

The Effect Of The Application Of The Upright Position On Duration Time Delivery

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ABSTRACT

Background: Childbirth is a natural process in a woman's life cycle. The care given should also return to the body's physiology. The upright position is considered a position that helps the fetus decline faster, but so far there are still mothers who lie down during childbirth. Research objective: This study aims to determine the effect of the application of the upright position on the time of delivery in women giving birth in (Independence Parctice of Midwifery (IPM), Pringsewu Regency. Method: This study uses a quasi-experimental design with a non-equivalent group post test only. The research subjects were mothers who gave birth normally in PMB Pringsewu Regency. The sample of this research is. The inclusion criteria in this study were normal mothers who were willing to be respondents in PMB Pringsewu Regency. Research analysis using Independent T test. Results ; showed that the first stage of time in the control group was 7.53 ± 0.84 hours, while the first stage of time in the intervention group was 4.85 ± 0.62 . The second stage of time in the control group was 50.38 ± 6.24 minutes, while the second stage of the intervention group was shorter at 32.53 ± 5.30 minutes. The results of the statistical test showed that there was a significant difference so that there was an effect of applying the upright position to the length of time in the active phase of the first stage of labor and the second stage of labor in women giving birth at PMB Pringsewu (p value = 0.000). The application of an upright position in maternity makes the duration of labor faster than the lying position.

INTRODUCTION

The natural process that occurs during childbirth does not rule out the occurrence of risk factors that can harm the mother (King *et al.*, 2019). There are several things that can endanger the health of the mother after childbirth, such as bleeding, infection, postpartum

hypertension, education, economy, socio-culture, environmental knowledge and inadequate health facilities and others. This can result in the Maternal Mortality Rate (MMR) (Syarifuddin, 2017).

Indonesian Demographic and Health Survey (IDHS) in 2012, showed a significant increase in MMR, which was 359 maternal deaths per 100,000 live
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births. MMR showed a decline to 305 maternal deaths per 100,000 live births based on the results of the 2015 Inter-Census Population Survey (SUPAS), this number is still far from the Sustainability Development Goals (SDG'S) target of 70 maternal deaths per 100,000 births in 2035 (Ministry of Health of the Republic of Indonesia, 2017). In Lampung Province in 2019, maternal deaths were caused by 29 cases of bleeding, 31 cases of hypertension, 3 cases of infection, 4 cases of circulatory system disorders, 1 case of metabolic disorders and 42 other cases (Dinkes Lampung., 2020).

Nearly 30 percent of live births in the 2017 IDHS did not experience complications during delivery. While other births experienced 1 or more complications. The most reported labor complications were prolonged labor (41%) (Kemenkes RI., 2017). Efforts to reduce MMR should be focused on the causes of labor complications, namely stopping prolonged labor (Kemenkes RI, 2021).

The factors that cause prolonged labor include physical activity, mother's strength, passenger, position, mother's psychological condition and mother's education. (Soviyati, 2016). There is no ideal position for labor and delivery, the standard recommendation is to encourage and support the woman giving birth in the position she feels most comfortable in. Although international guidelines advise

against lying down or supine for long periods of time during labour. Women who deliver in the supine position experience relatively painful prolonged labor with an increased incidence of fetal distress due to more aortocaval involvement. However, the supine position during the second stage of labor is preferred by most health workers because they are trained to perform deliveries in this position. This allows them to better monitor the labor process with the ease of providing proper perineal support during the second stage of labour. The upright delivery position has several physiological advantages over the supine position. Historically, women instinctively adopted an upright position for childbirth because they experienced more force, efficiency and less intervention (Dabral *et al.*, 2018).

Birth position can be influenced by a variety of factors including setting, maternal preferences, preferences of healthcare professionals, or medical intervention (WHO, 2018). This review found that there may be benefits for women who choose to give birth in an upright position. This is because labor takes less time than the supine position. However, women should be encouraged to give birth in whatever position they feel comfortable with (Gupta *et al.*, 2017).

