



# The Effect of Acupressure Therapy on Labor Pain at the Aesya Maternity Home Indonesia

Dini Rahmah Fitriyani, Heni Setyowati Esti Rahayu<sup>(✉)</sup>, Rohmayanti Rohmayanti, and Kartika Wijayanti

Faculty of Health Sciences, Universitas Muhammadiyah Magelang, Central Java, Indonesia  
henisetyowati@ummgl.ac.id

**Abstract.** High maternal mortality rates (MMR) are a concern for public health. One cause of maternal death is prolonged labor, which can be influenced by physical, emotional, and social factors. Among the emotional factors, stress and anxiety during childbirth can lead to prolonged labor. Additionally, pain from uterine contractions can make it difficult for mothers to cope with the birthing process. This study aimed to investigate the effectiveness of acupressure in reducing labor pain at the Aesya Grabag Maternity Home in Magelang, Indonesia. The researchers employed a quantitative approach with a quasi-experimental design. This involved dividing participants into two groups: an intervention group receiving acupressure and a control group not receiving it. The study took place between June and September 2023 and included 34 mothers experiencing labor pain in the active phase (first stage). Acupressure therapy was applied to specific points (BL32 and SP6) for 30 minutes in the intervention group. All mothers in the maternity home during the study period were included (total sampling). Data analysis used an independent t-test to compare pain levels between the groups. The intervention group showed a statistically significant difference ( $p$ -value  $< 0.000$ , which is less than 0.05), indicating that acupressure therapy has an effect on reducing labor pain. This study suggests that acupressure therapy can be a helpful tool for reducing labor pain in mothers giving birth at the Aesya Grabag Maternity Home in Magelang.

**Keywords:** Labor Pain; Acupressure Therapy; Mother Giving Birth.

## 1 Introduction

Maternal Mortality Rate (MMR) is a key indicator of public health in Indonesia. According to the Central Statistics Agency (BPS), the MMR in 2020 was 189, with the highest rate in Papua (565). Data from the 2017 Indonesian Demographic Health Survey (SDKI) shows a previous MMR of 228 per 100,000 live births, which unfortunately increased to 359 in 2012 [1]. In contrast, childbirth is a natural physiological process for women. Defined as the spontaneous and complication-free expulsion of the fetus, placenta, and membranes through the birth canal, it starts with cervical dilation due to regular uterine contractions until complete opening allows for fetal delivery [2].

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Labor pain is a subjective sensation of feelings of discomfort, anxiety and fear. Some aspects of labor pain felt by the mother can be protective, for example uterine pain caused by stretching of the soft tissue when the baby's head comes out (Crowning). Pain is part of labor and the birthing process itself. Pain felt during labor is normal. In the later stages of pregnancy and childbirth, pain is said to be a symptom of a pregnant woman that she has entered the stage of the labor process [3].

Actions to overcome labor pain consist of two actions, namely pharmacological and non-pharmacological methods. Non-pharmacological nursing procedures or complementary therapies to treat pain are preferred by patients because they are non-invasive, cheap and effective in dealing with pain problems during labor. One effective complementary method for dealing with labor pain is massage or massaging certain acupoints called acupressure. The points used for acupressure were BL32, SP6 (Neiguan, Qihai, Zusanli, and Sayinjio), the results obtained were an increase in regional cerebral oxygen and significant changes in flow from the middle cerebral artery by stimulating these acupressure points. Done by pressing, patting, pulling with a total of 30 massages [3].

Acupressure involves applying pressure to specific points on the body. In this study, points SP6 and LI4 were targeted to manage labor pain. These points are believed to stimulate the body's natural pain-relieving hormones (endorphins) which can promote relaxation and emotional well-being [2]. Several studies support the effectiveness of acupressure for labor pain reduction [4]. Research suggests that acupressure applied to points SP6 and LI4 during the first stage of active labor can significantly reduce pain intensity ( $p$ -value  $< 0.001$ ). One study found that the average pain score decreased from 6.48 to 3.84 after acupressure at these points [2]. Similar findings were reported in another study, where the average pain level dropped from 14.04 before acupressure to 4.37 afterwards. This indicates that acupressure at SP6 and LI4 can significantly reduce labor pain intensity. It's important to note that this study used a different combination of acupressure points (SP6 and BL32) compared to some previous studies which explored points like LI4 and BL32, or LI4 and Sanyinjiao-Hegu [5]. This highlights the potential for various acupressure techniques to be effective in managing labor pain.

