



Effects of Birth Ball Relaxation Alternatives and Aroma Therapy on The Progress and Satisfaction of Labor in The District North Tapanuli in 2023

Authors:

Juana Linda Simbolon¹, Emilia Silvana Sitompul²

^{1,2} Poltekkes Kemenkes Medan, Medan, Indonesia, 061-8368644 – Fax : 061-8368644

Corresponding Email: *simbolonjuana@gmail.com

About the Author

1. 1st Author : Juana Linda Simbolon, SST, M.KES
Affiliation : Department of Midwifery, Poltekkes Kemenkes Medan
Mailing address : Jl. SMPN 3 Hutabarat, Kecamatan Tarutung Kabupaten Tapanuli Utara, Sumatera Utara – Indonesia 22415)
Email of author : simbolonjuana@gmail.com
Orcid ID : 0000-0003-3447-6130
Google Scholar URL : <https://scholar.google.co.id/citations?user=mbiQVdkAAAAJ&hl=id>
Phone number : 081362325531
- 2nd Author : Emilia Silvana Sitompul, SST, M.K.M
Affiliation : Department of Midwifery, Poltekkes Kemenkes Medan
Mailing address : Jl.Marhusa Panggabean Lumban Siagian Julu, Kecamatan Siatas Barita Kabupaten Tapanuli Utara, Sumatera Utara – 22417)
Email of author : emilia.sitompul1607@gmail.com
Orcid ID : 0000-0002-4560-0638
Google Scholar URL : <https://scholar.google.co.id/citations?user=6ZsonVIAAAAJ&hl=id>
Phone number : 081396589078

ABSTRACT

The highest expression of female sexuality is childbirth. Sex and childbirth use the same hormones, namely Endorphin, Oxytocin, and Prolactin. Midwives must create physical and emotional comfort during the birthing process by understanding beneficial actions, and detrimental actions such as avoiding negative emotional reactions, and pain due to physical reactions. WHO states that to prevent maternal deaths, satisfaction is a medium for secondary prevention of maternal deaths. This study aims to analyze the effect of birth ball training and aroma therapy on the mother's progress and satisfaction in childbirth. This type of research is experimental pre and post-test with a control group design. The sample size was 34 mothers in labor, consisting of 17 mothers in the intervention group and 17 mothers in the control group. Analysis using parametric analysis test T-test. Test with a confidence level of 95%. The results of this study show that there is a difference in the length of time for the first stage in the control and intervention groups, $p\text{-value } 0.02 < 0.05$. The results of this study show that the intervention group generally felt satisfied with their delivery. In developing midwifery care, we can provide birth ball exercises and orange aroma therapy to speed up the first stage and as a non-pharmacological therapy option that supports pharmacological therapy for mothers in labor.

Keywords: Birth ball and Aroma therapy; Stage I progress; Satisfaction of mothers giving birth

ABSTRAK

Ekspresi tertinggi dari seksualitas perempuan adalah melahirkan. Seks dan melahirkan menggunakan hormon yang sama yaitu Endorphin, Oksitoksin dan Prolactin. Bidan harus menciptakan kenyamanan fisik dan emosional saat proses persalinan dengan memahami tindakan bermanfaat, tindakan merugikan seperti menghindari reaksi negatif emosional, rasa sakit akibat reaksi fisik. WHO menyebutkan untuk mencegah kematian ibu bersalin, kepuasan merupakan wadah untuk pencegahan sekunder kematian ibu. Penelitian ini bertujuan untuk menganalisis pengaruh latihan birth ball dan aroma therapy terhadap kemajuan dan kepuasan ibu dalam persalinan. Jenis penelitian experimental pre and posttest with control group design. Besar sampel adalah 34 orang ibu yang sedang dalam persalinan, terdiri dari 17 ibu kelompok intervensi dan 17 ibu kelompok kontrol. Analisa dengan uji analisis parametric Uji T. Test dengan derajat kepercayaan 95 %, Hasil penelitian ini menunjukkan ada perbedaan lama waktu kala I pada kelompok kontrol dan intervensi $p\text{ value } 0,02 < 0,05$. Hasil penelitian ini menunjukkan kelompok intervensi pada umumnya merasa puas terhadap persalinannya. Dalam pengembangan asuhan kebidanan dapat memberikan latihan birth ball dan aroma therapy jeruk untuk mempercepat kala satu dan sebagai pilihan terapi non farmakologis yang menunjang terapi farmakologis pada ibu dalam persalinan.

