

**EFFECTIVENESS OF AMBULATION VERSUS  
SEMI FOWLER'S POSITION ON LABOR  
OUTCOME AMONG PARTURIENT  
MOTHERS AT SELECTED  
HOSPITAL, CHENNAI,  
2015.**

DISSERTATION SUBMITTED TO  
**THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY  
CHENNAI**  
IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF  
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**External examiner:**

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## LIST OF ABBREVIATIONS

ANOVA	-	Analysis of Variance
APGAR	-	Appearance, Pulse, Grimace, Activity, Respiration
BMI	-	Body Mass Index
BPP	-	Bio Physical Profile/ Parameters
CAM	-	Complementary and Alternative Medicine
CINAHL	-	Cumulative Index to Nursing and Allied Health
CNE	-	Continuing Nursing Education
EBP	-	Evidence Based Practice
ESI	-	Employee State Insurance
FHR	-	Fetal Heart Rate
FM	-	Frequency Modulation
HOD	-	Head of the Department
ICCR	-	International Centre for Collaborative Research
IERB	-	Institutional Ethical Review Board
JON	-	Journal Of Nursing
LSCS	-	Lower Segmental Caesarean Section
MEDLINE	-	Medical Literature Analysis and Retrieval
N	-	Number of sample
No.	-	Number
NICE	-	National Institute for Health and Clinical Excellence
NICU	-	Neonatal Intensive Care Unit
OACN	-	Omayal Achi College of Nursing
OACHC	-	Omayal Achi Community Health Centre
PHC	-	Primary Health Centre
RCOM	-	Royal College Of Midwives
SD	-	Standard Deviation
SISH	-	Sir Ivan Stedeford Hospital
SPSS	-	Statistical Package for Social Science
TNAI	-	Trained Nurses Association of India
US	-	United States
WHO	-	World Health Organization

## LIST OF SYMBOLS

F	-	ANOVA/ Fishers exact score
$\chi^2$	-	Chi square
°	-	Degree
=	-	Equals To
I	-	First
<	-	Less than
>	-	More than
%	-	Percentage
+/-	-	Plus or minus
II	-	Second
p	-	Significance
III	-	Third

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# *ABSTRACT*

## *Effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers.*

### **ABSTRACT:**

**Aim & objective:** To assess the effectiveness of ambulation (group A) versus semi fowler's position (group B) on labor outcome among parturient mothers. **Methodology:** True experimental post test only design was adopted to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers at Sir Ivan Stedeford Hospital, Chennai. 60 parturient mothers who satisfied the inclusion criteria were selected by simple random sampling technique. The intervention ambulation versus semi fowler's position were given. Post test level of maternal outcome was assessed by using modified World Health Organization (WHO) Partograph and neonatal outcome was retrieved from neonatal records. **Results:** The findings of the study revealed that regarding the duration of labor in hours, the total duration was 13 hrs in group A and 17 hrs in group B and the calculated 't' value -3.59 which was greater than the table value and indicated that there was a high statistical significant difference in total duration of labor at  $p < 0.001$  level. With regard to intensity of uterine contractions, mild contractions lasted for 2.2 hrs in group A and 2.6 hrs in group B, moderate contractions lasted for 3 hrs in group A and 3.2 hrs in group B, severe contractions lasted for 1.8 hrs in group A and 1.4 hrs in group B. With regard to estimated blood loss, in group A the average amount of blood loss was 469 ml whereas in group B it was 475 ml. It shows that ambulation reduces the duration of labor but no significant differences were present in labor outcome with regard to rupture of membrane, rate of cervical dilation, mode of delivery, estimated blood loss, APGAR score and admission to NICU.

**Conclusion:** The findings of the study revealed that the ambulation was effective in improving the labor outcome when compare with semi fowler's position

**Key words:** *maternal positions, labor, ambulation, semi fowler's position, labor outcome, maternal outcome, neonatal outcome, mobility, birthing, parturition.*

### **INTRODUCTION**

Pregnancy is the period from conception to the birth of the baby during which the women undergoes many bodily changes to accommodate the growing fetus. Labor is a process that invites women to experience the unseen force behind women's life. Labor is a physiological event involving a sequential, integrated set of changes within the myometrium, decidua, and cervix that occur gradually. Biochemical and connective tissue changes in the uterine cervix appear to precede uterine contractions, cervical dilation, cervical effacement, descend of the fetal head and rupture of the membrane that are uncomfortable and painful for the women. These discomforts can be minimized using various birthing positions. Because midwives have an important role in helping women to find and choose comfortable positions (Cotton 2010 & Walsh 2011) to pace the labor,

encourage comfort and relaxation. The laboring women find upright positions (sitting, standing, walking, kneeling, squatting, hand-knee) are most comfortable and help labor to progress smoothly. So the nurse investigator felt the need to utilize the ambulation and semi fowler's position during I stage of labor especially to primi mothers who have less knowledge regarding these birth positions and experience more difficult during labor and also to compare the effectiveness of these positions in enhancing the labor outcome.

### **Objective**

To assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers.

### **Null hypothesis**

**NH<sub>1</sub>:** There is no significant difference in labor outcome between group A and group B at the level of  $P < 0.05$ .

### **METHODOLOGY**

True experimental post test only design was adopted for the study to assess the effectiveness of ambulation versus semi fowler's position on labor outcome. The study was conducted at Sir Ivan Stedeford Hospital, Chennai. The sample consisted of 60 Parturient mothers who fulfils the inclusion criteria were selected through Simple random sampling technique. The ambulation was given to the group A parturient mothers for 20 minutes with a period of 10 minutes rest in left lateral position and continued the same for 6 times till full cervical dilatation which was assessed using ambulation chart. For group B parturient mothers, semi fowler's position was given for 20 minutes with a period of 10 minutes rest in left lateral position and continued the same for 6 times till full cervical dilatation which was assessed using semi fowler's chart. Post test level of maternal outcome was assessed using modified WHO Partograph and neonatal outcome was retrieved from neonatal records. Both descriptive and inferential statistics were used for data analysis.

### **RESULTS**

The findings of the study revealed that regarding duration of labor in hours, the total duration was 13 hrs in group A and 17 hrs in group B and the calculated 't' value -3.59 which was greater than the table value and indicated that there was a high statistical significant difference in total duration of labor at  $p < 0.001$  level.

With regard to intensity of uterine contractions, mild contractions lasted for 2.2 hrs in group A and 2.6 hrs in group B, moderate contractions lasted for 3 hrs in group A and 3.2 hrs in group B, severe contractions lasted for 1.8 hrs in group A and 1.4 hrs in group B. With regard to estimated blood loss, in group A the average amount of blood loss was 469 ml whereas in group B it was 475 ml. It shows that ambulation reduces the duration of labor, but no significant differences were present in labor outcome with regard to rupture of membrane, rate of cervical dilation, mode of delivery, estimated blood loss, APGAR score and admission to NICU.

## **DISCUSSION**

The interpretation of the current study showed that there was a significant difference in total duration of labor after administration of the intervention. When compared the groups, based on mean value the total duration of labor was less, more number of parturient mothers had cervical dilatation rate at 1cm/hr, intensity of uterine contractions had good progress, less number of forceps delivery, blood loss was less in ambulation than semi fowler's position. The study concluded that ambulation was effective in enhancing the labor outcome.

## **IMPLICATIONS**

The Nurse midwives have a vital role to play in improving the labor outcome. This can be facilitated by encouraging the women to adopt an ambulation during first stage of labor. The nurse educator has the role in incorporating the impact of various birthing positions into the nursing curriculum for improving labor process. The nurse administrator has an important role in formulating policies and implementing the ambulation protocol in maternity units. The Nurse Researcher implies on utilization of ambulation protocol in clinical setting in improving the labor outcome and encourage further studies.

## **CONCLUSION**

The study findings concluded that ambulation was effective during first stage of labor in enhancing the labor outcome when compare with semi fowler's position among parturient mothers.

# *CHAPTER-1*

## *INTRODUCTION*

## INTRODUCTION

Pregnancy and childbirth are tremendously powerful stages of development that bring a couple into the family, women to motherhood and a beautiful child into the world. Every woman giving birth is an embellishment to her wondrous journey. There is no greater gift for a mother than being healthy during labor and having a healthy newborn.

Labor being the end of the long expectation of pregnancy, marks the beginning of the extra uterine life of the newborn. Labor process starts with the onset of regular uterine contractions associated with dilatation of the cervix and descent of the presenting part. Laboring woman experiences various degrees of discomfort which is one of the biggest obstacles they don't want to experience. To mark a good beginning, the process and experience of labor should not be a misery for the mother. So they demand for healthier labor, with less discomfort.

Comfort measures such as relaxation, breathing techniques, massage, hydro therapy, hot/ cold therapy, music therapy, guided imagery, acupressure, aroma therapy, and positioning/ movement are some self help comfort measures women may initiate during labor to achieve an effective coping level for their labor experience, to relieve pain and to promote comfort.

Women instinctively use a variety of positions and movements to cope with the discomfort during first stage of labor. These include walking, leaning forward, gentle lunging, four-point kneeling (kneeling on hands and feet), rocking and swaying. Labor positions can be used to change the pace of labor, encourage comfort and relaxation and help labor progress. Laboring women tend to find upright positions most comfortable such as sitting, standing, and walking. The act of changing positions may give women a sense of control by providing something active they can do to relieve the sense of feeling overwhelmed during labor.

## **1.1 BACKGROUND OF THE STUDY**

Throughout the ages and across human cultures women have preferred to give birth with their bodies vertical in sitting or squatting positions and they generally avoided lying flat on their back positions. In today's standards laboring women are confined to supine-lithotomy position, for the convenience of the health personnel, whereas it is not ideal for the birthing mother to push the baby uphill against the gravity.

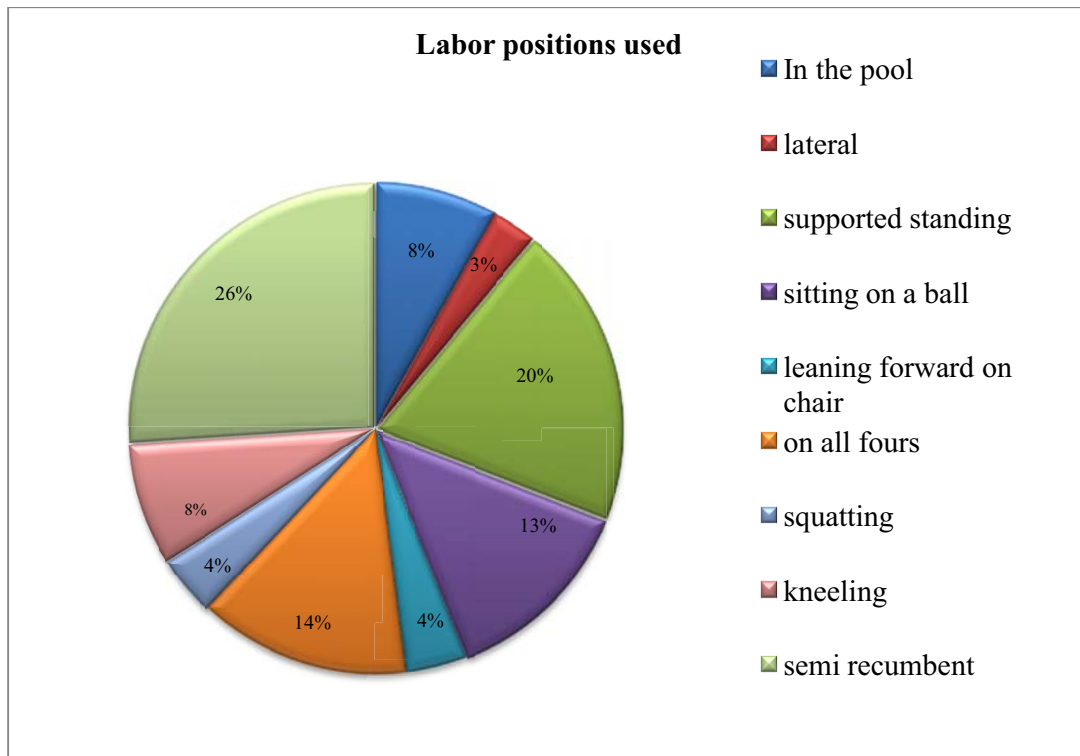
Women in both developed and developing countries are giving birth in health care facilities, usually in bed in recumbent position. A woman's position during labor has an important cultural imprint: in societies not influenced by western culture, women progress through the first stage of labor in an upright position and change to other positions according to the need.

Currently the majority of women in high income as well as some low income countries adopt western birth culture to give birth their babies in non- upright positions (De Jonge. et al., 2012). A survey from United Kingdom concluded that more than 50% of normal births women were in semi recumbent position. (Royal College of Midwives (RCOM), 2010).

A recent survey from Netherland answered by 1154 women reported that 58.9% preferred supine position, 19.6% preferred non-supine position and 21.5% had no distinct preferences in the position during first stage of labor. The labor progression and the outcome of labor was varied based upon the position they adopted during labor. (Nieu-wenhuijze, 2012).

A survey was conducted by RCOM in the year 2010 in 24 units across England to identify what preferable positions are being used during labor and birth process in order to improve the labor outcome.





**Fig. 1.1.1: Various labor positions used in England**

RCOM-2010

United States (US) hospitals practices are beginning to come in line with research evidence regarding the importance of mobility during first stage of labor, with 24% of mothers reporting walking around or moving once they were admitted to the hospital and regular contractions had begun. For the majority of US women giving birth in hospitals, the most used birth positions for second stage of labor, the birth of the baby, remain lithotomy and semi-sitting also known as the C-position which are used in 65.9% of vaginal births. More than half (57%) of women who gave birth vaginally reported that they lay on their backs while pushing their baby out and giving birth. Slightly more than one-third (35%) indicated they gave birth in a propped up (semi-sitting) position, while the remainder gave birth either on their side (4%), upright (squatting or sitting) (3%) or in a hands-and-knees position (1%). 2010-Report of the second national US survey of women's child bearing experience.

In India, the use of ambulation rate during labor is 25% only. But use of upright positions and ambulation gives 95% effective labor outcome than other positions. The

semi sitting position increases pressure in the pelvic cavity with minimal muscular effort so that the birth canal will open 20%-30% more in this position than in any other position. (Midirs & NHS centre for reviews and dissemination- 2014).

Ineffective birthing positions like lithotomy and supine can compress major blood vessels which interferes with circulation and lowers maternal blood pressure, which can than lower fetal transcutaneous oxygen saturation as much as 91%, including cord compression which may lead to fetal distress, needs continuous or internal fetal monitoring, increased risk of shoulder dystocia/problem with fetal presentation or a prolonged pushing phase. (The Journal of Perinatal Education Lamaze International, 2013).

Hence, the main focus of this study was to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers which would help the parturient mothers to have an effective labor outcome (maternal and fetal outcome).

## **1.2 NEED FOR THE STUDY**

Historically, the ability to stand, sit, walk, and use vertical positions during labor and birth has been well documented. An upright positions has been recorded more than any other positions for labor and birth. The National Institute for Health and Clinical Excellence (NICE) recommends that women be encouraged to avoid using supine position during labor and birth. (Cutler, 2012).

The WHO in the year of 2013 recommends mobilization and adoption of erect posture during first stage, since freedom to move enhances humanization of care and reduces implementation of superfluous technological intervention.

Position changes during first and second stage of labor may provide many benefits for the mother including pain relief, maximizing blood flow, decreasing length of labor, stronger uterine contractions, allow normal fetal descent and enhancing satisfaction with their birth experience. Conversely lack of movement during labor has been associated with longer first and second stage of labor (Priddis, Dahle and Schmied 2012).

From Japan, a recently published retrospective cohort study, comparing birth outcome in birth centers and home births reported that less than 15% of the 5474 included women were in supine position during first stage of labor (Kataoka et.al., 2013).

A pilot study was conducted at two Canadian hospitals, where women in labor were assigned randomly to a regular labor room or to an ambient room. In the ambient room the standard hospital labor bed was removed and additional equipment was added to promote relaxation, mobility, and calm atmosphere. The evaluation from women assigned to ambient room were positive they spent 50% or less time laboring in bed. (Applebaum, 2013).

In the year 2011, 5546 total deliveries have been conducted in Government Lady Goschen Hospital, Mangalore. Out of which 1587 were primi mothers who followed ambulation underwent normal vaginal delivery. On an average 132 primi mothers delivered in the hospital bed out of which the statistical data revealed that 45 mothers labor was prolonged. (Enkin, M., Kierse, M., Neilson, J., et al. 2011).

Although hospital protocol provides instruction for position change, conflict arise for those policies that demands the use of technology, such as continuous fetal monitoring and intravenous infusions that restricts mobility (Hollins Martin & Martin, 2013).

A barrier to promoting mobility in labor is the lack of the understanding of the physiologic process of birth by both women and their care providers. In order to achieve optimal care in labor, the barriers to receiving and providing that care need to be overcome. The term “optimal care” originates from the concept of optimality in maternity care derived from the American College of Nurse Midwives (ACNM). Freedom of movement is one practice in achieving optimal care in labor. (Goer & Romano, 2012).

Some care models and birth settings use mobility more often than others. While there is evidence that walking and upright positions reduce the duration of the first stage of labor, there is a need for better-quality studies in order to demonstrate the significance to providers and direct them on more precise recommendations for ambulation and movement. (Priddis, Dahlen, & Schmeid, 2012)

Unfortunately, in developed countries the hospital admission of laboring women leads obstetrical practice to restrain spontaneous and instinctive attitude and to focus strictly on intrapartum fetal well being and maternal co-morbidities. Women in the developing countries with meagre health facilities usually lie in bed during the first stage of labor. Lying on the back (supine) puts the weight of the pregnant uterus on abdominal blood vessels and contractions may be less strong than when upright.

Midwives generally encourage laboring women to be mobile as long as possible and to adopt whatever position is most comfortable, however, there are indications and contraindications for the use of certain positions during the course of labor. Health professionals working in obstetric care need to be aware of the evidence based practice regarding maternal positions in labor to enable women to make informed choices. Moving about during labor and maintaining upright posture is usually more comfortable and can help labor progress by the simple effects of gravity and the changing shape of the pelvis.

Healthy relaxed, homely atmosphere can be created by various upright positions (ambulation and semi fowler's position) which helped the women to undergo the physiological changes without discomfort and enhance effective labor outcome. When the mother is offered with help to have this outcome, her natural process of labor becomes fruitful. To have this fruitful experience, the midwife should provide skillful maternity care right from the I stage of labor. Hence the investigator selected the study to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers.

### **1.3 STATEMENT OF THE PROBLEM**

A true experimental study to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers at selected hospital, Chennai.

## **1.4 OBJECTIVES**

1. To assess the labor outcome among parturient mothers in group A (Ambulation) and group B (Semi fowler's position).
2. To assess the effectiveness of group A versus group B on labor outcome among parturient mothers.
3. To associate the selected demographic variables with labor outcome among parturient mothers in group A and group B.

## **1.5 OPERATIONAL DEFINITION**

### **1.5.1 Effectiveness**

Refers to the outcome of ambulation versus semi fowler's position during first stage of labor. The maternal outcome was assessed using modified WHO partograph and neonatal outcome was retrieved from neonatal record.

### **1.5.2 Ambulation**

Encourage the parturient mother to walk for 20 minutes with a period of 10 minutes rest in left lateral position and continue this for 6 times till full cervical dilatation which was assessed using ambulation chart.

### **1.5.3 Semi fowler's position**

Encourage the parturient mother to be in semi sitting position (head end elevated to 30°-45° angle) for 20 minutes with a period of 10 minutes rest in left lateral position and continue this for 6 times till full cervical dilatation which was assessed using semi fowler's chart.

### **1.5.4 Labor outcome**

Refers to both maternal and neonatal outcome which includes,

- **Maternal outcome** - Duration of labor, rate of cervical dilatation, intensity of uterine contractions, rupture of membrane, mode of delivery and estimated blood loss which was assessed by using modified WHO partograph.
- **Neonatal outcome** - APGAR score (at 1 min and 5 mins) and admission to Neonatal Intensive Care Unit (NICU) which was retrieved from neonatal record.

