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## EFFECTIVENESS OF SEMI FOWLER'S POSITION ON OUTCOME OF LABOUR DURING SECOND STAGE AMONG PRIMIGRAVIDA WOMEN

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### ABSTRACT

**Background:** Semi fowler's position during labour is highly beneficial for the women and her fetus as it takes the pressure off from the inferior vena cava that results in improving the maternal cardiac output and venous return and so improves the placental blood flow, leading to normal fetal heart rate level and maintains the efficiency of uterine contractions. Furthermore, assuming the upright position during labour is helpful to speed up the cervical dilation, prevent the inferior vena cava compression, encourage the descent of the fetal head and also promote fetal wellbeing and maternal comfort due to effect of gravity.

**Aim:** The aim of present study was to assess the effect of semi fowler's position on outcome of labour during second stage. Maternal & Fetal parameters was assessed in terms of Frequency of uterine contractions, Duration of uterine contraction, Intensity of uterine contraction, Fetal heart rate, Total duration of second stage of labour, Nature of delivery.

**Methodology:** Pre experimental (one shot case design) was used for the study and the study was conducted on 60 primigravida women admitted in J.B.M.M Civil Hospital, Amritsar, Punjab. Purposive sampling technique was used to select the sample. Socio-demographic profile was used to collect personal information of the subjects and observational checklist was used to assess the outcome of labour. Analysis of data was done by using descriptive and inferential statistics and presented in the form of tables, pie and bar diagrams.

**Results:** Major finding of the study shows that there was significant effect of semi fowler's position on outcome of labour. In order to determine the association between post interventional outcome of labour among primigravida women with selected demographic variables, chi-square



was applied and it showed that there is no significant association between post interventional outcome of labour with age, education, occupation, weeks of gestation, body mass index at  $p < 0.05$  level of significance.

**Keywords:** Semi fowler's position, outcome of labour, primigravida women

## **INTRODUCTION**

Motherhood is a gift for every women; pregnancy and birth are unique experience. It will be a time of great happiness and fulfillment. Pregnancy is a period from conception to the birth of the baby during which women undergoes many bodily changes to accommodate the growing fetus. During pregnancy, the woman and fetus prepare for the labour process. The labour process is an exciting and anxious time for the women. In a relatively short period, they experience one of the most profound changes in their lives.<sup>(1)</sup> Labour is a process that involves series of events that take place in the genital organs in order to propel the product of conception (fetus, placenta and membranes) out of the uterus through the birth canal.<sup>(2)</sup>

Normal labour fulfill the following criteria (1) spontaneous in onset and at term (2) with vertex presentation (3) without undue prolongation (4) natural termination with minimal aids (5) without having any complication affecting the health of the mother and the baby.<sup>2</sup> Labour is a physiological event involving a sequential integrated set of changes within myometrium, decidua and cervix that occur gradually. Biochemical and connective tissue changes in the uterine and cervix appear to proceed uterine contractions, cervical dilation, cervical effacement, descend of the fetal head and rupture of the membrane that are discomfortable and painful for the women. These discomforts can be minimized by using different coping strategies like assuming different birthing positions, massage of the back, diversional therapy etc. Midwives have an important role in helping women to find and choose comfortable position to pace the labour, encourage comfort and relaxation.<sup>3</sup>

Many women report that giving birth on their backs (lithotomy position) feels painful, uncomfortable and difficult. It is suggested that women in upright positions give birth more easily because the pelvis is able to expand as the baby moves down; gravity may also be helpful



and the baby may benefit because the weight of the uterus will not be pressing down- the mother's major blood vessels which supply oxygen and nutrition to the baby.<sup>4</sup>

Supine position during labour should be avoided to prevent maternal hypotension and decreased uteroplacental blood flow to the baby. Research findings suggests that higher values of pH and pO<sub>2</sub> & lower values of pCO<sub>2</sub> in cord blood among mothers who birthed in the upright position compared with those in a supine position. In addition, supine position was deleterious and associated with a 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 position are recommended to resolve late decelerations and improve fetal oxygen.<sup>7</sup>

