

THE EFFECT OF GYM BALL COACHING ON PROGRESS PRIMIGRAVIDA MOTHER'S DELIVERY

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ABSTRAK : PENGARUH PELATIHAN BOLA GYM TERHADAP KEMAJUAN PERSALINAN IBU PRIMIGRAVIDA

Persalinan merupakan proses pengeluaran janin pada kehamilan cukup bulan yaitu sekitar 37-42 minggu dan lahir secara spontan dengan presentasi belakang kepala yang berlangsung selama 18-24 jam tanpa adanya komplikasi. Angka Kematian Ibu (AKI) merupakan salah satu indikator penilaian status kesehatan. Jumlah kematian ibu yang dihimpun dari pencatatan program kesehatan keluarga di Kementerian Kesehatan meningkat setiap tahunnya. Pada tahun 2021 menunjukkan 7.389 kematian di Indonesia. Jumlah ini menunjukkan peningkatan dibandingkan tahun 2020 sebesar 4.627 kematian. Gym ball adalah cara menambah ukuran rongga pelvis dengan menggoyang panggul di atas bola yang sangat efektif membantu merespon rasa sakit dan mengurangi lama persalinan kala I fase aktif. Penelitian ini bertujuan untuk mengetahui Pengaruh bimbingan gym ball terhadap kemajuan persalinan pada ibu primigravida kala I Fase Aktif di PMB Eka Santi Prabekti Tahun 2023. Penelitian ini menggunakan metode kuantitatif dengan desain penelitian pre eksperimental yang menggunakan rancangan intract group comparison. Jumlah Sampel 50 orang ibu bersalin yang dibagi dalam dua kelompok yaitu kelompok yang tidak dilakukan bimbingan gym ball sebanyak 25 orang dan kelompok yang dilakukan bimbingan gym ball 25 orang. Instrumen penelitian berupa lembar observasi dan partograf. Metode pengumpulan data ini menggunakan data primer yang dilakukan pada bulan 05 Juli – 10 September 2023. Hasil penelitian ini menunjukkan bahwa kemajuan persalinan ibu pada kelompok yang tidak dilakukan bimbingan gymball yaitu 424,72 menit, dan pada kelompok yang dilakukan bimbingan gymball yaitu 265,20 menit. Simpulan terdapat pengaruh bimbingan gymball terhadap kemajuan persalinan ibu bersalin primigravida kala I fase aktif dibuktikan dengan Uji-T nilai p-value = 0,000 (p-value < 0,05).

Key words: bimbingan gym ball, ibu bersalin, kemajuan persalinan

ABSTRACT

Childbirth is the process of expelling a fetus at term pregnancy, which is around 37-42 weeks and is born spontaneously with a posterior presentation that lasts for 18-24 hours without any complications. Maternal Mortality Rate (MMR) is an indicator for assessing health status. The number of maternal deaths collected from family health program records at the Ministry of Health increases every year. In 2021 there were 7,389 deaths in Indonesia. This number shows an increase compared to 2020 of 4,627 deaths.

Gym ball is a way to increase the size of the pelvic cavity by shaking the pelvis on the ball which is very effective in helping to respond to pain and reducing the length of labor during the active phase of the first stage.

This research aims to determine the effect of gym ball guidance on the progress of labor in primigravida mothers during the first active phase at PMB Eka Santi Prabekti in 2023.

This research uses quantitative methods with a pre-experimental research design using an intract group comparison design. The sample size was 50 mothers giving birth who were divided into two groups, namely the group that did not receive gym ball guidance, 25 people and the group that received gym ball guidance, 25 people. The research instruments were observation sheets and partographs. This data collection method uses primary data carried out in the months 05 July – 10 September 2023. The results of this study show that the progress of maternal labor in the group that did not receive gymball guidance was 424.72 minutes, and in the group that received gymball guidance it was 265.20 minutes. minute.

The conclusion is that there is an influence of gymball guidance on the progress of labor of primigravida mothers in the first active phase, proven by the T-test with a p-value = 0.000 (p-value < 0.05).