### **1.5.5 Parturient mothers**

Refers to the women who are pregnant for the first time and in first stage of labor (from 3-4 cm cervical dilatation)

### **1.6 ASSUMPTIONS**

1. All parturient mothers are in need of midwifery care during labor
2. Maternal birthing positions may have a significant influence on course of labor

### **1.7 NULL HYPOTHESES**

**NH<sub>1</sub>:** There is no significant difference in labor outcome between group A and group B at the level of  $P < 0.05$ .

**NH<sub>2</sub>:** There is no significant association of selected demographic variables with labor outcome in group A and group B at the level of  $P < 0.05$ .

### **1.8 DELIMITATION**

The study was limited to a period of 4 weeks.

### **1.9 CONCEPTUAL FRAMEWORK**

A conceptual framework or a model is made up of concepts, which are the mental images of the phenomenon. It provides the guidelines to proceed to attain the objectives of the study based on a theory. It is a schematic representation of the steps, activities and outcomes of the study.

The investigator adopted Widenbach's helping art of clinical nursing theory as a basis for the conceptual framework which was aimed to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers at selected hospital, Chennai.

Ernestine Wiedenbach's enrolled in the John Hopkins School of Nursing and wrote Family Centered Maternity Nursing and developed the helping art of clinical nursing perspective theory in 1964. According to this theory, the practice of nursing comprises a wide variety of services; each directed towards the attainment of one of its three components.

## **STEP-I: IDENTIFYING THE NEED FOR HELP**

With this, there are four components present. First the nurse observes the inconsistency between the expected behavior of the patient and the apparent behavior, second she clarifies it, third she determines the cause of inconsistency, finally validates with the patient that her help is needed.

In this study the investigator and the parturient mother come together with the goal of achieving effective labor outcome through ambulation versus semi fowler's position. The investigator observes the parturient mothers, looking for an inconsistency between the expected labor outcome and the apparent outcome.

There are two components in identifying the need for help.

- **General information:**

This comprises of collection of demographic variables among parturient mothers

- **The central purpose:**

Central purpose refers to what the investigator want to accomplish. Here the central purpose was to accomplish an effective labor outcome among parturient mothers.

## **STEP-II: MINISTERING THE NEEDED HELP**

The investigator formulates a plan for meeting the mother's need for help based on available resources

- **Prescription**

It refers to the plan of care, the nature of action that fulfil the central purpose. Here the prescription (nature of action) was ambulation versus semi fowler's position

- **Ministering**

It refers to the act of administering the intervention by the nurse to optimize the patient health. In this study the investigator educated the parturient mothers regarding the uses of ambulation versus semi fowler's position during labor. Carried out these birthing positions during first stage of labor for 20 minutes (Ambulation versus Semi fowler's) with the rest period of 10 minutes till full cervical dilatation for 6 times.

- **Realities**

The realities are the immediate situation that influences the fulfilment of the central purpose. Wiedenbach's define the realities are:

**1. The agent**

It refers to a person who is providing care to the delegates characterized by the personal attributes, capacities, capabilities, and most importantly commitment and competencies in nursing. Here the agent was the nurse investigator, who directed all action/ prescription towards the central purpose.

**2. The recipient**

It refers to the client who is characterized by personal attributes, problems, capacities, aspirations and most important the ability to cope with the concerns or problems being experienced. Here the recipient was the parturient mothers who are admitted in the labor ward, at selected hospital, Chennai who received the nurse investigator's action/prescription.

**3. The goal**

The goal is the desired outcome the nurse wishes to achieve. Here the goal was to achieve effective labor outcome which includes both maternal and neonatal outcome among parturient mothers.

**4. The mean**

It comprises the activities and devices through which the practitioner (agent) is enabled to attain the goal. The mean includes skills, techniques, procedures and devices that may be used to facilitate nursing practice. Here the mean was the intervention protocol (ambulation versus semi fowler's position) to achieve effective labor outcome among parturient mothers.

**5. The framework**

It consists of human, environmental, professional and organizational facilities that not only make up the context within which nursing is practiced but also constitute its currently existing limits. The framework is composed of all the extraneous factors and



facilities in the situation that affect the nurse's ability to obtain the desired results. Here the framework was maternity ward of Sir Ivan Stedeford Hospital.

- Context- Sir Ivan Stedeford Hospital, Ambattur, Chennai. It is a 220 bedded hospital with 24 beds in Maternity ward with 4 labor tables. Approximately 150-200 normal deliveries were conducted per month out of which 60-70 were primi mothers.
- Extraneous variables which has impact on labor outcome.

### **STEP III: VALIDATING THE NEEDED HELP WAS MET**

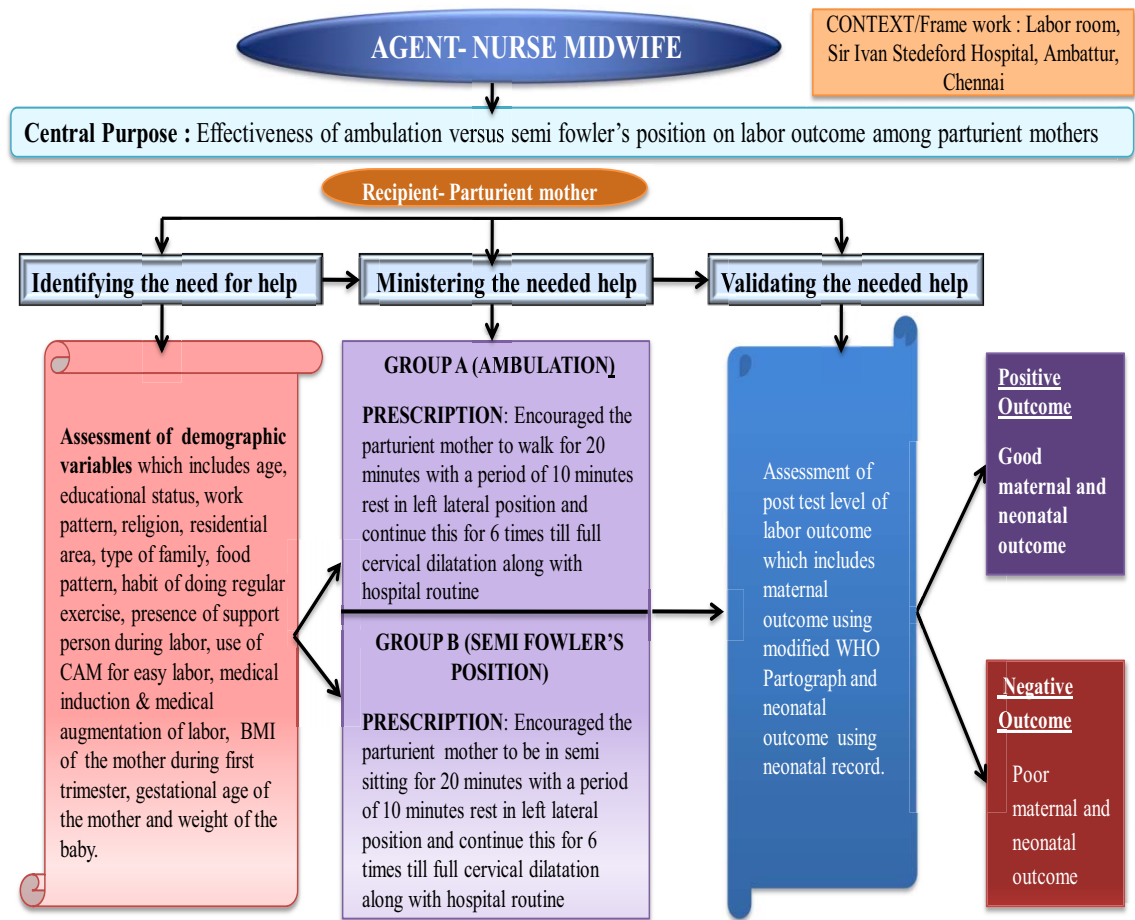
After help has been ministered the nurse validates that the action were indeed helpful. It is validating the needed help in achieving the central purpose. Evidence must come from the parturient mother that the purpose of the nursing actions has been fulfilled. This approach there by enables the researcher to make suitable decision and recommended action to continue, drop or modify the nursing action.

Here, this step involves the assessment of labor outcome (maternal and neonatal outcome) after ministering the help and the comparison/analysis to infer the outcome.

The expected labor outcome was normal duration of labor (10-18 hrs), spontaneous rupture of membrane, the rate of cervical dilatation 1 cm/hr, good progress in uterine contractions, normal vaginal delivery, estimated blood loss  $\leq 500$  ml, APGAR score 7-10 at 1 min and at 5 mins, No admission to NICU.

### **CONCLUSION**

The medical Director and HOD of OBG department appreciated the study and willingly accepted to implement the findings of the study as a routine procedure during labor. Thus the investigator adopted the Wiedenbach's helping art of clinical nursing theory in this study which served as a perfect guidance and structural layout in identifying the needs of parturient mothers and achieving the desirable outcome by means of nursing measures like ambulation and semi fowler's position. This also enabled the investigator to correlate various aspects of theory and implement into nursing practice and identify the effectiveness of ambulation versus semi fowler's position on labor outcome.



**Fig 1.9.1 Conceptual framework based on Wiedenbach's helping art of clinical nursing theory**

## **1.10 OUTLINE OF THE REPORT**

**Chapter 1:** Dealt with introduction, background of the study, need for the study, statement of the problem, objectives, operational definitions, assumptions, null hypotheses, delimitation and conceptual framework

**Chapter 2:** Contains the scientific critical review of literature related to the present study

**Chapter 3:** Presents the methodology of the study and plan for data analysis

**Chapter 4:** Focuses on data analysis and interpretation

**Chapter 5:** Enumerates the discussion and findings of the study

**Chapter 6:** Consists of summary, conclusion, implications, recommendations and limitations of the study

The study report ends with selected References and Appendices.

# *CHAPTER-2*

## *REVIEW OF LITERATURE*

## **REVIEW OF LITERATURE**

This chapter focuses on literature review, which helps to lay the context and foundation for this study. Literature review refers to a “written summary of evidence on a research problem”. Polit and Beck (2012).

Review of literature is a systematic and logical arrangement of information that is carefully selected from scientific writings. It is essential aspects of scientific research and entails the systematic identification, reflection, critical analysis and reporting of existing information in relation to the problem of interest.

The literature review was collected from various sources such as primary sources: from research reports, conference manuals, and theses, secondary sources: reviews from internet, national and international journal articles and the tertiary sources from obstetrical and gynecological nursing, pediatric nursing and medical books. The ultimate purpose of a good review of literature in this study is to obtain comprehensive knowledge and in-depth information about the effectiveness of ambulation versus semi fowler’s position on labor outcome from the best available evidences of various updated sources and organize them scientifically within the framework of current research project.

The review of literature was done using the keywords such as maternal positions, labor, ambulation, semi fowler’s position, labor outcome, maternal outcome, neonatal outcome, mobility, birthing and parturition. A systematic literature review of articles dating from 2009 to 2015 was performed using standard databases such as Cochrane library, Cumulative Index to Nursing and Allied Health (CINHAL), Google scholar, Medical Literature Analysis and Retrieval (MEDLINE), Pub Med and other unpublished studies from dissertations.

It includes Qualitative studies, Observational cohort studies, Randomized controlled trials, Experimental studies like True experimental- (pre and post test only, post test only, cross over design) and Quasi experimental (Time series design),

Comparative studies, Descriptive studies, Prospective and Retrospective studies, Meta analysis.

Collectively 150 studies were searched out of which 70 relevant and updated studies were utilized to support the current topic. Among the selected supportive studies, 54 were International and 16 were Indian reviews which includes 40 Nursing reviews.

## **ORGANIZATION OF SCIENTIFIC CRITICAL REVIEW OF LITERATURES**

The logical sequence of the chapter is organized in the following sections

2.1.1: Scientific reviews related to effectiveness of ambulation on labor outcome

2.1.2: Scientific reviews related to effectiveness of semi fowler's position on labor outcome

2.1.3: Scientific reviews related to effectiveness of various upright positions on labor outcome

### **2.1.1: SCIENTIFIC REVIEWS RELATED TO EFFECTIVENESS OF AMBULATION ON LABOR OUTCOME**

Hollis Martin & Martin (2013) defined that the actual benefits of mobility in the first stage of labor could be greater than reported in the mobility studies analyzed by the authors of the Cochrane Review and others. Ben Regaya, et.al., (2010) was conducted a prospective randomized trial to assess the effect of ambulation given at first stage of labor on maternal and fetal outcomes. The study showed that ambulation was significantly reduced the duration of first stage of labor, pain intensity, oxytocin consumption, rate of delivery by caesarean section and instrumental delivery and it showed an improvement of APGAR score at first and fifth minute when compared to supine position, thereby it helped in the improvement of maternal and neonatal outcome.

An Indian researcher Rosemol (2012) enriched the same findings by using a true experimental post test only design. An another Indian researcher Savitha V, Sabitha Nayak, Shynee Paul, (2013) conducted a quasi experimental study to assess the effectiveness of ambulation during I stage of labor and explored that the ambulation was effective in improving maternal comfort, outcome of labor and reduction of pain perception and also concluded that ambulation can be used as a routine procedure during first stage of labor.

The same findings were enlightened by an Indian researcher Vanajakshi (2011) via true experimental pre and post test only design.

Lawrence Lewis L, Hofmeyr G, Styles C, (2013) searched reviews included 25 studies (5218 women) to assess the effectiveness of walking and upright positions in the first stage of labor. They identified that walking and upright positions gives effective labor outcome in the aspect of reducing length of labor, providing comfort, attain normal vaginal delivery and also stated that the mobility was encompassed with the benefits like increased maternal comfort level and decreased need for analgesia. Michele Ondeck (2009) found that the women who used upright positions and were mobile during labor had shorter labors, less intervention, reported less severe pain, and described more satisfaction with their childbirth experience than women in recumbent positions.

Romano & Lothian (2009) identified that freedom to be mobile in labor is more likely to be safe and healthy because it does not disrupt the normal physiologic processes and movement is one coping strategy for pain. Multiple Indian Researchers (Albin Mathew, Sabitha Nayak, 2010; Vandana K 2012) conducted a randomized control study to assess the effectiveness of ambulation versus birthing ball versus control group (no intervention) in improving the maternal outcome which includes duration of I stage and II stage of labor, cervical dilatation rate, type of delivery and newborn outcome includes heart rate, respiratory rate, color, reflex and muscle tone. They documented that ambulation and birthing ball were found to be effective in improving the maternal outcome and there was no harm to the baby.

An Indian researcher Sujatha A (2011) conducted a quasi experimental (time series) study to assess the effectiveness of ambulatory nursing care on the level of labor pain using modified pain scale and feto-maternal parameters with the help of modified Partograph. Reported that the ambulatory nursing care during first stage of labor reduces the labor pain, the duration and frequency of uterine contraction. Multiple researchers (Joao P Souza, Maria A, Miquelutti, 2009 ; Albers, 2010) reported through the meta analysis that the maternal position change and ambulation can be a non-invasive and non-pharmacological method of pain relief. Women, who were allowed to ambulate and move as desired during labor, were known to cope with their pain more effectively and had an increase sense of control and no harmful effects had ever been observed to the mother as well as baby.

Wilson MJ, MacArthur C, et.al., (2009) done a randomized controlled trial to assess effectiveness of ambulation versus epidural analgesia during I stage of labor and explored that the reduction in the instrumental deliveries following ambulation were appeared to promote spontaneous vaginal delivery than epidural analgesia. Multiple researchers (Scotland et al., 2011; Declercq et al., 2013) enforced that the women value the choice to be mobile during labor, and most feel that the process of birth should not be interfered with unless medically necessary.

### **2.1.2: SCIENTIFIC REVIEWS RELATED TO EFFECTIVENESS OF SEMI FOWLER'S / SEMI SITTING POSITION ON LABOR OUTCOME**

An Indian researcher Sony Sara (2012) conducted a comparative cross over design to assess the effect of semi sitting versus left lateral position on materno-fetal Bio Physical Parameters (BPP) and maternal comfort level during labor, observed that more number of mothers who placed in semi sitting position were in normal range of BPP and more comfortable when compare with left lateral position. An another Indian researcher Tamizharasi A (2011) conducted a quasi experimental post test only design, identified that semi fowler's position during labor was an effective intervention on outcome of labor which includes frequency of uterine contraction, duration of labor, mode of delivery and level of pain.

Chen shin-zon (2010) in an article executed that an experimental study to assess the effectiveness of sitting position on labor pain during first stage of labor found to be effective in increased bearing down pressure so it could help to significantly shorten the duration.

An Indian researcher Ganapathy Thilagavathy (2011) done a randomized experimental study to compare the effectiveness of upright supported sitting and supine lithotomy position on outcome variables like duration of second and third stage of labor, amount of blood loss, intensity of labor pain, quality of maternal blood pressure, quality of Fetal Heart Rate (FHR) patterns and APGAR scores of the newborn at 1 and 5 minutes of birth. Engrossed towards a simple elevation of the back (semi fowler's) of the laboring women that maximizes the important benefits of gravity offers greater advantages in terms of enhanced comfort, shorter duration of second and third stage of labor, insignificant amount of blood loss and safe birthing experiences.



Adachi, Shimada, and Usul (2011) found in their review of 21 studies with a total of 3706 women that semi sitting position decrease the labor pain in contrast with supine position. Multiple researchers (Johnson et.al., Caldeyro-Barcia, McKay & Mahan, 2010; Roberts, Mendez-Bauer, & Wodell, 2011) explored that contractions were stronger and more frequent when the woman was positioned in semi sitting than when on her side. An Indian researcher Roberts et. al., (2010) found through an experimental study that women in squatting or upright sitting positions have fewer operative vaginal deliveries, fewer and less perineal lacerations, and fewer episiotomies than women giving birth in a semi recumbent position.

### **2.1.3 SCIENTIFIC REVIEWS RELATED TO EFFECTIVENESS OF VARIOUS UPRIGHT POSITIONS ON LABOR OUTCOME**

An Indian researcher Judie A, Mary Sophia C, Jayabharathi (2015) adopted a quasi experimental, comparative pre and post test design for the study to assess the effectiveness of left lateral position versus upright position on fetal heart rate and labor pain. The parturient mothers who adopted upright position had normal range of fetal heart rate and the pain score was less. The results of the study proved that, upright position was more effective than left lateral position during labor.

An Indian researcher Vijayanthi Mala, Jaya Mohanraj (2013) conducted a quantitative experimental study to assess the effects of movements and positions of laboring women on maternal satisfaction during first stage of labor. Results showed that this is an effective intervention and can be practiced in birth centres and community set up by midwives. An Indian researcher Kumud, Avinash Kaur Rana, Seema Chopra (2011) done a quasi-experimental study to assess the effect of upright positions (standing, sitting) on the duration of first stage of labour among nulliparous mothers. The results of the study concluded that maintenance of upright positions during the first stage of labour reduces the duration of first stage of labour.

An Indian researcher Avinash Rana (2015) done an experimental study and found that the use of the Peanut ball doesn't decrease the duration of first and second stages of labor but helped to reduce the caesarean section rate. Lee et al., (2012) identified in a randomized controlled trial that warm showers were an effective non-pharmacological

pain reduction method during labor as well as being cost-effective, convenient, and supportive of the upright posture. Cedar Sinai (2013) encouraged the mothers to use birth balls to “rock and roll” in labor will increase the success of trials of labor in women seeking a vaginal birth after cesarean. Multiple researchers (Traavoni et al., 2011; Adachi, Shimada, & Usai, 2003) conducted a study demonstrated that the use of the birth ball for rocking movements significantly reduced the pain scores in active labor, and also consistent with previous studies indicating that lower back pain was reduced in upright positions between 6-8 cm.

