

Empowering Perinatal Mothers to Reduce Pain in Pregnant and Birthing Mothers through Birthing Ball Preparation Education

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Abstract

Purpose: This community service activity aims to reduce pain in pregnant and labouring women after birthing ball.

Methodology: The methods applied included hands-on training and mentoring by midwives and regular monitoring and evaluation at Puskesmas Purwoharjo Pemalang. This programme encourages families to motivate pregnant women to continue exercising to prepare for a baby's birth. A birthing ball is an exercise method for pregnant women to increase the well-being of mothers and babies. **Findings:** in the second and third trimester of pregnancy, pregnant women feel less back pain. Mothers entering labour have less pain during contractions. The family feels the well-being of the mother and baby.

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A. Introduction

Pregnancy or labour brings the expectation of a new life. A woman who is well prepared before giving birth and has a low-risk pregnancy is likely to enjoy her labour and birth. First-time mums may not be able to enjoy this experience due to limited preparations for childbirth. Pregnancy and labour are important events in a woman's life. Both pregnancy and labour are physiological events and a woman's body is prepared to conceive, carry and deliver a baby. The pain of labour though physiological can be very challenging for the mother to bear ¹.

¹ Lydia Aziato, Angela Kwartemaa Acheampong, dan Kitim Dow Lazarus Umoar, "Labour pain experiences and perceptions: A qualitative study among post-partum women in Ghana," *BMC Pregnancy and Childbirth* 17, no. 1 (2017): 1-10, <https://doi.org/10.1186/s12884-017-1248-1>.

Every woman expects respectful and empathetic care during labour that addresses pain management and allows her to make it a memorable experience. Non-pharmacological pain management (NPM) during labour refers to approaches used to promote comfort, encourage rest, facilitate a woman's coping with labour pain, and to prevent her from suffering without the use of medication ².

The Community Health Centre Purwoharjo Pemalang is one of the primary health services that provides comprehensive health services to pregnant women and mothers in labour. Antenatal care classes are provided according to the government programme, but to improve the quality of health services, integrated services are needed. Monitoring and discharge planning are also provided for pregnant women to ensure that the mother can undergo physiological wellness until the delivery process. Antenatal services at Purwoharjo Pemalang Health Center still focus on general examinations, namely antenatal examinations, education, and giving vitamins to pregnant women. 1st and 2nd trimester pregnancies are recommended to have antenatal care once a month, unless there are pregnancy complications. Third trimester pregnancy is recommended to do antenatal care once a month.

Education for pregnant women is provided at the same time as the anamnesis, namely about the importance of nutrition for pregnant women, activities that can be done by pregnant women, and when to return for pregnancy checks. Back pain is common during the third trimester of pregnancy. Pregnant women are advised to get plenty of rest and to tilt right and left and breathe deeply if they experience back pain. Empirical data from Purwoharjo Community Health Center, Pemalang, stated that the prevalence of pregnant women who performed antenatal care in July-November 2024 was 60 people. 10 people from Purwoharjo village, 10 people from Randudongkal village and 40 people from Kajene village, Pemalang. Kajene village was chosen because the average education level of pregnant women is high school graduate. The level of education is less than that needs to be given education.

Birthing ball complementary therapy to reduce pain in pregnant women and labor pain has not been carried out in Purwoharjo Health Center and has not become a work program. Therefore, this community service team tries to implement birthing ball to pregnant women during posyandu examination of pregnant women. Birthing ball is one of

² Dorkasi L. Mwakawanga dkk., "Use of non-pharmacological methods in managing labour pain: experiences of nurse-midwives in two selected district hospitals in eastern Tanzania," *BMC Pregnancy and Childbirth* 22, no. 1 (2022): 1-10, <https://doi.org/10.1186/s12884-022-04707-x>.

the non-pharmacological methods to reduce pain during pregnancy and labour pain ³. Birthing ball exercise helps to bring the longitudinal axis of the fetus into alignment with the birth axis, which in turn shortens the duration of the first stage of labour and supports vaginal delivery ⁴.

Strengthening nursing and midwifery training is key to improving midwifery care. Evidence shows that fully educated and regulated midwives integrated within and supported by an interdisciplinary team and a supportive environment can deliver around 90% of essential reproductive health services, maternal, newborn and adolescent health that are important over the lifespan ⁵. The activity carried out is the assistance of perinatal mothers to reduce pain in pregnant and giving birth through education on childbirth preparation about birthing ball in Kajene village.

