

## Study to Assess the Effect of Ambulation during 1<sup>st</sup> Stage of Labour on Fetomaternal Parameters among Primigravida Mothers at Government Maternity Hospital, Tirupati, A.P.

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### Abstract

The study was conducted to assess the effect of ambulation on fetomaternal parameters during first stage of labour among primigravida mothers. *Objectives:* To assess the effect of ambulation on fetomaternal parameters among primigravida mothers during 1<sup>st</sup> stage of labour. To compare the effect of ambulation on fetomaternal Parameters among primigravida mothers with demographic variables of the experimental group. To find out the association between the effect of ambulation on fetomaternal true- experimental, post-test only control group design was used to achieve the objectives of the study. Probability simple random sampling technique was adopted to select the sample. The sample size comprised of 60 primigravida mothers, 30 mothers in the experimental group and 30 mothers in the control group. Analysis of data was done by using descriptive and inferential statistics. *Findings of the study:* Except In The Labour Pain Perception the mean scores of fetomaternal parameters were significantly higher in the experimental group than in the control group. The ambulation was found as an effective strategy in reducing labour pain of primigravida mothers, as the 't' value computed (t=13,699), in increasing cervical dilatation (t=6,975), in increasing cervical effacement (t=9,937), in increasing frequency of uterine contractions (t=17,748), in increasing duration of uterine contractions (t=14,780), in shortening duration of 1<sup>st</sup> stage of labour (t=12,325), in good facilitation of fetal head descent (t=10,543), all which were significant at p<0.01. The fetal heart rate (t=2.140) was significant at p<0.05 level. Relationship between the ambulation effect of fetomaternal parameters among primigravida mothers with respect to their demographic variables I the experimental group was analyzed by using chi-square (c<sup>2</sup>) test. *Conclusions:* The findings revealed that majority of respondents in the experimental group were having less labour pain, increased cervical dilatation and effacement, increased frequency and duration of uterine contractions, shorter duration of 1<sup>st</sup> stage of labour, rapid fetal head descent and good fetal heart rate in the 1<sup>st</sup> stage of labour. The ambulation was effective intervention for the primigravida mothers to get good maternal and fetal outcome. There was no relationship between the effect of ambulation on fetomaternal parameters with demographic variables of primigravida mothers in the experimental group except with gestational age in weeks. A similar study can be conducted on a larger population. A similar study can be undertaken on a sample with different demographic characteristic like husband's education and occupation. A similar study can be carried out by using different fetomaternal parameters like rupture of membranes and engagement. A similar study can be conducted by increasing the length of ambulation. A comparative study can be onducted by providing ambulation to both primigravida and multigravida mothers to assess fetomaternal parameters. A similar study can be conducted by using other intervention like maternal positions and its effect on fetomaternal parameters.

**Keywords:** Fetomaternal; Primigravida Mothers.

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## Introduction

“ Some are dear friends  
Some are strangers, But  
We are linked by the common  
Thread of mother hood”

*Patrica A. Hani*

### *Back Ground of the Study*

The child birth for a mother is an important contribution to the parenthood and it is highly personal and individual experience. A mother's joy begins when new life is stirring inside when a tiny heart beat is heard for the very first time and a playful kick remains her that she is never alone. Labor the culmination of pregnancy (or) gestation period with birth of new born infant from a woman's uterus (*Wikipedia, Child birth 2009*).

Ambulation is one measure which increases maternal comfort. A woman in labor should be allowed to ambulate for a long as she desires provided there are no complications. The woman's freedom to walk, sit in a chair and use the toilet is certainly more conducive to normal process than the sickness orientation of being confined to bed (*Annamma Jacob, 2008*).

Studies carried out on ambulation, mobility and positioning during labor agree that mobility during labor improves both woman's experience and the outcome of labor. There is general agreement that many women desire mobility during labor, however, the possible benefits of walking on labor and delivery are inclusive. Initial reports stated that ambulation could reduce the duration of the first stage of labor, the need for labor augmentation with oxytocin, the need for analgesia, the requirement for instrumental deliveries and incidence of fetal distress. (*Anesthesia related article 2004*).