Kata Kunci: Birth ball dan Aroma therapy ; Kemajuan kala I; Kepuasan ibu bersalin

INTRODUCTION

Background of the Study

Childbirth is a natural process and every birthing mother has the right to receive safe and satisfying services. The care given to mothers has the potential to affect them both physically and emotionally. Improper treatment can result in dystocia, and prolonged/obstructed labor, which can cause maternal dehydration, fatigue, uterine rupture, post-partum hemorrhage, and puerperal sepsis, so that prevention and early detection of prolonged labor will significantly reduce the maternal mortality rate. In Indonesia, there was a decline in MMR during the 1991-2015 period from 390 to 105 per 100,000 live births, but failed to achieve the MDGs target which had to be achieved of 102 per 1000,000 live births in 2015.

Providing a sense of comfort and satisfaction for the birthing mother is part of the midwife's duties as a provider of care, such as the use of birth technology and adequate birth care to the use of non-

pharmacological practices to increase the progress of labor and reduce pain. Relaxation (physical, mental, emotional) in birthing mothers is a condition that makes the body comfortable by releasing tension, thereby helping relax muscles, increasing the ability to withstand pain, releasing endorphins, increasing the ability to make decisions, and reducing fatigue. Endorphin is a natural narcotic, if increased, it can be a natural stress-relieving and pain-relieving hormone, triggering feelings of pleasure, and improving the body's immune system. Birth balls, aromatherapy, massage tools, acupressure, and hot and cold compresses are alternative relaxation methods that can provide a sense of comfort and control during childbirth.

Mothers giving birth need a holistic approach for a pleasant birth process. "Basically, mothers need to be free from old programming and beliefs such as giving birth to a child is painful and renewing the brain with positive affirmations. Birth Ball and aroma therapy are props that can increase the progress of labor and maternal satisfaction in labor. Strict observation must be carried out during the first stage of labor for the mother's safety. The results of the observations are recorded in the partograph. The partograph helps the midwife recognize whether the mother is still in a normal condition or whether complications are starting to occur. Components that must be observed in monitoring the progress of labor are Heart rate every ½ hour, frequency and duration of uterine contractions every ½ hour, pulse: every ½ hour, cervical opening every 4 hours, decline: every 4 hours, blood pressure and body temperature every 4 hours, production of urine, acetone and protein every 2 to 4 hours. What is monitored in the progress of labor is the opening of the cervix, descent of the lower part of the fetus, uterine contractions (Gavi, 2015)

Childbirth involves physical sensations in the form of pain, pain during childbirth is a signal for the body to relax. When the mother relaxes, the sensations caused by contractions signal that labor is underway. Pain and tenderness during labor are basically caused by strong contractions during labor and this is a natural thing. Labor pain can cause stress which causes excessive release of hormones such as catecholamines and steroids. This hormone can cause smooth muscle tension and vaso-constriction of blood vessels. This can result in decreased uterine contractions, decreased uteroplacental circulation, reduced blood flow, and reduced oxygen to the uterus, as well as the emergence of uterine ischemia which makes pain impulses more frequent (Linda Rambe, 2022).

Relaxation is a condition that makes the body comfortable by releasing tension. Relaxation consists of physical relaxation which can be in the form of exercise, nutrition, mental relaxation (support from a birth companion, music, martial, affirmations, emotional relaxation by praying, and belief in Allah that childbirth is an event of faith (Madden et al., 2016).

Aromatherapy has been used in Europe to increase arousal and feel comfortable. Use during labor is for steam inhalation (steam therapy), putting aroma therapy in warm water in a bowl and inhaling the aroma, aroma pot/aroma lamp, aroma therapy enjoyed by heating a lamp, diffuser/aroma steam, putting aroma therapy in a special tool and aroma will spread, the aroma of the bath/foot bath/hand bath, putting aroma therapy in the bath can be used to soak the body and feet (Megawati, 2016)