B. Method

The following are the steps in the implementation of the birthing ball exercise in the Purwoharjo Health Centre target area, namely in Kajene village:

1. Screening pregnant women

Screening of pregnant women to confirm that they are in the second trimester of pregnancy, starting at 24 weeks gestation. Identify the health of the pregnant mother, the mother is not sick.

³ Sujata Jha dkk., "The Effect of Birthing Ball Exercises on Labor Pain and Labor Outcome Among Primigravidae Parturient Mothers at a Tertiary Care Hospital," *Cureus* 15, no. 3 (2023), <https://doi.org/10.7759/cureus.36088>.

⁴ Hai Chuan Shen dkk., "Birthing ball on promoting cervical ripening and its influence on the labor process and the neonatal blood gas index," *World Journal of Clinical Cases* 9, no. 36 (2021): 11330-37, <https://doi.org/10.12998/wjcc.v9.i36.11330>.

⁵ Mwakawanga dkk., "Use of non-pharmacological methods in managing labour pain: experiences of nurse-midwives in two selected district hospitals in eastern Tanzania."



Figure 1. The screening of pregnant women

2. Providing facilities and equipment

To effectively perform the birthing ball exercise, it is essential to prepare the necessary tools to ensure comfort and safety for the pregnant women. These tools include a birthing ball, a sturdy chair, and a comfortable mattress.

The birthing ball, which is the primary tool in this exercise, provides support and helps improve posture, flexibility, and balance during pregnancy. It allows women to engage in gentle movements that can alleviate discomfort, especially in the lower back, and prepare the body for labor. The chair is used as a supportive base for the woman to sit on or lean against during the exercises, providing stability and enhancing the overall comfort level.

A comfortable mattress is also essential, particularly for exercises that involve reclining or resting between sets of movements. It ensures that the participant can relax and maintain a proper body position without unnecessary strain. By preparing these tools in advance, the birthing ball exercises can be carried out safely and effectively, contributing to the overall well-being of both the mother and baby during pregnancy.

3. Socializing

Technical implementation by conducting socialisation and education on healthy pregnancy, birthing ball exercises.



Figure 2. Socializing of exercise birthing ball

4. Implementation

Implementation of birthing ball exercises in the village of Kajene village accompanied by cadres, midwives conducted demonstrations, then pregnant women did redemonstrations.



Figure 4. Birthing ball practice together



Figure 5. Birthing ball practice one by one

5. Monitoring and evaluation

Pregnancy monitoring is conducted once a month at the Purwoharjo Health Center, Pemalang, as part of routine antenatal care to ensure the health and well-being of both the mother and the baby. During these visits, pregnant women often exhibit varying responses and needs, reflecting the unique experiences of each individual.

One of the common issues observed, particularly among women in their third trimester, is low back pain. This discomfort is typically caused by the physiological changes that occur as the body prepares for childbirth, including shifts in posture, weight distribution, and hormonal fluctuations. Addressing this concern is crucial for improving the quality of life and comfort of expectant mothers during this critical stage of pregnancy.

Healthcare providers at the Purwoharjo Health Center are dedicated to offering comprehensive care that includes physical assessments, education, and supportive interventions. By providing tailored advice and exercises, such as the use of birthing balls and gentle stretching routines, they help alleviate discomfort and prepare women for a smoother labor and delivery process.

C. Results And Discussion

Implementation of birthing ball in coordination with the maternal and child health unit of Purwoharjo Health Centre Pematang. Patient history taking, head to toe examination, pregnancy screening.

Table 1. Pregnant women characteristic

No	Pregnant women	F	%
1	Women age's		
	▪ 20 years old	2	10
	▪ 21-25 years old	8	40
	▪ 26-30 years old	10	50
2	Gestational age		
	▪ 24-28 weeks	2	10
	▪ 29-32 weeks	6	30
	▪ 33-37 weeks	7	35
	▪ 38-40 weeks	5	25
3	Obstetrics status		
	▪ Primigravida	10	50
	▪ Multigravida	10	50
4	Education		
	• Senior high scholl	15	75
	• Higher education	5	5

Community service activities are carried out through 5 stages i.e screening of woman pregnant, providing facilities and equipment, socializing, implementation, and monitoring evaluation. The screening of pregnant women is carried out through a comprehensive examination, including anamnesis, i.e. personal data of pregnant women, age of pregnant women, gestational age, obstetric status, weight, pregnancy examination. The number of pregnant women is 20. 2 were 20 years old, 8 were between 20-25 years old, and 10 were 26-30 years old. There were 7 people. The gestational age was 33-37 weeks. There were 10 primigravida and 10 multigravida obstetric status subjects.