Ambulation was defined as a minimum of 3mts of walking per hour and as long as she desired. Patients were not allowed to ambulate if there are persistent fetal decelerations as determined by the obstetrician. Additionally, patients were not permitted to be out of bed if the presenting part was lower than '0' station (because of the possibility of fetal head compression) or in the second stage of labor when patients were actively pushing, (*Anesthesiology 2001*).

### *Need for the Study*

“Just as a woman's heart know how and when to

pump, her lungs to inhale and her hands to pull back from fire, so she knows when and how to give birth”.

*Virginia Di Orio*

Some women choose to give birth using no medications at all, natural child birth is a “low-tech” way of giving birth by letting nature take its course. This includes going through labour without the help of medications. This results to deal with labour in a proactive manner (*Natural child birth 2009*).

Ambulation is commonly believed to be value in the establishment and progression of active labour. The purported advantages of ambulation and the upright position during labour include enhancement of the pelvic diameters, increased co-ordination of uterine contractions, less pain, shorter 1<sup>st</sup> stage labor, less need for oxytocin augmentation, greater maternal comfort and relaxation, fewer fetal heart rate changes, improved APGAR scores and fewer perineal tears.

A.M. Flynn et al., (1978) conducted a randomized prospective study on ambulation in labour with continuous fetal monitoring in the ambulant patient by means of radio telemetry at University of Birmingham. They have selected 68 women in spontaneous labour 33 were allocated to an ambulate group and 33 are control group. The study findings concluded that the duration of labour was significantly shorter, the need for analgesia significantly less and the incidence of fetal heart abnormalities significantly smaller in the ambulant mothers than in the recumbent group. So ambulation in labour should be encouraged it may bring human benefits (*British medical journal 1978*).

### *Statement of the Problem*

“A study to assess the effect of ambulation during 1<sup>st</sup> stage of labour on fetomaternal parameters among primigravida mothers at Government Maternity Hospital, Tirupati”.

### *Objectives of the Study*

- To assess the effect of ambulation on fetomaternal parameters among primigravida mothers during 1<sup>st</sup> stage of labour.
- To compare the effect of ambulation on fetomaternal parameters between experimental and control group.
- To find the association between post ambulation

fetomaternal parameters and the demographic variables of the experimental group.

- To collect opinion of the mothers related to ambulation before and after the intervention in the experimental group.

#### *Null Hypothesis*

H<sub>01</sub>: There will be no significant difference before and after ambulation on fetomaternal parameters among primigravida mothers during 1<sup>st</sup> stage of labor in the experimental group.

H<sub>02</sub>: There will be no significant difference on fetomaternal parameters between experimental and control group.

H<sub>03</sub>: There will be no significant association between post assessment levels of ambulation on fetomaternal parameters among primigravida mothers during 1<sup>st</sup> stage of labor with respect to their demographic variables in the experimental group.

#### *Assumptions*

The study was based on the following assumptions.

1. Fetomaternal parameters in primigravida women are unique and will differ from mother to mother
2. Ambulation enhances fetomaternal parameters at best level
3. As the primigravida mothers encounters labor for the first time their case compliance will be positive
4. Parturient mothers would be willing to participate in the study
5. Parturient mothers will co-operate and respond appropriately to the structured interview schedule
6. Behavior of the individual is influenced by the individual differences.

#### *Delimitations*

1. The study is limited to primigravida mothers in the first stage of labor
2. Mothers who were admitted in the waiting room department at Government maternity hospital, Tirupati were considered for the study during the data collection period
3. The data collection period is limited to 6 weeks  
Only those parturient mothers who were willing

to participate in the study.

#### **Review of Literature**

The investigator carried out extensive review of literature from the published, unpublished scholarly articles and internet search to broaden the understanding and insight into the selected problem under study. The review of literature is a broad overview of studies, which are organized and arranged under the following headings.