Multiple researchers (Storton, 2007; Simkin & Ancheta, 2011) described that changing positions not only helps the women to cope with the labor pain; upright positions use gravity to bring the baby down, while changing position frequently moves the bones of the pelvis, helping the baby find the best fit. Priddis, Dahlen, Schmied, (2011) described that the women who use upright positions during labor have shorter labors, less intervention, report less severe pain, and describe more satisfaction with their childbirth experience than women in semi-recumbent or supine positions.

Miquelutti et. al., (2009) stated that an upright position in the first stage of labor can mean less pain. Series of randomised or quasi-randomised trials (Sandi, Simkin & Anchet, Miquelutti et. al., 2009; Annemarie Lawrence, Lucy Lewis, et.al., 2010) were documented that by administering different maternal upright positions (sitting, balloon-squatting, standing, walking) during labor can enhance the normal vaginal delivery, reduce the risk of operative delivery and prevent the perineal tear. Marco Noventa, Veronica Bacile et. al.,(2014) conducted an observational cohort study to assess the effects of different maternal positions during labor on maternal –fetal and neonatal outcomes among women at term pregnancy and reported that upright positions enhanced the effective labor outcome.

An Indian researcher Kavitha (2010) conducted a descriptive study to assess the degree of pain, comfort and positions assumed by the primigravida women during the first stage of labor and explored that the degree of pain was at mild to moderate level at 3 cm of cervical dilatation and very severe to worst at 7 cm of cervical dilatation, the side lying was the most and frequently assumed position during and in between uterine contractions from 3-7 cm of cervical dilatation, sitting position was more comfortable

during early stage of labor and side lying position most comfortable during late stage of labor.

Multiple researchers (Gupta, Hofmeyr, & Smyth, Terry et. al., Lawrence, Lewis, Hofmeyr, Dowswell, & Styles, 2009 ; Lorraine Searle, 2010) done a randomized controlled trials and insisted that upright positions helps in increased diameters of pelvic inlet and outlet, improved uterine contractility, improved fetal well being, reduced duration of second stage of labor, reduction in assisted deliveries, reduction in episiotomies, decreased pain, increased feeling of maternal comfort and partner involvement. Albers (2010) stated that the change of maternal position and ambulation can be a non-invasive and non-pharmacological method of pain relief. Women, who were allowed to ambulate and move as desired during labor, were known to cope with their pain more effectively and had an increase sense of control and got caregivers preferences.

Series of researchers (Terry, Westcott, et.al., and Am Fam Physician, 2010; Jane Ietshko, 2011) done a cochrane review and compared the upright versus recumbent position; the upright positions include sitting, standing, walking, and kneeling had less duration of labor about one hour than who were supined or reclined but there were no differences in type of delivery, and insufficient data on maternal satisfaction and neonatal outcomes. The same results were retrieved from the observational cohort study by Salvatore Gizzo, Stefania Di Gangi, et.al, (2014) using 4 positions which includes upright (ambulation), squatting, sitting and recumbent.

A case-control study by Barbara Bodner-Adler (2009) was aimed to assess the maternal and neonatal outcomes of an upright position compared with a supine position during vaginal delivery, in terms of defined outcome variables. The data indicated that laboring and delivering in an upright position was associated with beneficial effects such as lower rate of episiotomy and reduced use of medical analgesia and oxytocin. Carlson JM, Diehl JA et. al., (2010) done an observational study between multiparas and nulliparas on maternal position during labor and reported that the effectiveness was varied between two groups.

Declercq et al. (2007) compared upright versus non-upright pushing positions in women with epidurals through randomized controlled trials, influenced that being upright during the second stage of labor shortens labor in women with epidurals. Roberts & Hanson, (2007) indicated that lying on your back may cause lower blood pressure and less blood flow to your baby, due to the weight of the uterus on major blood vessels. Multiple researchers (Souza, Miquelutti, Cecatti & Makuch, 2011; Simpson, 2012) stated that supine position was deleterious and associated with lower fetal oxygen saturation than the left lateral position. To avoid compression of the inferior vena cava by the weight of the uterus and baby, upright or side-lying positions are recommended to resolve or decrease late decelerations and improve fetal oxygenation.

### **Factors influencing maternal positions during labor**

Hollins Martin & Martin (2013) identified that the hospital protocols, while often providing instruction for position change, conflict with those policies that demand the use of technology, such as continuous fetal monitoring and intravenous infusions that restricts mobility. Storton (2007) said that the norm in the U.S. is medicalized birth that restricts a woman's mobility in labor, despite no study ever reporting that walking in labor is harmful to healthy women or their babies. Simkin & Ancheta, (2009) imposed that there is no only one position is best for every woman during labor. Each position has possible advantages and disadvantages and can be helpful in different situations.

Multiple researchers (Soong & Barnes, Stremmer et.al., De Jonge, 2009; Lawrence 2010) documented that the maternal body positions had a significant influence on the course of labor, maternal comfort and physiology of labor. Upright posture is supported by radiological evidence of increased anteroposterior and transverse pelvic diameters. Lorraine Searle (2010) done a quantitative retrospective study and identified the factors that influence the maternal positions in labor includes maternal preference, maternal ability, health provider preference and training, birthing environment (Home, Birthing Center, Hospital), analgesia choice (epidural, narcotics), fetal monitoring method and intravenous fluids.

## **Overcoming barriers to mobility in labor**

Goer & Romano (2012) stated that the barrier to promoting mobility in labor is the lack of understanding of the physiologic process of birth by both women and their care providers. In order to achieve optimal care in labor, the barriers to receiving and providing that care need to be overcome. Traditionally, childbirth educators have discussed the 3 Ps; the power of the uterine contractions; the passenger, which is the size and position of the fetus's presenting part; and the passageway of the mother, as the keys to progress in labor. In *Optimal Care in Childbirth*, Goer and Romano suggest an alternative list of Ps. Those four factors that must be present to support the laboring women's autonomy and mobility are: permission, physical environment, practices, and people.

Hodnett, Stremler, Weston, & McKeever, (2009) encouraged that the physical environment needs to be large enough to support freedom of movement. In a pilot study conducted at two Canadian hospitals, laboring women were randomly assigned to a regular labor room or to an "ambient room." The intention of the ambient room was to create an environment of calm to promote relaxation, including tools that assisted mobility. The results were that the laboring women spent 50% less time in bed and used less augmentation of labor with oxytocic infusions .

Multiple researchers (Jones et al., 2012) said that the women also need permission to avoid practices that interfere with mobility. Examples of those practices are: 1) intravenous catheters that could be reserved for delivery of medications, allowing women to have oral fluids and calories, when needed, inserted in the arm rather than the hand so as not to restrict mobility, 2) unless medically indicated, using intermittent monitoring or telemetry for electronic fetal surveillance so women can be mobile. Evidence based non-pharmacological practices that are known to reduce labor pain need to be recognized and encouraged as adjuncts to mobility. Those practices are: relaxation, massage, acupuncture, and immersion in water.

Priddis, Dahlen, & Schmeid, (2012) stated that there is evidence that walking and upright positions reduce the duration of the first stage of labor, there is a need for better-quality studies in order to demonstrate the significance to health care providers and direct

them on more precise recommendations for ambulation and movement. There is insufficient understanding of what facilitates or inhibits a woman's use of physiological birth positioning. Hollis Martin (2013) enforced that more research into both the factors and practices within the current health systems that facilitate or inhibit women to adopt various positions during labor and birth.

### **Effectiveness of various Non-pharmacological measures on labor outcome**

Marzieh Akbarzadeh, Zahra Masoudi, et. al., (2014) done a comparative study to assess the effects of maternal supportive care and acupressure (BL32 Acupoint) on pregnant women's pain intensity and delivery outcome. The study findings showed that continuous support and position change during labor as well as acupressure reduced the intensity of pain and the rate of cesarean delivery. Therefore, these two non-pharmacological methods can be used to improve the delivery outcomes and create a positive delivery experience.

Simkin & Ohra (2011) conducted a qualitative study to assess the effectiveness of non pharmacological methods which includes 1.continuos labor support, 2.touch, 3.bath & massage, 4.maternal movement (Ambulation) and positioning, and 5.intra dermal water blocks for back pain relief, on labor pain relief, maternal satisfaction and other labor outcome. Results found that all 5 methods were effective to reduce labor pain, improve maternal comfort and outcome of labor. Water & Raiser (2012) conducted a true experimental pre and post test design to assess the effectiveness of ice massage on labor pain, explored that ice massage was a safe, effective, non invasive method in reducing labor pain.

Yinglin Liu, Yukun Liu, et. al., (2014) compared the maternal and neonatal outcomes between water immersion during labor and conventional labor and delivery. Found that water immersion during first stage of labor reduced the length of labor, reduce the use of epidural/spinal analgesia and no differences were observed in newborn.

## **SUMMARY**

I would like to acknowledge the investigators for their opinions provided through various above studies. The above literatures were selected to provide high quality and quantity of evidences that during the first stage of labor the parturient mothers were subjected to many discomforts since the labor is a complex process associated with lot of physiological and psychological changes. Hence it requires various non-pharmacological measures to reduce those discomforts. Since, the clear line of argument with notes and comments were present regarding the effectiveness of various upright positions during labor on labor outcome. And also the above literatures support that maternal birthing positions are cost effective, simple and practicable non-pharmacological nursing intervention that provide comforts to the parturient mothers during the first stage of labor and improves the labor outcome significantly thereby increase the quality of life.

## **GAPS**

During the scientific review of literature the investigator felt difficulty in gathering Indian literatures and recent nursing reviews pertaining to the topic ambulation versus semi fowler's position. The Indian studies were present with minimal number of samples which did not show effective generalization of the results. Less number of comparative studies to assess the effectiveness of various upright positions were present. Minimal number of duplication of reviews also evidenced. The collected reviews were limited by the factors like minimal sample size, sampling bias, non-randomization, less information about intervention protocol. Here the investigator controlled those factors and conducted the study to assess the effectiveness of ambulation versus semi fowler's position on labor outcome.

# *CHAPTER - 3*

*RESEARCH*

*METHODOLOGY*



## RESEARCH METHODOLOGY

This chapter describes the methodology adopted in this study to assess the effectiveness of ambulation versus semi fowler’s position on labor outcome among parturient mothers.

This phase of the study included selecting a research design, variables, setting of the study, population, sample, criteria for sample selection, sample size, sampling technique, development and description of the tool, content validity, pilot study and reliability of the tool, procedure for data collection and plan for data analysis.

### 3.1 RESEARCH APPROACH

The research approach used in this study was quantitative research approach.

### 3.2 RESEARCH DESIGN

The research design used for this study was true experimental post test only design. The aim of the study was to assess the effectiveness of ambulation versus semi fowler’s position on labor outcome among parturient mothers.

Based on Polit and Hungler (2011) the framework for the study was:

<b>R A N D O M I Z E D A T E D O N</b>	<b>GROUP</b>	<b>INTERVENTION (X)</b> (from 3-4 cm cervical dilatation)	<b>POST TEST (O<sub>1</sub>)</b> (during labor and after the delivery within 1 hour)
	Group A (Ambulation)	Encourage the parturient mother to walk for 20 minutes with a period of 10 minutes rest in left lateral position and continue this for 6 times till full cervical dilatation.	Post test level of labor outcome which includes, maternal outcome by using modified WHO Partograph and neonatal outcome retrieved from neonatal records.
	Group B (Semi fowler’s position)	Encourage the parturient mother to be in semi sitting position for 20 minutes with a period of 10 minutes rest in left lateral position and continue this for 6 times till full cervical dilatation.	

### **3.3 VARIABLES**

#### **3.3.1 Independent variable**

The independent variables in the study were ambulation and semi fowler's position.

#### **3.3.2 Dependent variable**

The dependent variable in the study was labor outcome (maternal and neonatal outcome).

#### **3.3.3 Extraneous variables**

The extraneous variables are work pattern, habit of doing exercises, presence of support person during labor, use of Complementary and Alternative Medicine (CAM) for easy labor, medical induction of labor, medical augmentation of labor, Body Mass Index (BMI) of the mother during I trimester and weight of the baby. Pair matching variables were medical induction of labor, medical augmentation of labor and BMI of the mother during first trimester.

### **3.4 SETTING**

The study was conducted in labor room of Sir Ivan Stedeford Hospital, Ambattur, Chennai. It is a 220 bedded hospital with 24 beds in maternity ward with 4 labor tables. Approximately 150-200 normal deliveries were conducted per month out of which 60-70 were primi mothers.

### **3.5 POPULATION**

#### **3.5.1 Target population**

The target population for the study included all parturient mothers.

#### **3.5.2 Accessible population**

The accessible population for the study included all parturient mothers who got admitted in Sir Ivan Stedeford Hospital, Ambattur, Chennai.

### **3.6 SAMPLE**

Parturient mothers who fulfilled the inclusion criteria were selected as samples for the study.

### **3.7 SAMPLE SIZE**

A sample of 60 parturient mothers were selected for the study out of which, 30 were in group A and 30 in group B.

### **3.8 CRITERIA FOR SAMPLE SELECTION**

#### **3.8.1 Inclusion criteria**

Parturient mothers

1. with gestational age between 37 - 41 completed weeks
2. with intact membranes
3. who understands Tamil or English

#### **3.8.2 Exclusion criteria**

Parturient mothers

1. who were categorized under high risk pregnancy which includes

#### **A) Obstetrical complications**

Pregnancy induced hypertension, Gestational diabetes mellitus, Antepartum hemorrhage, Multiple pregnancy, Cephalo pelvic disproportion, Malposition, Malpresentation, Cord prolapse, Cord presentation, Anemia complicating pregnancy

#### **B) Medical disorders**

Cardio vascular disease, Hypertension, Diabetes mellitus, Epilepsy

#### **C) Gynecological disorders**

Fibroid uterus, bicornuate or septate uterus

2. planned for elective caesarean section
3. who underwent treatment for infertility
4. who were not willing to participate in the study

### **3.9 SAMPLING TECHNIQUE**

Simple random sampling technique (lottery method) was used to select the samples since it was a true experimental study in order to randomize the samples.

### **3.10 DEVELOPMENT AND DESCRIPTION OF TOOL**

After an extensive review of literature, discussion with the experts and by investigator's personal and professional experience, the modified WHO Partograph was used to assess the maternal outcome and neonatal outcome was retrieved from neonatal records. The tool constructed in this study was divided into 2 parts.

- Part A- Data collection tool
- Part B- Intervention tool

#### **3.10.1 PART A: DATA COLLECTION TOOL**

This consisted of 2 sections

**SECTION A:** Structured interview schedule and medical record review was used to assess the demographic and clinical variables.

##### **I-Demographic variables**

Consisted of demographic variables which includes age, educational status, work pattern, religion, residential area, type of family, food pattern, habit of doing exercise, presence of support person during labor, use of CAM for easy labor.

##### **II-Clinical variables**

Which included, medical induction of labor, medical augmentation of labor, BMI of the mother during first trimester, gestational age of the mother and weight of the baby.

**SECTION B:** Modified WHO Partograph and neonatal records was used to assess the labor outcome (maternal and neonatal outcome)

**1) Maternal outcome**

- i. By using modified WHO Partograph the following outcomes were assessed
  - Duration of labor ( first stage, second stage, third stage)
  - Rate of cervical dilatation
  - Intensity of uterine contraction (mild, moderate, severe)
  - Rupture of membrane (spontaneous, artificial)
  - Mode of delivery ( normal vaginal delivery, assisted vaginal delivery )
- ii. Estimated blood loss was assessed by using Brass V Drape which has a calibrated and funneled collecting pouch, incorporated within a plastic sheet that is placed under the gluteus of the parturient mother. The upper end of the sheet has a belt, which is loosely tied around the woman’s abdomen to optimize blood collection.

**2) Neonatal outcome-** Retrieved data from the neonatal records

- APGAR Score (A-Appearance, P-Pulse rate, G-Grimace, A-Activity, R-Respiration)
  - at one minute
  - at five minutes

<b>Components</b>	<b>0</b>	<b>1</b>	<b>2</b>
HR	Absent	< 100	>100
Respiration	Absent	Irregular/ Weak cry	Strong cry
Reflex irritability	No response	Grimace	Cough/sneeze
Muscle tone	None	Some flexion	Well flexed
Color	Central cyanosis	Peripheral cyanosis	Pink

**Inference:** 7-10= normal, 4-6=moderate depression, 0-3=severe depression

- Admission to NICU

### **3.10.2 PART B: INTERVENTION PROTOCOL**

Method: One-to-one method

Venue: Maternity ward

#### **Pre-Procedure**

- Greet the parturient mother
- Establish rapport with the parturient mother
- Explain the procedure to the parturient mother and support person
- Obtain informed written consent
- Assess the demographic variables
- Advise the parturient mother to take adequate fluids
- Reassure the parturient mother
- Monitor the vital signs and FHR pattern
- Prepare the environment for ambulation and arrange pillows for semi fowler's position

#### **Procedure**

##### **Group A (Ambulation)**

- Encourage the parturient mother to walk for 20 minutes on a flat surface along with support person
- The parturient mother can take rest in left lateral position for 10 minutes in between ambulation
- Advise the parturient mother to continue the procedure for 6 times till full cervical dilatation
- Insist her to stop walking and inform if any discomfort occurs
- Monitor the vital signs and FHR pattern in between the procedure after each cycle
- Maintain the modified WHO Partograph to record the findings
- Maintain the ambulation chart during the procedure

### AMBULATION CHART

Date	No. of Times	Ambulation		Rest (Left lateral position)	
		Time	Duration	Time	Duration
<b>Total</b>					

**Group B (Semi fowler's position)**

- Position the parturient mother in semi fowler's (is the position of a patient who is lying on bed in a supine position with the head of the bed at approximately 30-45° angle) for 20 minutes
- The parturient mother can take rest in left lateral position for 10 minutes in between the semi fowler's position
- Advise the parturient mother to continue the procedure for 6 times till full cervical dilatation
- Insist her to inform if any discomfort occurs
- Monitor the vital signs and FHR pattern in between the procedure after each cycle
- Maintain the modified WHO Partograph to record the findings
- Maintain the semi fowler's chart during the procedure

### SEMI FOWLER'S POSITION CHART

Date	No. of times	Semi fowler's position		Rest (Left lateral position)	
		Time	Duration	Time	Duration
<b>Total</b>					

## **Post -procedure**

- Maintain privacy
- Do per vaginal examination to identify the rate of cervical dilatation
- Position the parturient mother in left lateral
- Continuously monitor the FHR pattern during second stage of labor (from full cervical dilatation till delivery of baby)
- Reassure the parturient mother for safe delivery
- Monitor the labor outcome (maternal and fetal outcome)
- Document the findings of labor outcome

### **3.11 CONTENT VALIDITY**

The content validity of the data collection and intervention tool was ascertained from the expert's in the following field of expertise.

- Obstetrician and Gynaecologist – 2
- Nursing experts - 3

Modifications were made as per the expert's suggestions and incorporated in the tool. Experts suggested incorporating the intensity of uterine contraction as a component of maternal outcome. So, it was incorporated while monitoring the maternal outcome of labor.

### **3.12 ETHICAL CONSIDERATION**

The research study was approved by **Institutional Ethics Review Board (IERB)** held on November – 2013 by **International Centre for Collaborative Research (ICCR)**, Omayal Achi College of Nursing.

The ethical principles followed in the study were,

#### **A) BENEFICIENCE**

The investigator followed the fundamental ethical principle of beneficence by adhering to,



**a. The Right to freedom from harm and discomfort**

Parturient mothers were not subjected to unnecessary risk from harm and discomfort during the study period. The parturient mothers were given full freedom to disclose their view in case they feel any discomfort during the course of study.

**b. The Right to protection from exploitation**

Parturient mothers were assured that their participation or information they provided would not be used against them. The investigator completely explained the nature of the study, the procedure (ambulation versus semi fowler's position) and ensured that the parturient mothers in the study would not be exploited in any cost or denied from fair treatment.

**B) RESPECT FOR HUMAN DIGNITY**

The investigator followed the second ethical principle of respect for human dignity. It includes the right to self determination and the right to self disclosure.

**a. The Right to self determination**

The investigator gave full freedom to the parturient mothers to decide voluntarily whether to participate in the study or to withdraw from the study and the right to ask questions about study.