Key words: gym ball guidance, mother giving birth, labor progress

INTRODUCTION

Childbirth is the birth of the baby, placenta and amniotic membranes from the uterus to the outside world. Normal delivery occurs at term without any complications. Labor begins when the uterus contracts and causes changes in the cervix (opening and thinning) and ends with the complete birth of the placenta (Affandi, 2017).

The birth process is a physiological thing, one of which is influenced by power consisting of the mother's breasts and the ability to push. The force of the mother and her pushing can speed up the opening of the cervix and encourage the fetus to come out. Another factor that influences the length of labor is the condition of the pelvis. Pelvic deformities can hinder the birth process. Apart from that, the position and presentation of the fetus is also an important part of the birthing process. 98% of deliveries occur with the fetus presenting behind the head. In this case, it means that a balance is needed between the size of the fetus, especially the upper part and the pelvic cavity. So if there is an abnormality in the location, position and presentation of the fetus, there will be difficulties during the birthing process (Manuaba, 2010). The progress of normal labor is closely related to the suitability of appropriate labor management by the provider, whereas management that is not in accordance with the mother's needs can cause obstruction of labor (long labor) or obstruction, which can cause loss of maternal body fluids, fatigue, uterine rupture, post-natal bleeding. saline and infection occurs in the mother. Therefore, prevention and early detection of prolonged labor will significantly prevent complications (Raidanti & Mujianti, 2021).

According to data from the World Health Organization (WHO) in 2017, an estimated 810 women died related to birth and pregnancy, 295 thousand women died throughout 2017, 90% of all causes of maternal death occurred in developing countries between 2000-2017, the maternal mortality ratio decreased by as much as 38% worldwide. The cause of maternal death is the result of complications during pregnancy and childbirth (Indonesian Ministry of Health, 2018).

Data taken from the Ministry of Health of the Republic of Indonesia in 2017, currently the Maternal Mortality Rate (MMR) in ASEAN countries has reached the position of 40-60/100,000 live births, while in Indonesia based on the 2015 inter-census population survey (SUPAS) it is still in the position 305/100,000 live births, this is very different from Singapore which is 2-3 MMR/100,000 births, this shows that the MMR in Indonesia is still quite

high. MMR in Indonesia experienced a slight decline from 4999 cases down to 4912 in 2016 and in 2017 it decreased to 1712 MMR cases. The IDHS noted that in the births 5 years before the survey, prolonged labor was the most frequently reported (41%) by women 15-49 years.

Data from the Ministry of the Republic of Indonesia, the number of mothers giving birth in Indonesia in 2020 was 5,043,078 people, 23.2% of whom experienced birth complications (Indonesian Ministry of Health, 2020). The National Riskesdas Report (2019) found several causes of the biggest birth complications, namely premature rupture of membranes (5.6%), prolonged labor (4.3%), fetal position (3.1%), umbilical cord entanglement (2.9%), hypertension (2.7%), bleeding (2.4%), and others (4.6%).

The progress of normal labor is closely related to the suitability of appropriate labor management by the provider, whereas management that is not in accordance with the mother's needs can cause labor obstruction (long labor) or obstruction, which can lead to loss of maternal body fluids, fatigue, uterine rupture, postpartum bleeding and infection. to mother. Therefore, prevention and early detection of prolonged labor will significantly prevent complications (Raidanti & Mujianti, 2021)

The cause of complications in childbirth which causes increased mortality and morbidity in the mother and fetus is prolonged labor. Mothers with prolonged labor are at greater risk of bleeding due to uterine atony (33%), laceration of the birth canal (26%), infection (16%), fatigue (15%) and shock (10%). Meanwhile, in the fetus it can increase the risk of severe asphyxia, cerebral trauma, infection and injury due to procedures (Wiliandari, Meri & Sagita, 2021). The incidence of prolonged labor is caused by several factors such as fetal position, pelvic abnormalities, histology abnormalities, incorrect delivery, large fetus, congenital abnormalities, grand multipara, and premature rupture of membranes (Umu Qonitun, 2019)

One of the efforts to prevent prolonged labor is with gym ball guidance which supports labor to proceed physiologically. Siregar's research in 2020 entitled the effect of implementing the birth ball technique on labor progress revealed that the average progress of labor for birth ball status implemented and not implemented was different where birth ball status was implemented 224.3 minutes faster compared to birth ball status not implemented. With a confidence level of 95%, a p-value of 0.0000 < 0.05 is obtained, which means that

there is a significant influence with the implementation of the birth ball technique on the progress of labor (Siregar et al., 2020).