The relationship between parental age at pregnancy and offspring development in

low- and middle income countries remains unclear⁶. Discovered that maternal age at pregnancy was linearly related with better adolescent cognitive development, while father age was approximately linearly associated with a higher risk of emotional and behavioral issues in adolescents.

When evaluating children with behavioral or cognitive issues, the age of the parents during conception should be taken into account⁷. The long-term developmental effects on future generations should also be considered in public health policies and activities that attempt to achieve an ideal parental childbearing age, according to these findings. Eventually, putting such techniques into practice will greatly aid in reaching the SDGs.

Pain during labor is caused by the first stage of labor whose contractions cause dilation and thinning of the cervix and uterine ischemia due to myometrial arterial contractions. These contractions cause the opening of the cervix to begin labor. The birthing ball is one of the complementary therapies to reduce the pain of pregnant women in the 3rd trimester and laboring mothers⁸.

Compared to those who did no specific exercises or merely walked during pregnancy, the subjects who regularly performed prenatal exercises, such as using a birthing ball, had significantly lower rates of cesarean sections, lower weight gain, higher newborn infant weight, lower pain and overall discomfort during labor, lower back pain throughout pregnancy, and an earlier postpartum recovery⁹.

The results of this activity, Birthing Ball is very helpful in reducing the pain of pregnant women in the 3rd trimester and reduce the pain of laboring women.

D. Conclusion

Increasing maternal age at first birth, maternal education level, increased parity, and household size are critical factors that influence maternal and child health outcomes. Involving the family in supportive practices, such as birthing ball exercises, has proven

⁶ Wanting Wan dkk., "Associations of parental age at pregnancy with adolescent cognitive development and emotional and behavioural problems: a birth cohort in rural Western China," *BMC Public Health* 24, no. 1 (2024): 1-11, <https://doi.org/10.1186/s12889-024-18309-z>.

⁷ Aziato, Acheampong, dan Umoar, "Labour pain experiences and perceptions: A qualitative study among post-partum women in Ghana."

⁸ Debora Paninsari dkk., "1640-Article Text-4868-1-10-20210406" 6, no. 1 (2021): 94-99; Jha dkk., "The Effect of Birthing Ball Exercises on Labor Pain and Labor Outcome Among Primigravidae Parturient Mothers at a Tertiary Care Hospital."

⁹ Yogyata Wadhwa, Ahmad H. Alghadir, dan Zaheen A. Iqbal, "Effect of antenatal exercises, including yoga, on the course of labor, delivery and pregnancy: A retrospective study," *International Journal of Environmental Research and Public Health* 17, no. 15 (2020): 1-11, <https://doi.org/10.3390/ijerph17155274>.

highly beneficial in alleviating low back pain and shortening the duration of the first stage of labor for pregnant women. These practices emphasize the importance of a holistic approach that includes physical, emotional, and social support during pregnancy.

Encouraging women to make well-informed decisions about their pregnancy and childbirth is essential. Establishing accessible channels for them to receive personalized care and extra attention during this pivotal stage can significantly improve their overall experience and health outcomes. Additionally, empowering women through effective planning and enhancing their socioeconomic status can create a supportive environment that fosters better health for both mothers and their babies. These findings underline the necessity of a comprehensive strategy that integrates education, family involvement, and empowerment to optimize maternal and neonatal well-being.

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Each member of the team has played a crucial role in ensuring the smooth and successful execution of this effort. From offering expert advice to providing logistical and emotional support, their collective contributions have been instrumental in bringing this work to fruition. Your trust and belief in the vision of this initiative have been a driving force, empowering me to push boundaries and achieve our shared goals.

This achievement is not mine alone but the result of the collaborative spirit and shared commitment of everyone involved. I am deeply grateful for the opportunity to work alongside such inspiring individuals and hope this effort reflects our mutual dedication to making a positive impact.

F. Author Contributions Statement

This activity was carried out by the Midwifery Department, involving a dedicated team committed to ensuring its success. Wahyuni Rahayu played a pivotal role as the compiler of the manuscript, contributing her expertise in structuring the educational materials used throughout the program. She also served as a key educational resource person for pregnant women, delivering crucial information to support their health and well-being during pregnancy.

Meanwhile, Dewi Mayangsari contributed significantly as both a facilitator and a healthcare professional, overseeing the screening of pregnant women's health status. Her efforts ensured that the participants received not only the knowledge but also the personalized attention necessary to address their specific health needs.

The synergy between these individuals, supported by the entire team, highlights the commitment and dedication of the Midwifery Department in promoting maternal health through education and proactive healthcare measures. This collaborative effort reflects a strong dedication to improving health outcomes for pregnant women and their families.

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