**b. The Right to full disclosure**

The researcher has fully described the nature of the study, the person's right to refuse participation and responsibilities based on which both oral and written informed consent was obtained from the parturient mothers.

**C) JUSTICE**

The researcher adhered to the third ethical principle of justice, it includes participants right to fair treatment and right to privacy

#### **a. Right to fair treatment**

The researcher selected the parturient mothers for the study based on the research requirements. The investigator carried out the intervention for both group A (ambulation) and group B (semi fowler's position) which gives an effective labor outcome.

#### **b. Right to privacy**

The researcher maintained the parturient mother's privacy throughout the study period especially while collecting the data and during intervention.

### **D) CONFIDENTIALITY**

The researcher maintained the confidentiality of all the data provided by the parturient mothers. The data collected from the parturient mothers were only used for the study purpose. The collected data will not be disclosed for any other purpose.

### **3.13 RELIABILITY OF THE TOOL**

The reliability of the tool for labor outcome was done by inter-rater method where 10 parturient mothers were selected and intervention was given. The tool was assessed by the investigator and equally competent staff nurses in the maternity ward at Sir Ivan Stedeford Hospital. To check the equivalence of the tool the following formulae was used,

$$r = \frac{\text{No. of agreements}}{\text{No. of agreements} + \text{No. of disagreements}}$$

The reliability score obtained was 'r' = 0.8 which indicated that the tool was reliable for proceeding the study.

### **3.14 PILOT STUDY**

Pilot study is the trial run for the main study. The refined tool was used for pilot study to test feasibility and practicability.

After getting ethical clearance from the ICCR, formal permission from the Principal, Omayal Achi College of Nursing, the Director, Chief Manager, Head of the Department of Obstetrics and Gynecology and Nursing Superintendent of Sir Ivan Stedeford hospital, Chennai, the pilot study was conducted in the month of May 2015 (1<sup>st</sup> to 10<sup>th</sup>) for a period of 1 week.

The investigator conducted the pilot study by selecting 10 parturient mothers (5 in group A and 5 in group B) who fulfilled the sample selection criteria by simple random sampling technique using lottery method. Based on that 2-4 parturient mothers per day were selected for the study. The parturient mothers who took No.1 were assigned to group A and parturient mothers who took No.2 were assigned to group B. Like this, 10 samples were selected.

After selecting the samples, the investigator gave brief introduction about self and purpose of the study to both groups and maintained good rapport to ensure that the mother is wide awake. They were made to lie comfortably, explained the procedure and assured the confidentiality regarding data to win their cooperation during data collection. Informed written consent was obtained from the parturient mothers after clear explanation about the intervention.

After getting the consent, the intervention had been given to both group A and group B. The group A parturient mothers were encouraged to walk for 20 minutes with a period of 10 minutes rest in left lateral position and continued this for 6 times till full cervical dilatation. The group B parturient mothers were encouraged to be in semi sitting position (head end elevated to 30°-45° angle) for 20 minutes with a period of 10 minutes rest in left lateral position and continued this for 6 times till full cervical dilatation.

Labor outcome was assessed using modified WHO Partograph (maternal outcome) and neonatal records (neonatal outcome). The investigator worked from 8am-5pm and for the remaining time, the investigator got help from research assistants (competent staff nurses working in the Maternity ward).

The results of the pilot study revealed that ambulation was effective than the semi fowler's position with regard to duration of labor, no other significant differences were identified in rest of the outcomes, the pilot study gave the evidence that the tool was reliable, feasible and practicable to implement in the main study.

### **3.15 PROCEDURE FOR DATA COLLECTION**

The investigator obtained formal permission from the ICCR and ethical clearance to proceed with the main study. A formal permission was obtained from the Principal, Omayal Achi College of Nursing, Director, Chief Manager, Head of the Department of Obstetrics and Gynecology, Nursing Superintendent of Sir Ivan Stedeford hospital, Chennai. The study was conducted in the maternity ward of Sir Ivan Stedeford Hospital, Ambattur, Chennai, in the month of May 2015.

The study was conducted for a period of 4 weeks. The investigator conducted the study by selecting 60 parturient mothers (30 in group A and 30 in group B) who fulfilled the sample selection criteria by simple random sampling technique using lottery method. Based on that 2-4 parturient mothers per day were selected for the study. The parturient mothers who took No.1 were assigned to group A and parturient mothers who took No.2 were assigned to group B. Like this 60 samples were selected followed by pair matching was done for medical induction of labor, medical augmentation of labor and BMI of the mother. After selecting the samples the investigator gave brief introduction about self and purpose of the study to both groups of parturient mothers and maintained good rapport to ensure that the mother is wide awake. They were made to lie comfortably, explained the procedure and assured the confidentiality regarding data to win their cooperation during data collection. Informed written consent was obtained from the parturient mothers after clear explanation about the intervention.

After getting the consent, the intervention had been given to both group A and group B. The group A parturient mothers were encouraged to walk for 20 minutes with a period of 10 minutes rest in left lateral position and continue this for 6 times till full cervical dilatation. The group B parturient mothers were encouraged to be in semi sitting position (head end elevated to 30°-45° angle) for 20 minutes with a period of 10 minutes rest in left lateral position till full cervical dilatation and continue this for 6 times.

Labor outcome was assessed using modified WHO Partograph (maternal outcome) and neonatal records (neonatal outcome). The investigator worked from 8am-5pm and for the remaining time, the investigator got help from research assistants (competent staff nurses working in the maternity ward)

### **3.16 PLAN FOR DATA ANALYSIS**

Data collected was analyzed by using both descriptive and inferential statistics.

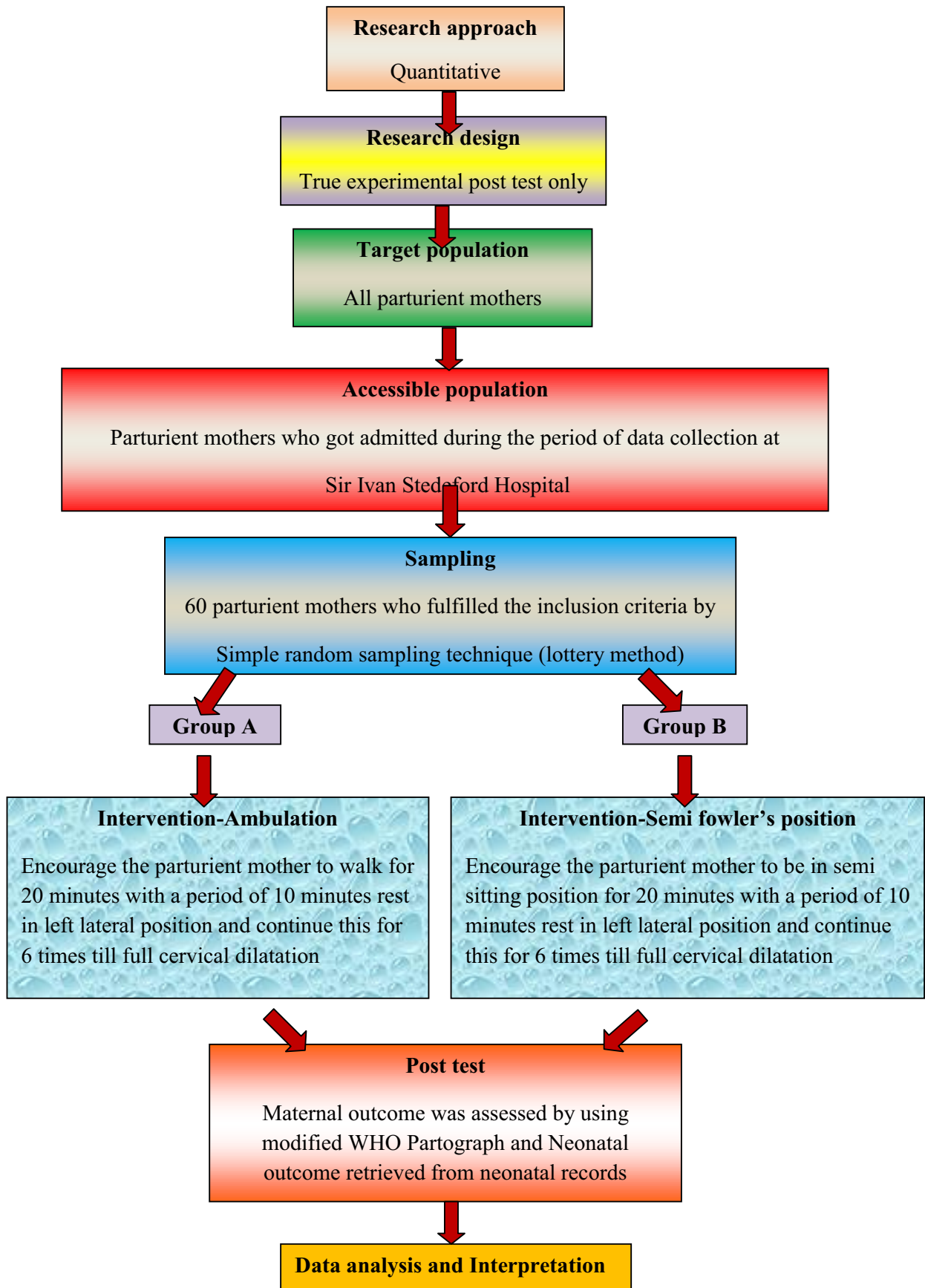
#### **3.16.1 Descriptive statistics**

1. Frequency and percentage distribution was used to assess the demographic variables and labor outcome.
2. Mean and standard deviation was used to analyze the labor outcome in group A and group B.

#### **3.16.2 Inferential statistics**

1. Independent 't' test was used to assess the effectiveness of group A versus group B on duration of labor, intensity of uterine contraction and estimated blood loss
2. Chi-square/ Fisher's exact score test was used to assess the effectiveness of group A versus group B on rate of cervical dilatation, rupture of membrane, mode of delivery, APGAR Score and admission to NICU
3. One way ANOVA and Chi-square/Fisher's exact test was used to associate the post test labor outcome with the demographic variables

**FIG.3.1:SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY**



*CHAPTER-4*  
*DATA ANALYSIS*  
*AND*  
*INTERPRETATION*

## **DATA ANALYSIS AND INTERPRETATION**

This chapter deals with the analysis and interpretation of data collected from 60 parturient mothers at Sir Ivan Stedeford hospital, Chennai to assess the effectiveness of ambulation versus semi fowler's position on labor outcome.

The data was organized, tabulated and analyzed according to the objectives of the study. The findings based on the descriptive and inferential statistical analysis were presented under the following sections.

### **ORGANIZATION OF DATA**

**SECTION 4.1:** Description of demographic variables of parturient mothers in both group A and group B

**SECTION 4.2:** Assessment of labor outcome among parturient mothers in group A and group B

**SECTION 4.3:** Effectiveness of group A versus group B on labor outcome among parturient mothers

**SECTION 4.4:** Association of selected demographic variables with labor outcome among parturient mothers in group A and group B



**SECTION 4.1: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF PARTURIENT MOTHERS IN GROUP A AND GROUP B**

**Table 4.1.1: Frequency and percentage distribution of demographic variables of parturient mothers with respect to age, educational status and work pattern**

**N =60**

S.No.	Demographic variables	Group A n=30		Group B n=30		Chi square Value
		No.	%	No.	%	
1	<b>Age in years</b>					$\chi^2 = 1.95$
	21-25	13	43.4	<b>19</b>	<b>63.3</b>	Df=2
	26-30	<b>16</b>	<b>53.3</b>	11	36.7	p=0.38
	31-35	1	3.3	-	-	N.S
2	<b>Educational status</b>					
	Professor or Honours	6	20.0	8	26.7	
	Graduate or Post graduate	<b>12</b>	<b>40.0</b>	6	20.0	
	Intermediate or Post high school diploma	1	3.3	3	10.0	$\chi^2 = 27.92$
	High school certificate	8	26.7	<b>9</b>	<b>30.0</b>	Df =25
	Middle school certificate	2	6.7	1	3.3	p= 0.31
	Primary school certificate	1	3.3	-	-	N.S
	Non – literate	-	-	3	10.0	
	Others	-	-	-	-	
3	<b>Work Pattern</b>					
	Profession	5	16.7	5	16.7	$\chi^2 = 1.20$

Semi profession	-	-	-	-	Df=1 p= 0.16 N.S
Clerical, shop owner	-	-	-	-	
Skilled worker	-	-	-	-	
Semi skilled worker	-	-	-	-	
Unskilled worker	-	-	-	-	
Unemployed	<b>25</b>	<b>83.3</b>	<b>25</b>	<b>83.3</b>	
Others	-	-	-	-	

**N.S - Not significant**

The above table 4.1.1 depicts that majority were between the age group of 26-30 years and graduates in group A whereas in group B majority of them were between the age group of 21-25 yrs, and completed high school certificate, and were unemployed in both the groups.

**Table 4.1.2 : Frequency and percentage distribution of demographic variables of parturient mothers with respect to religion, residential area and type of family N=60**

S.No.	Demographic Variables	Group A n=30		Group B n=30		Chi square Value
		No.	%	No.	%	
1	<b>Religion</b>					$\chi^2 = 0.37$ Df=4 p= 0.98 N.S
	Hindu	27	90.0	27	90.0	
	Christian	2	6.7	2	6.7	
	Muslim	1	3.3	1	3.3	
	Others	-	-	-	-	
2	<b>Residential area</b>					$\chi^2 = 2.57$ Df=1 p= 0.11 N.S
	Slum			-	-	
	Rural	9	30.0	5	16.7	
	Semi urban	-	-	-	-	
	Urban	21	70.0	25	83.3	
	Others	-	-	-	-	
3	<b>Type of family</b>					$\chi^2 = 0.13$ Df=1 p= 0.72 N.S
	Nuclear	15	50.0	15	50.0	
	Joint	15	50.0	15	50.0	
	Extended	-	-	-	-	
	Others	-	-	-	-	

**N.S – Not significant** The above table 4.1.2 depicts that majority of the parturient mothers belonged to Hindu religion, were residing in urban area, and lived in nuclear and joint family respectively in both groups.

**Table 4.1.3: Frequency and percentage distribution of demographic variables of parturient mothers with respect to food pattern, habit of doing regular exercises, type and duration of exercise** N=60

S.No.	Demographic Variables	Group A n=30		Group B n=30		Chi square value
		No.	%	No.	%	
1	<b>Food pattern</b>					$\chi^2 = 30.00$ Df=1 p=0.00 S***
	Vegetarian	1	3.3	1	3.3	
	Non- vegetarian	29	96.7	29	96.7	
	Eggetarian/Ova vegetarian	-	-	-	-	
	Others	-	-	-	-	
2	<b>Habit of doing regular exercises</b>					$\chi^2 = 1.67$ Df=1 p= 0.19 N.S
	Yes	16	53.3	20	66.7	
	No	14	46.7	10	33.3	
2.1	<b>IF yes, the type of exercise</b>					-
	Walking	16	53.3	20	66.7	
	Others	-	-	-	-	
2.2	<b>Duration of exercise (Per day)</b>					-
	<30 minutes	16	53.3	20	66.7	
	30-60 minutes	-	-	-	-	
	60-90 minutes	-	-	-	-	
	>90 minutes	-	-	-	-	

**S\*\*\* - High statistical significance, N.S – Not significant**

The above table 4.1.3 describes that majority of parturient mothers were non-vegetarians and had the habit of walking for <30 minutes respectively in both groups.

**Table 4.1.4: Frequency and percentage distribution of demographic variables of parturient mothers with respect to presence of support person during labor, use of CAM for easy labor and type of CAM**

**N=60**

S.No.	Demographic Variables	Group A n=30		Group B n=30		Chi square value
		No.	%	No.	%	
1	<b>Presence of support person during labor</b>					$\chi^2 = 0.96$
	Mother	23	76.6	18	60.0	Df=4
	Mother in law	5	16.7	8	26.7	p= 0.92
	Sister	2	6.7	4	13.3	N.S
2	<b>Use of CAM for easy labor</b>					$\chi^2 = 2.33$
	Yes	13	43.3	21	70.0	Df=1
	No	17	56.7	9	30.0	p= 0.13 N.S
2.1	<b>If yes type of CAM</b>					$\chi^2 = 6.81$
	Kashayam	5	16.7	13	43.3	Df=9
	Black cumin	7	23.3	6	20.0	p= 0.11
	Hot water	1	3.3	2	6.7	N.S

**N.S – Not significant**

The above table 4.1.4 depicts that for majority of the parturient mothers, their mothers were present as a support person during labor and parturient mothers used CAM for easy labor in that majority used black cumin water in group A and Kashayam in group B.

**Table 4.1.5: Frequency and percentage distribution of clinical variables of parturient mothers with respect to medical induction of labor, name of drug for induction, medical augmentation of labor and name of drug for augmentation**

**N=60**

S.No.	Demographic Variables	Group A n=30		Group B n=30		Chi Square Value
		No.	%	No.	%	
1	<b>Medical induction of labor (pair matching variable)</b>					$\chi^2 = 0.05$ Df=1
	Yes	<b>6</b>	<b>20.0</b>	<b>6</b>	<b>20.0</b>	p= 0.82
	No	24	80.0	24	80.0	N.S
2	<b>If Yes, specify the name of the drug</b>					$\chi^2 = 1.85$ Df=4
	Oxytocin	-	-	-	-	p= 0.76
	Prostaglandin	-	-	-	-	N.S
	Oxytocin + Prostaglandin	<b>5</b>	<b>16.7</b>	<b>5</b>	<b>16.7</b>	
	Misoprostol	1	3.3	1	3.3	
	Oxytocin + Misoprostol	-	-	-	-	
3	<b>Medical augmentation of labor (pair matching variable)</b>					$\chi^2 = 0.83$ Df=1
	Yes	<b>24</b>	<b>80.0</b>	<b>24</b>	<b>80.0</b>	p= 0.36
	No	6	20.0	6	20.0	N.S
4	<b>If Yes, specify the name of drug</b>					$\chi^2 = 5.55$



	Oxytocin	23	76.7	23	76.7	Df=4
	Prostaglandin	-	-	-	-	p= 0.24
	Oxytocin + Prostaglandin	-	-	-	-	N.S
	Misoprostol	1	3.3	1	3.3	
	Oxytocin + Misoprostol	-	-	-	-	

**N.S – Not significant**

The above table 4.1.5 shows that the majority of the parturient mothers were induced with oxytocin + prostaglandin and augmented with oxytocin in both groups respectively.

**Table 4.1.6: Frequency and percentage distribution of clinical variables of parturient mothers with respect to BMI of the mother during I trimester, gestational age of the mother and weight of the baby.**

**N=60**

S.No	Demographic Variables	Group A n=30		Group B n=30		Chi square Value
		No.	%	No.	%	
1	<b>BMI of the mother during First trimester (kg/m2)</b> <b>(pair matching variable)</b>					$\chi^2 = 3.29$ Df=4
	18.5-24.9	17	56.67	17	56.67	p= 0.51
	24-29.9	12	40	12	40	N.S
	30-34.9	<b>01</b>	<b>3.33</b>	<b>01</b>	<b>3.33</b>	
2	<b>Gestational age of mother (weeks)</b>					$\chi^2 = 12.71$ Df=9
	37-38	3	10	2	6.7	p= 0.18
	38-39	9	30	8	26.7	N.S
	39-40	<b>12</b>	<b>40</b>	<b>14</b>	<b>46.6</b>	
	40-41	6	20	6	20	
3	<b>Weight of the baby (kgs)</b>					$\chi^2 = 11.29$ Df=9
	2.1-2.5	2	6.7	2	6.7	p= 0.26
	2.6-3	<b>17</b>	<b>56.7</b>	<b>18</b>	<b>60.0</b>	N.S
	3.1-3.5	10	33.3	9	30.0	
	3.6-4	1	3.3	1	3.3	

**N.S – Not significant**

The above table 4.1.6 depicts that the majority of parturient mothers were between BMI of 24-26 kg/m<sup>2</sup>, majority of the parturient mothers were between 39-40 weeks gestation, majority of the baby weighed between 2.6-3 kg in both groups respectively.

