Journal of Advances and Scholarly Researches in Allied Education
Vol. 18, Issue No. 4, July-2021, ISSN 2230-7540

A Study Investigating the Effect of the Semi-Fowler Posture on Primiparous Women are Maternal and Foetal Health Indicators during the Second Stage of Labour

Tysy Augustine[1]*, Dr. K. Uthramani[2]

[1] Research Scholar, Shri Venkateshwara University, Uttar Pradesh

E-Mail: taisythayil@gmail.com

[2] Associate professor, Shri Venkateshwara University, Uttar Pradesh

E-Mail: uthramanibalaji@gmail.com

Abstract - Proper mother posture during the second stage of labour, the most stressful time of delivery, is crucial for women to achieve a safe vaginal birth. During the second phase of labour, midwives play a crucial role in the control of maternal postures. Unfortunately, there isn't a lot of data to back up claims about the best posture for the mother to be in during the second stage of labour. It's also possible that the line between the various maternal roles is blurry. Women's labour, maternal comfort and foetal and maternal physiology are all affected by the posture the mother is in. This research set out to determine whether or not there was a correlation between a mother's posture during the second stage of labour and changes in maternal parameters and foetal heart rate in first-time mothers.

Keyword - Maternal, Women

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INTRODUCTION

The psychological and physical transition from pregnancy to parenthood is unique to each woman. As a result, the whole body is impacted. A woman's cervix, which was previously rigid and closed, relaxes and opens, and a surge of life-giving energy fills her system. The position the mother chooses to give birth in is impacted by a number of variables, including her own instincts and societal standards. Squatting is a prevalent kind of seating in developing regions (including certain portions of Asia, Africa, and the Americas). Women in the United Republic of Tanzania, who give birth at home with the support of traditional birth attendants, often choose to squat or stand throughout labour and delivery. Women who give birth in hospitals or other medical institutions virtually always lie down in a supine posture, which is at odds with cultural norms. It demonstrates that women may be opting for home births with inexperienced helpers rather than giving birth in a medical facility because of a lack of birthing position alternatives that have been embraced there. Therefore, it is crucial that all women have access to information that may help them choose a position that improves their chances of a positive clinical result.

For a woman, the experience of having children is a pivotal and priceless time in her life. The process of giving birth includes the woman's psyche and feelings to a far greater extent. A woman needs sufficient knowledge about labour to be prepared for the physical and mental changes that it will bring. Each woman experiences labour pain differently, depending on her own cultural background, level of worry and fear leading up to the delivery, her level of preparedness, and the level of emotional and physical support she has around her. A labouring lady has the option of choosing her most comfortable birthing position. Effective uterine contractions, a shorter latent period, and less need for analgesia are all benefits of adopting a semi-seated posture during labour. Helping the lady find a position that is both secure and comfortable is a crucial part of the nurse's job. Fetal descent and rotation may be aided and supine hypotension can be avoided by having the mother stand or sit up. The nurse and her supporter would typically stand on each side of the lady, holding her up so that she is almost sitting. By assuming this posture, one may examine the perineum and drape the region. Semi-recumbent or supported-sitting, squatting, kneeling, or standing,

left lateral, and upright positions are often utilized during the second stage of labour. [1]

Among life's most meaningful moments for a woman is giving birth. The health and well-being of the pregnant woman and the result of the pregnancy depend on the procedures surrounding the birthing process. The World Health Organization (WHO) has recognized six care practices that have been modified by Lamaze International (a non-profit child birth education organization) to promote, support, and safeguard normal delivery. They include a natural onset of labour, unrestricted mobility, continuous labour support, the absence of regular interventions, the initiation of pushing while standing or in a gravity-neutral posture, and the absence of maternal separation prior to or during nursing.

Artwork from many civilizations demonstrates that women have given birth both sitting and standing, as well as in gravity-neutral postures (such as on their sides or hands and knees).