Unfortunately, in developing countries, women who give birth to hold the position spontaneously and

instinctively or upright in order to focus strictly on the welfare of the fetus and comorbidities in the mother. This results in fewer opportunities for the mother to deliver and deliver in the desired position, assuming lying down as standard due to easier monitoring of fetal well-being, administration of intravenous therapy, anesthesia, performance of medical procedures, perineal support, and delivery assistance (Mselle and Eustace, 2020). The effect of different maternal positions during labor on maternal-fetal and neonatal outcomes is rarely agreed upon and the available evidence in this area is often controversial and fragmentary. (Gizzo *et al.*, 2014). According to research Okonta, (2012), Birth position in developing countries Partially The most recognized position for delivery is the supine position, while the least known position is kneeling with hands and knees (99.2% and 4.6%, respectively). According to research Position of delivery in developing countries Partially The most recognized position for delivery is the supine position, while the least known position is kneeling with hands and knees (99.2% and 4.6%), respectively. Similarly, the majority of women (95.9%) preferred the supine position for delivery. Only 18.9% of women were willing to try a different delivery position if recommended by their healthcare provider such as the upright position. Backed by research Mselle &

Eustace, (2020) Women use the supine position during delivery because they are instructed to do so by the midwife. Mothers in this study had no other choice but to deliver and deliver their babies in the supine position as instructed. Most of the pregnant women do not have knowledge about the different positions for giving birth. Women giving birth will need a lot of health education about delivery positions.

According to previous studies, that there was a significant difference in women giving birth in an upright position compared to lying down in terms of decreasing the interval and increasing the time, frequency and intensity of uterine contractions, cervical dilatation and decreased fetal head / fifth among the upright group (Brocklehurst, 2017). While the supine group showed less progress. In addition, the supine group revealed more pain scores, consumed a longer time from 1st, 2nd, 3rd stage of labor than the upright group and statistically significant differences in the Apgar scores of the neonates during the first and fifth minutes. In addition, the upright group had a higher satisfaction score compared to the supine position (Mohamed, Emam and Al-zahrani, 2018).

Reported in a systematic review, the effects of position on the first stage of labor have been discussed in randomized controlled trials and meta-analyses. The ISSN 1858-3385, E-ISSN 2549-7006 **134**

results of experimental studies have illustrated that an upright position in labor results in less maternal pain; improved uterine contraction quality, decreased cesarean delivery rate, perineal trauma, episiotomy and decreased analgesic use. On the other hand, some studies also show no statistical difference between study groups in terms of timing of delivery and type of birth (Eyleminin, 2018).

This is in contrast to the systematic review that the position of the mother during the first and second stages of labor does not affect maternal, fetal, and neonatal outcomes. However, all studies conclude that low-risk mothers should have the possibility to choose a comfortable position in the delivery ward. This is to conduct further research with a higher quality regarding the effect of the mother's position in the first and second stages of labor on the length of labor.

So far, there is still a lack of research that emphasizes the delivery position for mothers in labor and in practice there are still few mothers who apply the upright position during delivery due to lack of information during pregnancy. Therefore, the novelty in this study is education on the upright position in labor carried out by pregnant women at term

Based on a pre-survey of 10 primiparous mothers in Pringsewu Regency, it was found that 8 out of 10

mothers did not know the upright position in labor and its benefits to reduce labor time. This study aims to analyze the effect of applying an upright position to the time of delivery in maternal maternity at midwife independent practice Pringsewu”

METHODS AND MATERIALS

This study used was a quantitative method with the type of Quasy Experiment research in the form of a post test only design (Creswell, 2016). The subjects in this study were all pregnant women who met the inclusion criteria and were willing to participate in the study by signing the Consent After Explanation sheet. Inclusion criteria were: Pregnant women at term in normal conditions until delivery, Willing to be respondents. The exclusion criteria were Grandemultipara term pregnant women, mothers who experience complications in childbirth. Drop out criteria were: Pregnant women at term who did not follow the intervention process until it is finished. the previous subject selection used the two-average difference test formula with an alpha of 0.05 and a power of 90% based on the research Eyleminin (2018) so that the research subjects obtained 40 people. The subjects of this study consisted of 40 normal term pregnant women in the intervention group and 40 normal term pregnant women in the control group.