Homogeneity was maintained for all the demographic variables however high significant difference with regard to food pattern was identified using chi square at  $P < 0.001$  level.

**SECTION 4.2: ASSESSMENT OF LABOR OUTCOME AMONG PARTURIENT MOTHERS IN GROUP A AND GROUP B**

**Table 4.2.1: Frequency and percentage distribution of maternal outcome among parturient mothers in group A and group B with respect to duration of labor, intensity of uterine contraction and estimated blood loss**

**N=60**

S.No.	Maternal Outcome	Group A n=30		Group B n=30	
		No.	%	No.	%
1	<b>Duration of labor</b>				
	First stage (hours)				
	8-12	8	26.67	2	6.66
	12-16	<b>19</b>	<b>63.33</b>	<b>24</b>	<b>80</b>
	16-20	3	20.00	4	13.33
	Second stage (hours)				
	<1	<b>26</b>	<b>86.67</b>	<b>21</b>	<b>70</b>
	1	1	3.33	0	0
	>1	3	10	3	10
	Third stage (minutes)				
	<15	2	6.67	11	36.67
	15	<b>22</b>	<b>73.33</b>	<b>19</b>	<b>63.33</b>
	>15	6	20	0	0
	Total duration (hours)				
	8-12	6	20	0	0
	12-16	<b>18</b>	<b>60</b>	<b>24</b>	<b>80</b>
	16-20	6	20	6	40
2	<b>Intensity of uterine contractions (hours) (mild, moderate, severe)</b>				
	< 1	3	10	1	3.33
	1-2	1	3.33	2	6.67
	2-3	<b>15</b>	<b>50</b>	<b>11</b>	<b>36.67</b>
	3-4	7	23.34	10	33.33
	>4	4	13.33	6	20
3	<b>Estimated Blood Loss (ml)</b>				
	<500	<b>21</b>	<b>70</b>	<b>16</b>	<b>53.33</b>
	500	0	0	6	20
	>500	9	30	8	26.67

The above table 4.2.1 illustrates that, for majority of the parturient mothers the total duration of labor between 12-16 hours, estimated blood loss was less than 500 ml,

uterine contractions had good progress within the time duration of 2-3 hours for each stage of intensity (mild, moderate and severe).

**Table 4.2.2: Frequency and percentage distribution of maternal outcome among parturient mothers with respect to rate of cervical dilatation, rupture of membrane, and mode of delivery**

**N=60**

S.No.	Maternal Outcome	Group A n=30		Group B n=30	
		No.	%	No.	%
1	<b>Rate of cervical dilatation</b>				
	< 1 cm/hr	5	16.7	9	30.0
	1 cm/hr	<b>16</b>	<b>53.3</b>	<b>12</b>	<b>40.0</b>
	>1 cm/ hr	9	30.0	9	30.0
2	<b>Rupture of membrane</b>				
	Spontaneous	<b>19</b>	<b>63.3</b>	<b>16</b>	<b>53.3</b>
	Artificial	11	36.7	14	46.7
3	<b>Mode of delivery</b>				
	Normal vaginal delivery with episiotomy	<b>27</b>	<b>90.0</b>	<b>24</b>	<b>80.0</b>
	Forceps vaginal delivery	3	10.0	6	20.0
	Vacuum vaginal delivery	-	-	-	-

The above table 4.2.2 describes that the majority of the parturient mothers had the normal cervical dilatation rate that is 1 cm/hr, had spontaneous rupture of membrane and normal vaginal delivery with episiotomy in both groups respectively.

**Table 4.2.3: Frequency and percentage distribution of the neonatal outcome among parturient mothers with respect to APGAR score and admission to NICU**

**N=60**

S.No.	Fetal Outcome	Group A n=30		Group B n=30	
		No.	%	No.	%
1	<b>APGAR score</b>				
	at 1 min (8/10)	30	100	30	100
	at 5 mins (9/10)	30	100	30	100
2	<b>Admission to NICU</b>				
	Yes	<b>3</b>	<b>10.0</b>	<b>6</b>	<b>20.0</b>
	No	27	90.0	24	80.0
2.1	<b>IF yes</b>				
	Birth injuries	3	10.0	6	20.0

The above table 4.2.3 depicts that no differences were identified in APGAR score in both the groups, but majority of babies got admitted in NICU for the reason of birth injuries in group B than group A.

**SECTION 4.3: EFFECTIVENESS OF AMBULATION VERSUS SEMI FOWLER'S POSITION ON LABOR OUTCOME AMONG PARTURIENT MOTHERS**

**Table 4.3.1: Comparison of post test level of labor outcome (duration of labor, intensity of uterine contraction and estimated blood loss) between group A and group B**

**N = 60**

S.No.	Labor Outcome	Group A n = 30		Group B n = 30		Mean Difference	Independent 't' test score
		Mean	S.D	Mean	S.D		
<b>1</b>	<b>Duration of labor</b>						
	I stage of labor (mins)	845.33	141.40	890.50	108.32	45.17	t = 1.39 p = 0.170(NS)
	II stage of labor (mins)	783.33	137.87	840.00	99.46	56.67	t = 1.83 p = 0.073(NS)
	III stage of labor (mins)	44.33	17.01	37.33	16.12	-7.00	t = -1.64 p = 0.107(NS)
	Total duration (Hours)	13.17	2.45	17.67	6.39	<b>-4.50</b>	<b>t = -3.59***</b> <b>p = 0.001(S)</b>
<b>2</b>	<b>Intensity of uterine contraction (mins)</b>						
	Mild	131.83	50.27	158.00	<b>58.50</b>	26.17	t = 1.31 p = 0.20 (NS)
	Moderate	183.50	<b>44.03</b>	193.33	<b>36.75</b>	10.33	t = 0.66 p = 0.50(NS)
	Severe	106.66	36.31	85.00	38.32	21.66	t = 1.59 p = 0.20(NS)



<b>3</b>	<b>Estimated blood loss (ml)</b>	468.67	51.38	475.00	57.35	6.33	t = 0.45 p = 0.654(NS)
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\*\*\* p <0.001, S- High Statistical Significance, NS-Not Significant

The above table 4.3.1 depicts that regarding the duration of labor in hours, the total duration was 13 hrs in group A and 17 hrs in group B and the calculated 't' value - 3.59 which was greater than the table value and indicated that there was a high statistical significant difference in total duration of labor at p<0.001 level. It shows that ambulation reduces the total duration of labor.

With regard to estimated blood loss, in group A the average amount of blood loss was 469 ml whereas in group B it was 475 ml. With regard to intensity of uterine contractions, mild contractions lasted for 2.2 hrs in group A and 2.6 hrs in group B, moderate contractions lasted for 3 hrs in group A and 3.2 hrs in group B, severe contractions lasted for 1.8 hrs in group A and 1.4 hrs in group B. There is no statistical significant difference were present between group A and group B with regard to intensity of uterine contraction and estimated blood loss.

**Table 4.3.2: Comparison of labor outcome (rate of cervical dilatation, rupture of membrane, mode of delivery and admission NICU) among parturient mothers between group A and group B**

N=60

S.No.	Labor outcome	Group A n = 30		Group B n = 30		Chi-square/Fisher's exact score
		No.	%	No.	%	
1	<b>Rate of cervical dilatation</b>					$\chi^2 = 1.714$ p = 0.424 (NS)
	< 1 cm/hr	5	16.7	9	30.0	
	1 cm/hr	<b>16</b>	<b>53.3</b>	<b>12</b>	<b>40.0</b>	
	>1 cm/ hr	9	30.0	9	30.0	
2	<b>Rupture of membrane</b>					$\chi^2 = 0.617$ p = 0.432 (NS)
	Spontaneous	<b>19</b>	<b>63.3</b>	<b>16</b>	<b>53.3</b>	
	Artificial	11	36.7	14	46.7	
3	<b>Mode of delivery</b>					$\chi^2 = 1.176$ p = 0.278 (NS)
	Normal vaginal delivery with episiotomy	<b>27</b>	<b>90.0</b>	<b>24</b>	<b>80.0</b>	
	Forceps vaginal delivery	3	10.0	6	20.0	
4	<b>Admission to NICU</b>					$\chi^2 = 1.176$ p = 0.278 (NS)
	Yes	<b>3</b>	<b>10.0</b>	<b>6</b>	<b>20.0</b>	
	No	27	90.0	24	80.0	

**N.S – Not Significant**

The above table 4.3.2 depicts that the calculated chi- square/ Fishers exact score value showed that there was no statistical significant difference between group A and group B with regard to rate of cervical dilatation, mode of delivery, rupture of membrane and admission to NICU.

**SECTION 4.4: ASSOCIATION OF SELECTED DEMOGRAPHIC VARIABLES WITH LABOR OUTCOME AMONG PARTURIENT MOTHERS IN GROUP A**

**Table 4.4.1: Association of selected demographic variables with labor outcome among parturient mothers in group A with respect to duration of labor (first stage, second stage, third stage and total), intensity of uterine contractions and estimated blood loss**

n=30

Labor outcome	Duration of labor – First Stage		Duration of labor – Second Stage		Duration of labor – Third Stage		Duration of labor – Total		Intensity of uterine contraction		Estimated Blood Loss	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Demographic and Clinical Variables												
Age in years	0.19	0.83	0.43	0.66	0.11	0.89	0.24	0.79	0.19	0.83	1.15	0.33
Educational status	0.29	0.91	1.77	0.16	0.67	0.65	0.25	0.93	0.67	0.65	0.92	0.49
Work Pattern	0.35	0.71	0.71	0.50	0.09	0.92	0.42	0.66	0.29	0.91	0.84	0.44
Religion	2.68	0.09	0.92	0.41	0.38	0.69	2.93	0.07	0.92	0.41	0.03	0.98
Residential area	0.33	0.57	0.31	0.58	0.75	0.39	0.44	0.51	0.58	0.75	0.27	0.61
Type of family	0.06	0.82	0.18	0.68	<b>4.47</b>	<b>0.04*</b>	0.14	0.72	0.18	0.84	2.09	0.16
Food pattern	2.11	0.14	0.35	0.71	0.18	0.84	1.72	0.19	0.35	0.71	0.17	0.84
Habit of doing regular exercises	<b>4.88</b>	<b>0.04*</b>	1.13	0.29	0.52	0.48	3.81	0.06	0.06	0.82	0.42	0.53
Presence of support person during labor	1.42	0.26	1.61	0.22	0.92	0.41	1.72	0.19	0.38	0.69	0.29	0.75
Use of CAM for easy labor	0.12	0.73	1.01	0.32	0.30	0.59	0.24	0.63	0.19	0.83	0.07	0.79
Type of CAM	0.17	0.92	<b>5.33</b>	<b>0.01**</b>	0.18	0.91	0.12	0.95	0.33	0.57	0.64	0.59

Labor outcome	Duration of labor – First Stage		Duration of labor – Second Stage		Duration of labor – Third Stage		Duration of labor – Total		Intensity of uterine contraction		Estimate d Blood Loss	
Medical induction of labor	0.26	0.62	1.93	0.18	<b>4.85</b>	<b>0.04*</b>	0.18	0.68	0.14	0.72	0.18	0.68
Medical augmentation of labor	0.26	0.62	1.93	0.18	<b>4.85</b>	<b>0.04*</b>	0.18	0.68	0.17	0.92	0.18	0.68
Name of the drug for augmentation	0.32	0.73	<b>5.79</b>	<b>0.01**</b>	2.37	0.11	0.14	0.87	0.25	0.93	1.17	0.33
BMI of the mother during First trimester	0.63	0.65	1.32	0.29	1.11	0.37	0.67	0.62	0.42	0.66	0.80	0.54
Gestational age of the mother	0.35	0.54	2.34	0.44	1.28	0.44	1.65	0.23	2.93	0.07	0.13	0.35
Weight of the baby	0.76	0.53	2.01	0.14	0.31	0.82	0.65	0.59	0.63	0.65	<b>3.48</b>	<b>0.03*</b>

**\*\* -Moderate Statistical significance at p<0.01 level, \* - Statistical Significance at p<0.05 level.**

The above table 4.4.1 infers that there was statistically significant association of type of family with duration of third stage of labor, habit of doing exercises with duration of first stage of labor, medical induction and medical augmentation of labor with duration of third stage of labor, weight of the baby with estimated blood loss at p<0.05 level, type of CAM and the drug used for medical augmentation had shown moderately statistical significant association with duration of second stage of labor at p<0.01 level, in group A.

**Table 4.4.2: Association of selected demographic variable with mean duration of first stage of labor among parturient mothers in group A**

**n=30**

<b>S.No.</b>	<b>Demographic Variable</b>	<b>Mean duration of first stage of labor( mins)</b>	<b>Anova value</b>	
<b>1</b>	<b>Habit of doing regular exercises</b>		F	Sig.
	Yes	832.188	<b>4.881</b>	<b>0.035*</b>
	No	727.500		

\* - Statistical Significance at  $p < 0.05$  level.

The above table 4.4.2 reveals that there was statistically significant association of the duration of first stage of labor with habit of doing regular exercises at  $p < 0.05$  level.

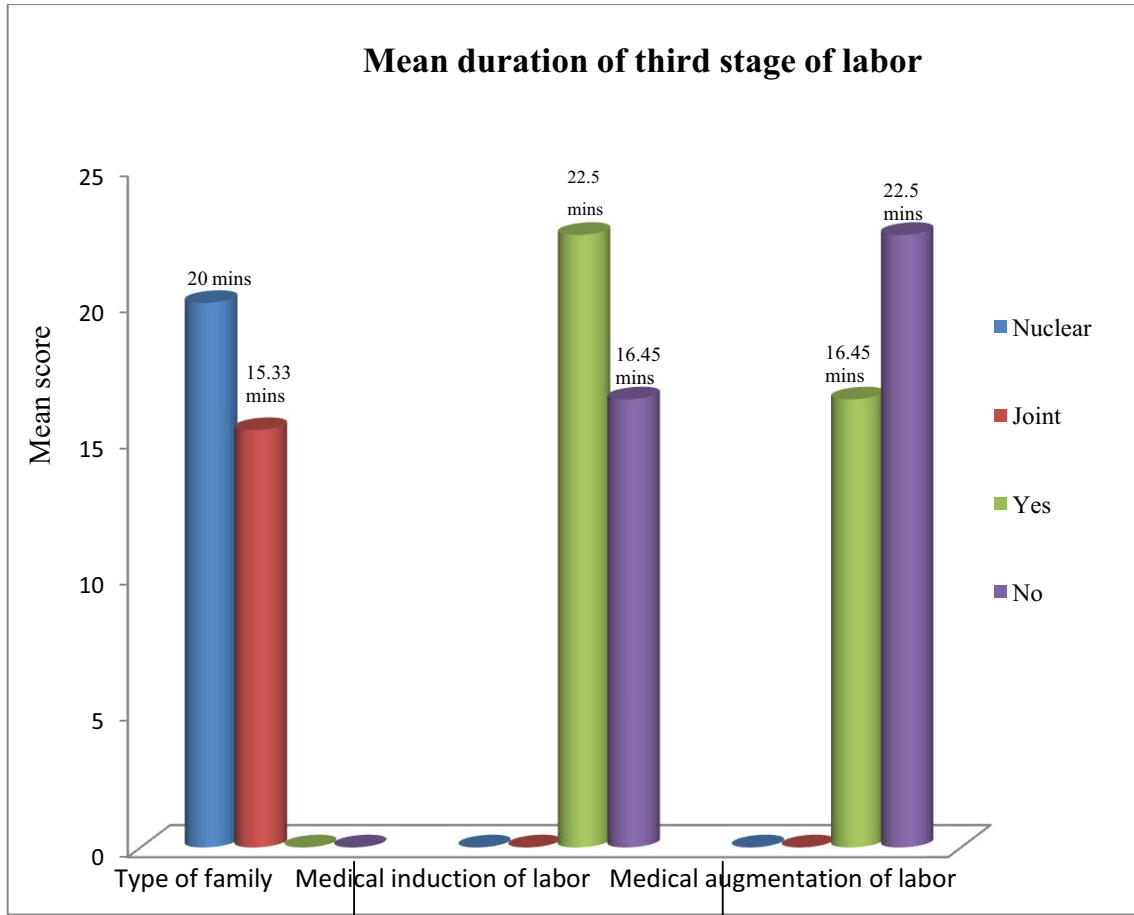
**Table 4.4.3: Association of selected demographic variable with mean duration of second stage of labor among parturient mothers in group A**

**n=30**

S.No.	Demographic Variable	Mean duration of second stage of labor (mins)	Anova value	
			F	Sig.
<b>1</b>	<b>Type of Complementary and Alternative Medicine (CAM)</b>			
	Kashayam	31.000	<b>5.326</b>	<b>0.005**</b>
	Black cumin	40.714		
	Hot water	90.000		
<b>2</b>	<b>Name of the drug for Medical augmentation of labor</b>			
	Oxytocin	44.565	<b>5.799</b>	<b>0.008**</b>
	Misoprostol	90.000		

**\*\* -Moderate Statistical significance at p<0.01 level**

The above table 4.4.3 depicts that there was moderately statistical significant association of duration of second stage of labor with type of CAM and the drug used for medical augmentation of labor at p<0.01 level.



**Figure 4.4.1: Association of selected demographic variable with mean duration of third stage of labor among parturient mothers in group A**

Figure 4.4.1 reveals that the demographic variables type of family, medical induction of labor and medical augmentation of labor had shown statistical significant association with the mean duration of third stage of labor at  $p < 0.05$  level.

**Table 4.4.5: Association of selected demographic variable with mean estimated blood loss among parturient mothers in group A**

**n=30**

S.No.	Demographic Variable	Mean Estimated Blood Loss (ml)	Anova value	
			F	Sig.
<b>1</b>	<b>Weight of the baby (kgs)</b>			
	2.1-2.5	380.00	<b>3.48</b>	<b>0.03*</b>
	2.6-3	465.29		
	3.1-3.5	493.00		
	3.6-4	460.00		

\* - Statistical Significance at  $p < 0.05$  level.

The above table 4.4.5 shows that there was statistically significant association of estimated blood loss with weight of baby at  $p < 0.05$  level.



**Table 4.4.6: Association of selected demographic variables with labor outcome among parturient mothers in group A with respect to rate of cervical dilatation, rupture of membrane and mode of delivery**

n=30

Labor outcome	Rate of cervical dilatation		Rupture of membrane		Mode of delivery	
	$\chi^2 / F$	Sig.	$\chi^2 / F$	Sig.	$\chi^2 / F$	Sig.
Age in years	4.304	0.390	1.174	0.848	1.563	0.616
Educational status	10.739	0.321	3.504	0.784	3.857	0.728
Work Pattern	<b>6.663</b>	<b>0.020*</b>	3.113	0.157	1.912	0.501
Religion	4.592	0.266	1.823	0.387	1.076	0.509
Residential area	2.917	0.243	<b>6.531</b>	<b>0.011**</b>	0.018	0.894
Type of family	2.057	0.284	0.536	0.464	0.370	0.543
Food pattern	3.633	0.724	1.888	0.724	0.238	0.888
Habit of doing regular exercises	1.323	0.516	0.153	0.696	0.238	0.626
Presence of support person during labor	6.845	0.082	0.768	0.814	0.763	0.688
Use of CAM for easy labor	3.100	0.223	0.621	0.431	0.739	0.390
Type of CAM	<b>7.723</b>	<b>0.041*</b>	1.348	0.380	<b>10.019</b>	<b>0.018*</b>
Medical induction of labor	1.744	0.582	1.205	0.272	<b>4.537</b>	<b>0.033*</b>
Medical augmentation of labor	1.744	0.582	1.205	0.272	<b>4.386</b>	<b>0.036*</b>
Name of the drug for Medical Augmentation	3.004	0.685	1.854	0.378	<b>15.185</b>	<b>0.001***</b>
BMI of the mother during First trimester	7.275	0.547	3.752	0.468	5.172	0.298
Gestational age of the mother	2.287	0.154	2.435	0.134	4.560	0.345

Weight of the baby	4.894	0.625	4.495	0.136	2.621	0.665
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**\*\*\* - High statistical Significance at  $p < 0.001$ , \*\* -Moderate Statistical significance at  $p < 0.01$  level, \* - Statistical Significance at  $p < 0.05$  level.**

The above table 4.4.6 illustrates that there was statistical significant association of work pattern with rate of cervical dilatation, type of CAM with rate of cervical dilatation and mode of delivery, medical induction and medical augmentation of labor with mode of delivery at  $p < 0.05$  level. Moderately statistical significant association of residential area with rupture of membrane at  $p < 0.01$  level, high statistical significant association of the drug used for medical augmentation of labor with mode of delivery at  $p < 0.001$  level in group A.

