

## The Effect of The Use of Birthball on The Intensity of First Stage Active Phase Labor Pain

Bunga Tiara Carolin<sup>1,2</sup>, Andi Julia Rifiana<sup>1</sup>, Dedeh Komariah<sup>1,2</sup>

<sup>1</sup>Midwifery Study Program, Faculty of Health Sciences, Nasional University, Indonesia

<sup>2</sup>Nursing Study Program, Faculty of Health Sciences, Nasional University, Indonesia

Correspondence should be addressed to: Bunga Tiara Carolin

[bunga.tiara@civitas.unas.ac.id](mailto:bunga.tiara@civitas.unas.ac.id)

### Abstract:

Research in the United States around 70% to 80% of mothers who give birth expect the birth to take place without feeling pain. Currently, 20% to 50% of deliveries in private hospitals in Indonesia are carried out by Caesarean section. The current trend is for mothers to choose to give birth via cesarean section to avoid pain during normal birth. This study was to determine the effect of using a birthball on the intensity of labor pain during the first active phase. This type of research is quasi-experimental with a pretest-posttest two-group design. The population of this study is all mothers giving birth normally at the Az-Zahra clinic. The sample in the study consisted of 30 respondents. The research instrument uses the Numeric Rating Scale (NRS) sheet. Data were analyzed using the Paired T-test and Independent T-test. The average pretest labor pain score in the experimental group was 7.13, while the post-test was 3.33, and the p-value was 0.489. The average pretest labor pain score in the control group was 6.53, while the post-test was 7.80, and the p-value was 0.044. The results of the Independent T-test showed a p-value of 0.489. Giving the Birthball method can reduce the intensity of labor pain during the first active phase. It is hoped that the Birthball method can be applied in all maternity clinics or independent midwives in Indonesia.

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## INTRODUCTION

As many as 810 mothers died every day from diseases/complications related to pregnancy and childbirth in 2017 and the Maternal Mortality Rate (MMR) is still high in Indonesia. It is estimated that the MMR was 305/100,000 live births in 2015. In 2012 the MMR was 359/100,000 live births. The government's target for 2024 is that the MMR is 232/100,000 live births. Causes of maternal death include hypertension as much as 33.07%, obstetric bleeding 27.03%, non-obstetric complications 15.7%, other obstetric complications 4.81% (Ministry of Health of the Republic of Indonesia, 2018; World Health Organization, 2019).

Childbirth is a physiological process that accompanies the life of almost every woman. Even though the process is physiological, it is generally scary, because it is accompanied by severe pain, and sometimes even causes life-threatening physical and mental conditions. (Yanti, 2018). Labor pain arises because of the mother's physical and psychological reflexes. Emotional tension due to anxiety will worsen the mother's perception of pain during childbirth. Pain that occurs during childbirth requires appropriate pain management and this should be a concern for women, families and health workers (Kartini, 2017). The incidence of pain in mothers giving birth is 15%

experiencing mild pain, 35% with moderate pain, 30% with severe pain and 20% of labor accompanied by very severe pain (Rejeki, 2014). 67% of mothers are worried about pain during childbirth, therefore it is necessary to consider how to deal with this pain. Research in the United States shows that around 70% to 80% of mothers who give birth expect the birth to take place without feeling pain. Currently, 20% to 50% of deliveries in private hospitals in Indonesia are carried out by Caesarean section. The current trend is that mothers choose to give birth via cesarean section to avoid pain during normal birth (Halimatussakgiah, 2017). The mother's psychological conditions such as fear, tension and anxiety make the mother more painful (Kennedy et al, 2019).

Labor pain begins to be felt in the first stage of the latent phase (0-3 cm dilation of the cervix) and the active phase (4-10 cm dilation). In the active phase towards the peak of opening, there will be an increase in the intensity of labor pain, which is more severe in the active phase. This pain is unique and subjective in that each person has a different response to pain stimulation, this can be influenced by previous experience, anxiety and emotional calm (Solehati et al, 2018). The number of Primigravida mothers who experienced severe pain was 46%, 64% experienced moderate and mild pain, while among multigravidas, 37% of mothers who gave birth experienced severe pain, and 63% experienced moderate and mild pain (Farida, 2016).