This study used an upright maternal position module that has been developed by the research team. The module was then registered with copyright with the number EC00202009374. In the intervention group: Education for the Implementation of the Upright Straight Position. This upright position for term pregnant women facilitates term pregnant women who prepared for labor to apply the natural delivery position in an upright position according to the one in the module. The treatment is given twice a week with 30-40 minutes. At the time of delivery, the evaluation of the first and second stage of labor was evaluated.

In the control group, the health education method used in the control group was the standard method of providing education by midwives in midwife independent practice based on the MCH handbook guidelines. Education is given 30-40 minutes at the first meeting and at the time of delivery is evaluated during the first and second stage of labor.

Evaluation used to assess the effect of applying an upright position to the time of delivery in women giving birth in Pringsewu Regency. Evaluation is done after the material is finished. The evaluation carried out included an evaluation of the time of delivery in the I and II stages.

This research conducted in March-April 2021, in Pringsewu Regency. The

research instrument uses a delivery time questionnaire. The instrument consists of data on the characteristics of respondents and the time of delivery in the I, II, III and IV stages which were developed from a literature review on the MCH book which was developed with the latest research evidence on labor preparation. (MOH, 2020; Ministry of Health, 2015, 2020). (Sugiyono, 2017)

Data was collected using primary and secondary data. Secondary data was obtained by looking at the register of pregnant women and the Maternal and Child Health book. Primary data directly through time of delivery data and then evaluated (post-test) to find out the results of the study. The data collection process was carried out by researchers directly using the covid 19 protocol during the study at PMB Pringsewu. The study was approved by the institutional review board of University Muhammadiyah Pringsewu (approval number: 349/KEPK/Fkes/2021).

Bivariate analysis with statistical tests that will be used in this study to determine the effect of the application of an upright position on the time of delivery in women giving birth at PMB Pringsewu by using the T Independent test. All analyzes are computerized with a 95% confidence level or can also be compared with the p-value with a value of $=0.05$ (Sugiyono, 2017).

RESULTS AND DISCUSSION

Table 1 Characteristics of Research Subjects

Group	Control N = 40	Intervention N = 40	<i>P value</i>
Education			
Elementary	14 (35,0%)	9 (22,5%)	0,278*
High School	20 (50,0%)	20 (50,0%)	
Higher	6 (15,0%)	11 (27,5%)	
Cervical dilation (Cm)			
4	16 (40,0%)	15 (37,5%)	0,270*
5	13 (32,6%)	7 (17,5%)	
6	5 (12,5%)	6 ((15,0%)	
7	6 (15,0%)	12)30,0%)	
Age (year)			
Mean ±SD	27,28 (3,17)	25,93 (4,42)	0,121**
Median	28,0	27,0	
Min-Max	20-33	18-36	

Test Description: *) Chi Square, **) Mann Whitney

Table 1 describes the characteristics of the respondents. In education, it was found that both the control and intervention groups had secondary education (50.0%). There was no difference in education in the two groups (p value 0.278). In the control group, the most cervical dilatation was 4 cm (40.0%), the same thing also happened in the intervention group, the most cervical dilatation was 4 cm (37.5). There was no difference in cervical dilatation in the two groups (p value 0.270). The average age in the control group was higher than the intervention group (27.28 (3.17); 25.93 (4.42)) years, but there was no difference in age between the two groups (p value 0.121).