1. Literature related to effect of ambulation on labor
2. Literature related to effect of ambulation on maternal parameters.
3. Literature related to effect of ambulation on fetal parameters.

#### *Literature Related to Effect of Ambulation on Labour*

Nair a et al., (2007) conducted a randomized study on "Benefits of ambulation with squatting position during second stage of labor" at Tinned postgraduate medical centre. Karchi University. In the study a total of 200 parturient of similar antepartum, intrapartum above 37 weeks gestation mothers are included. Random selection was done after informed consent and alternatively divided in two groups A & B. Group A mothers were ambulatory during first stage of labor. In the second stage these mothers adopted squatting position. Group 'B' mothers were adopted in supine position. Second and third degree perineal tears occurred in 9% patients in the non squatting position mothers. Application of forceps 11% in group 'A' and 24% in group 'B'. The study findings concluded that ambulation with squatting position may result in less instrumental deliveries, extension of episiotomies and perineal tears.

Molina FJ, et al (2007) conducted a randomized controlled study on "Evaluation of the relationship between the parturient's position & her abdominal & lumbar pain during the first stage of labour" at Department of anaesthesiology, Buenos Aires, Argentina. A homogenous group of 100 parturients was randomly assigned to alternately assume the horizontal (or) the vertical position for 15 min. period. Their pain was measured at 2-3, 4-5, 6-7 & 8-9 centimeters dilatation. Pain levels are measured by using visual analogue pain scale. The analysis revealed that a majority of patients felt less abdominal & lumbar pain during recumbency.

The study findings concluded that recumbency position decreases the pain markedly when

dilatation exceeded 5 centimeters.

### 1. Literature Related to Effect of Ambulation on Maternal Parameters

Lawrence A et al., (2009) conducted a systematic review of interventions "On effect of Ambulation versus recumbent position for women in the first stage of labor on length of labour" at the Townsville Hospital and University, Australia, during November 2008. The reviews includes 21 studies with total of 3706 women. (M.D-0.99, 95% CI - 1.60 to -0.39) in ambulation group and ambulation do not seem to be associated with increased intervention (or) negative effect on mothers and fetal well being. The study findings concluded that there is evidence that walking and upright positions in the first stage of labor reduce the length of labor one hour shorter for women with ambulation than the women in recumbent position.

Conell - Price J. et. al., (2008) conducted a retrospective data base study on "Upright position (or) walking with labor pain with increasing intensity of uterine contractions" at Columbia university, New York USA. In study 200 consecutive nulliparous parturient who delivered at New York Presbyterian hospital between October 2006 & January 2007. Numerical rating scale scores for pain with contractions (0-10 scale) was used. The study findings concluded that walking has significant effect on increasing intensity of uterine contractions with increasing labor pain.

Ragusa A. Mansur M et al., (2005) conducted a prospective study on "Onset Of labour and effect of ambulation" at University of Niguarala Hospital, Milan, Italy. In this study 423 pregnant women who presented themselves with uterine contractions to 2 Italian Hospitals (248 Nulli parous mothers and 175 multiparous total) are included multivariate analysis showed increasing intensity of uterine contractions (or = 1.42; 95% CI 0.01 - 2.02) in the ambulant group observed. The study findings concluded that ambulation (or) walking promotes regular uterine contractions with less pain perception.

Literature Related to Effect of Ambulation on Fetal Parameters.

Duchy - Bouthors A.S. et al., (2006) conducted a prospective randomized study on "Upright position (or) ambulation able to help fetal head rotation" at University of France. The study included 93 parturients. In the study kneeling, Sitting and walking was used to observe fetal head descent. The

study findings concluded that upright posture with ambulation facilitates fetal head rotation and descent.