**Table 4.4.7: Association of selected demographic variable with rate of cervical dilatation among parturient mothers in group A**

**n=30**

S.No.	Demographic Variable	Rate of cervical Dilatation			$\chi^2$ /F	Sig.
		< 1 cm/hr	1 cm/hr	>1 cm/hr		
<b>1</b>	<b>Work Pattern</b>					
	Profession	0	1	4	<b>6.66</b>	<b>0.02*</b>
	Skilled worker	0	1	0		
	Unemployed	5	14	5		
<b>2</b>	<b>Type of CAM</b>					
	Kashayam	1	3	1	<b>7.72</b>	<b>0.04*</b>
	Black cumin	0	2	5		
	Hot water	0	1	0		

\* - Statistical Significance at p<0.05 level.

The above table 4.4.7 shows that there was statistically significant association of rate of cervical dilatation with work pattern and type of CAM at p<0.05 level.

**Table 4.4.8: Association of selected demographic variable with rupture of membrane among parturient mothers in group A**

**n=30**

S.No.	Demographic Variable	Rupture of Membrane		$\chi^2 / F$	Sig.
		Spontaneous	Artificial		
<b>1</b>	<b>Residential Area</b>				
	Rural	8	1	<b>6.531</b>	<b>0.011**</b>
	Urban	8	13		

**\*\* -Moderately Statistical significance at p<0.01 level**

The above table 4.4.8 shows that there was moderately statistical significant association of rupture of membrane with residential area at p<0.01 level.

**Table 4.4.9: Association of selected demographic variable with mode of delivery among parturient mothers in group A**

n=30

S.No.	Demographic Variable	Mode of Delivery		$\chi^2$ / F	Sig.
		Normal vaginal delivery with episiotomy	Forceps vaginal delivery		
<b>1</b>	<b>Type of CAM</b>				
	Kashayam	5	0	<b>10.019</b>	<b>0.018*</b>
	Black cumin	6	1		
	Hot water	0	1		
<b>2</b>	<b>Medical induction of labor</b>				
	Yes	4	2	<b>4.537</b>	<b>0.033*</b>
	No	23	1		
<b>3</b>	<b>Medical augmentation of labor</b>				
	Yes	23	1	<b>4.386</b>	<b>0.036*</b>
	No	4	2		
<b>4</b>	<b>Name of the drug for medical Augmentation</b>				
	Oxytocin	23	0	<b>15.185</b>	<b>0.001***</b>
	Misoprostol	0	1		

**\*- Statistical Significance at p<0.05 level.\*\*\*-High Statistical Significance at p<0.001 level.**

The above table 4.4.9 shows that there was statistically significant association of type of CAM, medical induction of labor and medical augmentation of labor with the mode of delivery at p< 0.05 level, high statistically significant association of drug used for medical induction with mode of delivery at p<0.001 level.

**Table 4.4.10: Association of selected demographic variables with labor outcome among parturient mothers in group B with respect to duration of labor, intensity of uterine contraction and estimated blood loss**

n=30

Labor outcome	Duration of labor – First Stage		Duration of labor – Second Stage		Duration of labor – Third Stage		Duration of labor – Total		Intensity of uterine contractions		Estimated Blood Loss	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Demographic and Clinical Variables												
Age in years	0.41	0.53	0.05	0.48	2.61	0.12	0.44	0.52	0.19	0.83	0.03	0.87
Educational status	0.24	0.94	0.60	0.69	0.58	0.72	0.28	0.92	0.67	0.65	1.09	0.39
Work Pattern	0.19	0.67	0.12	0.73	0.69	0.41	0.19	0.67	0.29	0.91	2.96	0.09
Religion	0.36	0.69	0.36	0.70	0.34	0.72	0.41	0.67	0.92	0.41	1.06	0.36
Residential area	0.13	0.72	2.09	0.16	0.03	0.87	0.30	0.59	0.58	0.75	0.09	0.77
Type of family	0.06	0.82	3.09	0.09	0.14	0.72	0.00	0.97	0.18	0.84	3.59	0.07
Food pattern	0.16	0.69	1.20	0.28	0.57	0.46	0.27	0.61	0.35	0.71	0.63	0.43
Habit of doing regular exercises	0.02	0.88	1.00	0.33	0.07	0.79	0.08	0.78	0.06	0.82	0.65	0.43
Presence of support person during labor	0.09	0.91	0.26	0.78	1.48	0.25	0.08	0.87	0.38	0.69	1.16	0.33
Use of CAM for easy labour	0.11	0.74	0.22	0.65	0.06	0.81	0.08	0.71	0.19	0.83	2.33	0.14
Type of CAM	0.24	0.87	0.44	0.73	0.51	0.68	0.32	0.81	0.33	0.57	1.49	0.24
Medical induction of labor	0.16	0.69	0.40	0.53	1.12	0.29	0.09	0.77	0.14	0.72	0.09	0.76

Labor outcome	Duration of labor – First Stage		Duration of labor – Second Stage		Duration of labor – Third Stage		Duration of labor – Total		Intensity of uterine contractions		Estimated Blood Loss	
Name of the drug for Medical Induction	2.04	0.15	0.72	0.49	0.66	0.53	2.01	0.15	0.17	0.92	0.19	0.83
Medical augmentation of labor	0.48	0.49	0.09	0.76	0.27	0.61	0.36	0.55	0.25	0.93	0.22	0.65
Name of the drug for Medical Augmentation	0.37	0.69	0.17	0.84	0.92	0.41	0.34	0.71	0.42	0.66	1.11	0.35
BMI of the mother during First trimester	2.14	0.11	0.51	0.73	1.21	0.33	1.61	0.20	2.93	0.07	0.82	0.53
Gestational age of mother	1.32	0.32	0.77	0.33	1.08	0.44	1.58	0.12	0.63	0.65	1.43	0.34
Weight of the baby	2.06	0.13	1.99	0.14	1.04	0.39	2.28	0.10	0.51	0.73	0.26	0.85

The above table 4.4.10 illustrates that there was no statistical significant association of selected demographic variables with duration of labor, estimated blood loss and intensity of uterine contractions in group B.

**Table 4.4.11: Association of selected demographic variables with labor outcome among parturient mothers in group B with respect to rate of cervical dilatation, rupture of membrane and mode of delivery n=30**

Labor outcome	Rate of cervical dilatation		Rupture of membrane		Mode of delivery	
	$\chi^2$ / F	Sig.	$\chi^2$ / F	Sig.	$\chi^2$ / F	Sig.
<b>Demographic and Clinical Variables</b>						
Age in years	0.455	0.898	2.391	0.122	0.036	0.850
Educational status	7.707	0.745	6.550	0.219	5.166	0.387
Work Pattern	3.288	0.227	1.407	0.236	0.000	1.000
Religion	3.413	0.566	1.522	0.691	2.006	0.501
Residential area	2.600	0.273	0.029	0.865	0.000	1.000
Type of family	0.336	0.643	0.144	0.705	3.333	0.068
Food pattern	2.124	0.600	0.599	0.439	0.259	0.611
Habit of doing regular exercises	1.794	0.180	0.938	0.333	3.815	0.126
Presence of support person during labor	1.464	0.932	0.938	0.755	2.163	0.421
Use of CAM for easy labor	0.482	0.892	0.335	0.563	0.040	0.842
Type of CAM	3.165	0.883	1.690	0.723	0.664	0.886
Medical induction of labor	3.701	0.211	0.335	0.563	0.635	0.426
Name of the drug for Medical Induction	4.396	0.279	1.329	0.641	0.855	0.718
Medical augmentation of labor	3.377	0.219	0.072	0.789	0.938	0.333
Name of the drug for Medical Augmentation	4.961	0.241	0.681	0.483	1.405	0.706
BMI of the mother during First trimester	12.242	0.079	3.794	0.471	5.816	0.164
Gestational age of the mother	4.768	0.221	3.120	0.678	4.324	0.243
Weight of the baby	4.590	0.707	<b>6.352</b>	<b>0.05*</b>	3.884	0.282

**Statistical Significance at p<0.05 level.**

Table 4.4.11 infers that there was statistical significant association of weight of the baby with rupture of membrane at p<0.05 level in group B.



**Table 4.4.12: Association of selected demographic variable with rupture of membrane among parturient mothers in group B**

**n=30**

S.No.	Demographic Variable	Rupture of Membrane		$\chi^2 / F$	Sig.
		Spontaneous	Artificial		
<b>1</b>	<b>Weight of the baby (kgs)</b>				
	2.1-2.5	0	2	<b>6.352</b>	<b>0.05*</b>
	2.6-3	10	8		
	3.1-3.5	8	1		
	3.6-4	1	0		

**\*- Statistical Significance at p<0.05 level.**

The above table 4.4.12 shows that there was statistical significant association of weight of the baby with the rupture of membrane at p<0.05 level.

# *CHAPTER-5*

## *DISCUSSION*

## DISCUSSION

This chapter deals with the discussion on the findings of the study interpreted from the statistical analysis. The study was conducted to assess the effectiveness of ambulation versus semi fowler's position on labor outcome. The findings are discussed in relation to the objectives, need for the study, related literature, conceptual frame work and null hypotheses specified in the study. It is presented in line with the objectives of the study.

As per the stated objectives the findings of the study were discussed.

### **5.1 Description of the demographic variables of parturient mothers in group A and group B**

The demographic variables of both group A and group B as shown in table 4.1.1 to 4.1.6 depicted that majority of the parturient mothers were between the age group of 26-30 years, graduates, unemployed, belonged to Hindu religion, were residing in urban area, lived in nuclear and joint family, non-vegetarians, had the habit of walking for <30 minutes, their mothers were present as a support person during labor, used black cumin water as CAM for easy labor, induced medically using Oxytocin + Prostaglandin, augmented medically using Oxytocin, BMI were between 18.5-24.9 kg/m<sup>2</sup>, gestational age were between 39-40 weeks, the weight of the baby were between 2.6-3kg.

In context to group B the parturient mothers had similar categorization of demographic variables as like group A except age, educational status and type of CAM. In group B the majority of the parturient mothers were between the age group of 21-25 yrs, have completed high school certificate, used Kashayam as CAM for easy labor.

### **5.2 The first objective was to assess the labor outcome among parturient mothers in group A (ambulation) and group B (semi fowler's position).**

The analysis in table 4.2.1 depicted the frequency and percentage distribution of maternal outcome among parturient mothers in group A and group B with respect to duration of labor, intensity of uterine contractions and estimated blood loss. It revealed that for majority of the parturient mothers, the total duration of labor between 12-16 hours, estimated blood loss was less than 500 ml, uterine contractions had good progress within the time duration of 2-3 hours for each stage of intensity (mild, moderate and severe).

The analysis in table 4.2.2 depicted the frequency and percentage distribution of maternal outcome among parturient mothers with respect to rate of cervical dilatation, rupture of membrane, and mode of delivery. In group A most of the parturient mother's cervix dilated at the rate of 1 cm/hr, membranes ruptured spontaneously, had normal vaginal delivery with episiotomy than group B.

The analysis in table 4.2.3 depicted the frequency and percentage distribution of neonatal outcome among parturient mothers with respect to APGAR score and admission to NICU. In both group A and B all the neonates APGAR score was normal but majority of the babies born for group B mothers got admitted in NICU for the reason of birth injuries because of forceps delivery than group A. It stated that after intervention there was no differences observed in neonatal outcome of both group A and B.

The above findings were consistent with the experimental study conducted by multiple researchers (Rosemol 2012; Savitha, Sabitha Nayak, Shyne Paul, 2013) to assess the effectiveness of ambulation during first stage of labor on intensity of labor pain and outcome of labor. The findings revealed that the opinion of experimental group mothers regarding ambulation revealed that 50% of mothers agreed to communicate their neighbors and friends that ambulation was effective in pain relief during labor and 40% of them suggested to make ambulation as a routine in labor room hence the ambulation during labor was very effective in improvement of maternal and fetal outcome.

### **5.3 The second objective was to assess the effectiveness of group A versus group B on labor outcome among parturient mothers.**

The analysis in table 4.3.1 depicted the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers with regard to duration of labor, intensity of uterine contraction and estimated blood loss. Regarding the duration of labor in hours, the total duration was 13 hrs in group A and 17 hrs in group B and the calculated 't' value -3.59 which was greater than the table value and indicated that there was a high statistical significant difference in total duration of labor at  $p < 0.001$  level. It shows that ambulation reduces the total duration of labor. With regard to estimated blood loss, in group A the average amount of blood loss was 469 ml whereas in group B it was 475 ml. With regard to intensity of uterine contractions, mild contractions lasted for 2.2 hrs in group A and 2.6 hrs in group B, moderate contractions lasted for 3 hrs in group A and

3.2 hrs in group B, severe contractions lasted for 1.8 hrs in group A and 1.4 hrs in group B. But there is no statistical significant difference were present with regard to intensity of uterine contraction and estimated blood loss.

The analysis in table 4.3.2 depicted the effectiveness of labor outcome with regard to rate of cervical dilatation, mode of delivery, rupture of membrane and admission to NICU among parturient mothers between group A and group B. The calculated chi- square and Fishers exact score value showed that there was no statistical significant difference between group A and group B.

The above findings were consistent with a randomized and quasi-randomized trials conducted by Lawrence et al., (2010) comparing women randomized to upright versus recumbent positions in the first stage of labor on duration of labor, type of birth and other important outcomes for mothers and babies. Findings revealed that the first stage of labor was approximately one hour and 22 minutes shorter for women randomized to upright as opposed to recumbent positions. Women who were upright were also less likely to have caesarean section and less likely to have an epidural. Babies of mothers who were upright were less likely to be admitted to the neonatal intensive care unit.

The conceptual framework adopted for this study was based on Widenbach's helping art of clinical nursing theory which supported the study and was helpful for the investigator to accomplish the study through an organized process. The investigator perceived the need of implementing the intervention (ambulation versus semi fowler's position) during labor among parturient mothers in labor unit.

The parturient mothers who were in the first stage of labor were the recipient of this study. At the start, the investigator identified the need by assessing the demographic variables. Based on the need which was to attain good labor outcome, during labor process the investigator planned the interventions. The goal was to attain effective labor outcome through the means of prescribing upright positions (ambulation versus semi fowler's). The investigator validated the need by assessing the post test labor outcome which revealed that there was an effective labor outcome among parturient mothers in group A than group B. Thus proving that ambulation was effective to attain effective labor outcome.

Hence the null hypothesis  $NH_1$ , stated earlier that, **“There is no significant difference in labor outcome between group A and group B at the level of  $P<0.05$ ”** was **rejected** for duration of labor and **accepted** for rate of cervical dilatation, intensity of uterine contraction, rupture of membrane, mode of delivery and estimated blood loss, APGAR score and admission to NICU.

#### **5.4 The third objective was to associate the selected demographic variables with labor outcome among parturient mothers in group A and group B.**

The table 4.4.1 revealed that there was statistically significant association of type of family with duration of third stage of labor, habit of doing exercises with duration of first stage of labor, medical induction and medical augmentation of labor with duration of third stage of labor, weight of the baby with estimated blood loss at  $p<0.05$  level, type of CAM and the drug used for medical augmentation had shown moderately statistical significant association with duration of second stage of labor at  $p<0.01$  level, in group A.

The analysis in table 4.4.6 revealed that there was statistical significant association of work pattern with rate of cervical dilatation, type of CAM with rate of cervical dilatation and mode of delivery, medical induction and medical augmentation of labor with mode of delivery at  $p<0.05$  level. Moderately statistical significant association of residential area with rupture of membrane at  $p<0.01$  level, high statistical significant association of the drug used for medical augmentation of labor with mode of delivery at  $p<0.001$  level in group A.

The analysis in table 4.4.10 revealed that there was no statistical significant association of selected demographic variables with duration of labor, intensity of uterine contraction and estimated blood loss in group B.

The analysis in table 4.4.12 revealed that there was statistical significant association of weight of the baby with rupture of membrane at  $p<0.05$  level in group B.

Hence the null hypothesis  $NH_2$  stated earlier that **“there is no significant association of selected demographic variables with labor outcome in group A and group B at the level of  $p<0.05$ ”** was **rejected** for demographic variables namely work pattern, residential area, type of family, habit of doing regular exercises, type of CAM,

medical induction and augmentation of labor and its drug of choice, weight of baby and **accepted** for other variables.

The above discussions clearly represent that the ambulation had statistically significant impact on labor outcome. This draws the conclusion for the study that the ambulation can be used as an effective tool by Midwives, Community Health Nurse, Nurse Educator, Nurse Administrator, Nurse Researcher and Health care professionals in improving the labor outcome among parturient mothers.

# *CHAPTER-6*

*SUMMARY, CONCLUSION,  
IMPLICATIONS,  
RECOMMENDATIONS AND  
LIMITATIONS*



## **SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS**

This chapter presents the summary, conclusion, implications, plan for research utilization, recommendations, plan for research dissemination and limitations of the study.

### **6.1 SUMMARY**

Pregnancy and childbirth are tremendously powerful stages of development that bring, a couple into the family, women to motherhood and a beautiful child into the world. There is no greater gift for a mother than being healthy during labor and having a healthy newborn. Labor being the end of the long expectation of pregnancy, marks the beginning of the extra uterine life of the newborn. Labor process starts with the onset of regular uterine contractions associated with dilatation of the cervix and descent of the presenting part. Laboring woman experiences various degrees of discomfort which is one of the biggest obstacles they don't want to experience. To mark a good beginning, the process and experience of labor should not be a misery for the mother. So they demand for healthier labor, with less discomfort.

Healthy relaxed, homely atmosphere can be created by various upright positions (ambulation and semi fowler's position) which helped the women to undergo the physiological changes without discomfort and enhance effective labor outcome. When the mother is offered with help to have this outcome, her natural process of labor becomes fruitful. To have this fruitful experience, the midwife should provide skillful maternity care right from the I stage of labor. Hence the investigator selected the study to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers.

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

1. To assess the labor outcome among parturient mothers in group A (Ambulation) and group B (Semi fowler's position).
2. To assess the effectiveness of group A versus group B on labor outcome among parturient mothers.

3. To associate the selected demographic variables with labor outcome among parturient mothers in group A and group B.

**The study was based on the assumptions that**

1. All parturient mothers are in need of comprehensive midwifery care during labor
2. Maternal birthing positions may enhance the labor outcome

**The null hypotheses formulated were**

**NH<sub>1</sub>:** There is no significant difference in labor outcome between group A and group B at the level of  $P < 0.05$ .

**NH<sub>2</sub>:** There is no significant association of selected demographic variables with labor outcome in group A and group B at the level of  $P < 0.05$ .

The review of literature was collected from varied primary and secondary sources, along with personal and professional experience and expert's opinion from the field of obstetrical and gynaecological nursing, child health nursing and also medical that provided an ample framework for the selection of problem and for accomplishing the objectives of the study. It also contributed the ideas for framing the conceptual framework, methodology and for the development of the tool for data collection. The conceptual framework for the study was based on **WIEDENBACH'S HELPING ART OF CLINICAL NURSING THORY**, which provided a comprehensive framework for evaluation of the tool.

Quantitative research approach and true experimental post-test only research design was adopted by the nurse investigator to assess the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers. The research study was conducted among the parturient mothers whoever fulfilled the inclusion criteria at Sir Ivan Stedeford Hospital, Ambattur, Chennai. The sample size was 60 who were categorized into 30 in group A and 30 in group B by simple random sampling method (lottery method).