Stage One the active phase has started at the 4 cm opening. Use the following

definitions of latent and active first. Active stage I is a period of time characterized by regular painful uterine contractions, substantial cervical effacement, and cervical dilatation that is faster than 5 cm to full dilatation for the first and subsequent labors. (Syaifuddin, 2017). Since all other female characteristics were essentially similar it seemed unlikely that this was representative of the true position at randomization. This is to ensure that the mother is at low risk to participate in the study. In the opinion of the researcher, Education, occupation, age and the opening of the first stage of the active phase before the intervention showed that the two groups were equal and were at low risk so that the research process could be continued

Table 2 The Effect of the Application of an Upright Position on the Length of Labor Time in the Active Phase I in Maternal Maternity at PMB Pringsewu

Groups	Control N = 40	Interventio n N = 40	<i>P value</i>
First Stage Duration (Minutes)			
Mean ±SD	216,38 (67,67)	120,38 (56,10)	0,000*
Median	211,0	110,0	
Min-Maks	100-329	38-270	

Test description: *) Mann Whitney

Table 2 shows that the first stage of time in the control group is 7.53 ± 0.84 hours, while the first stage of time in the intervention group is 4.85 ± 0.62 . The results of the statistical test showed that there was a significant difference so that there was an effect of applying the upright position on the duration of the active phase of the first stage of labor in women giving birth (p value = 0.000).

According to the theory in the active phase of labor, the frequency and duration of uterine contractions generally increase (contractions are considered adequate if they occur three or more times in 10 minutes and last 40 seconds or more) and the lower part of the fetus descends. Based on the Friedman curve, the primigravida opening is 1 cm/hour and the multigravida opening is 2 cm/hour. The mechanism of cervical dilatation differs between primigravida and multigravida. In primigravida, the internal uterine os will open first, so the cervix will be flat and

thin, then the internal os will be slightly open. Internal and external uterine ostium and cervical effacement and effacement occur for a long time (Kemenkes RI, 2019). An upright position during labor will make it easier for the fetus to come out compared to a lying position (King *et al.*, 2019).

In line with research (Syafliandawati, Herman and Ilyas, 2015) The delivery time in the lying position (control) group was 263.68 ± 39.47 minutes, while in the upright position intervention group it was 161.05 ± 40.26 minutes with respect to the duration of the first stage of labor in the active phase (p = 0.000 (p < 0, 05) This shows that the upright position accelerates the time of active phase I labor in primigravida mothers.

Backed by research Gizzo *et al.*, (2014) which stated that there was a difference in the time of the group using the upright position during labor with a

time of 192.1 (125.8) minutes compared to the more lying position 336.1 (161.1). in the first stage of labour, vertical positioning appears to be associated with lower pain, reduced labor duration, and perception of physiological events, resulting in increased female labor. Comfort and satisfaction after childbirth. Although some authors reported no effect of maternal position on labor duration.

Mothers with an upright position while moving will divert the pain and the delivery process will be faster because of the earth's gravity. An upright position

encourages the baby to turn into the correct position (back of the head position) thereby allowing faster labor progress.

In the opinion of the investigators, there is evidence that an upright position during the first stage of labor shortens labor time. Therefore, midwives should encourage women to take whatever position they find most comfortable at this stage of labour. This study has explained the effect of applying the upright position compared to the lying position during the first stage of labor among primipare on labor outcomes.

Table 3 The Effect of Implementing an Upright Position on the Length of Time in Second Stage of Labor for Maternal Maternity in PMB Pringsewu

Groups	Control N = 40	Intervention N = 40	<i>P value</i>
Second Stage Duration (Minutes)			
Mean ±SD	76,58(18,21)	55,60 (22,55)	0,000
Median	72,0	57,0	
Min-Maks	46-110	21-90	

Test description: *) Mann Whitney

Table 3 shows that the second stage of time in the control group is 50.38±6.24 minutes, while the second stage of the intervention group is 32.53±5.30 minutes shorter. The results of the statistical test showed that there was a significant difference so that there was an effect of the application of an upright position on the length of the second stage of labor in women giving birth at PMB Pringsewu (p value = 0.000).