Birth ball means a birth ball that can be used by mothers in the 1st stage in a position that helps the progress of labor (pelvic rocking movement). The advantages of using a birth ball are that it increases blood flow to the uterus, placenta and baby, relieves pressure and can increase pelvic output by as much as 30%, provides comfort for the knees and ankles, provides counter-pressure on the perineum and thighs. This posture works. gravity pushes the baby down thereby speeding up the birthing process (Tri Maryani, 2017).

Gym Ball is a physiotherapy ball that helps mothers in the first stage of labor. The Influence of Gym Ball Guidance on the Progress of Primigravida Mothers' Labor JOURNAL OF MOTHER&CHILD CARE | Volume 6 | Number 2 | August 2021 85 and can be used in various positions. The elasticity and curvature of the ball stimulates the receptors in the pelvis, so by applying gravity while increasing the release of endorphins, the movement of sitting on the ball and stone provides a feeling of comfort and promotes the progress of labor. Person responsible. Releases endorphins. (Kurniawati et al., 2017)

During the first stage of labor, do gym ball exercises by sitting on the ball then slowly swinging and shaking your hips back and forth, right and left, and in circles. This exercise is useful for helping uterine contractions be more effective and speeding up the baby's descent through the pelvis. The pressure of the baby's head on the cervix remains constant when the mother gives birth in an upright position so that cervical dilatation becomes faster. The pelvic muscle ligaments relax, and the pelvic area becomes wider, making it easier for the baby to descend to the pelvic floor (Muthoharoh et al., 2019).

This study aims to determine the effect of gymball guidance on the progress of labor of primigravida mothers in the active phase of the first stage at PMB Eka Santi Prabekti. In this study, it was limited to primigravida mothers giving birth during the first active phase by looking at the progress of labor based on the length of time. The process of assessing the progress of labor is carried out on primigravida mothers in the active phase of the first stage from opening 4 cm who are given gym ball guidance for 30 minutes and reassessing their progress up to opening 10 cm (there are symptoms in the second stage) through internal examination.

RESEARCH METHODS

This research uses a quantitative research approach using a pre-experimental research design which uses an intract group comparison design, namely to determine the effect of an action on the group that was treated with the gym ball guidance method and the group that was not given gym ball guidance as the control group.

The independent variable in this study is gym ball guidance while labor progress is the dependent variable. In research the total population used as the sample, there are 50 populations that used as the sample. The population in this study were all mothers who gave birth in the last month with a total of 50 mothers who gave birth normally at PMB Eka Santi Prabekti in 2023. The sample was taken using a total sampling technique, namely all mothers who gave birth at PMB. Eka Santi Prabekti consisted of 50 people who were divided into 2 groups, namely 25 people in the group who did gym ball and 25 people in the group who did not do gym ball who met the inclusion and exclusion criteria. The inclusion criteria in this study were mothers who were pregnant at term, primigravida mothers who would give birth in the first stage of the active phase, no comorbidities during pregnancy or a history of complications during the prenatal period. The inclusion criteria in this study were mothers who refused to become respondents. Maternity mothers who were uncooperative. Primigravid mothers with risks/complications. The research instruments were observation sheets and partographs.

This data collection method uses primary data which was carried out in the months 05 July – 10 September 2023. Univariate analysis creates a distribution or representation of each variable. This analysis was carried out to explain the research variables by tabulating the frequency and distribution of data in table format. Bivariate analysis was carried out on two variables to determine whether there was a relationship (correlation) or difference (Notoatmodjo, 2018). This was done to determine the effect of gym ball guidance on the progressivity of labor of primigravida mothers during the first active phase at PMB Eka Santi Prabekti District. Central Lampung.