Firestone et al., (2001) conducted a prospective randomized study on "Aambulation reportedly increases maternal comfort, facilitates fetal head descent and relaxes the pelvic musculature" at University of Pitts Burgh school of medicine, Pennsylvania. In this study 160 nulliparous women were randomly assigned ambulation. Results are expressed as mean +1- SD and analyzed using the 't' test, Chisquae or the mann - whitnay test at P< or 0.05. The ambulatory group walked 25.0+/- 23.3 min, sat upright 40.3 +/- 29.7 min. (or) both. The results showed rapid fetal head descent in the ambulatory group. The study findings concluded that ambulation during labor facilitates fetal head descent and promotes maternal comfort, It is beneficial to both mother and baby.

## Research Methodology

### Research Approach

The research approach that was used in the present study was "true-experimental approach". This involves the manipulation of the independent variable, that is, providing ambulation to the experimental group.

### Research Design

The term research design refers to the plan (or) organization of scientific investigation. The research design selected for the study to achieve the objective was "True-Experimental, Post-Test Only Control Group Design" which consists of randomization, manipulation and control. The research design includes comparison and evaluation of variables after providing intervention to the experimental group.

### Diagrammatic Representation of Design:

Group	Intervention	Post test
Experimental	X	O <sub>1</sub>
Control	--	O <sub>2</sub>

X=Intervention i.e Ambulation provided to the experimental group.

O<sub>1</sub>=Post assessment of fetomaternal parameters in the experimental group.

O<sub>2</sub>=Post assessment of fetomaternal parameters among primigravida mothers in control group.

### *Variable Under Study*

#### *Independent Variable*

A presumed “**cause**” was referred to as an independent variable. Ambulation was the independent variable in this study.

#### *Dependent Variable*

A presumed “**effect**” was referred to as an dependent variable. Effect on fetomaternal parameters like the less labor pain perceived by the parturient mothers, improvement in cervical dilation, effacement of cervix, improvement in uterine contractions intensity and duration, fetal head descent, decreasing duration of 1<sup>st</sup> stage of labor, improvement in fetal head descent and fetal heart rate were the dependent variable in this study.

#### *Setting of the Study*

The study was conducted in the waiting room at Government Maternity Hospital Tirupati. The setting was chosen on the basis of investigator’s feasibility to collect data and in terms of availability of adequate sample on an average of 20-30 per day and co-operation extended by the management and health personnel. The investigator was familiar with this setting in terms of professional experience.

#### *Population*

The selected population for the study comprised of full term primigravida mothers who are in latent phase of labor and who had normal pregnancy and were admitted for safe institutional delivery in Government maternity Hospital, Tirupati.

#### *Sample*

The sample comprised of 60 mothers, 30 mothers in the experimental group and 30 mothers in the control group, who fulfill inclusion criteria and admitted in the waiting room department during the period of study at Government maternity Hospital, Tirupati.

#### *Sampling Technique*

Selection of sample depends on the availability of adequate sample on an average of 20-30 per day in the waiting room. “*probability Simple random sampling technique*” was adopted based on inclusion criteria. In this lottery method was adopted to select the sample randomly.

### *Criteria for the Sample Selection*

#### *Inclusion Criteria*

Parturient Mothers who are:

- In the age group of 18-30 years
- Primigravidas
- Able to understand and speak Telugu
- In the first stage of labor
- Not associated with medical (or) obstetrical complications
- Willing to participate in the study
- Admitted in waiting room department

#### *Exclusion Criteria*

Parturient Mothers who are:

- Not in the age group of 18-30 years
- Multi gravid mothers
- Not able to understand and speak Telugu
- Not in the first stage of labour
- Associated with medical (or) obstetrical complications
- Not willing to participate in the study
- Not admitted in waiting room department

### *Development and Description of Tool*

#### *Section- A*

Consists of demographic variables such as age, religion, education of the mother, occupation of the mother, Type of family, Monthly income, residence, marital life in years and the gestational age in weeks

#### *Section - B*

Consists of list of fetomaternal parameters with score and rating scale. The fetomaternal parameters includes labor pain perception, cervical dilatation in centimeters, cervical effacement in percentage, frequency of uterine contractions in minutes, duration of uterine contractions in seconds, duration of 1<sup>st</sup> stage of labor in hours, fetal head descent and fetal heart rate.