Many efforts have been made to reduce pain during childbirth, using non-pharmacological methods including warm compresses, cold compresses, hydrotherapy, counterpressure, knee compression, movement, positioning, relaxation and breathing exercises, rubbing the back or abdomen, and emptying the bladder. The complaints usually experienced by mothers who are about to give birth are general complaints that are considered normal, so that the attention given by midwives to mothers who are about to give birth is not satisfactory (Oktafia, 2012). Several studies show that non-pharmacological therapy can be done to reduce labor pain, including research conducted by Solehati et al (2018) over the last 4 years (2014-2018) shows that non-pharmacological therapy can be done to overcome labor pain, including massage therapy, music, aromatherapy, warm compresses, breathing exercises and birth ball exercises.

Birth balls can be used as physical therapy which can relieve pain or illness, help the labor progress, and can also be used in various positions. One of the movements is by sitting on a ball and rocking back and forth, making it feel more comfortable and helping the labor progress, speeding up fetal descent due to gravity, stimulating normal somatosensory input to projector neurons which can reduce pain, and can also have a psychological effect on reducing anxiety. so that it can reduce pain during labor, apart from that, the elasticity and soft curve of the ball makes the perineum and lower back without applying a lot of pressure which can increase pain (Gau et al, 2011).

Based on research conducted by Sahtria at RB Rahayu Unggaran (2015), there was an effect of using Birth Ball on labor pain, where before Birth Ball therapy was carried out the pain level was in the severe category, but after being given Birth Ball therapy for 30 minutes the pain level decreased to the pain category. currently. Likewise, based on research conducted by Makvandi et al (2015) in Iran, it was found that the intervention group that used a birth ball showed that there was a statistically significant relationship between the use of a birth ball and the intensity of labor pain. And also based on research conducted by Fadmiyanor et al (2017), the average intensity of labor pain before being given the birth ball method was in the moderate pain category and after being given Birth Ball therapy was in the mild pain category.

Seeing the high incidence of labor pain, the author was interested in conducting research on the Effect of Using a Birthball on the Intensity of Labor Pain in the 1st Stage of the Active Phase at the Az-Zahra Clinic, Pebayuran District, Bekasi Regency, West Java.

## METHOD

This research method uses quasi experimental with pre and post test design with control group. The research population was all birthing mothers who came to the clinic, totaling 40 respondents. The total research sample was 15 respondents in the experimental group and 15 respondents in the control group using the purposive sampling method. The inclusion criteria for the sample in this study are as follows: Willing to be a respondent and follow research procedures until the final stage. Respondents are mothers giving birth during the 1st active phase, primigravida mothers giving birth. Exclusion criteria are as follows: Respondents who withdrew or refused before the procedure was carried out, women giving birth with malpresentation, women giving birth who had hypertension. Respondents were selected based on those included in the inclusion criteria. The research instrument used in this research was a birth ball and observation by collecting data, measuring, and observing directly and then recording it. Hypothesis testing was carried out using the Paired sample t test and independent sample t-test.

## RESULT

Table 1. Differences in Maternal Pain Levels Before and After in the Experimental and Control Groups

Intensity of Labor Pain	Pretest Mean	Posttest Mean	Difference Mean	p-value
Experiment	7.13	3.33	3.80	0.44
Control	6.53	7.80	1.27	0.009

Based on the results of different tests using a paired sample t-test, it has a significant value of 0.44 ( $> 0.05$ ), meaning that there is no difference in the level of pain in mothers giving birth in the experimental group before and after being given birth ball therapy at the Az-Zahra Clinic, Bekasi Regency.

Meanwhile, in the control group, the results of different tests using the paired sample t-test had a significant value of 0.009 ( $< 0.05$ ), meaning that there was a difference in the level of pain in the control group of women giving birth before and after birth ball therapy at the Az-Zahra Clinic, Bekasi Regency.

