduction of labour pain. Journal of Midwifery and Women's Health, 48(5), 317-321.

## ONLINE JOURNALS:

60. Albers, L. L. (2007). The evidence for physiological management of the active phase of the first stage of labour. *Journal of Midwifery and Women's health*, 52(3), 207-215. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov).
61. Cyna, A.M., & Mc Auliffe. (2004). Hypnosis for pain relief in labour and child birth. *British Journal of Anaesthesiology*, 93(4), 505-511. Retrieved from <http://bjaoxfordjournals.org>
62. Dowswell, T., Bedwell, C., Lavender, T., Neilson, J.P. (2009). TENS for pain relief in labour. *Cochrane database system review*, 15(2), CD007214. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
63. Gabriella bering liisberg.(1989). Easier births using reflexology. *Universal college of reflexology report*, No.3. Retrieved from [www.universalreflex.com](http://www.universalreflex.com).
64. Green, J.M. (1993). Expectations and Experiences of pain in labour: findings from a large prospective study. *ISI Journal Citation Report*, 20(2), 65-72. Retrieved from <http://onlinelibrary.wiley.com>.
65. Jian mei qui., Xiao-xi yong., Zi-huan jin., Shu-xiong Ma. (2011). Effect of Acupoint SP6 moxibustion on the first stage of labour and uterine contractive pain in primipara. *Chinese Journal of Integrative Medicine*, 17(6), 464-466. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
66. Khoda karami, N., & Safarzadeh.(2006). Effect of massage therapy on severity of pain and outcome of labour in primipara. *Iranian Journal of Nursing & Midwifery Research*,12(1). Retrieved from [www.ijnmr.muj.ac.ir](http://www.ijnmr.muj.ac.ir)
67. Mahboubeh Valiani., Elaheh Shiran., Maryam Kianpour., Marzieh Hasanpour. (2010). Reviewing the effect of reflexology on the pain and certain features and outcomes of the labour. *Iranian Journal of Nursing & Midwifery Research*, 19(9), 302-310. Retrieved from [www.ijnmr.muj.ac.ir](http://www.ijnmr.muj.ac.ir).
68. Prasertcharvensuk,W., Thinkhamrop,J. (2004). Non pharmacological labour pain relief. *Journal of Medical Association*, 87(3), 203-206. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov).
69. Ranta,P., Spalding,M., Kangas- Saarela., Jokela,R., Hollmen,A., Jouppila,R. (1995). Maternal expectations & experiences of labour pain. *International Journal of Anaesthesiology & Intensive care, Pain &Emergency Management*, 39(1), 60-66. Retrieved from <http://onlinelibrary.wiley.com>.
70. Smith,C.A., Collins,C.T., Crowther,C.A. (2011). Aromatherapy for pain management in labour. *Cochrane Database System*, 6(7). Retrieved from <http://summaries.cochrane.org>
71. Terenius,L. (1981). Endorphins and Pain. *Nordic Journal of Psychiatry*, 8, 162-177. Retrieved from <http://informahealthcare.com>.

72. Yildirim, G., Shin, N.H. (2004). Effect of breathing and skin stimulation techniques on labour pain perception. *Journal of Pain Research and Management*, 9(4), 183-187. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov).
73. Yu-hsiang liu., Mei-yuch chang., Chung-hey chan. (2010). Effects of music therapy on labour pain and anxiety. *Journal of Clinical Nursing*, 19(7), 1065-1072. Retrieved from [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov).

**REPORTS:**

74. Davim,K.M., Torres,G.V., Dantas,J. (2009). Effectiveness of Non-pharmacological strategies in relieving labour pain. *Revista da Escola De Enfermagem Da USP*, 43(2), 438-435.
75. Sorrig., & Kirsten. (1995). Easier birth using reflexology. Danish reflexologist association research report committee, July15.
76. Zhang changlong. (2001). Application of foot reflexology in relieving labour pains. China reflexology centre researches on acupuncture.



## APPENDIX-A

### SECTION – A

- 1) Sample number :.....
  
- 2) Age : .....
  
- 3) Education : .....
  
- 4) Occupation : .....
  
- 5) Religion :.....
  
- 6) Age at marriage : .....
  
- 7) Childbirth information obtained from .....