This study used paired T-test analysis which was used to determine the effect of gym ball guidance on the progress of labor in the group of pregnant women who were not given gym ball guidance and the group of pregnant women who received gym ball guidance with the condition that the data had to be normally distributed. The first step taken before carrying out the Paired T-Test is

to carry out a normality test by looking at the Shapiro Wilk Test ($n = 0.05$ which means the data is normally distributed and if $p < 0.05$ then the data is not normally distributed, then it is necessary to carry out data transformation, if it has Data transformation was carried out but the data distribution was still not normal, so it was continued using an alternative statistical test, namely the Wilcoxon Test (Dahlan, 2015).

RESEARCH RESULTS

Table 1
Frequency distribution of labor progress in the group of women giving birth who did not receive gym ball guidance

Variable	N	Min	Max	Mean
Are not done gym ball guidance	25	254 minute	732 minute	424.72 minute

Table 1 shows that of the 25 mothers giving birth in the group who were not given gym ball guidance, the average progress in labor was 424.72 minutes, with a minimum value of 254 minutes and a maximum value of 732 minutes.

Table 2
Frequency Distribution of Labor Progression in the Group of Mothers Who Underwent Gym Ball Guidance

Variable	N	Min	Max	Mean
Gymball guidance is carried out	25	150 minute	360 minute	265.20 minute

Table 2 shows that of the 25 mothers giving birth in the group given gym ball guidance, the average progress in labor was 265.20 minutes, with a minimum value of 150 minutes and a maximum value of 360 minutes.

Table 3
Effect of Gym Ball Guidance on the Progress of Labor in the Group of Primigravid Mothers in the 1st Stage of the Active Phase

Group Category	N	Mean	Std Deviation	Mean Difference	p-value
There is no gym ball guidance	25	254 minute	123,477 minutes	159,520 minute	0,000
Gym ball guidance is provided	25	150 minute	64,622 minute		

DISCUSSIONS

Based on data from research results regarding the effect of gym ball guidance on the progress of labor in first stage primigravida mothers at PMB Eka Santi Prabekti in 2023, it was found that group that Without gym ball guidance, the number of 25 people had an average labor progress of 254 minutes with a standard deviation of 123.477 minutes. Meanwhile, in the group that received gym ball guidance, 25 people experienced an average labor progress of 150 minutes with a standard deviation of 64.622 minutes. This research uses the T-test Independent sample Paired T-test was used to determine the effect of gym ball guidance on the progress of labor in the group that received gym ball guidance and those that did not receive gym ball guidance. The condition is that the data must be normally distributed. The results of the analysis using a paired samples test with a confidence level of 95% show a $p\text{-value} = 0.0000 < 0.05$, which means that there is an influence of gym ball guidance on the progress of labor of primigravida mothers during the first active phase at PMB Eka Santi Prabekti in 2023.

This is in line with Siregar's research which states that there is a difference in the progress of labor between women giving birth with birth ball status and those without birth ball status. Where the birth ball status was carried out 224.3 minutes faster compared to the birth ball status which was not carried out. With a confidence level of 95%, a $p\text{-value} < 0.05$ is obtained, which means that there is a significant influence with the implementation of the birth ball technique on the progress of labor (Siregar et al., 2020). Other research which is in line with this research states that the effectiveness of the birth ball exercise on the length of the second stage is strong (Surtiningsih, 2016). This is in line with research Anik based on the results of research from 16 respondents after giving treatment using the birthing ball technique, almost all 10 people (63%) experienced lowering of the fetus in Hodge III and a small number of respondents, 6 people (37%) in Hodge IV (Purwati, 2020). This shows the influence of giving the birth ball technique (Birthing Ball) on the lowering of the fetus and the intensity of pain in mothers during the 1st Stage of the Active Phase.

Various efforts can be made to reduce pain during the first stage of labor, non-pharmacological efforts such as using a gym ball or peanut ball are simple techniques that can be done (Dianita Primihastuti, 2021).