#### *Score Interpretation*

Scoring key was prepared for section ‘A’ by coding

demographic data by giving 1,2,3 – so as

In section 'B' scores are given for the fetomaternal parameters in the following manner.

1. Labor Pain Perception

a. None	(0)	=	0
b. Annoying	(1-2)	=	1
c. Uncomfortable	(3-4)	=	2
d. Dreadful	(5-6)	=	3
e. Horrible	(7-8)	=	4
f. Agonizing	(9-10)	=	5

2. Dilatation of the Cervix in cm

a. 0-3cm	=	1
b. 4-7 cm	=	2
c. 8-10cm	=	3

3. Cervical Effacement in Percentage

a. 25-50	=	1
b. 51-75	=	2
c. 76-100	=	3

4. Frequency of Uterine Contractions in Minutes

a. 36-40	=	1
b. 21-30	=	2
c. 15-20	=	3

5. Duration of Uterine Contractions in Seconds

a. 20-30	=	1
b. 31-40	=	2
c. 41-50	=	3

6. Fetal head Descent

a. -2 to -1	=	1
b. 0	=	2
c. +1 to +2	=	3

7. Duration of first Stage Labor in Hours

a. > 12	=	1
b. 11-12	=	2
c. <10	=	3

8. Fetal Heart Rate

a. < 120	=	1
b. 120-160	=	2
c. > 160	=	3

*Section C:*

Deals with assessment of fetomaternal parameters in the experimental group.

*Section D:*

Deals with assessment of fetomaternal parameters in the control group.

*Content Validity*

The content validity of the tool was obtained from nursing and medical experts. The content validity of the tool was given to 13 experts along with the objectives of the study. Among 13, 8 experts were in the field of nursing and 5 experts in the field of medicine (obstetrics and Gynecology). Experts were requested to give their opinion on relevance and appropriateness of the tool. According to their suggestions, modifications were made in the tool. The modified tool was used for the study

*Reliability of the Tool*

The reliability of the tool was established by using the data collected from 10 parturient mothers, 5 mothers in the experimental group and 5 mothers in the control group who were admitted in the waiting room department, Government maternity hospital, Tirupati. The reliability was established by split-half method by using Karl Pearson's correlation coefficient. The obtained reliability of R = 0.96 indicated that the tool was highly reliable.

*Procedure for Data Collection*

As mentioned earlier, formal permission was obtained from medical superintendent of the Government Maternity Hospital, Tirupati. The investigator initially established rapport with the study subjects and the purpose of the study was explained to them. After explaining about the study, the selected parturient mothers were ambulated 20 minutes per hour up to 1<sup>st</sup> stage of labor in experimental group and the intervention was withheld in control group mothers. Then fetomaternal parameters were assessed both in experimental and control group. The data collection period extended from 01-01-2010 to 31-01-2010. Verbal and written consent were obtained from the subjects throughout the study.

The data was obtained from 60 parturient mother, 30 mothers in the experimental group & 30 mothers in the control group. The data collection was

terminated by thanking the subjects for their co-operation

#### *Plan for Data Analysis*

#### *Descriptive Statistics*

- Frequency and percentages will be used for distribution of demographic variables among primigravida mothers in the experimental and control groups.
- Mean and standard deviation will be used to assess fetomaternal parameters among experimental and control groups.

#### *Inferential Statics*

- Student 't'-test will be used for the comparison of fetomaternal parameters between experimental and control groups.
- Chi-square will be used to analyze the association between fetomaternal parameters among primigravida mothers with demographic variables in the experimental group.

The analysis & interpretation are presented in the following chapters.