## 2 Method

This research is quantitative with a quasi-experimental or quasi-experimental design, namely a design in the form of revealing cause-and-effect relationships by involving a control group in addition to the experimental group. The design used in this research was pretest-posttest control group design. In this study, a comparison was made between the intervention group that received acupressure treatment and the control group that was given standard nursing action in the form of deep breathing with the aim of determining the effect of the treatment. This research was carried out the Aesya maternity home, Grabag, Magelang, Central Java, Indonesia in June-September 2023. Acupressure was performed at points Bl 32 (celiao) and Sp 6 (Saninjiao) for 30 minutes. The sample in this study was 34 mothers in labor consisting of 17 respondents in the intervention group and 17 respondents in the control group. The aim of this research is to determine the effect of acupressure on labor pain at the Aesya Grabag Maternity

Home, Magelang. Where this research includes inclusion and exclusion criteria which determine whether or not th sample can be used. Researchers applied several criteria as follows inclusion criteria: willing to participate in research, mother give birth aged 20-35 years during the first active phase, the condition of the mother and fetus is healthy and there are no complication, mild moderate and severe pain scale and exclusion criteria: the mother gave birth with very severe pain, and maternity mothers who are not willing to undergo intervention. The sampling technique uses total sampling on mothers who experience pain during normal delivery. This research received a recommendation from the health research ethics committee of the Faculty of Health Sciences, Muhammadiyah University of Magelang and received a recommendation letter with number 0102 /KEPK-FIKES/II.3.AU/F/2023. Data analysis using the independent t-test.

### 3 Results

The results of this study looked at the results of univariate analysis in the form of respondent characteristics which included age, education and occupation and bivariate analysis to determine the effect of acupressure therapy on labor pain.

**Table 1.** Characteristics of Respondents

No	Variable	Intervention Group (n:17)				Control Group (n:17)			
		Mean	sd	n	%	Mean	sd	n	%
1.	Age	31.4	7.34			27.88	7.11		
2.	Education								
	a. Elementary & Junior high School			10	58.8			10	58.8
	b. Senior High School			6	3.53			5	29.4
	c. University			1	5.9			2	11.8
3.	Work								
	a. Housewife			12	70.6			17	100.0
	b. Work			5	29.4			0	0

Source: primary data processed by SPSS 2023

The study participants were primarily young women (85.45%) aged between 20 and 35 years old (Table 1). The majority had an elementary or middle school education (58.8%), and most were housewives (85.3%). To assess the impact of acupressure on labor pain, a dependent t-test was employed. Before performing this test, the researchers confirmed that the data met the assumption of normality (even distribution) using the Shapiro-Wilk test. The data in both the intervention group (before: p-value = 0.21, after: p-value = 0.70) and the control group (before: p-value = 0.02, after: p-value = 0.01) showed normal distribution.

Table 2 presents the results of the analysis. Both the intervention group (17 participants) and the control group (17 participants) had an average pain score before the intervention. The intervention group, which received acupressure, reported an average pain score of 8.70 before the procedure (considered moderate to severe pain). After

acupressure, the average score dropped significantly ( $p$ -value  $< 0.05$ ) to 3.41 (considered mild to moderate pain). This statistically significant difference ( $p$ -value of 0.000) suggests that acupressure effectively reduced labor pain in the intervention group. In contrast, the control group, which did not receive acupressure, experienced an increase in average pain score. Before the procedure, their average score was 7.05, which slightly increased to 7.17 afterwards. This statistically significant difference ( $p$ -value of 0.000) indicates that pain intensity naturally increased over time in the control group.