The results of this study are also in line with (Wiliandari & Sagita, 2021) which proves that there is an influence of birth ball therapy in primigravida mothers on the length of the first stage of labor at PMB Meri Wiliandari and PMB Sri Wartini with a p-value of $0.03 < 0.05$. Various physiological efforts are made to prevent prolonged labor, such as pregnancy exercises, deep breathing techniques and rebozo. Other efforts to prevent prolonged labor include pelvic rocking with a birthing ball which supports labor so that it can proceed physiologically. This is also a method that really helps respond to pain in an active way and reduces the length of labor during the first active phase. Sitting straight on the ball with the earth's gravitational force will help the fetus or the lowest part of the fetus to immediately descend into the pelvis so that the birth time is shorter (Hidajatunnikma, 2020).

The results of research conducted by Sutisna, (2021) show that progress in labor occurs when using a gym ball with an average of 150 minutes or around 2 hours 30 minutes [16] (Sutisna, 2021). Based on theory stated by Aprilla who revealed that the first stage of labor will vary for each mother. The more relaxed a mother feels and the more she moves, the shorter the time it will take to reach complete opening (Aprilia, 2014). At the start of labor, mothers should empower themselves by not just curling up in bed. Changing positions every half to two hours will really help the labor process. (Aprilia, 2014). The pain during contractions will make the mother feel uncomfortable, by applying pelvic rocking with a birth ball the intensity of the mother's pain can be reduced (Niluh Nita. Silfia, Anna Veronica Pont, 2020).

This is also in line with research Indrayani stated that the mother's position also greatly influences the anatomical and physiological adaptation of childbirth (Indrayani & Riyanti, 2018). The upright position also provides many benefits. Changing positions provides comfort, reduces pain, and improves blood circulation. Upright positions include sitting on a gym ball (pelvic rocking), standing, squatting, walking. The upright position allows for lowering of the lower part of the fetus. Some of the benefits of a birth ball include being able to reduce the incidence of elongated first stages, 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.

This is also in line with the hypno birthing theory (2014). In the birthing process, the ball can be an important tool, and can be used in various positions. Sitting upright on the ball while pushing, such as swinging 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 parallel to the pelvis. The position of sitting on the ball is assumed to be similar to squatting, opening the pelvis, thereby helping speed up the process of childbirth. Gentle movements on the ball greatly reduce the pain of contractions. With the ball placed around the bed, the client can stand and lean comfortably on the ball, pushing and swinging the pelvis for mobilization.

Different from mothers who just lie down During the first stage, the pressure from the head on the cervix will be greater in the posterior cervix (cervix at 6 o'clock) so that in the end there are many cases of anterior cervical lips which make the labor process longer and more painful. (Aprilia, 2014)

Using a gym ball helps speed up labor because it helps the pelvis open, a gym ball can also increase blood flow to the uterus, placenta and baby. Reduces pressure and increases pelvic outlet by 30%. Creates a comfortable feeling in the knee and ankle area. Provides counter pressure in the perineum and thighs. Through gravitational force, the birth ball also pushes the baby down so that the birthing process becomes faster. (Muthoharoh et al., 2019) Zaky's research results show that there is a relationship between the implementation of the birth ball exercise and the length of the first stage (Zaky, 2016)

Several studies abroad, one of which was research conducted in Taiwan, showed the results that the group of women who did gym ball exercise experienced a shorter first stage of labor, lower use of analgesics, and a lower incidence of caesarean section. In terms of satisfaction with use, 84% stated that the gym ball could relieve contraction pain, 7% could relieve back pain, and 95% stated that they were comfortable when using the gym ball (Muthoharoh et al., 2019)

Another similar study was expressed by (Yuriati & Suryana, 2020) with the results of their research which concluded that there was an influence of birth exercise on the smoothness of labor with the results in the group of mothers who did not do birth ball exercise with a total of 25

people, the average birth smoothness was 252 minutes with standard deviation of 123.475 minutes. Meanwhile, the group that carried out the birth ball exercise experienced a smooth delivery of 148 minutes with a standard deviation of 64.620 minutes. The results of the analysis using a paired samples test with a confidence level of 95% show a p-value of $0.000 < 0.05$, which means that there is an influence of birth ball exercise on mothers giving birth. The position of the mother in labor greatly influences the anatomical and physiological adaptations to childbirth.