Tool used for data collection consist of 2 parts, part A- data collection and part-B intervention. Structured interview schedule and medical record review was used to assess

the demographic data. A modified WHO partograph and neonatal record was used to assess the labor outcome.

The content validity of the data collection tool and the intervention tool was obtained from 2 medical experts and 3 nursing experts in the field of Obstetrics and Gynecology. The reliability of the tool for labor outcome was done by inter-rater method and the score was 'r' = 0.8. Reliability and pilot study indicated that the tool was reliable for proceeding the study.

Throughout the research study the ethical aspect was maintained by obtaining the ethical clearance certificate from the ICCR. A formal permission was obtained from the Principal, Omayal Achi college of Nursing, Director, Chief Manager, Head of the Department of Obstetrics and Gynaecology, Nursing Superintendent of Sir Ivan Stedeford hospital, Chennai. The study was conducted in maternity ward of Sir Ivan Stedeford Hospital, Ambattur, Chennai in the month of May 2015.

The main study data collection was conducted for a period of 4 weeks. The data collected during the main study was analysed using Statistical Package for Social Science (SPSS) version 13.

#### **Main findings of the study revealed that**

- Descriptive and inferential statistics were used to analyse the collected data. Interpretation and discussion were based on the objectives, null hypotheses, conceptual framework and from various literature review.
- When comparing the post test level of labor outcome with respect to duration of labor, calculated 't' value was greater than the table value which indicated that there was statistically high level of significant difference among parturient mothers between group A and group B at  $p < 0.001$  level.
- When comparing the post test level of labor outcome with respect to rate of cervical dilatation, intensity of uterine contraction, mode of delivery, estimated blood loss and admission to NICU, the calculated chi square/ fishers exact value indicated that there was no statistically significant difference among parturient mothers between group A and group B.

The findings revealed that the ambulation was effective during first stage of labor in reducing the total duration of labor when compared with semi fowler's position. No significant differences were observed in other outcome variables.

## **6.2 CONCLUSION**

The present study assessed the effectiveness of ambulation versus semi fowler's position on labor outcome among parturient mothers. The study findings showed that there was a significant difference in the labor outcome after intervention (ambulation versus semi fowler's position). In ambulation, the average time duration of labor was 13 hours, cervical dilatation rate was 1cm/hr, intensity of uterine contractions had good progress, less number of assisted vaginal delivery, blood loss was within 500ml. In semi fowler's position for most of the mothers the time duration of labor was prolonged (17 hrs), cervical dilatation rate was <1cm/hr, intensity of uterine contractions had poor progress, more number of forceps delivery, blood loss was >500ml. It concluded that when compared with semi fowler's position, ambulation was effective in improving the labor outcome. Hence the ambulation protocol can be utilized during first stage of labor by the nursing professionals in their clinical practice to promote the labor outcome and improve the quality of life which also evidenced by various other research studies .

## **6.3 IMPLICATIONS**

The investigator has drawn the following implications from the study, which is of vital concern in the field of Nursing Practice, Nursing Education, Nursing Administration and Nursing Research.

### **6.3.1 Nursing Practice**

The midwives who are working in maternity unit have a vital role to play in providing effective and safe nursing care to the laboring mother in order to improve maternal comfort, outcome of labor and reduction of labor pain perception. This can be facilitated by motivating the nurse midwife practitioner to:

- have an in depth knowledge on physiological changes and management during labor.
- develop skill in providing efficient nursing care for effective pain management during labor and promote comfort.

- understand the need of motivating the caregivers to implement the ambulation protocol which is cost effective, reliable and can be incorporated during first stage of labor in clinical area to get an effective labor outcome.
- create an awareness among themselves about the effectiveness of ambulation during labor. This will help in prevention of maternal morbidity.
- persuade and educate the family members to provide support and encourage the parturient mothers to follow the ambulation protocol.

### **6.3.2 Nursing Education**

- The nurse educator has the role in incorporating the evidence based protocols into the nursing curriculum for improving the labor process.
- The nursing institutions must offer opportunities for the nursing students to get exposed to practice of ambulation protocol during labor through various In service education, workshop/conference.
- Audio Visual aids (pamphlets, flash cards) can be prepared on ambulation protocol to educate the parturient mothers.

### **6.3.3 Nursing Administration**

The nurse administrator,

- should insist the management to follow an ambulation protocol as a institutional policy and also arrange for an “ambient room.” The intention of the ambient room is to create a calm environment to promote relaxation and ambulation.
- has an important role in creating awareness to implement the ambulation protocol during first stage of labor among the parturient mothers.
- can recommend the Chief Medical Officer to organize Continuing Nursing Education regarding effectiveness of ambulation during first stage of labor on labor outcome.
- should impart knowledge about the ambulation protocol to all the nurses who are working in the labor unit.
- should collaborate with the Governmental and Non-Governmental organizations to create policies and conduct awareness campaign on ambulation protocol to emphasize nursing care during labor.

### **6.3.4 Nursing Research**

The nurse midwife researcher,

- should disseminate the findings of the study to the nurse practitioners and student nurses through internet, journals, literature etc., and motivate them to apply Evidence Based Practice (EBP) in clinical set up.
- should publish the findings of the study through paper/ poster presentation in conferences, seminars and workshops.
- can encourage for further research in the area of various therapeutic (non pharmacologic) modalities to bring an updated accentuate.
- Utilize evidence and research findings in planning, implementing and evaluating the care of parturient women.
- should encourage the staff nurses to implement the research findings in care of similar parturient mothers and bring out more scope to facilitate EBP.
- The generalization of the study result can be made by further replication of the study in various settings and larger population.

### **6.4 PLAN FOR RESEARCH DISSEMINATION**

- The findings of the study will be disseminated in the upcoming National and International conferences conducted at Omayal Achi College of Nursing (OACN).
- The findings will be put up in the newspaper articles and posters.
- The findings will be communicated to the public sectors through multimedia like television, Radio Frequency Modulation (FM), etc.,
- The findings will be published in nursing journals like Nightingale Nursing times, Tamil Nurses Association of India (TNAI), ICCR- Journal Of Nursing (JON) of OACN and Journal of midwifery within 6 months period of time. So that the nurses who read it can take initiative steps to implement such interventions in their hospital set ups.

### **6.5 PLAN FOR RESEARCH UTILIZATION**

- The administrative members of the hospital have approved the ambulation protocol and it was successfully implemented in Sir Ivan Stedeford Hospital (SISH).

- The ambulation protocol will be incorporated in various maternity centres as a routine nursing care during labor.
- The pamphlets can be prepared regarding ambulation protocol and given to the primi mothers as well as care givers during labor in SISH.

## **6.6 RECOMMENDATIONS**

- Utilize the findings of the study to formulate health education services in hospitals, community health centres and community areas.
- The nurse researcher gives a strong recommendation to the midwives who are working in the maternity centres to utilize the ambulation protocol to strengthen the quality of maternity services.
- The nurse researcher will recommend the students of OACN to practice the ambulation protocol in the affiliated hospitals and community centres like Omayal Achi Community Health Centre (OACHC), Avadi Primary Health Centre (PHC), Employee State Insurance (ESI) hospital, Southern Railway Hospital (SRH).

### **The study recommends the following studies for further research**

- Similar study can be replicated on a larger sample to increase validity and generalizability of findings
- The study can be conducted to assess the effectiveness on other outcome variables including physiological and psychological component (fetal descent, maternal pain, satisfaction, anxiety)
- A comparative study can be conducted to assess the effectiveness of other upright positions on labor outcome (kneeling, squatting, standing, hand-knee)
- A study can be conducted to find out the knowledge, attitude and practice towards effectiveness of various upright positions during labor on labor outcome among the nurse midwives
- The same study can be done in different settings
- A comparative study can be conducted to assess the effectiveness of ambulation on labor outcome between primi and multi mothers
- A study can be conducted to assess the effectiveness of other complementary and alternative therapies such as massage, music, warm water bath, breathing exercise during first stage of labor on maternal comfort, pain perception and labor outcome

## 6.7 LIMITATIONS

The midwife researcher found

- difficulty to get reviews related to effectiveness of semi fowler's position on labor outcome
- difficulty in matching the variables
- difficulty to get National and Nursing reviews
- attrition was more due to emergency LSCS

**Table 6.7.1: Rate of attrition**

<b>S.No.</b>	<b>Description</b>	<b>Total No. of samples</b>	<b>No. of emergency LSCS</b>
1	Total no of samples selected	72	
2	Total no of drop outs	12	12
3	Total no of final samples	60	
	<b>Total percentage of attrition</b>		<b>16.66%</b>



# *REFERENCES*

## REFERENCES

### BOOKS

- Adele Pillitteri. (2003). *Maternal and Child Health Nursing*. Philadelphia: Lippincott Williams publications.
- Agarwal, L.D. (2006). *Modern Educational Research*. New Delhi: Dominant Publishers and distributors.
- Bala. (2007). *Fundamentals of Biostatistics*. New Delhi: Ane publications.
- Basavanthappa, B.T. (2007). *Nursing Research*. New Delhi: C.B.S. Publishers.
- Basavanthappa, B.T. (2006). *Textbook of Midwifery and Reproductive Health Nursing*. New Delhi: Jaypee Publications.
- Bobak Irene, M. (2000). *Essential of Maternity Nursing*. Washington: C.V. Mosby Company.
- Bracken, J. (2003). *Sheehy's emergency nursing: Principles and practice*. St. Louis, MO: Mosby.
- Breyer Rosamund, M. (1990). *Theory for Midwifery Practice*. London: Macmillan Press Limited.
- Dickason Elizabeth Jean. (2000). *Maternal-Infant Nursing Care*. Philadelphia: Mosby Publication.
- Donna, L., & Sharon. (1994). *Maternal and Child Nursing Care*. Philadelphia: Mosby Publication.
- Dutta, D.C. (2009). *Textbook of obstetrics including perinatology and contraception*. Kolkatta: New central book agency and publishers.
- Emily Slone McKinney., Susan Rowen James., Sharon Smith Murrey., & Jean Weiler. (2009). *Maternal and Child Nursing*. Missouri: Saunders Elsevier Publications.
- Fraser, D.M.(2005). *Myles textbook for midwives*. Philadelphia: Churchill Livingston publishers.
- Gloria Leifer (2000). *Thompson's Introduction to maternity and pediatric nursing*. Philadelphia: Mosby publications
- Hacker, et al. (2004). *Essentials of Obstetrics and Gynaecology*. New Delhi: Saunders Elsevier Publications.
- Jacob Annamma. (2005). *Comprehensive Textbook of Midwifery*. New Delhi: Jaypee Brothers Publication.

- Jarcho, J. (1934). *Postures & practices during labour among primitive peoples*. New York: Paul Hoeber.
- Lakshmi Seshadri. (2011). *Essentials of Gynecology*. New Delhi: Lippincott Williams and Wilkins Publications.
- Lawrance. (2010). *Guidelines for perinatal care*. Elk Grove Village IL: American Academy of pediatrics and American college of obstetrics and Gynecology.
- Linda,J.et.al., (1994). *Obstetric and Gynecologic care*. USA: Slack incorporate publishers.
- Lowdermilk, D. L., Perry, S. E., Cashion, K., & Alden, K. R. (2012). *Maternity & women's health care*. St. Louis, MO: Elsevier Mosby.
- Lynna, Y. Littleton, et al. (2002). *Maternal, Neonatal and Women's Health Nursing*. Newyork: Delmar publications.
- Mahajans, B.K. (1991). *Methods in Biostatistics*. New Delhi: Jaypee brothers publishers.
- McKinney, E.S., James, S.R., Murrey, S.S., Weiler, J. (2009). *Maternal and Child Nursing*. Missouri: Saunders Elsevier Publications
- Menon Krishna. (2001). *Mudaliyar and Menon's Clinical Obstetrics and Gynaecology*. Madras: Orient Longman Publications.
- Orshan, S.A. (2008). *Maternity, Newborn and Women's Health Nursing*. Philadelphia: Lippincott Williams and Wilkins.
- Pillitteri, A. (2003). *Maternal and Child Health Nursing*. Philadelphia: Lippincott Williams Publications.
- Polit, D.F., & Beck, C.T.(2011). *Nursing research- generating and assessing evidence for nursing practice*. New Delhi: Lippincott Williams publications.
- Raman, A.V. (2014). *Maternity Nursing: Family, Newborn and women's health care*. New Delhi: Wolters kluwer publications.
- Rosamund, B.M. (1990). *Theory for Midwifery Practice*. London: Macmillan press ltd.
- Salhan Sudha. (2007). *Textbook of Obstetrics*. New Delhi: Jaypee publications.
- Simkin, P & Ancheta, R. (2005). *The Labour Progress Handbook*. US Oxford: Blackwell Science.
- Singh Meharban. (2004). *Care of the Newborn*. New Delhi: Sagar Publications.
- Sundar rao. (2006). *Introduction to Bio statistics*. New Delhi: prentice-Hall of India.
- Susan, A., Orshan. (2008). *Maternity, Newborn and Women's Health Nursing*, Philadelphia: Lippincott Williams and Wilkins.

## **JOURNALS:**

- Albers, L., Anderson, D., Cragin, L. (2010). The relationship of ambulation in labour to operative delivery. *Journal of Nurse Midwifery*, 42(1), 4-8.
- Andrews, C.M., Andrews, E.C. (2009). Maternal postures, and fetal position. *Nursing Research*, 32(1), 336-341.
- Boyle, M. (2010). Childbirth in bed: the historical perspective. *The Practising Midwife*, 3(11), 21-24.
- Chunuan, S., Somsap, Y., Pinjaroen, S., Thitimapong, S., Nangham, S., & Ongpalanupat, F. (2009). Effect of the presence of family members during the first stage of labor, on childbirth outcomes in a provincial Hospital in Songkhla province, Thailand. *Thailand journal of nursing Research*, 13 (1), 16-27.
- De Jonge, A., & Lagro-Janssen, A. (2010). Birthing positions: a qualitative study into the views of women about various birthing positions. *Journal of Psychosomatic Obstetrics & Gynaecology*, 25,47-55.
- Elaine Zwelling. (2010). Maternal Movement and Positioning to Facilitate Labor Progress. *MCN: The American Journal of Maternal/Child Nursing*, 35(2), 72 - 78.
- Enkin, M., Kierse, M., Neilson, J., et al. (2011). A Guide to Effective care in Pregnancy & Childbirth. *Oxford University Press*, 28(1), 54-58.
- Thilagavathy Ganapathy. (2012). Use of upright positions during labor. *The Oxford Educational Institutions: Bangalore*, 58(1), 78-80.
- Gottvall, K., Allebeck, P., Ekeus, C. (2009). Risk factors for anal sphincter tears: the importance of maternal position. *BJOG: An International Journal of Obstetrics & Gynaecology*, 114(10), 1266-1272.
- Humphrey, M., Hounslow, D., Morgan, S., et. al. (2009). The influence of maternal posture at birth on the fetus. *Journal of Obstetrics & Gynaecology of the British Commonwealth*, 80(1),1075-80.
- MacLennan, A., Crowther, C., Derham, R. (2010). Does the option to ambulate during spontaneous labour confer any advantage or disadvantage?. *Journal of Maternal & Fetal Medicine*, 3(1), 43-48.
- Marzieh Akbarzadeh, Zahra Masoudi, et. al. (2014). Comparison of the Effects of Maternal Supportive Care and Acupressure (BL32 Acupoint) on Pregnant Women's Pain Intensity and Delivery Outcome. *Community Based Psychiatric Care Research Center*, 72(2), 92-96. [www.hindawi.com/journals/jp/2014/129208](http://www.hindawi.com/journals/jp/2014/129208).

- Meyvis, I., et al. (2012). Maternal Position and Other Variables: Effects on Perineal Outcomes. *Birth*, 39(2), 115-120.
- Nieuwenhuijze, M. J., et al. (2013). Influence on birthing positions affects women's sense of control in second stage of labour. *Journal of Midwifery*, 6(1), 18-22.
- Shallow, H. (2013). My rolling programme. The birth ball: ten years experience of using the physiotherapy ball for labouring women. *Midirs*, 13, 28-30.
- Shorten, A., Donsante, J., Shorten, B. (2012). Birth Position, Accoucheur and Perineal Outcomes: Informing Women about Choices for Vaginal Birth. *Birth*, 29(1), 1827.
- Sutton, J., & Scott, P. (2010). Understanding & Teaching Optimal Fetal Positioning. *Birth Concepts, New Zealand*, 48(2), 108-110.
- Terry, R., Westcott, J., O'Shea, L., Kelly, F. (2014). Postpartum outcomes in supine position by physicians vs non-supine delivery by midwives. *JAOA*, 106(4), 199-202.

## **INTERNET**

- Albers. (2010). Labor positions. *Mayo Foundation for Clinical Education and Research*. 31(4), 413-420. Retrieved from <http://www.mayoclinic.com/health/labor/PR00141>
- Albin Mathew, Sabitha Nayak. (2012). A comparative study to assess the effectiveness of ambulation versus birthing ball, *Nitte University Journal of Health Science*, 2(2), 3-18. doi: ISSN 2249-7110.
- Am Fam Physician. (2010). Upright vs. Recumbent Maternal Position During First Stage of Labor. *Cochrane Database Syst Rev*, 81(3), 285-286. doi: CD003934.x
- Barbara Bodner-Adler. (2010). Women's position during labour: influence on maternal and neonatal outcome. *Obstetrics and Gynaecology clinicals: University Hospital Vienna*. 46(1), 496-499.
- Retrieved from <http://springer.com/article/10.1007/BF03040889>
- Caroline, J., Hollins Martin, Colin, R., Martin. (2012). A narrative review of maternal physical activity during labour and its effects upon length of first stage. *UK: Birth policy*, 31(4), 413-420. Retrieved from [http:// www.elsevier.com/locate/etcp](http://www.elsevier.com/locate/etcp)
- Erica Jacques. (2011). Yoga during Pregnancy. *Life cell international*. 3(1), 18-20. Retrieved from <http://www.livestrong.com/article/358773>.
- Field, T. (2011). Complementary therapies in clinical practice. *Google scholar-scopus*. 17(1), 1-8. doi: 10.1008/j.1099.x.

- Gupta, J.K., Hofmeyr, G.J., & Shehmar, M. (2012). Position in the second stage of labor for women without epidural anaesthesia. *Cochrane Database of systematic reviews*, 12(2), 212-215. doi: 10.1002/14651858.Cd002006.x
- Gupta, J. K. & Nikodem, C. (2010). Maternal posture in labor. *European Journal of Obstetrics, Gynecology and Reproductive Biology*. 92 (2), 273-277. Retrieved from [http://www.ejog.org/article/S0301-2115\(99\)00272-9](http://www.ejog.org/article/S0301-2115(99)00272-9)
- Holis Martin & Martin. (2013). The relationship of ambulation to operative delivery. *Journal of Nurse-Midwifery*, 42 (1), 4-8. Retrieved from <http://download.journals.elsevierhealth.com/pdfs/journals/PIIS009121800.pdf>
- Koshino, T. (2010). Management of regular exercise in pregnant women. *Journal of Mayo Foundation for Clinical Education and Research Nippon Medical School*, 70(2),124–128. Retrieved from <http://www.mayoclinic.com/health/labor/PR00141>
- Lawrence, Lewis, [Hofmeyr](#), Styles.(2013). Maternal positions and mobility during first stage of labour. *Cochrane database syst review*, 20(8), 3-18. doi: 10.1002/14651858.cd003934.pub3. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/23959763>"systhyperlink
- Lorraine Searle. (2010). Benefits and risks of upright positions for labor and Factors influencing maternal positions during labor. *Positions during labor*, 2(1), 2-10. Retrieved from [www.instituteofmidwifery.org/MSFinalProj.nsf/a9ee58d7a](http://www.instituteofmidwifery.org/MSFinalProj.nsf/a9ee58d7a)
- Marco Noventa, Veronica Bacile, et.al.(2014). Women's Choice of Positions during Labour: Return to the Past or a Modern Way to Give Birth. *BioMed Research International*. Retrieved from <http://dx.doi.org/10.1155/2014/638093>
- Melzer, Schutz, Soehnchen et. al., (2010). Effects of recommended levels of physical activity on pregnancy outcomes. *American Journal of Obstetrics and Gynaecology*, 202(3), 266. Retrieved from Google scholar-scopus.
- Salvatore Gizzo, Stefania Di Gangi, et. al .(2014). Effectiveness of various upright positions. *Journal of Pregnancy*,14(1), 62-68. Retrieved from <http://dx.doi.org/10.1155/2014/129208>
- Scott-Pillai, et al., (2013). The impact of body mass index on maternal and neonatal outcomes: a retrospective study in a UK obstetric population. *BJOG: An international Journal of Obstetrics & Gynecology*. 20(1), 4-9. Retrieved from <http://bit.ly/newbjogcontent>.doi: 10.1111/1471-0528.12193.