The birth ball is a therapy ball to help mothers who are in the first stage of labor into positions that are useful for helping the progress of labor. The birth ball can also be used in various positions. During the pregnancy process, using birth ball exercises will stimulate postural reflexes and maintain the muscles that support the spine. The position of sitting on a ball in the 3rd trimester of

pregnancy can provide a feeling of comfort. During labor, the birth ball is also considered very important. (Purwati, 2020) (Marawita, Soraya and Putri, 2023) The benefit of using a birth ball is that during the pregnancy process, using birth ball exercises will stimulate postural reflexes and maintain the muscles that support the spine. The position of sitting on a ball in the third trimester of pregnancy can provide a feeling of comfort. During labor, the birth ball is also considered very important. This ball can be played in various positions. The ball will provide support to the perineum and keep the fetus parallel to the pelvis. Birth ball exercise experienced a shorter first stage of labor, lower use of analgesics, and lower incidence of cesarean section. In terms of satisfaction with use, 84% said the birth ball could relieve contraction pain, 79% could relieve back pain and 95% said they were comfortable when using the birth ball. Birth ball exercises can increase pelvic mobility in pregnant women (Hau *et al.*, 2012).

During the first stage of labor, do the Birth Ball exercise by sitting on the ball then slowly swinging and shaking your pelvis 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 the cervix dilates more quickly. The pelvic muscle ligaments become relaxed, and the pelvic area becomes wider, making it easier for the baby to descend to the pelvic floor (Yulyana, 2023). The method of reducing labor is aromatherapy in the form of extracts or oils obtained from plants. flowers, herbal plants, and trees which function to balance the body, mind, and spirit, increase uterine contractions, and reduce pain, tension, fear, and anxiety (Liao *et al.*, 2020) (Linda Rambe, 2022). Citrus Aurantium is a therapeutic aroma of lemon that can influence brain function activities through the nervous system and can increase the production of brain nerve conductor mass which can restore psychological conditions such as emotions, feelings, thoughts, and desires, providing a relaxing effect on tense nerves and muscles.

This is because it contains limonene, which is a chemical compound in oranges that can inhibit the work of the prostaglandin system. Apart from that, it contains limonene, linalool, linalyl acetate, geranyl acetate, geraniol, nerol, and neryl acetate which are effective for reducing labor pain, reducing anxiety which results in a long labor process which can have fatal consequences for the fetus (Soraya, 2021).

Identification of problems

What is the effect of the alternative relaxation of the birth ball and aroma therapy on the mother's progress and satisfaction in childbirth?

Hypothesis

There is an influence of alternative Birth Ball relaxation exercises and Aroma therapy on the Progress of Labor

RESEARCH METHODS

Types and Research Design

This research is quasi-experimental research that uses pre and post-tests with a control group design to compare the length of the first stage and the satisfaction of mothers who give birth using a birth ball and aroma therapy.

Population and Sample

1. Research Population

Inpartum mothers are the population in this study. This research will be carried out in January-December 2023 in the work area of the North Tapanuli District Health Service.

2. Research Sample

The sample size in this study was 17 people for the intervention group and 17 people for the treatment group or 34 people for the two groups. The sample in this study were in-partum mothers who met the following criteria:

- a. Inclusion criteria: Mothers who are willing to be respondents, and mothers who are not under psychological pressure.
- b. Exclusion Criteria: Mothers who are not willing to be respondents, gestational age <36 weeks, fetal malpresentation, multiple pregnancies, antepartum hemorrhage, placenta previa, placental abruption, fetal heads not overlapping, irregular fetal heartbeat (irregular), and mothers with hypertension or other medical conditions that prevent mobilization or ambulation.

Operational Definition

1. The progress of labor is the length of the first stage of labor with categories 0: Length of the first stage less than 6 hours and 1: Length of the first stage more than six hours.
2. Satisfaction in childbirth is the mother's feelings that arise after receiving the birth ball and aroma therapy exercises and without the birth ball and aroma therapy: 1, Very satisfied, 2. Satisfied, 3. Between satisfied and not, 4. Dissatisfied
3. Maternal age is the reproductive age in years according to the KTP with categories: 0: age 25-35 years, 1: age <25 years and > 35 years.
4. Education is the mother's last education obtained by interview, 0: 0-9 years, 1: > 9 year.
5. Parity: Number of babies born to mothers both living and dead, 0: 1-2, 1: > 2

Data source

1. Primary data: The primary data used is the result of interviews with respondents obtained using a questionnaire consisting of Data on maternal age, education, parity, birth satisfaction.
2. Secondary data: Secondary data is data obtained from Sitadatada Community Health Center, Hutabaginda Community Health Center, Situmeang Habinsaran Community Health Center, Onan Hasang Community Health Center, Paniaran Community Health Center, and the North Tapanuli District Health Service, in the form of data on geographic description, demographics

and data on the number of part-law mothers as well as supporting data. implementation of research.