In semi fowler's position, women is placed their back raised at an angle of 45° from horizontal plane, which place them in a modified sitting posture<sup>9</sup> The efficacy of the expulsive force is increased by directing them towards the pelvis and by making use of the force of gravity. For Obstetrician, this position is comfortable with modern method of obstetric care. The lithotomy position is still preferred by many care providers, but the literature suggests that this position not only increase the risk of perineal laceration but also increases lumbosacral spine and lower extremity nerve injuries.<sup>10</sup>

The semi fowler's position may benefit from "gravity effect" potentially able to reduce aortocaval compression, to make uterine contractions effective and to favour a better fetus alignment in the birth canal and to increase pelvic outlet diameters, reducing intrapartum maternal and neonatal complications. Research studies indicates that use of Semi fowler position during second stage of labor may provide many benefits for the mother including pain relief, maximizing blood flow to fetus, decreasing length of labor, stronger uterine contractions, allow normal fetal descent and enhancing maternal birth satisfaction.<sup>11</sup>

Use of semi Fowler's position during second stage of labour increases the Anterior-posterior and transverse diameters of the pelvic Outlet. Semi Fowler's positions other than supine position reduces the incidence of episiotomy and perineal rupture, peripartum medication, oxytocin



stimulation.<sup>10</sup> Semi fowler's position during labour and birth can increase the available space within the pelvis by 28–30% giving more room to the baby for rotation & descent. There is also a 54% decreased incidence of foetal heart rate abnormalities when the mother is upright. Semi Fowler's position decreases the need of epidural analgesia and also reduces the risk for emergency caesarean section by 29 %.<sup>12</sup>

According WHO report (2017), approximately 810 women died from preventable causes related to pregnancy and childbirth. An Indian hospital study (2016-18) found the MMR to be 7.3/1000 live births. 50-98% of maternal deaths are caused by direct obstetric causes (haemorrhage, infection, and hypertensive disorders, ruptured uterus, hepatitis, and anaemia). 50% of maternal deaths occur due to septic abortion. MMR in India has not declined significantly in the past 15 years. Age, parity, unplanned pregnancy, illegal abortions are the main risk factors for maternal death. In 2017, WHO reported that 63-80% of maternal deaths occur due to direct obstetric causes. 88-98% of all maternal deaths could probably have been prevented with proper handling of mother during antenatal, intranatal & postnatal period. Skilled care before, during and after childbirth can save the lives of woman and newborns.<sup>15</sup>

During the clinical posting, researcher came across the outcome of labour during second stage among primigravida women. Mostly deliveries are conducted in lithotomy position & due to which women face certain complications like increase hypotension, ineffective bear down efforts, prolonged labor, compression of umbilical cord etc. Review of literature indicates that the use of semi fowler's position during labour increase the pelvic outlet diameters, improve maternal cardiac output, increase placental blood flow, decrease the chances of fetal distress, maintain the efficiency of uterine contraction& thus decreases the duration of labor. Also limited studies have been conducted related to labour. Therefore, the researcher felt right need to conduct the present study to assess the effect of semi fowler's position on outcome of labour during second stage among primigravida women.



## **OBJECTIVES**

1. To assess post interventional outcome of labour among primigravida women.
2. To determine the association of post interventional outcome of labour among primigravida with socio demographic variables.

## **MATERIAL AND METHODOLOGY**

**Research Approach:** Quantitative research approach

**Research design:** Pre-experimental research design

**Research setting:** J.B.M.M Civil hospital, Amritsar (Punjab )

**Target population:** Primigravida woman

**Accessible population:** Primigravida women admitted in J. B. M. M Civil Hospital, Amritsar

**Exclusion criteria:** High risk mothers, fetal complication during antenatal and intranatal period.

**Inclusion criteria:** Mother having:-

- Normal pregnancy
- Spontaneous labour
- 37-42 completed weeks of gestation
- Fetus in Cephalic presentation

### **Sample size and sampling technique**

- Non probability (purposive) sampling technique (N=60)

### **Selection and development of tools**

#### **Part 1- Socio-demographic Profile.**

This part consisted of 5 items for obtaining personal information of subjects such as age, education, occupation, weeks of gestation, body mass index.