**Table 2.** Effect of Acupressure on Labor Pain

Variable	Intervention group (n: 17)				Control group (n: 17)			
	n	Mean	Sd	P-Value	N	Mean	Sd	P-Value
<b>Pain scale</b>								
Before intervention	17	8.70	1.04	0.000	17	7.05	0.65	0.000
After intervention	17	3.41	1.17		17	7.17	0.80	

Source: primary data processed by SPSS 2023

Meanwhile, to determine the effect of acupressure on labor pain between the two group, a dependent t-test was carried out with the result in the Table 3. Table 3 focuses on the change in pain intensity between the two groups. The intervention group (17 participants) had an average reduction in pain intensity of 5.29 points after receiving acupressure. This statistically significant difference ( $p$ -value  $< 0.05$ ) confirms the effectiveness of acupressure in reducing labor pain. In contrast, the control group (17 participants) who did not receive acupressure, experienced a slight increase in average pain intensity (-0.12 on the scale). This negative value indicates a rise in pain, and the statistically significant difference ( $p$ -value  $< 0.05$ ) suggests that pain naturally intensified over time in this group.

**Table 3.** Reduction in pain intensity in the intervention group and control group

Variables	Intervention Group (n=17)	Control Group (n=17)	T-test	P-value
Decreased pain intensity	5.29	-0.118	11.046	0.000

Source: primary data processed by SPSS 2023

## 4 Discussion

### 4.1 Characteristics of Respondents Based on Age, Education, Occupation

Based on research results, the age of mothers giving birth is dominated by the age of 20-35 years, Ministry of Health of the Republic of Indonesia (2017), that the age range of 20-35 years is the age range that is productive in giving birth and is more supportive of exclusive breastfeeding because mothers can easily obtain information about breast milk. The reproductive age for women to become pregnant and give birth is between 20-35 years because at the age of 20 the mother's uterus and pelvis have not developed well and are not mature enough to become a mother, at the age of 35 years and above

the elasticity of the pelvis and other reproductive organs in general has decreased, making the delivery process more difficult and can cause death in the mother [6]. Ages 20-35 years may not be at high risk because at that age the uterus is ready to accept pregnancy, is mentally mature and is able to care for the baby and herself [7]. The optimal productive age for healthy reproduction is 20-35 years. The risk increases at ages under 20 years and over 35 years. Women who become pregnant at a young age have risks including miscarriage, premature birth, LBW, congenital abnormalities, susceptibility to infection, anemia in pregnancy, pregnancy poisoning (gestosis), and death [8].

Based on the educational characteristics of respondents in the intervention group and control group, they were elementary and middle school, namely in the intervention group 10 mothers gave birth with a percentage of 58.8%, while in the control group 10 mothers gave birth with a percentage of 58.8%. A person's level of education cannot be used as a reference that someone can be successful in the lactation process, even though as much and correct information is obtained, low-educated mothers can get the correct information. Mothers who receive information and motivation about breastfeeding are more likely to provide exclusive breastfeeding compared to mothers who do not receive information and motivation [9]. Good breast milk production is caused by the mother's psychology being emotionally stable so that the oxytocin hormone works well [10]. Education is one of the factors that influences a person's knowledge and attitudes towards behavior. People who are highly educated will respond more rationally than those with lower education, are more creative, more open to reform and can adapt to social changes, so that higher education can also influence knowledge [11].

A mother's understanding (cognitive knowledge) of the significance of exclusive breastfeeding plays a crucial role in shaping her behavior. The more a mother knows about the benefits of exclusive breastfeeding, the more likely she is to breastfeed her baby exclusively [12]. Knowledge empowers change. Strong knowledge facilitates positive shifts in behavior, including breastfeeding practices. A mother's decision to exclusively breastfeed is influenced by various factors, and knowledge stands out as a key driver. It provides the foundation for motivation, enabling mothers to make informed choices and take actions that benefit their babies' health [13].

Based on the research results, the percentage of respondents working as housewives in the intervention group was 70.6% and for the percentage the control group is 100%. Economic status is a factor that influences people's health conditions, one of which influences economic status is employment. Economic factors influence the client's condition when facing illness to access the health service system which is related to economic factors. Work is an economic activity carried out to earn income. Mothers who do not work during the breastfeeding period have a 0.396 times greater chance of giving breast milk [9]. Economic factors greatly influence the breastfeeding process because housewives can take their babies wherever they go so they can provide breast milk at any time. Housewives (housewives) have a lot of free time so they can give enough attention to their children [14].