From ancient times until the middle of the 18th century, women generally followed their natural birthing impulses and were encouraged to stand and move about during labour. Women in the pre-Christian period often gave birth while crouching or squatting upright. Women in Egypt who were pregnant about 2500 B.C. were taken to special birthing homes, where they sat on birth stools or squatted over hot stones to give birth. [2]

Currently, the majority of births occur with the mother lying supine, semi-recumbent, or in a lithotomy posture. It has been suggested that a midwife or obstetrician would be able to keep a closer eye on the developing foetus if the mother is lying supine. Women have complained that medical staff and birthing facilities exert too much control over their bodies during labour and delivery, which is harsh, embarrassing, and counterproductive.

The World Health Organization (WHO) has classified the supine or lithotomy position as a category B practice, meaning it is clearly harmful, ineffective, and should be eliminated from the practice, while the non supine position is categorized as a category A practice, meaning it is useful and should be encouraged.

In this light, free-range childbirth became one of several strategies for advancing women's equality and the de-dehumanization of work. Based on these assumptions, a case was made for standing during giving birth. However, during the last twenty years, policy officials, health experts, and even the general public have increasingly relied on an evidence-based explanation to inform their judgments.

Clinical investigations demonstrating the advantages of the upright posture for the mother and her unborn child were conducted in the 1960s. In the 1980s, researchers investigated the effects of the upright and supine postures on a variety of obstetrical factors, with a particular emphasis on the health of both mother and child. Studies evaluating women's experience of pain in various positions during labour started in the 1990s, perhaps as a result of the goal to eliminate unneeded interventions and to concentrate on women's need rather than the convenience of health care professionals. Yet, after thirty years of study, the topic of what position is best for the mother to be in during labour and delivery remains contentious.

Considerable consideration should be given to medical practices that may undermine or humiliate women during labour in light of indirect evidence that a positive, supportive labour environment promotes a sense of competence and personal achievement experienced by women during childbirth, and their subsequent confidence as mothers and risk of postnatal depression.

Historical records show that prior to the work of the French accoucheur Mauriceau in the 17th century, most women gave birth while standing or crouching. These days, there's a lot of buzz about how to best prepare you for the second stage of labour. The physiological benefits of non-recumbent labour include increased pelvic dimensions, less risk of aorto-caval compression, improved foetal "alignment" during pelvic passage, more effective uterine contractions, and harnessing the power of gravity.

Many expectant mothers would want to have greater say in their birthing plans, particularly in matters of early labour ambulation and delivery position. While studies show that low-risk mothers benefit from walking about during the initial stage of labour, experts disagree on the optimal position for these mothers to be in throughout the actual process. Although some women may find the idea of squatting during labour intriguing, studies have shown that Western women have a hard time getting into that posture. There are a variety of birthing seats and other tools available to help expectant mothers maintain an upright posture. There have been a number of studies that contrast the benefits of recumbent birthing positions with those of upright birthing chairs. [3]

Standing has several benefits over laying down. One research looked at "the advantages and dangers of the usage of various postures during the second stage of labour," and it was carried out by the Academic Department of Obstetrics and Gynecology at the University of Birmingham's Birmingham Women's' Hospital. Cochrane Pregnancy and Childbirth Group's Trials Register and the Cochrane Controlled Trials Register are searched for relevant trials. Studies that compared how women in labour in the second stage of labour moved about in different postures were included. As a result of their research,

they determined that while people are standing, there is:

- Reduced duration of second stage of labour (12 trials - mean 5.4 minutes)
- A small reduction in assisted deliveries (17 trials - odds ratio (OR) 0.82)
- A reduction in episiotomies (11 trials - OR 0.73)
- A smaller increase in second degree perineal tears (10 trials - OR 1.30)
- Reduced reporting of severe pain during second stage of labour (1 trial - OR 0.59) and
- Fewer abnormal fetal heart rate patterns (1 trial - OR 0.31).

In her clinical work, the researcher found that women who achieved a semi-fowlers posture during the second stage of labour reported more comfort than those who remained in a dorsal recumbent position.

In light of the above, and drawing on her own experience as a birthing woman, the investigator became curious about the differences in the mother and foetal responses to the positions of semi-fowlers and dorsal recumbent in the second stage of labour. Perhaps with the help of this research, she will be able to find a position that is easier for both her and the baby.