Table 2. Differences in Maternal Pain Levels in the Experimental and Control Groups Before and After Giving Birth Ball Therapy

Intensity of Labor Pain	Experiment Mean	Control Mean	Difference Mean	p-value
Pretest	7.13	6.53	0.60	0.409
Post Test	3.33	7.80	-4.47	0.001

Based on the results of different tests using a paired sample t-test, it has a significant value of 0.409 ( $> 0.05$ ), meaning that there is no difference in the level of pain in mothers giving birth in the experimental group before and after being given birth ball therapy at the Az-Zahra Clinic, Bekasi Regency.

Meanwhile, in the control group, the results of different tests using the paired sample t-test had a significant value of 0.001 ( $< 0.05$ ), meaning that there was a difference in the level of pain in

the control group of women giving birth before and after birth ball therapy at the Az-Zahra Clinic, Bekasi Regency.

## DISCUSSION

Based on the results of the research, the results showed that there was an effect of giving a birthball on the intensity of labor pain during the first active phase, before being given a birthball, of the 15 mothers in labor who experienced pain levels in the moderate category, there were 14 people who experienced a decrease in pain intensity to mild pain, and only 1 people out of 15 who still have pain in the moderate category.

Birth balls can be used as physical therapy which can relieve pain or illness, help the labor progress and can also be used in various positions. One of the movements is by sitting on a ball and rocking back and forth, making it feel more comfortable and helping the labor progress, speeding up fetal descent due to gravity, stimulating normal somatosensory input to projector neurons which can reduce pain, and can also have a psychological effect on reducing anxiety. so that it can reduce pain during labor, apart from that, the elasticity and soft curve of the ball makes the perineum and lower back without applying a lot of pressure which can increase pain (Gau et al, 2011).

Based on research conducted by Makvandi et all (2015) in Iran, it was found that the intervention group that used a birth ball showed that statistically there was a significant relationship between the use of a birth ball and the intensity of labor pain. And also based on research conducted by Isye Fadmiyanor et all (2017), the average intensity of labor pain before being given the birth ball method was in the moderate pain category and after being given Birth Ball therapy was in the mild pain category.

According to the author's assumption, mothers giving birth who use the birthball method by means of gentle movements made on the ball greatly reduce the pain during contractions. With the ball placed on the bed, the mother can stand and lean comfortably on the ball, pushing and swinging the pelvis for mobilization. Sitting on a ball while pushing like a swing or making pelvic rotation movements can help the process of fetal descent. The ball provides support to the perineum without much pressure and helps keep the fetus aligned in the pelvis. The position of sitting on the ball is assumed to be similar to squatting, opening the pelvis, thereby helping speed up the labor process. This will make the ligaments or muscles around the pelvis more relaxed, improve the digestive process and reduce complaints of pain in the lumbar, inguinal, vaginal and surrounding areas. whereas in the control group there was no decrease in the intensity of labor pain because mothers in labor only enjoyed the pain that occurred during contractions and did not have a way to divert the pain so they did not have comfort when contractions occurred, mothers in labor in the control group only did monotonous movements such as lying down, right side, left side, walking until labor takes place, resulting in the effects of fatigue and anxiety which can increase the pain felt. The pain felt during labor is physiological due to contractions. The pain felt by each mother is different (subjective) according to her external and internal factors. There are many efforts or methods that can be applied to overcome pain during labor, one of which is using a birthing ball. Apart from being able to reduce pain during opening in the first stage, the birthing ball has other benefits including reducing the number of cases of elongated first stage, speeding up the opening of the cervix, stimulating uterine contractions, widening the diameter of the pelvis and speeding up the descent of the fetal head. The use of a birthing ball is highly recommended for mothers. pregnancy, childbirth and postpartum.

## CONCLUSION

Based on the research results described in the previous chapter, it can be concluded that there is a difference in the level of pain in mothers giving birth in the experimental group before and after birth ball therapy at the Az-Zahra Clinic, Bekasi Regency; There was a difference in the level of pain in mothers giving birth in the experimental group before and after birth ball therapy at the Az-Zahra Clinic, Bekasi Regency. Meanwhile, in the control group, there was no difference in the level of pain in mothers giving birth before and after being given birth ball therapy at the Az-Zahra Clinic, Bekasi Regency. The Birthball method is hoped to be applied in all maternity clinics or independent midwives in Indonesia.

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