- Simkin & Ohra.(2011). Evidence-Based Complementary and Alternative Medicine. *Traditional methods*, 20(1), 72-76. Retrieved from <http://dx.doi.org/10.1155/2012/715942>
- Souza, J. P., Miquelutti, M. A., Cecatti, J.G., & Makuch, M. Y. (2010). Maternal position during the first stage of labor. *A systemic review: Reproductive Health*, 3(10), 60-68. Retrieved from <http://www.reproductive-health-journal.com/content/3/1/10>
- Yinglin Liu, Yukun Liu, et al. (2014). Comparison of maternal and neonatal outcomes between water immersion during labor and conventional labor and delivery. *Traditional birthing methods*, 28(2), 22-25. Retrieved from [www.biomedcentral.com/1471-2393/14/160](http://www.biomedcentral.com/1471-2393/14/160)

## REPORTS

- American College of Nurse-Midwives. (2010). *Women delivering in the hospital setting are more exposed to medical interventions*. Retrieved from <http://www.pubmed.com>
- Denis Walsh – References. (2015). *Positions for Labour & Birth Better Birth Positions*. Retrieved from <http://www.pubmed.com>
- Midirs and NHS Centre for Reviews and Dissemination. (2014). *Positions in labour and delivery*. Retrieved from [http://www. Informed Choice for Professionals. com](http://www.InformedChoiceforProfessionals.com)
- Report of the second national US survey of women's child bearing experience. (2010). Common positions used during labor in US hospitals. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc>
- The National Institute for Health and Clinical Excellence.(2012). Avoid using supine position during labor and birth. Retrieved from <http://www.pubmed.com>
- World health organization. (2013). Mobilization and adoption of erect posture during first stage reduces intervention. Retrieved from [http://www. Ncbi.nlm.nih.gov/pmc](http://www.Ncbi.nlm.nih.gov/pmc)

# *APPENDICES*



## APPENDIX – C

### LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Ms. Manonmani. S  
M.sc (N) I year,  
Omayal Achi College of Nursing,  
Puzhal, Chennai.  
To

Respected Sir\Madam,

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

I am **Ms. Manonmani. S** doing my M.sc Nursing I year specializing in Obstetrical and Gynaecological Nursing at Omayal Achi College of Nursing under the guidance of Dr.Mrs.S.Kanchana, Research Director ICCR and speciality guide Mrs.Bhagavathy. S. As a part of my research project to be submitted to the Tamil Nadu Dr. M.G.R. Medical University December 2014 session and in partial fulfilment of the University requirement for the award of M.Sc (N) degree, I am conducting **“A true experimental study to assess the effectiveness of ambulation versus semi fowler’s position on labor outcome among parturient mothers at selected hospital, Chennai”.2015.**

I have enclosed my data collection and intervention tool for your expert guidance and validation. Kindly do the needful.

Thanking you,

Yours faithfully,

**(Ms. Manonmani. S)**

#### ENCLOSURES:

1. Research proposal
2. Data collection tool
3. Intervention tool
4. Content validity form
5. Certificate for content validity

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

### **MEDICAL EXPERTS:**

1. **Dr.S.Latha**, MBBS., DGO (O&G), HOD  
Department of Obstetrics and Gynecology,  
Sir Ivan Stedeford Hospital,  
Ambattur, Chennai-600 053, Tamil Nadu.
2. **Dr.(Mrs) Sucharitha** D.G.O, DNB (O&G)., F.MAS.,  
Medical Officer,  
Department of Obstetrics and Gynecology,  
Sir Ivan Stedeford Hospital,  
Ambattur, Chennai-600 053, Tamil Nadu.

### **NURSING EXPERTS:**

1. **Dr.Rosaline rachel**, M.Sc.,(N), Ph.D., (N)  
Principal,  
MMM College of Nursing,  
Nolambur, Chennai- 600 095.
2. **Dr. Latha** M.Sc.,(N), Ph.D., (N)  
Professor & HOD,  
Department of Obstetrics & Gynecological Nursing,  
SRM college of Nursing,  
SRM University,  
Kattankulathur- 603 203.
3. **Dr. G. Sumathi** M.Sc.,(N), Ph.D., (N)  
Professor,  
Department of Obstetrics & Gynecological Nursing,  
Sri Ramachandra College of Nursing,  
Sri Ramachandra University,  
Chennai- 600 116.

## APPENDIX – F

### INFORMED CONSENT REQUISITION FORM

Good morning,

I **Ms. Manonmani.S** M.Sc.(Nursing) II year student from Omayal Achi College of Nursing, Chennai, conducting “**A true experimental study to assess the effectiveness of ambulation versus semi fowler’s position on labor outcome among parturient mothers at selected hospital, Chennai**”, as a partial fulfilment of the requirement for the degree of M.Sc. Nursing under the Tamil Nadu Dr. M.G.R. Medical University.

I assure you that information provided by you will be kept confidential. So, I request you to kindly cooperate with me and participate in this study by giving your frank and honest responses to the questions being asked.

Thank you.

Signature of the investigator

**Manonmani. S**

## **INFORMED WRITTEN CONSENT FORM**

I understand that I am being asked to participate in a research study conducted by **Ms. Manonmani.S** M.Sc.(Nursing) II year student of Omayal Achi College of Nursing. This research study will assess the **“effectiveness of ambulation versus semi fowler’s position on labor outcome among parturient mothers at selected hospital Chennai.”**

If I agree to participate in the study, I will be interviewed and clinically observed during labor process with regards to efficacy and results of the study. The collection of data will take place in privacy. No identifying information will be included when it is transcribed. I understand that there are no risks associated with this study.

I realize that the knowledge gained from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decided to discontinue my participation in the study, I will continue to be treated in the usual and customary fashion.

I understand that all my study data will be kept confidential. However this information may be used in nursing publication or presentations. If I need to, I can contact **Ms.Manonmani.S** M.Sc.(Nursing) student of Omayal Achi College of Nursing, No. 45 Ambattur road, Puzhal, Chennai at any time during the study.

The study has been explained to me. I have read and understood this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

-----  
**Signature of Participant /Thumb impression**

-----  
**Date:**

-----  
**Signature of Investigator**

-----  
**Date**

## APPENDIX – G

### I. TOOL TO ASSESS THE DEMOGRAPHIC VARIABLES

#### Sample No:

1. Age in years
  - a. 21-25
  - b. 26-30
  - c. 31-35
  
2. Educational status
  - a. Professor or Honours
  - b. Graduate or Post graduate
  - c. Intermediate or Post high school diploma
  - d. High school certificate
  - e. Middle school certificate
  - f. Primary school certificate
  - g. Non – literate
  - h. Others
  
3. Work Pattern
  - a. Profession
  - b. Semi profession
  - c. Clerical, shop owner
  - d. Skilled worker
  - e. Semi skilled worker
  - f. Unskilled worker
  - g. Unemployed
  - h. Others
  
4. Religion
  - a. Hindu
  - b. Christian
  - c. Muslim
  - d. Others

5. Residential area

- a. Slum
- b. Rural
- c. Semi urban
- d. Urban
- e. Others

6. Type of family

- a. Nuclear
- b. Joint
- c. Extended
- d. Others

7. Food pattern

- a. Vegetarian
- b. Non- vegetarian
- c. Eggetarian / Ova vegetarian
- d. Others

8. Habit of doing regular exercises

- a. Yes
- b. No

If yes,

8.1 The Type of exercise

- a. Walking
- b. Others

8.2. Duration of exercise (Per day)

- a. <30 minutes
- b. 30-60 minutes
- c. 60-90 minutes
- d. >90 minutes

9. Presence of support person during labor

- a. Mother
- b. Mother in law
- c. Sister

10. Use of CAM for easy labor

- a. Yes
- b. No

10.1 If yes type of CAM

- a. Kashayam
- b. Black cumin
- c. Hot water

11. Medical induction of labor

- a. Yes
- b. No

11.1 If Yes, specify the name of the drug

- a. Oxytocin
- b. Prostaglandin
- c. Oxytocin + Prostaglandin
- d. Misoprostol
- e. Oxytocin + Misoprostol

12. Medical augmentation of labor

- a. Yes
- b. No

12.1 If Yes, specify the name of drug

- a. Oxytocin
- b. Prostaglandin
- c. Oxytocin + Prostaglandin
- d. Misoprostol
- e. Oxytocin + Misoprostol

### **Clinical Variables**

13. BMI of the mother during first trimester ( kg/m<sup>2</sup>)

- a. 18.5-24.9
- b. 24-29.9
- c. 30-39.9

14. Gestational age of the mother (weeks)

- a. 37-38
- b. 38-39
- c. 39-40
- d. 40-41

15. Weight of the baby (kg)

- a. 2.1-2.5
- b. 2.6-3
- c. 3.1-3.5
- d. 3.6-4



## II. TOOL TO ASSESS THE LABOR OUTCOME

### A. Modified WHO Partograph to assess the maternal outcome

1. Duration of labor
  - a. First stage -----
  - b. Second stage -----
  - c. Third stage -----
  - d. TOTAL (Hours) -----
  
2. Rate of cervical dilatation
  - a. <1cm/hr
  - b. 1cm/hr
  - c. >1cm/hr
  
3. Intensity of uterine contractions
  - a. Mild -----
  - b. Moderate -----
  - c. Severe -----
  
4. Rupture of membrane
  - a. Spontaneous
  - b. Artificial
  
5. Mode of delivery
  - a. Normal vaginal delivery with episiotomy
  - b. Forceps vaginal delivery
  - c. Vacuum vaginal delivery
  
6. Estimated blood loss (ml) -----

**B. Neonatal record to assess the neonatal outcome**

7. APGAR score

a. at 1 min -----

b. at 5 mins -----

8. Admission to NICU

a. Yes

b. No

If Yes, the reason for admission -----

## APPENDIX – H

### I. CODING FOR DEMOGRAPHIC VARIABLES

#### Sample No.

1. Age in years	
a. 21-25	1
b. 26-30	2
c. 31-35	3
2. Educational status	
a. Professor or Honours	1
b. Graduate or Post graduate	2
c. Intermediate or Post high school dip	3
d. High school certificate	4
e. Middle school certificate	5
f. Primary school certificate	6
g. Non – literate	7
h. Others	8
3. Work Pattern	
a. Profession	1
b. Semi profession	2
c. Clerical, shop owner	3
d. Skilled worker	4
e. Semi skilled worker	5
f. Unskilled worker	6
g. Unemployed	7
h. Others	8
4. Religion	
a. Hindu	1
b. Christian	2
c. Muslim	3
d. Others	4

5. Residential area	
a. Slum	1
b. Rural	2
c. Semi urban	3
d. Urban	4
e. Others	5
6. Type of family	
a. Nuclear	1
b. Joint	2
c. Extended	3
d. Others	4
7. Food pattern	
a. Vegetarian	1
b. Non- vegetarian	2
c. Eggetarian / Ova vegetarian	3
d. Others	4
8. Habit of doing regular exercises	
a. Yes	1
b. No	0
If yes,	
8.1 The Type of exercise	
a. Walking	1
b. Others	2
8.2. Duration of exercise (Per day)	
a. <30 minutes	1
b. 30-60 minutes	2
c. 60-90 minutes	3
d. >90 minutes	4

9. Presence of support person during labor	
a. Mother	1
b. Mother in law	2
c. Sister	3
10. Use of CAM for easy labor	
a. Yes	1
b. No	0
10.1 If Yes, type of CAM	
a. Kashayam	1
b. Black cumin	2
c. Hot water	3
11. Medical induction of labor	
a. Yes	1
b. No	0
11.1 If Yes, specify the name of the drug	
a. Oxytocin	1
b. Prostaglandin	2
c. Oxytocin + Prostaglandin	3
d. Misoprostol	4
e. Oxytocin + Misoprostol	5
12. Medical augmentation of labor	
a. Yes	1
b. No	0
12.1 If Yes, specify the name of drug	
a. Oxytocin	1
b. Prostaglandin	2
c. Oxytocin + Prostaglandin	3
d. Misoprostol	4
e. Oxytocin + Misoprostol	5

### Clinical Variables

13. BMI of the mother during first trimester ( kg/m<sup>2</sup>)

- |              |   |
|--------------|---|
| a. 18.5-24.9 | 1 |
| b. 24-29.9   | 2 |
| c. 30-39.9   | 3 |

14. Gestational age of the mother (weeks)

- |          |   |
|----------|---|
| a. 37-38 | 1 |
| b. 38-39 | 2 |
| c. 39-40 | 3 |
| d. 40-41 | 4 |

15. Weight of the baby (kg)

- |            |   |
|------------|---|
| a. 2.1-2.5 | 1 |
| b. 2.6-3   | 2 |
| c. 3.1-3.5 | 3 |
| d. 3.6-4   | 4 |

## II. TOOL TO ASSESS THE LABOR OUTCOME

### A. Modified WHO Partograph to assess the maternal outcome

#### 1. Duration of labor

##### a) First stage (hours)

- |          |   |
|----------|---|
| A. 8-12  | 1 |
| B. 12-16 | 2 |
| C. 16-20 | 3 |

##### b) Second stage (hours)

- |       |   |
|-------|---|
| A. <1 | 1 |
| B. 1  | 2 |
| C. >1 | 3 |

##### c) Third stage (minutes)

- |        |   |
|--------|---|
| A. <15 | 1 |
| B. 15  | 2 |
| C. >15 | 3 |

##### d) TOTAL (Hours)

- |          |   |
|----------|---|
| A. 8-12  | 1 |
| B. 12-16 | 2 |
| C. 16-20 | 3 |

#### 2. Rate of cervical dilatation

- |             |   |
|-------------|---|
| A. <1 cm/hr | 1 |
| B. 1cm/hr   | 2 |
| C. >1cm/hr  | 3 |

#### 3. Intensity of uterine contractions (hours)

##### a) Mild

- |        |   |
|--------|---|
| A. < 1 | 1 |
| B. 1-2 | 2 |
| C. 2-3 | 3 |

D. 3-4	4
E. >4	5
b) Moderate	
A. < 1	1
B. 1-2	2
C. 2-3	3
D. 3-4	4
E. >4	5
c) Severe	
A. < 1	1
B. 1-2	2
C. 2-3	3
D. 3-4	4
E. >4	5
4. Rupture of membrane	
A. Spontaneous	1
B. Artificial	2
5. Mode of delivery	
A. Normal vaginal delivery with episiotomy	1
B. Forceps vaginal delivery	2
C. Vacuum vaginal delivery	3
6. Estimated blood loss (ml)	
A. <500	1
B. 500	2
C. >500	3



**B. Neonatal record to assess the neonatal outcome**

7. APGAR score

- A. at 1 min - 8/10 1
- B. at 5 mins - 9/10 2

8. Admission to NICU

- A. Yes 1
- B. No 0

8.1 If Yes, the reason for admission

- A. Admission to NICU 1

## APPENDIX – I

### BLUE PRINT

<b>S.No.</b>	<b>Content</b>	<b>Item</b>	<b>Total Items</b>	<b>Percentage</b>
<b>I</b>	<b>Demographic variables</b>	1-15	15	100
<b>II</b>	<b>Labor outcome</b>			
	A. Maternal outcome	1-6	6	75
	B. Neonatal outcome	1-2	2	25
	<b>Total</b>	<b>8</b>	<b>8</b>	<b>100</b>

## **APPENDIX – J**

### **INTERVENTION PROTOCOL**

**Method:** One-to-one method

**Venue:** Maternity ward

#### **Pre-Procedure**

- Greet the parturient mother
- Establish rapport with the parturient mother
- Explain the procedure to the parturient mother and support person
- Obtain informed written consent
- Assess the demographic variables
- Advise the parturient mother to take adequate fluids
- Reassure the parturient mother
- Monitor the vital signs and FHR pattern
- Prepare the environment for ambulation and arrange pillows for semi fowler's position

#### **Procedure**

##### **Group A (Ambulation)**

- Encourage the parturient mother to walk for 20 minutes on a flat surface along with support person
- The parturient mother can take rest in left lateral position for 10 minutes in between ambulation
- Advise the parturient mother to continue the procedure for 6 times till full cervical dilatation
- Insist her to stop walking and inform if any discomfort occurs
- Monitor the vital signs and FHR pattern in between the procedure after each cycle
- Maintain the modified WHO Partograph to record the findings
- Maintain the ambulation chart during the procedure

### AMBULATION CHART

Date	No. of Times	Ambulation		Rest (Left lateral position)	
		Time	Duration	Time	Duration
<b>Total</b>					

#### Group B (Semi fowler's position)

- Position the parturient mother in semi fowler's (is the position of a patient who is lying on bed in a supine position with the head of the bed at approximately 30-45° angle) for 20 minutes
- The parturient mother can take rest in left lateral position for 10 minutes in between the semi fowler's position
- Advise the parturient mother to continue the procedure for 6 times till full cervical dilatation
- Insist her to inform if any discomfort occurs
- Monitor the vital signs and FHR pattern in between the procedure after each cycle
- Maintain the modified WHO Partograph to record the findings
- Maintain the semi fowler's chart during the procedure

### SEMI FOWLER'S POSITION CHART

Date	No. of times	Semi fowler's position		Rest (Left lateral position)	
		Time	Duration	Time	Duration
<b>Total</b>					

**Post -procedure**

- Maintain privacy
- Do per vaginal examination to identify the rate of cervical dilatation
- Position the parturient mother in left lateral
- Continuously monitor the FHR pattern during second stage of labor (from full cervical dilatation till delivery of baby)
- Reassure the parturient mother for safe delivery
- Monitor the labor outcome (maternal and fetal outcome)
- Document the findings of labor outcome

## APPENDIX – M

<b>DISSERTATION EXECUTION PLAN - GANNT CHART</b>																				
S.N	O	CALANDE R MONTHS	No v '14	De c '14	Ja n '15	Fe b '15	Ma r '15	Ap r '15	Ma y '15	Jun e '15	Jul y '15	Au g '15	Se p '15	Oc t '15	Nov '15	De c '15	Ja n '16	Fe b '16	Ma r '16	Ap r '16
<b>A</b>		<b>Conceptual phase</b>																		
1		Problem identification																		
2		Literature review																		
3		Clinical fieldwork																		
4		Theoretical framework																		
5		Hypothesis formulation																		
<b>B</b>		<b>Design &amp; planning phase</b>																		
6		Research design																		
7		Intervention protocol																		
8		Population specification																		
9		Sampling plan																		
10		Data lection plan																		
11		Ethics procedure																		
12		Finalization of plans																		
<b>C</b>		<b>Empirical phase</b>																		
13		Data collection																		
14		Data preparation																		
<b>D</b>		<b>Analytical phase</b>																		
15		Data analysis																		
16		Interpretation of results																		
<b>E</b>		<b>Dissemination phase</b>																		
17		Presentation or report																		
18		Utilization of findings																		
		<b>Calendar months</b>	11	12	01	02	03	04	05	06	07	08	09	10	11	12	13	01	02	03

**APPENDIX – N**

**PHOTOGRAPHS**



*Group-A Ambulation*



*Group-B Semifowler's position.*

*Oral informed consent was obtained to publish the photographs in the dissertation*