#### **Summary**

*The Major Findings of the Study were:*

#### *Characteristics of the Sample*

- Out of 60 respondents, majority (63.33%) belonged to 18-22 years age group, while only (8.33%) were in 27-30 years age group.
- Out of 60 mothers (93.33%) were Hindus.
- Majority of primigravida mothers had secondary education(40%) while only (11.67%) of mothers were Illiterates.
- 58 out of 60 mothers (96.67%) were House wives.
- Out of 60 , majority of them (95%) belonged to Joint families and only (5%) were in Nuclear families.
- Majority of respondents (78.33%) were getting a monthly family income of Rs above 3000/-
- Out of 60 respondents, (75%) were residing in rural areas and only (25%) were residing in urban areas.
- Majority of respondents (41.67%) had a marital

life of one year, while only (23.33%) had above two years of marital life.

- Out of 60 respondents, (88.33%) were in the gestational age of 39-40 weeks, while only (5%) were in above 40 weeks of gestation.

#### *Analysis of Fetomaternal Parameters between Experimental and Control Groups:*

- The mean score of labor pain perception was less 1.817 (S.D=0.405) in the experimental group than the mean value of control group 2.953 (S.D=0.206).
- There was an increase in mean score of cervical dilatation in the experimental group 2.400 (S.D=0.268) than the control group mean score 1.917 (S.D=0.268).
- The mean score of cervical effacement in percentage was raised in the experimental group 2.580 (S.D=0.183) than the control group 1.930 (S.D=0.308) .
- There was increase in mean score of frequency of uterine contraction in experimental group 2.717 (S.D=0.119) than the control group 1.623 (S.D=0.316).
- The mean score of duration of uterine contractions in the experimental group was raised 2.693 (S.D=0.129) ) than the control group 1.490 (S.D=0.427) .
- The mean score of duration of 1<sup>st</sup> stage of labour was raised in the experimental group 2.900 (S.D=0.286) than the control group 2.123 (S.D=0.193).
- There was an increase in the mean score of fetal head descent in the experimental group 2.697 (S.D=0.091) ) than the control group 1.873 (S.D=0.418).
- The mean score of fetal heart rate in beats per minute was raised in the experimental group 1.930 (S.D=0.168) )than the control group 1.823 (S.D=0.216).

#### *Relationship between the Effect of Ambulation on Fetomaternal Parameters with Demographic Variables of Primigravida Mothers in the Experimental Group.*

$\chi^2$  value of age (=3.180), Religion (=7.041) education of the mother (=3.346), occupation of the mother (=3.399), Type of family (8.189), monthly income in rupees per month (=0.780), Residence (=4.037) and marital life in years (=0.534), indicates that there was no association between effect of

ambulation on fetomaternal parameters with demographic variables of primigravida mothers. Hence the research null hypothesis  $H_{03}$  was accepted. Where as the gestational age in weeks value showed significant association with effect of ambulation on fetomaternal parameters. Hence here the research null hypothesis  $H_{03}$  was rejected.

The 't' test computed between experimental and control group with the effect of ambulation on fetomaternal parameters like labor pain perception ( $t=13.699$ ), cervical dilatation in centimeters ( $t=6.975$ ), cervical effacement in percentage ( $t=9.937$ ), frequency of uterine contractions in minutes ( $t=17.748$ ), duration of uterine contractions in seconds ( $t=14.780$ ), duration of 1<sup>st</sup> stage of labor ( $t=12.325$ ), fetal head descent ( $t=10.543$ ) were highly significant at 1% level and fetal heart rate ( $t=2.140$ ) was significant at 5% level. Hence the research null hypothesis  $H_{02}$  was rejected.

The ambulation has significant effect on fetomaternal parameters of primigravida mothers in the experimental group. It was proved by mean scores of parameters between experimental and control group. The mean scores of labor pain perception was less in the experimental group. Remaining all parameters mean scores were high in the experimental group than control group, denotes ambulation had significant effect on fetomaternal parameters. Hence the research null hypothesis  $H_{01}$  was not rejected.