#### **Part 2- To assess outcome of labour, the tool used was**

- a) Numerical pain rating scale: To assess the level of pain.
- b) Observational checklist: To assess maternal and fetal outcome of labour. The checklist contains following items:
  - Frequency of uterine contraction
  - Duration of uterine contraction
  - Intensity of uterine contraction



- Fetal heart rate
- Total duration of second stage of labour
- Nature of delivery

### **DATA ANALYSIS AND INTERPRETATION**

Data analysis reveals that **according to Sample characteristics**, majority (61.7%) of primigravida women were in age group of 20-25 years whereas 1/4th (25%) between 26-30 years followed by (11.7%) were less than 20 years and remaining (1.7%) were above 30 years. According to education, (43.3%) women had primary education whereas (33.3%) had secondary education followed by (18.3%) illiterate women and merely (5%) were educated upto graduation and above. According to occupation, majority 3/4th (75%) of women were home maker followed by (13.3%) were self employed and remaining (13.3%) women were private employee. According to weeks of gestation, maximum (46.6%) primigravida women were in 39-40 weeks of gestation whereas (36.7%) were in 37-38 weeks of gestation and remaining (16.7%) were in 41-42 weeks of gestation. According to body mass index, majority (80%) of primigravida women had body mass index between 18.5-24.9, (15%) had body mass index between 25-29.9 followed by (1.7%) had body mass index less than 18.5 and only (3%) who had body mass index more than 30.

Hence, it can be concluded that more than half of primigravida women were in age group of 20 – 25 years, had primary education, were home makers and between 39-40 weeks of gestation with body mass index between 18.5-24.9



**Objective 1: To assess post interventional outcome of labour among primigravida women**

**Table1:** Frequency, percentage distribution and mean scores of primigravida women according to post interventional outcome of labour.

N=60

| <b>Outcome of labour</b>                   | <b>n</b> | <b>%</b> | <b>Mean</b> | <b>S.D</b> |
|--|----------|----------|-------------|------------|
| <b>Frequency of uterine contraction</b>    |          |          |             |            |
| < 2times                                   | -        | -        | -           |            |
| 2 – 4 times                                | 44       | 73.3     | 7.52        | -          |
| ≥5 times                                   | 16       | 26.7     | 7.69        |            |
| <b>Duration of uterine contractions</b>    |          |          |             |            |
| <40 sec                                    | -        | -        | -           |            |
| 60 – 90 Sec                                | 12       | 20       | 7.83        |            |
| >90 sec                                    | 48       | 80       | 7.5         | -          |
| <b>Intensity of uterine contraction</b>    |          |          |             |            |
| Mild                                       | -        | -        | -           |            |
| Moderate                                   | 4        | 6.7      | 8.6         | 0.831      |
| Severe                                     | 56       | 93.3     | 8.75        |            |
| <b>Fetal heart rate</b>                    |          |          |             |            |
| <110 bpm                                   | -        | -        | -           |            |
| 120 – 160 bpm                              | 60       | 100      | 8.6         | -          |
| >180                                       | -        | -        | -           |            |
| <b>Total duration of labour</b>            |          |          |             |            |
| 45 – 50 min                                | 14       | 23.3     | 8           |            |
| 51 – 55 min                                | 31       | 51.7     | 9.2         | -          |
| 55 – 60 min                                | 15       | 25.0     | 0.99        |            |
| <b>Nature of delivery</b>                  |          |          |             |            |
| Normal vaginal delivery                    | 4        | 6.7      | 9.33        |            |
| Normal vaginal delivery with episiotomy    | 56       | 93.3     | 8.29        | -          |
| Normal vaginal delivery with perineal tear | -        | -        | -           |            |
| Instrumental vaginal delivery              | -        | -        | -           |            |