## 4.2 The Effect of Acupressure on Labor Pain

The results of this study show the effect of acupressure on labor pain with  $p$ -value = 0.000 ( $p < 0.5$ ). Acupressure is a non-pharmacological technique to reduce pain by pressing certain points with the aim of stimulating endorphin and opioid hormones to reduce pain during childbirth [15]. The acupressure technique is healing by pressing, massaging and massaging body parts to activate the circulation of vital energy. The distraction technique is a method for eliminating pain [16]. Based on the results of the research, it was found that women giving birth with labor pain who were given the acupressure technique said the pain was reduced.

For women giving birth with labor pain, acupressure can also be given to help manage emotions and help develop emotional intelligence. This therapy can be given when the peak of active contractions occurs. Acupressure therapy can help to stimulate endorphin hormones in the blood, which can control labor pain [17]. Acupressure can produce effects through different mechanisms, acupressure points have electrical properties that when stimulated can change the levels of chemical neurotransmitters in the body. The activity of certain points in the meridians which is transmitted via large nerve fibers to the *fornix* reticularis, thalamus, and limbic system will release endorphins in the body. Endorphins are painkilling substances naturally produced in the body, which trigger a calming and uplifting response in the body, have a positive effect on emotions, can cause relaxation and normalization of body functions. As a result of the release of endorphins, blood pressure decreases and can improve blood circulation [18].

Acupressure on the *sanyinjiao* points is an effective way to relieve pain non-invasively. This can improve the quality of service to pregnant women in dealing with the birthing process. The average pain measured using VAS for the group before the procedure and after receiving the procedure decreased after the acupressure procedure [19]. Acupressure significantly reduced labor pain when compared with placebo. Acupressure was also superior compared to the group without intervention in the active phase. Acupressure can relieve pain during the first stage of labor. Acupressure is a safe treatment for the mother and fetus because it does not cause side effects [20]. The effectiveness of acupressure is very influential in treating labor pain. Acupressure can be included as a therapy for treating labor pain [21].

## 5 Conclusion

The pain scale in the intervention group before acupressure was carried out was 8.70 and after acupressure was carried out, labor pain decreased to 3.41. The labor pain scale in the control group, the initial pain scale was 7.05, then the pain scale increased to 7.17. There is an effect of acupressure on labor pain in mothers giving birth at the Aesya Grabag Maternity Home, Magelang. Therefore, it is necessary to apply acupressure therapy to mothers who experience pain during the birthing process.