**SECTION – B**

**OBSTETRICAL INFORMATION**

LMP:

EDD:

Obstetrical score:

Gestational age:

Date & time of onset of labour:

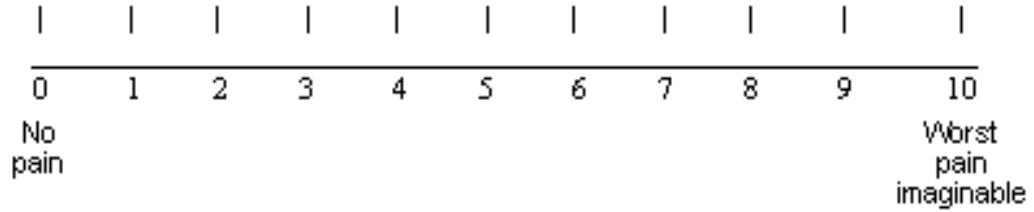


## SECTION – C

### NUMERICAL PAIN INTENSITY SCALE

**Instruction:**

The numerical pain intensity scale is from 0 – 10 range. It is used to assess the pain perception of women in true labour. The woman who is in true labour pain is asked to choose the appropriate pain perception level in this scale before and after each episode of intervention.



0	No pain	1-2	Mild pain
3-4	Moderate pain	5-6	Severe pain
7-8	Very severe pain		

## APPENDIX-B

### DETAILS OF INTERVENTION

The primary purpose of foot reflexology is to reduce the pain perception by stimulating the brain to release endorphins and other chemicals to reduce pain.

### PHASES OF INTERVENTION:

#### 1) Pre interventional phase:

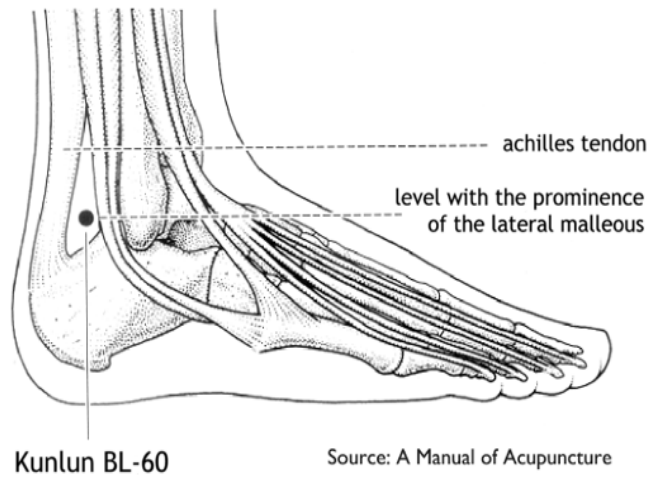
- \* Explain the procedure to the mother.
- \* Get oral consent from the mother.
- \* Place the mother in left lateral position.
- \* Advise the mother to straighten the left leg and slightly bend the right leg.
- \* Expose the treatment area (left leg).

#### 2) Interventional phase:

- \* Two points are used in this phase. The points are SP6 and BL60.
- \* SP6 point is located by using four of the investigator's finger widths above the tip of medial malleolus



- \* BL 60 point is found in a depression midway between the tip of the lateral malleolus and the outer side of the Achilles tendon.



- \* These two points will be used simultaneously.
- \* Apply 60 firm pressure over these two points by using thumb in an inward & outward direction. Without removing the thumb, apply for one minute.

### 3) Post interventional phase:

- \* The mother is allowed to adapt any position

**APPENDIX-E**  
**REQUISITION FOR CONTENT VALIDITY**

From

Ms.Mohana.M  
II year M.Sc Nursing,  
KMCH College of Nursing,  
Coimbatore – 641 014.

To

Through: The principal  
Sub : Content validity

Respected Madam,

I wish to undertake a study titled “ **EFFECTIVENESS OF FOOT REFLEXOLOGY ON PAIN PERCEPTION DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS AT KOVAI MEDICAL CENTRE & HOSPITAL, COIMBATORE**”. It will be of immense help to me if you could peruse the proposal and the research tool. Herewith I am enclosing the copy to the same.

Kindly do the needful.

Thanking you.

Place: Coimbatore

yours faithfully

Date:

**APPENDIX-G**  
**LIST OF EXPERTS**

**1) Dr.R.Renuka devi, M.D(O & G),DNB.,**

Consultant Obstetrician & Gynecologist,  
Kovai Medical Centre & Hospital,  
Coimbatore – 641 014.

**2) Prof.Mrs.Latha M.Sc(N)**

Principal,  
RVS college of Nursing,  
Kannampalayam,  
Coimbatore-641402.

**3) Mrs.Jesi Rani M.Sc(N)**

Associate Professor,  
HOD of OBG Department,  
RVS College of Nursing,  
Sulur, Coimbatore -641402.

**4) Prof.Mrs.S.Renuka M.sc(N)**

HOD of OBG Department,  
KMCH College of Nursing,  
Coimbatore.

**5) Mrs.P.Padma M.Sc(N)**

Assistant Professor,  
KMCH College of Nursing,  
Coimbatore.