The second stage of labor begins when the cervix is completely dilated (opens) and ends with the birth of the baby. Giving the correct delivery position can benefit both mother and baby for several physiological reasons. When the woman giving birth is in the correct position for delivery, the risk of maternal aortic compression is less, which means a better oxygen supply to the baby. An upright position also helps the uterus to contract more forcefully and efficiently thereby

helping the baby to get into a better position (Berta *et al.*, 2019).

Delivery in an upright position is beneficial for both mother and baby for several physiological reasons. An upright position helps the uterus to contract more forcefully and efficiently, the baby is in a better position and thus can pass through the pelvis more quickly. The upright and lateral positions allow flexibility in the pelvis and facilitate expansion of the outlet. Before implementing a change in delivery position in our clinic, we need to review the available evidence and the valid context regarding the timing of the second stage of labor and delivery position. (Berta *et al.*, 2019).

According to research Dabral *et al.*, (2018) stated that women who delivered in the kneeling position had a shorter overall time from second stage of labor and fewer admissions to the neonatal intensive care unit than those in the supine position. On the other hand, the risk of a second-degree perineal tear is increased in primigravida who deliver in the kneeling position. Primigravida have better adherence to the kneeling position

Backed by research Thilagavathy, (2012) that, there was a significant 11-minute reduction in second stage of labor time among women in the supported sitting posture compared with the supine-lithotomy group which was similar to the findings of the systematic review. The trial

results revealed that the use of the upright (sitting, squatting) versus supine lithotomy position during the second stage of labor was associated with reduced second stage time (average 4.29 minutes earlier)..

A systematic review stated that the women studied (primigravida and multigravida), when compared with the supine position, the upright position was associated with a reduction in second stage time in the upright group (MD -6.16 minutes, 95% CI -9.74 to -2 .59 min; 19 trials; 5811 women; P = 0.0007) (Gupta *et al.*, 2017).

In contrast to systematic reviews, randomized controlled trials included eight studies involving: 4464 women and their infants. They compared various upright positions with recumbent positions. However, high-quality evidence shows better outcomes for women who move in an upright position by sitting rather than lying in a standing or side position that avoids lying on the back. This position results in a more normal birth, a better experience and does not harm the mother or baby (Walker *et al.*, 2018).

The seated position utilizes gravity, use of lumbar massage, and increased pelvic diameter with better alignment of the fetus to the pelvis, but may increase pressure on the sacrum with a greater risk of perineal trauma. This study did not discuss perineal trauma and the outcome of the baby's condition as well as the

estimation of the amount of blood at delivery. So it becomes a limitation in the research.

In the opinion of the researcher, the upright position takes advantage of gravity, an increase in the diameter of the pelvis, thanks to the nutation and retropulsion of the coccyx, extreme cephalic reduction, less painful and more effective contractions, pain relief to reduce pressure on the sacrum, increased self-confidence in the second stage of labor so that. Further studies in this area suggest that most of the theoretical speculations need to be clarified, if there are no prepartum/intrapartum maternal-fetal complications, all women should be encouraged to move and deliver the most comfortable position, preferring an upright position during delivery.

CONCLUSIONS AND SUGGESTIONS

The conclusion of this study shows that there is a significant effect of applying the upright position of the mother to the duration of the first and second stage of labor. All women giving birth in low-risk deliveries should be informed about the benefits of taking an upright position during the first stage of labour, and encouraged and supported to use it. Posters, pamphlets and videos illustrating the benefits of the upright position should be available in antenatal clinics and work

units. It is recommended to develop further research on labor outcomes including the condition of the perineum, bleeding and neonates. It is recommended to conduct research involving husbands on the use of the application of the delivery position

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