In This research shows the effect of gym ball guidance on the progress of labor. Where the gym ball technique can help mothers in labor to shorten the progress of labor at PMB Eka Santi Prabekti. Mothers who gave birth said they were comfortable and relaxed in facing labor because the help of the Gym ball slightly reduced the pain during contractions. The enthusiasm and enthusiasm of mothers in labor also really helps the mother's psychology in processing pain and creating a positive atmosphere for the mother so that the uterus can contract optimally. Based on several research results, researchers assume that the effect of gym ball guidance on the progress of labor is very effective in shortening the length of the first stage of labor in primigravida.

CONCLUSION

The conclusion of this research is that there is an influence of gym ball guidance on the progress of labor of primigravida mothers in the first active phase as proven by the T-test with a p-value = 0.000 (p value < 0.05).

SUGGESTION

There are some suggestion after finish this research, the first, it is for Health Workers. It is hoped that the birthball intervention can be an alternative for midwives in providing midwifery care for childbirth to improve the skills of midwives in assisting normal births in order to reduce the morbidity and mortality rates of pregnant women and neonates. The second, it is for Health Facilities. It is recommended that all health facilities provide gym ball services to pregnant women from the third trimester as part of the birth preparation activities. The third, it is for educational institutions. It is hoped that it can be used to produce superior midwives as community mobilizers in reducing the morbidity and mortality rates of pregnant women and neonates. Add information and increase insight and serve as additional library material for the Wahana Husada Bandar Jaya Midwifery Academy.

REFERENCES

- Aprilia, Y. (2014). *Gentle birth balance*. Qanita.
- Christin Hiyana, M. (2019). Effects of Pelvic Technique *Rocking with a Birthing Ball on Length of First Stage of Labor*. 10.
- Dahlan, S. (2015). *Statistics For Medicine And Health*. Indonesian Epidemiology
- Dianita Primihastuti, SWR (2021). UsePeanut Ball to Reduce Labor Pain and Facilitate the Process of Lowering the Fetal Head During Childbirth Kala I. *Nurse Community*,12 <http://journal.unigres.ac.id/index.php/JNC/article/view/1137/1001>
- Fadmiyanor, I., Rahmi, J., & Ayu, MP (2017). The Effect of Giving the Birth Ball Method on the Intensity of Labor Pain in the 1st Active Phase at BPM Siti Julaeha. *Mother and Child Journal*, 5. <https://jurnal.pkr.ac.id/index.php/JIA/issue/view/22>
- Hidajatunnikma. (2020). Effectiveness of Pelvic Rocking Exercise. East Kalimantan Ministry of Health Polytechnic. [http://repository.poltekkeskaltim.ac.id/1035/1/MANUSKRIP Hidajatunnikma.pdf](http://repository.poltekkeskaltim.ac.id/1035/1/MANUSKRIP%20Hidajatunnikma.pdf)
- Indrayani, T., & Riyanti, SM (2018). The Effect of Using a Birthing Ball on Decreasing Scores Pain in Mothers during the First Active Phase of Birth at the Maternity Clinic. *Husada Karya Jaya Nursing Academy Journal*.
- Irawati, A., Susanti, S., & Haryono, I. (2019). Reducing Labor Pain with the Birthing Ball Technique. *Journal of Smart Midwives (JBC)*, 2(3), 129. <https://doi.org/10.33860/jbc.v2i3.282>
- Indonesian Health Ministry. (2020). *Indonesian Health Profile*. Ministry of Health of the Republic of Indonesia.
- Indonesian Ministry of Health. (2021). *Indonesian Health Profile*. In Pusdatin.Kemendes.Go.Id
- Kurniawati, A., Dasuki, D., & Kartini, F. (2017). Effectiveness of Birth Ball Exercises in Reducing Labor Pain in the Active Phase of First Stage in Primigravida. *Indonesian Journal of Nursing and Midwifery*, 5(1). [https://doi.org/10.21927/jnki.2017.5\(1\).1-10](https://doi.org/10.21927/jnki.2017.5(1).1-10)
- Kuswanti, I., & Fitria Melina. (2014). *Askeb // Labor*. Yogyakarta: student library.
- Manuaba, IAC, Manuaba, IBGF, & Manuaba, IBGF (2014). *Midwifery, Gynecological Diseases and Family Planning*. Jakarta: EGC.