- **Effectiveness**

The resulting shift that can be attributed to a specific event or set of circumstances

The efficiency of several positions for the mother to assume during the second stage of labour was evaluated by measuring the effects on various maternal parameters and the foetal heart rate.

- **Upright position**

The terms "upright," "erect," "vertical," and "perpendicular" all suggest an erect, or non-leaning, stance. Anything that is upright is similarly positioned to a person who is standing.

- **Dorsal recumbent position**

The patient is positioned on her back with her legs spread apart, knees flexed, and feet flat on the floor or table. Only one cushion is used to support the head.

Dorsal recumbent position in this research means the mother is lying on her back with her legs spread apart, her knees bent, and her feet flat on the delivery table. Only one cushion is used for the head.[4]

- **Semi-Fowler's position**

The hips are flexed and the knees are supported at a 90-degree angle to create an inclined posture that allows abdominal fluid to pool in the pelvis. The bed's head end is raised 45-60 degrees.

Primigravid women were placed in the Semi-position; Fowler's which is characterized by a 45-degree incline between the woman's thorax and the surface of the labour table. This was accomplished by raising the table's head end while the woman's legs were spread apart, her knees flexed, and her feet were flat on the table's surface.

- **Squatting**

Squatting is an adaptable position in which the body is supported by the feet while the knees and hips are bent. On the other hand, sitting entails supporting at least some of one's weight by resting one's buttocks on the floor or another flat surface. When squatting, the angle of the legs may be anything from completely straight to very wide open. The extent to which the upper torso leans forward from the hips is a potential additional factor, you may squat down to your knees or all the way to the floor.

- **Second stage of labour**

Second stage of labour begins with full dilatation of the cervix irrespective of presence or rupture of bag of membranes and ends with expulsion of the fetus.

In this study second stage of labour refers to the stage of labour begins with full dilatation (10 cm) of the cervix and ends with expulsion of the fetal head.

- **Maternal parameters**

Maternal parameters are the certain selected factors that show the progress of labour and wellbeing of the mother. These include uterine contraction (duration, intensity and frequency) and duration of second stage of labour.

- **Uterine contraction**

In this study uterine contraction refers to the periodic tightening and relaxing of the uterine wall which can be assessed by checking the tightening of the abdominal wall by placing the hand over the fundal region of abdomen. It measured in terms of duration, intensity and frequency.

- **Duration of labor**

In this study duration of labor refers to the total time taken to complete the second stage of labor. Normally in primi-gravid woman the duration will be 2 hours.

- **Fetal heart rate**

The term "foetal heart rate" is used to describe the frequency with which the fetus's heart beats. A regular stethoscope may pick it up between 18 and 20 weeks of pregnancy. Position might shift

depending on where the foetus is. The bpm ranges from 140 to 160.

Fetal heart rate was measured by detecting the frequency at which the fetus's heart beats, with a typical range of 120-160 beats/min, using Ultrasonic Doppler below the umbilical area of primigravid women on the left or right side when contractions were not present. [5]

- **Primi-gravid woman**

Primigravid woman is one who is pregnant for the first time. In this study primigravid woman refers to woman who is in labour (second stage) for the first time with a term, single, live, intrauterine fetus with cephalic presentation and augmented with Inj. Oxytocin (5 units in 500 ml of normal saline).

Common maternal positions during the second-stage of labor

There are two main categories of maternal position: horizontal and upright. All the situations when the woman's feet are flat on the floor are considered horizontal. When lying flat, a lady often uses her bed's back to carry her weight. However, it's possible that the rigour of such categorization isn't high enough. The fundamental source for the definition of a mother's role dates back to 1976. Atwood distinguished between an upright and neutral posture for the mother. When a woman is standing, the line across her third and fifth lumbar vertebrae is closer to being vertical than horizontal. Nonetheless, while at rest, the line is closer to horizontal than vertical. Standing, kneeling, crouching, and sitting are all examples of upright postures. It is possible to be horizontal in the supine, lithotomy, or lateral postures. [6]

Lithotomy position

The lithotomy position, in which the patient lies face up on a level platform with her legs straight out in front of her, is often used in medical environments such as hospitals and clinics. French researchers found that almost nine in ten midwives favour dorsal positions like the lithotomy position, and that nearly two-thirds of those same midwives regularly use stirrups. Concerns linger about the hazards of the lithotomy position, despite the fact that it allows midwives and obstetricians to more easily monitor the progress of labour and do hands-on procedures as needed.