Data Processing and Analysis

1. Data Processing, in this research, the data that has been collected is then processed through the following processes: *Editing* (checking), *Coding* (marking codes), *Data Entry*, *Cleaning Data*, and *Tabulating* (data tabulation).
2. Data Analysis, data analysis in this research is carried out based on the data obtained which is analyzed and then interpreted again. As follows:

- a. Univariate Analysis

In this research, univariate analysis was carried out by calculating the frequency of research data results based on variables that produce descriptive distributions and percentages. The purpose of this data analysis is to describe the characteristics of each variable studied and the data displayed in the analysis is the frequency distribution of data in each group. Then, a characteristic homogeneity analysis was carried out before the intervention to assess whether there were differences in the variance of each group.

- b. Bivariate Analysis

Bivariate analysis is used to analyze 2 variables, namely 1 *independent variable* and 1 *dependent variable*. Bivariate analysis is carried out to determine the relationship between the independent variable and the dependent variable statistically. used to analyze 2 variables, namely 1 independent variable and 1 dependent variable. The treatment group is women giving birth who use a birthing ball and aroma therapy and the second group is the control group, women giving birth without aroma therapy and a birthing ball.

RESEARCH RESULTS AND OUTPUTS

Research Results

Respondents from pregnant women in labor (in part) who participated in this quasi-experimental study (quasi-experimental *research*) consisted of 34 people according to the exclusion and inclusion criteria. The research was carried out from April 2023 to September 2023 in 5 Community Health Centers in the Working Area of the North Tapanuli Regency Health Service, namely Hutabaginda Community Health Center, Sitada-tada Community Health Center, Sipoholon Community Health Center, Paniaran Community Health Center and Onan Hasang Community Health Center.

This research is a type of quasi-experimental research (*quasi-experimental research*) with a *post-test approach with control group design*. The sampling technique used is *probability sampling with simple random sampling*, for pregnant women who come to give birth, then mothers in labor who meet the inclusion criteria will take a piece of paper containing code A or B in an opaque envelope. If the mother takes code A, then the mother will be given the alternative intervention of

birth ball relaxation and aroma therapy and if the mother takes code B then the mother will be given the alternative intervention of birth ball relaxation and aroma therapy. Before the intervention was carried out in both groups, data was assessed on the research subjects based on questionnaires as well as assessment of opening, lowering of the head, and the hiss. Then, one group was given intervention with alternative relaxation with a birth ball and aroma therapy, while the control group was given normal delivery care (APN) without birth training. ball and aroma therapy. Birth ball exercises were carried out in the intervention group once an hour for 20 minutes. in the active phase according to the steps. Measurement of labor progress was carried out 4 hours later or if indicated. The measurement of labor satisfaction is based on the answers to the questions given after birth.

The sample in this study was divided into two groups, namely the intervention group (mothers in labor aged 37-42 weeks who received intervention with birth ball exercises and aroma therapy, and a control group of mothers in labor (in part) 37-42 weeks) who did not receive alternative training. birth ball relaxation and Aroma Therapy. The number of samples for each group was 17 mothers in labor (in part), so the total sample was 34 mothers. The data that has been collected is input into the computer and analyzed using the SPSS application. The results of the analysis are displayed in the form of figures and tables accompanied by explanations.

Univariate Analysis

Table 1 shows the results of the analysis of respondent characteristics based on age, showing that respondents were generally aged 20-35 years in both the intervention group (88.2%) and the control group (82.4%). Most of the parity in the intervention group was greater than 2 (multiparity), namely 9 respondents (52.9%) while in the control group, the majority had parity 1-2 and 9, namely (52.9%). The results of the analysis of educational level characteristics showed that most respondents had secondary education levels, namely in the intervention group, namely 12 people (70.6%) in the control group, 14 people (82.4%).

Characteristics	Group		<i>p</i> value
	Birth Ball & Aroma Therapy n=17 %	Without Birth Ball & Aroma Therapy n= 17 %	
Age			
a. < 25 yrs > 35 yrs	11.8 %	17.6 %	0.628 *
b. 25-35 Yrs	88.2 %	82.4 %	
Parity			
a. 1-2	47.1%	52.9 %	0.249 *
b. >2	52.5%	47.1 %	
Education			
a. 0-9 Years	29.4 %	17.6 %	0.419 *
b. > 9 Years	70.6 %	82.4 %	

Table 1. Distribution of Respondent Characteristics Based on Age, Parity, Education

Source: primary data

Information:

^a *Chi square*

*Significance level >0.05

Bivariate Analysis

In Table 2, the statistical test results show that generally the duration of the first period in the group intervention generally lasted less than 6 hours, namely 82.4%, and in the intervention group the duration was greater than or equal to 6 hours.