Table 1 depicts the frequency, percentage distribution and mean scores of primigravida women according to post interventional outcome of labour. It shows that according to frequency of



uterine contraction, maximum (73.3%) primigravida women had 2-4 contractions within 10 minutes and (26.7%) women had >5 times. According to duration of uterine contraction, majority (80%) of primigravida women had uterine contractions for >90 sec and remaining (20%) primigravida women had 60-90 seconds. According to the intensity of uterine contraction, majority (93.3%) of primigravida women were having severe labor pains whereas remaining (6.7%) were having moderate pain. According to fetal heart rate, all (100%) of primigravida women showed Fetal heart rate within 120 –160 bpm. According to total duration of second of labour, half (51.7%) of primigravida women had 51-55 minutes of duration of second stage followed by (25.0%) women had 55-60 minutes and remaining (23.3%) had 40-50 minutes of duration of second stage. According to nature of delivery, only (6.7%) women had normal vaginal delivery but majority (93.3%) of primigravida women had normal vaginal delivery with episiotomy.

**Table 2 Comparison of normal range of parameter's with maternal/fetal outcome.**

**N=60**

| <b>Parameter's</b>                                   | <b>Normal range during second stage of labour</b> | <b>Maternal/fetal Outcome n(%)</b> | <b>Remarks</b>                          |
|--|---|------------------------------------|---|
| Frequency of uterine contraction (within 10 minutes) | 2-4 times   | 44(73.3%)                          | Improved                                |
| Duration of uterine contractions                     | > 90 seconds                                      | 48(80%)                            | Improved                                |
| Intensity of uterine contractions                    | Severe  | 56(93.3%)                          | Improved                                |
| Fetal heart rate                                     | 120-160bpm  | 60(100%)                           | Normal                                  |
| Duration of 2 <sup>nd</sup> stage of labour          | 2 hours   | 31(51.7%)                          | Decreases (1 Hour)                      |
| Nature of delivery                                   | Normal vaginal delivery                           | 56(93.3%)                          | Normal vaginal delivery with episiotomy |



Table 2 depicts normal range of parameter's and its comparison with maternal and fetal outcome. It shows that according to frequency of uterine contraction, majority (73.3%) primigravida women had 2-4 times contraction within 10 minutes. As per duration of uterine contraction, majority (80%) of primigravida women had duration of each contraction for > 90 sec. According to the intensity of uterine contraction, majority (93.3%) primigravida women had severe pain during contraction. As per fetal heart rate, all (100%) of primigravida women showed Fetal heart rate within 120 –160 bpm. According to total duration of second of labour, more than half (51.7%) of primigravida women had 51-55 minutes duration of second stage of labour. As per nature of delivery, majority (93.3%) primigravida women were having normal vaginal delivery with episiotomy.

Hence, concluded that semi Fowler's position has shown improvement in maternal and fetal outcome. Hence, Null Hypothesis was rejected and alternate hypothesis was accepted.

**Objective 2: Association of post interventional outcome of labor among primigravida women with socio demographic variables.**

In order to find the association of post interventional outcome of labor among primigravida women with socio demographic variables, chi-square was applied & it shows that there was no significant association between postinterventional outcome of labor among primigravida women with selected demographic variables such as age, education, occupation, weeks of gestation and Body mass index pattern at  $p < 0.05$  level of significance.

**CONCLUSION**

The study concluded that providing semi-fowler 's position during second stage improve the alignment of fetal passage, faster descent of fetal head due to gravitational pull, increase the pelvic diameters. This position shows safe and better maternal fetal outcome in the terms of frequency of uterine contraction, duration of uterine contraction, intensity of uterine contractions, improve fetal heart rate, reduced duration of second stage and facilitate normal delivery process. So, it is important to use semi fowler's position during second stage of labour in order to improve maternal and fetal outcome.



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## **CONFLICT OF INTEREST**

The author declare that they have no conflict of interest

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