### Conclusions

- The findings revealed that majority of respondents in the experimental group were having less labor pain, increased cervical dilatation and effacement, increased frequency and duration of uterine contractions, shorter duration of 1<sup>st</sup> stage of labor, rapid fetal head descent and good fetal heart rate in the 1<sup>st</sup> stage of labor.
- The ambulation was effective intervention for the primigravida mothers to get good maternal and fetal outcome.
- There was no relationship between the effect of ambulation on fetomaternal parameters with demographic variables of primigravida mothers in the experimental group except with gestational age in weeks.

### Limitations

The study results were limited to primigravida

mothers who are in the 1<sup>st</sup> stage of labor and admitted in the waiting room of Government Maternity Hospital, Tirupati, at the time of data collection.

- Mothers who are willing to participate in the study were selected.

### Implications

The findings of the study have the following implications in the areas of nursing service, nursing education, nursing administration and nursing research.

#### *Implications of the Present Study in the Nursing Services*

Nursing service was evolving rapidly with practice of evidence based practices to provide qualitative care to the mothers. Nurses can play a vital role in enabling the mothers to result in good maternal and fetal outcome through the practice of ambulation intervention as an independent nursing tool. This can be facilitated by motivating the nurse midwives to:

- Understand the importance of ambulation in good maternal and fetal outcome.
- Advise the midwives to collect opinion of the mothers about ambulation after undergoing intervention,.
- Promote the practice of ambulation in the labor management specially during 1<sup>st</sup> stage of labor up to rupture of membranes.
- Develop the habit of giving ambulation intervention to reduce incidence of episiotomies, perineal tears, use of analgesics etc.
- Nursing personnel can be advised to promote ambulation intervention as an effective measure to decrease labor pain, to increase cervical dilatation and effacement, to increase duration and frequency of uterine contractions, to facilitate fetal head descent and to promote good fetal heart rate.

#### *Implications of the Present Study in Nursing Education*

- Encourage the nursing schools, colleges and other institutes to utilize the ambulation intervention as an effective measure to get good fetal and maternal outcome.
- Ensure that the nursing institute, staff and students learn about beneficial effects of ambulation intervention.



- Provide adequate clinical exposure to students with different settings where ambulation can be used as an effective intervention for good maternal and fetal outcome.
- Educational institutions can arrange and conduct workshops, conferences, seminars and classes on importance of ambulation in obstetric practice.
- The future nursing curriculum can give more importance to ambulation.
- Encourage the nursing students and staff for the effective utilization of research based practice.

#### *Implications of the Present Study in Nursing Administration*

- Nurse administrator can arrange public awareness programmes regarding effectiveness of ambulation on fetal and maternal parameters like reduction of labor pain. Increase in cervical dilatation and effacement, Increase in frequency and duration of uterine contractions, facilitation in fetal head descent and good fetal heart sounds.
- Continuing education programmes can be conducted on beneficial effect of ambulation in obstetric practice to get good fetal and maternal outcome.
- Initiate measures for introduction of ambulation (or) upright position in the labour ward setting.

#### *Implications of the Present Study in Nursing Research*

- The professional and student nurses can conduct further studies on effect of ambulation on fetomaternal parameters to get good fetal and maternal outcome
- Similar studies may be conducted on large samples with different variables and parameters.
- Disseminate the findings through conferences, seminars and publications in professional, national and international journals.

#### *Recommendations*

- A similar study can be conducted on a larger population.
- A similar study can be undertaken on a sample with different demographic characteristics like husband's education and occupation.
- A similar study can be carried out by using

different fetomaternal parameters like rupture of membranes and engagement.

- A similar study can be conducted by increasing the length of ambulation.
- A comparative study can be conducted by providing ambulation to both primigravida and multigravida mothers to assess fetomaternal parameters.
- A similar study can be conducted by using other intervention like maternal positions and its effect on fetomaternal parameters.

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