Characteristics	Group		p value
	Birth Ball & Aroma Therapy n=17 %	Without Birth Ball & Aroma Therapy n= 17 %	
Long Time I			
a. < 6 hours	82.4	34.2	0.020
b. ≥ 6 hours	17.6	64.8	

Table 2. The Duration of the First Periode

Data normality test

The data normality test was carried out before the bivariate test in the intervention group and control group to determine the data analysis test that would be used. The data normality test in this study used *the Shapiro-Wilk Test* (<50 samples). The results of the data normality test can be seen in Table 3 as follows:

Group	Shapiro-Willk		
	Statistics	df	Sig.
Period I	,954	34	0.159

Table 3. Data Normality Test (Shapiro-*Wilk*) in the Intervention Group and Control Group <50

*. This is a lower bound of true significance.

a. Lilliefors Significance Correction

The Shapiro-Wilk analysis of the distribution of data for the old variables in Period I in the intervention group and the old control group in Period I obtained a p-value ≥ 0.05, which means the data was normally distributed, so a parametric analysis test was carried out using the T-Test.

Long ago I	Group		P value
	Intervention (n=17)	Control (n=17)	
Long Time I Mean ± SD	204.70 ± 79.53	296.47 ± 80.69	0.02

Table 4. Average progress of labor among mothers giving birth.

Based on Table 4, in the intervention group with the alternative birth ball and aroma therapy, the average length of the first stage was 204.70 minutes, while for mothers who gave birth without a birth ball, the average length of the first stage was 296.47 minutes. The results of the research analysis based on the results of the *independent t-test* show that there is a difference in the length of time for the first stage between mothers who received relaxation training and aroma therapy treatment and mothers who did not receive birth ball training and aroma therapy treatment, p-value 0.02 < 0.05.

Characteristics	Group		p value
	Birth Ball & Aroma Therapy n=17 %	Without Birth Ball & Aroma Therapy n= 17 %	
Satisfaction			
Very satisfied	64.7	29.4,	0.007
Satisfied	35.3	17.6	
Between Satisfied and Not		11.8	
Not satisfied		41.2	

Table 5. Effect of Alternative Birth Ball and Aroma Therapy on Satisfaction

Table 5 shows that the intervention group generally felt satisfied with their birth, while the group without a birth ball and aroma therapy generally felt dissatisfied, namely 41.2%. There is a relationship between Birth ball training and Aroma Therapy with maternal satisfaction in childbirth p value 0.007 <0.05.

DISCUSSION

Respondent characteristics

The results of the analysis of respondent characteristics based on age showed that respondents were generally aged 20-35 years in both the intervention group (88.2%) and the control group (82.4%). Age 20-35 years is a healthy reproductive age or a safe age for pregnancy and childbirth. Age has an influence on the mother's pregnancy and childbirth. When you are more than 35 years old, the function of the uterus and other body parts has decreased, and the mother's body health is not as good as when she was 20-35 years old.

Parity

The results of this study are based on parity. In the intervention group, the majority was greater than 2 (multiparity), namely 9 respondents (52.9%), while in the control group, the majority was parity 1-2 and 9, namely (52.9%). The number of children born can cause maternal death. Multiparous mothers experience health problems, the abdominal wall and uterine wall are loose, so they are at risk of obstructed or prolonged labor. Prolonged labor is caused by abnormal cervical dilatation. The opening of the cervix is slow because the head does not descend to press on the cervix. Causes of prolonged labor include multiparity, abnormalities in the fetal position, pelvic abnormalities, birth defects, incorrect delivery, large fetuses, congenital abnormalities, old primi, and hanging belly.

Education

The results of this study show that the characteristics of the level of education show that most respondents have a secondary education level, namely in the intervention group, namely 12 people (70.6%) in the control group, 14 people (82.4%). Low education is usually associated with low levels of knowledge. The low level of information received will have a negative impact on the pregnancy and childbirth process. Pregnant women who give birth will find it difficult to recognize danger signs during pregnancy and childbirth, thereby increasing the risk of maternal and perinatal death (Soviaty, 2016).