- Muthoharoh, S., Kusumastuti, & Indrayani, E. (2019). Effectiveness of Birth Ball During Pregnancy *Regarding Length of Labor*. *Leutika Prio*.
- Niluh Nita, Silfia, Anna Veronica Pont, S. (2020). The Effect of Implementing Pelvic Rocking with a Birthing Ball on Reducing Back Pain in the First Stage of Childbirth in the Mambo Health Center Area, Palu City. *Journal of Health Midwifery Nursing*, 13.
- Notoatmodjo, S. (2014). *Health Research Methodology*. Jakarta: PT Rineka Cipta.
- Prawirohardjo, S. (2016). *Midwifery Science*. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo
- Purwati, A. (2020). The Effect of the Birthing Ball Technique on Decreased Parts Lower Fetus in Primigravida Mothers Inpartu Stage I Active Phase in Pmb Ike Sri District. Bululawang District. *Poor. Journal Of Islamic Medicine*, 1. <https://doi.org/https://doi.org/10.18860/jim.v4i1.8846>
- Raidanti, D., & Mujianti, C. (2021). *Birthing Ball*. In Ahlimedia Press
- Siregar, WW, Sihotang, SH, Maharani, S., & Rohana, J. (2020). Influence Birth Ball Implementation of Techniques on the Progress of Labor. *Journal of Midwifery and Health Care Research*, <http://ejournal.delihusada.ac.id/index.php/JPK2R/issue/view/23>. <https://doi.org/https://doi.org/10.36656/jpk2r.v3i1.426>
- Sulis Diana, Erliani Mail, ZR (2019). *Textbook of Midwifery Care for Childbirth and Newborns*. CV Oase Group.
- Sutisna, EH (2021). The Effect of Gym Ball Guidance on the Progress of Labor of Primigravida Mothers. *Journal of Maternal and Child Care*, 6(2), 83–90. <https://doi.org/10.33867/jaia.v6i2.266>
- Sugiyono. (2017). *Research methods: quantitative qualitative and R&D*. Alfabet.
- Surtiningsih. (2016). Effectiveness of Pelvic Rocking Exercises on Length of Labor in Primiparous Women at the Banjarnegara Regency Regional Health Center. *Sudirman Nursing Journal*, 11. <http://jks.fikes.unsoed.ac.id/index.php/jks/article/view/660/0>
- Tetti, S. (2018). Nonpharmacological Therapy of Pain in Childbirth: Systematic Review. 3. <http://journal.um-surabaya.ac.id/index.php/JKM/article/view/1568>
- Triana Indrayani, S.ST., MK, & Riyanti, SM (2019). The Effect of Using a Birthing Ball on Reducing Pain Scores in Mothers Giving Birth in the First Active Phase. *Jakhkj*, 5(1), 1– 8. *Journal of the Husada Karya Jaya Nursing Academy*. <https://ejournal.husadakaryajaya.ac.id/index.php/JAKHKJ/article/view/102/78>
- Umu Qonitun, SNF (2019). Factors Behind the Occurrence of Prolonged Parturition in Mothers Giving Birth at Dr. Hospital. *R. Koesma Tuban*. 7(1), 51–57.
- Wahyuni Siregar, W., Evawanna Anuhgera, D., Hidayat Sihotang, S., Maharani, S., & Rohana, J. (2020). THE EFFECT OF IMPLEMENTING THE BIRTH BALL TECHNIQUE ON THE PROGRESS OF LABOR. In *Journal of Midwifery & Research* (Vol. 3). <http://ejournal.delihusada.ac.id/index.php/JPK2R>
- Wiliandari, M., & Sagita, Y.D. (2021). The Effect of Birthball Therapy in Primigravida on the Length of the First Stage of Labor in Pmb Meri Wiliandari and Pmb Wartini, Padang Ratu District, Central Lampung Regency, 2021
- Yuriati, P., & Suryana, F. (2020). Comfortable Childbirth with Birth Ball Sports. *Journal of Health Horizons*, XI(02), 2087–4944
- Zaky. (2016). Effect of pelvic rocking exercise using sitting position on birth ball during the first stage of labor on its progress. *Journal Of Healing an Science*.