## Reference

1. Rahayu, H. S. E. (2017). Mother's experience in managing labor pain in central java Indonesia. *International Journal of Research in Medical Sciences*, 5(7), 3012. <https://doi.org/10.18203/2320-6012.ijrms20172979>
2. Marsilia, I. D., & Kubilawati, S. (2022). Pengaruh Akupresur Titik SP6 dan LI4 terhadap Pengurangan Intensitas Nyeri Kala I Persalinan di PMB NY. T.O Desa Klapanunggal Kabupaten Bogor. *Jurnal Akademika Baiturrahim Jambi*, 11(2), 279. <https://doi.org/10.36565/jab.v11i2.567>
3. Rahayu, H. S. E. (2018). *Akupresure untuk kesehatan wanita berbasis hasil penelitian* (E. K. Wijayanti (ed.)). unimma press. [https://www.google.co.id/books/edition/Akupresur\\_untuk\\_Kesehatan\\_Wanita\\_Berbasi/LGhWDwAAQBAJ?hl=id&gbpv=1&dq=akupresur+untuk+kesehatan+wanita&pg=PR3&printsec=frontcover](https://www.google.co.id/books/edition/Akupresur_untuk_Kesehatan_Wanita_Berbasi/LGhWDwAAQBAJ?hl=id&gbpv=1&dq=akupresur+untuk+kesehatan+wanita&pg=PR3&printsec=frontcover)
4. Ariyanti, R., & Aulia. (2019). Pengaruh Terapi Akupresur Pada Tangan Terhadap Nyeri Persalinan Kala I Fase Aktif Di Pmb Ratri Restuni S.St Samarinda. *Jurnal Kebidanan Mutiara Mahakam*, 7(1), 1–11. <https://doi.org/10.36998/jkmm.v7i1.35>
5. Ozgoli, G. M., & S. S., H. (2016). Effect Stage, of LI4 and BL32 acupressure on labor pain and delivery outcome in the first Complementary, of labor in primiparous women. *A Randomized Controlled Trial. Complementary Therapies in Medicine*, 29(2), 175–180.
6. Hijrawati, N. (2023). *Faktor-Faktor Yang Berhubungan Dengan Kejadian Hiperemesis Gravidarium Pada Ibu Hamil Di Poliklinik Rumah Sakit Islam Banjarmasin*. 8(2), 106–114.
7. Kusumawati, W., Mirawati, I., Kebidanan, A., Husada, D., & Jawa, K. (2018). *Hubungan Usia Ibu Bersalin Dengan Kejadian Preeklamsia (Di RS Aura Syifa Kabupaten Kediri Bulan Maret Tahun 2016)*. 7(14), 63–70.
8. Sukma, D. R., Dewi, R., & Sari, P. (2020). *Pengaruh Faktor Usia Ibu Hamil Terhadap Jenis Persalinan Effect of Maternal Age on the Type of Labor in RSUD DR . H Abdul Moeloek Lampung Province*. 9, 7–11.
9. Wulandari, A. S., Hasanah, O., & Sabrian, F. (2019). *Pengaruh Akupresur Terhadap Produksi Air Susu Ibu (ASI)*. 10(1).
10. Winatasari, D., & Mufidaturrosida, A. (2020). Hubungan Pengetahuan Ibu Nifas Tentang Asupan Nutrisi Protein Dengan Produksi ASI. *Jurnal Kebidanan*, XII(02), 202–216.
11. Sunesni, Putri, A., & Jamil, J. (2018). Hubungan Pendidikan Dan Pengetahuan Ibu Tentang ASI Perah Dengan Praktek Pemberian ASI Perah. *Jurnal Endurance*, 3(2), 415–421.
12. Husaidah, S., & Amru, D. E. (2020). Ibu Nifas Dengan Pemberian ASI Eksklusif. *Jurnal Sehat Mandiri*, 15(1), 130–139.
13. Asnia, W., & Junaid, Z. (2020). *Faktor Yang Berhubungan Dengan Pemberian ASI Eksklusif Pada Bayi Usia 0-6 Bulan Di Wilayah Kerja Puskesmas Poleang Utara Kabupaten Bombana Tahun 2019*. 1(1), 32–38.
14. Labusa, P., Noya, F., Longgupa, L. W., Siregar, N. Y., Ramadhan, K., & Usman, H. (2022). *Sosial ekonomi dan pengetahuan ibu terhadap pemberian asi eksklusif*. 17(1), 99–114.
15. Fitriawati, L., Kurniawati, D., & Perdani Juliningrum, P. (2020). *Perbedaan Tingkat Nyeri Persalinan Sebelum Dan Sesudah Terapi Acupressure Point For Location Pada Ibu Bersalin Kala I Di Rumah Sakit Jember Klinik Kabupaten Jember*. 7, 34–42.
16. Nurkhasanah, S., Yulita, N., Riau, U. M., & Riau, U. M. (2022). Pengaruh Terapi Akupresur Terhadap Intensitas Nyeri Persalinan : Systematic Literature Review. *Jurnal Kesehatan As-Shiha*, 79–85.
17. Nirmala Santiasari, R., Ethycasari, & Dwi Saputri, A. (2020). *Intervensi Terapi Akupresure (LI4) Pada Nyeri Persalinan Kala I Fase Aktif*. 20, 33–42.

18. Puji astuti, D., & Dewi, adinda putri sari. (2018). *Nyeri Persalinan dengan Pijat Akupresure*. 347–352.
19. Roque Mafetoni, R., & Keiko Kakuda Shimo, A. (2016). The effects of acupressure on labor pains during child birth : randomized. *Revista Latino-Americana de Enfermagem*. <https://doi.org/10.1590/1518-8345.0739.2738>
20. Haj, R., & Xiao-nong, F. (2020). Complementary Therapies in Clinical Practice The effect of acupressure on pain reduction during first stage of labour : A systematic review and meta-analysis. *Complementary Therapies in Clinical Practice*, 39, 101126. <https://doi.org/10.1016/j.ctcp.2020.101126>
21. Miguel, Á., Mart, S., Morilla-romero-de-la-osa, R., & Luque-oliveros, M. (2023). *Effects of Acupressure on Maternal and Neonatal Obstetric Outcomes during Labor : Study Protocol*.

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