The Effect of Birth Ball Exercises and Aromatherapy on the Progress of the First Stage of Labor

The results of this study show that there is a difference in the average length of the first stage for the groups given Birth Ball and Aroma therapy exercises. The results of this research are in accordance with research (Wahyuni, Wijayanti, and Betsy Maran, 2021) ; (Mutoharoh, Indrayani and Kusumastuti, 2020) (Kamalina Fahria Dina, Sifa Altika, and Puji Hastuti, 2023) which states that birth mothers who use a birth ball will experience quicker progress in the first stage of labor because when using a birth ball during the first stage it can increase the release of endorphins because the elasticity and curvature of the ball in the pelvis can Excrete endorphins, birth ball exercises can stimulate dilation, widen the pelvic outlet so that the fetus or the lowest part of the fetus will soon descend into the pelvis due to the earth's gravitational force. Riyanto, 2018 believes that the birth ball can stimulate cervical dilation and widen the pelvic outlet. Using a birth ball during pregnancy will stimulate postural reflexes and protect the muscles supporting the spine.

The position of sitting on the ball is assumed to be squatting to widen the pelvic muscles so as to speed up labor. Exercise in a kneeling or bent position with your body weight resting on the ball, moving to push the pelvis so that the fetus will descend and change position to suit the pelvis, thereby shortening the length of labor. (Kurniawati, Dasuki and Kartini, 2017) states that Birth Ball Exercises can be used in several positions, for example by sitting on the ball and rocking back and forth to create a feeling of comfort and increase the progress of labor, by using gravity while increasing the release of endorphin hormones because the elasticity and curve of the ball stimulates the receptors. in the pelvis which functions to secrete endorphins. Yeung, *et al* (2019) stated that pelvic flexibility, mobility, and fetal position can be improved with Birth Ball exercises so that they can simultaneously improve a woman's psychosocial well-being reduce movement during the birth process and can increase the size of the pelvis. The results of this research are in line with research (Kamalina Fahria Dina, Sifa Altika, and Puji Hastuti, 2023) which states that there is a relationship between birth ball therapy and progress in the first stage of labor in the active phase in primigravida mothers with a p-value of $0.001 < 0.05$ as well as the results of the birth ball research had a significant influence on the time period I (Suryani and Mufida Dian Hardika, 2022) The results of research (Soraya, 2021) indicate that there is an effect of inhaling the therapeutic aroma of lemon citrus on reducing labor pain during the first active phase.

The pain caused by uterine contractions during labor is physiological, but pain during labor can also cause anxiety and fatigue in the mother which has a negative effect on the progress of labor. (Rafani Rosyidah, Mohammad Hakimi, 2015) states that a mother who feels afraid and panicked during childbirth will cause the brain to release substances that block the release of endorphins so that the pain felt will increase and the mother will become increasingly stressed in facing her birth, which causes the pain infusion to increase and weak contractions of the uterine muscles which will affect the progress of labor. Wijayanti, 2015; (and Lesawengan and Utami, 2019) in their research concluded that mothers giving birth can use aromatherapy to reduce pain. Lemon aroma therapy is a non-pharmacological method that can relax the mind and improve mood, refreshing the spirit and calming the body and soul. and concentration. Lemon contains the substance linalool which functions to normalize the nervous system so that the mother in labor can calm down. Linalool contains essential oil components that smell good. The olfactory center at the base of the brain receives the transmission of the therapeutic aroma of inhaled lemon, then the neuron cells interpret

the smell and channel it to the limbic system, where it will be forwarded for processing to the Hypothalamus. Aromatherapy that produces fragrance will stimulate the Thalamus to activate the release or release of neurotransmitters such as each-cephalin, serotonin, and endorphins which function as pain relievers. A mother in labor who feels happy will influence the progress of her labor.

The Effect of Birth Ball Alternatives and Aroma Therapy on Satisfaction

The results of this research analysis show that the intervention group generally felt satisfied with their birth, while the group without a birth ball and aroma therapy generally felt dissatisfied, namely 41.2%. Childbirth is an important experience in a woman's life because of its increased psychological, emotional, and physical impact. A positive experience during childbirth is important for women. Giving birth is important for the mother's health and the baby's well-being. Childbirth has a major physical and emotional impact so assessing a woman's satisfaction with giving birth is one of the most important events in a mother's life. Labor pain is one of the factors related to women's satisfaction with childbirth. The level of labor satisfaction of mothers who experience low labor pain in mothers who experience low labor pain. (Abbas, 2003).