Supine position

It is possible for a woman to lay supine with her legs extended straight out in front of her or bent underneath her with her feet flat on the bed, in the leg rests, or brought up and back toward her shoulders. During labour and delivery, several recommendations recommend that women should feel free to change positions and try out whatever seems best to them, with the exception of lying supine or semi-supine. Literature reveals that supine postures are the most prevalent position taken by women across the globe during delivery, despite scientific evidence opposing their usage. For instance, several Asian nations have a tradition of having their women give birth while lying supine. In a cross-sectional descriptive study, Zileni et al. found that 91.4% of births occur in the supine position, and 99.2% of women in Malawi are aware that this is an option. Western cultures also have a penchant for lying flat on their backs. More than two-thirds (68%) of women in the United States who give birth vaginally do it while lying supine, according to a recent study. [7]

Lateral position

Pure side-lying and the extreme Sims position are two examples of the lateral postures, which are also known as side-lying positions (semiprone). With her upper legs propped up on a cushion or lifted off the ground, a lady is in pure side laying posture. Additionally, the Sims position, a subset of the lateral position, is also meant when the term "left lateral position" is used. The lady assumes an extreme version of the Sims position, where she rests on her side with her lower arm behind (or in front of) her trunk, her lower leg outstretched, and her upper hip and knee flexed 90 degrees or more, rolling partially toward her front. Positioning yourself laterally is simple, repeatable, and relaxing. Women with or without epidural analgesia are encouraged by French midwives to adopt a lateral posture during the second stage of labour.

Sitting positions

While semi-sitting, the woman's trunk is at an angle of more than 45 degrees to the bed; in sitting upright, the woman's back is parallel to the bed, chair, or other support surface she is using. Several studies have shown that sitting is more common in certain Western affluent nations than it is in other Asian ones. Thirty-three percent of mothers in a French research gave delivery while sitting on a birth seat during the second stage of labour. According to data collected from 83 mothers giving birth naturally in Sweden, 45.1% of pregnancies included the use of a birthing seat. Women from several Asian nations, where the tradition of giving birth while laying on one's back is commonplace, have fewer options if they choose to give birth while sitting down. [8-9]

Kneeling positions

There are several possible kneeling postures, from the traditional "upright kneeling" to "all fours." The hands and knees posture, commonly known as the "all fours" position, is a common starting position for many activities. A kneeling posture in which the lady leans forward and rests her weight on the palms of her hands or the closed fists of her fists, the kneeling posture is widely utilized in several affluent nations, like France, and midwives there are trained to help

mothers comfortably give birth while kneeling. The kneeling posture is not as common in certain Asian cultures as it is in others. Possible causes include a shortage of experienced midwives and education in the field.

Squatting position

A woman's squatting stance places most of her body weight on her feet, yet her knees are bent significantly; she may also lean or pull on a support. Squatting, like the chimpanzee's (and probably our own) natural resting posture, is considered by many to be the most comfortable and natural position. For pregnant women, the inability to remain in a squatting posture for extended periods of time is a significant drawback of the squatting position. Therefore, the development of supplementary tools may allow for the resolution of such issues. Only 1.1% of women in Malawi, for example, are aware that the squatting posture is useful during delivery; as a result, only 0.3% of women in Malawi squat during the second stage of labour. [10]

CONCLUSION

Positional therapy for pain management has been widely adopted as a standard aspect of labour support. It is important for the mother to be in a posture that allows her to be comfortable and that also allows the foetus to rotate and descend during the second stage of labour. The Semi-Fowler position was shown to have several positive effects on labour progress throughout the second stage. As a result, it's possible that this is one of the upright positions that women might adopt for a more comfortable and manageable labour.

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Corresponding Author

Tysy Augustine*

Research Scholar, Shri Venkateshwara University, Uttar Pradesh