Limitation of The Study

Maternity mothers do not understand the questionnaire presented and time is limited.

REFERENCES

- Harvey, S. *et al.* (2002) 'Evaluation of satisfaction with midwifery care', *Midwifery*, 18(4), pp. 260–267. doi: 10.1054/midw.2002.0317.
- Hassan Zaky, N. (2016) 'Effect of pelvic rocking exercise using sitting position on birth ball during the first stage of labor on its progress', *IOSR Journal of Nursing and Health Science*, 05(04), pp. 19–27. doi: 10.9790/1959-0504031927.
- Hau, W.-L. *et al.* (2012) 'The Use of Birth Ball for Pain Management The Use of Birth Ball as a Method of Pain Management in Labour', *Hong Kong J Gynaecol Obstet Midwifery*, Feb 17(E09), pp. 1–6.
- Hodnett, E. D. (2002) 'Pain and women's satisfaction with the experience of childbirth: A systematic review', *American Journal of Obstetrics and Gynecology*, 186(5 SUPPL.), pp. 160–174. doi: 10.1067/mob.2002.121141.
- Kamalina Fahria Dina, Sifa Altika and Puji Hastuti (2023) 'Hubungan Terapi Birth Ball Dengan Kemajuan Persalinan Kala I Fase Aktif Pada Ibu Primigravida Di Klinik Pratama Lidya Sifra Kudus', *Jurnal Ilmu Kebidanan dan Kesehatan (Journal of Midwifery Science and Health)*, 14(1), pp. 35–41. doi: 10.52299/jks.v14i1.149.
- Kurniawati, A., Dasuki, D. and Kartini, F. (2017) 'Efektivitas Latihan Birth Ball Terhadap Penurunan Nyeri Persalinan Kala I Fase Aktif pada Primigravida', *Jurnal Ners dan Kebidanan Indonesia*, 5(1), p. 1. doi: 10.21927/jnki.2017.5(1).1-10.
- Kwan, W., Kwan, W. S. and Chan, S.-W. (2011) 'Evaluation of Birth Ball The Birth Ball Experience: Outcome Evaluation of the Intrapartum Use of Birth Ball', *Hong Kong J Gynaecol Obstet Midwifery*, 11(1), pp. 59–64.

- Lawrence, A. *et al.* (2013) 'Maternal positions and mobility during first stage labour', *Cochrane Database of Systematic Reviews*, 2013(10). doi: 10.1002/14651858.CD003934.pub4.
- Lesawengan, M. and Utami, R. (2019) 'Pengaruh Pemberian Aromaterapi Lemon Terhadap Penurunan Intensitas Nyeri Persalinan Kala 1 Fase Aktif Pada Ibu Primigravida Di Bidan Praktek Mandiri (Bpm) Wilayah Kerja Puskesmas Batu Aji', *Zona kebidanan*, 9(3), pp. 47–52.
- Leung, R. W. C. *et al.* (2013) 'Efficacy of birth ball exercises on labour pain management', *Hong Kong Medical Journal*, 19(5), pp. 393–399. doi: 10.12809/hkmj133921.
- Liao, C. C. *et al.* (2020) 'Aromatherapy intervention on anxiety and pain during first stage labour in nulliparous women: a systematic review and meta-analysis', *Journal of Obstetrics and Gynaecology*, 0(0), pp. 1–11. doi: 10.1080/01443615.2019.1673707.
- Linda Rambe, N. (2022) 'Pengaruh Aromaterapi Lavender Untuk Mengurangi Nyeri Persalinan: a Systematic Review', *Jurnal Ilmiah Kebidanan Imelda*, 8(1), pp. 25–34. doi: 10.52943/jikebi.v8i1.741.
- Madden, K. *et al.* (2016) 'Hypnosis for pain management during labour and childbirth', *Cochrane Database of Systematic Reviews*, 2016(5). doi: 10.1002/14651858.CD009356.pub3.
- Makvandi, S. *et al.* (2015) 'Effect of birth ball on labor pain relief: A systematic review and meta-analysis', *Journal of Obstetrics and Gynaecology Research*, 41(11), pp. 1679–1686. doi: 10.1111/jog.12802.
- Marawita, D., Soraya, D. and Putri, D. (2023) 'Pengaruh Penggunaan Birth Ball Terhadap Penurunan Nyeri Persalinan', 5(1), pp. 12–19.
- Megawati, M. (2016) 'Ekstraksi Minyak Atsiri Kulit Jeruk Manis Dengan Metode Vacuum Microwave Assisted Hydrodistillation.', *Jurnal Bahan Alam Terbarukan*, 4(2), pp. 61–67.
- Module, C. E. (2013) 'Supporting Healthy and Normal Physiologic Childbirth: A Consensus Statement by ACNM, MANA, and NACPM', *The Journal of Perinatal Education*, 22(1), pp. 14–18. doi: 10.1891/1058-1243.22.1.14.
- Mutoharoh, S., Indrayani, E. and Kusumastuti, K. (2020) 'Pengaruh Latihan Birthball terhadap Proses Persalinan', *Jurnal Ilmiah Kesehatan*, 13(1). doi: 10.48144/jiks.v13i1.220.
- Perdoman, A. T., Utami, R. and Ramadhaniati, F. (2022) 'ZONA KEBIDANAN – Vol. 12 No. 3 Agustus 2022', 12(3), pp. 44–54.
- Purwati, A. (2020) 'Pengaruh Teknik Bola Persalinan (Birthing Ball) Terhadap Penurunan Bagian Bawah Janin Pada Ibu Primigravida Inpartu Kala I Fase Aktif Di PMB Ike Sri Kec. Bululawang Kab. Malang', *Journal of Islamic Medicine*, 4(1), pp. 40–45. doi: 10.18860/jim.v4i1.8846.
- Rafani Rosyidah, Mohammad Hakimi, ; dr. Shinta Prawitasari (2015) 'PENGARUH PEMBERIAN AROMATERAPI INHALASI NEROLI (Citrus Aurantium)/TERHADAP NYERI PERSALINAN KALA I FASE AKTIF RAFHANI ROSYIDAH, Prof. dr. Mohammad Hakimi, Ph.D., Sp.OG(K); dr. Shinta Prawitasari., M.Kes', *Thesis*.
- Sawyer, A. *et al.* (2013) 'Measures of satisfaction with care during labour and birth: A comparative review', *BMC Pregnancy and Childbirth*, 13. doi: 10.1186/1471-2393-13-108.
- Soraya, S. (2021) 'Pengaruh Pemberian Inhalasi Aromaterapi Lemon Citrus Terhadap Penurunan Nyeri Persalinan Kala I Fase Aktif', *Jurnal Ilmiah Kesehatan*, 13(2), pp. 184–191. doi: 10.37012/jik.v13i2.653.
- Suryani, L. and Mufida Dian Hardika (2022) 'Efektifitas Terapi Birthing Ball Terhadap Lama Kala I Dan Intensitas Nyeri Persalinan Pada Ibu Bersalin Primigravida Di Praktik Mandiri Bidan Mufida Dian Hardika Kabupaten Madiun', *Prima Wiyata Health*, III(1), pp. 20–29.

- Tabatabaeichehr, M. and Mortazavi, H. (2020) 'The Effectiveness of Aromatherapy in the Management of Labor Pain and Anxiety: A Systematic Review', *Ethiopian journal of health sciences*, 30(3), pp. 449–458. doi: 10.4314/ejhs.v30i3.16.
- Wahyuni, S., Wijayanti, I. and Betsy Maran, W. (2021) 'Efektivitas Birth Ball Exercisepada Ibu Bersalin Kala Iterhadap Lama Kala I Fase Aktif Dan Lama Kala Ii Di Ruang Bersalin Puskesmas Arso 3Kabupaten Keroom Provinsi Papua', *Intan Husada: Jurnal Ilmu Keperawatan*, 9(1), pp. 9–20. doi: 10.52236/ih.v9i1.204.
- Ware, J. E. *et al.* (1983) 'Defining and measuring patient satisfaction with medical care', *Evaluation and Program Planning*, 6(3–4), pp. 247–263. doi: 10.1016/0149-7189(83)90005-8.
- World Health Organization. (1997) 'Care in Normal Birth: A Practical Guide. Report of a Technical Working Group.', *Birth*, 24(2), pp. 121–123. Available at: <http://doi.wiley.com/10.1111/j.1523-536X.1997.00121.pp.x>.
- Yulyana, M. (2023) 'Perbandingan Pemberian Aromaterapi Lavender Dan Lemon Terhadap Nyeri Persalinan Kala I Pada Ibu Bersalin Di Wilayah Puskesmas Cimanggu Pandeglang Banten Tahun 2022', *Dohara Publisher Open Access Journal*, 02(06), pp. 718–728.