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The Effect of Bladder (BL) 32 Acupressure Point on Reducing Labor Pain Intensity During Active Phase of First Stage in Laboring Women

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KEYWORDS

acupressure; active phase; bladder point BL 32; first stage of labor; Labor pain; pain management.

ABSTRACT

Labor pain is a physiological response experienced by mothers before the birth process. The level of pain felt can vary between mothers and may even differ in the same mother during each labor process. This study aims to determine the effect of *Bladder (BL) 32* acupressure point on reducing labor pain intensity during the active phase of the first stage in laboring women in *TPMB A* area, Purwakarta Regency in 2024. This research used a quantitative approach with a pre-experimental design, specifically a one-group pretest-posttest design. The research sample consisted of 32 respondents assessed before and after the intervention. The sampling technique used was purposive sampling. The instrument used to measure pain was the Numeric Rating Scale (NRS). Data analysis was carried out using the Wilcoxon test. The results showed that labor pain intensity before the intervention had a mean of 7.28, while labor pain intensity after the intervention had a mean of 5.41, resulting in a mean reduction of 1.88. The p-value obtained was 0.000 ($p<0.05$). It can be concluded that there is a significant effect of the *BL32* acupressure point on reducing labor pain intensity during the active phase of the first stage in laboring women in *TPMB A* area, Purwakarta Regency, in 2024. The implication of this research is that midwives should perform *BL32* acupressure to reduce pain during labor.

INTRODUCTION

Labor pain is a physiological response experienced by mothers approaching the birth process (Bonapace et al., 2018; Olza et al., 2020). The level of pain felt can vary between mothers, and even for the same mother, pain sensations can differ in each labor process. This pain arises due to stretching of the cervix, uterine muscle contractions, and descent of the fetal part, which triggers the release of prostaglandin hormones that play a role in causing pain (Pratiwi et al., 2021; Nasution & Suryani, 2024; Harahap & Harahap, 2022).

According to *WHO*, approximately 90% of pregnant and laboring women experience pain and fear during the labor process. Various efforts are made to help mothers avoid or minimize pain and to undergo labor more comfortably. The pain felt can impact the mother's condition, causing fatigue, anxiety, fear, and stress. This stress condition has the potential to weaken uterine contractions, which can ultimately prolong the labor process (Lilis et al., 2020).

Rosyidah in *Mufidah* (2022) states that approximately 85–90% of mothers giving birth in Indonesia experience severe labor pain, while about 7–15% do not feel pain at all. Labor begins with uterine contractions that cause pain and discomfort for the mother. In the first stage of labor, pain arises from the cervical effacement and dilation processes. When the dilation is 0–3 cm, pain is felt as mild discomfort; at 4–7 cm, pain begins to feel sharp; and at 7–10 cm, pain intensity increases sharply, feeling very sharp and stiff (Ahmar, 2021).

Pain felt by mothers during labor can be influenced by several physiological factors (*cervical muscle stretching, uterine contractions, fetal head descent, opening of the lower*

uterine segment) and psychological factors (*stress, worry, fear*) (Mufidah, 2022). Research by Mustafida & Mukhoirotin (2020) also states that stress during labor can increase maternal cortisol catecholamine release, which can reduce blood flow to the uterus. Additionally, fear and anxiety cause increased adrenaline levels. High adrenaline levels make uterine activity unregulated or uncoordinated, thereby reducing uterine activity, and labor pain increases the risk of obstetric complications such as prolonged labor. Prolonged labor will risk bleeding, which is one of the highest causes of maternal morbidity and mortality in Indonesia (Mufidah, 2022).

Unbearable labor pain encourages laboring mothers to use pain relief medications such as analgesics and sedatives, though these medications pose harmful side effects including fetal hypoxia, risk of neonatal respiratory disturbances, decreased heart rate/Central Nervous System (CNS) depression, and increased maternal body temperature (Mander in Ramadani, 2021).

One way to reduce *MMR* through the mother-friendly movement is through non-pharmacological methods to decrease labor pain intensity (Hutabarat, 2022). Non-pharmacological intervention efforts provided include *acupressure*, a technique that employs pressure, massage, and rubbing along the body's meridian at the *Bladder (BL) 32* point, located approximately along a woman's index finger above the buttock fold as wide as the thumb beside the spine. *Acupressure* can cause endorphin release, block pain receptors to the brain, and enhance the effect of uterine contractions (Rezeki, 2020).

Acupressure can stimulate endorphin hormones, improve blood circulation so that more oxygen enters, and activate small nerves to block pain impulses to the brain (Mufidah, 2022). Based on research results by Hutabarat (2022), conducted at *Korbafo Health Center*, there is an effect of *acupressure* technique on reducing pain intensity in the active phase of the first stage of labor with a significance value of 0.004. This is supported by research titled *acupressure at BL 32 point for active phase first stage labor pain management*, stating that there is a difference in the average labor pain intensity before and after *BL 32 acupressure* (Vania, 2019).

After conducting a preliminary data survey by interviewing 50 prospective laboring mothers in the *TPMB A* area, Purwakarta Regency, the majority of mothers said they were afraid to face labor because they were thinking about the pain they would feel during labor, and did not yet know how to reduce the intensity of active phase first stage labor pain they felt with safe and easy methods that could be done by husbands, families, or birth companions, namely with non-pharmacological *BL 32 acupressure* methods.

Labor pain is a significant physiological challenge faced by women during childbirth, with its intensity varying widely among individuals. Despite the availability of pharmacological interventions, such as analgesics, their potential side effects—including fetal hypoxia and maternal complications—highlight the need for safer, non-pharmacological alternatives. While techniques like *acupressure* have been explored, there remains a gap in localized studies examining the efficacy of *Bladder (BL) 32 acupressure* in specific populations, such as laboring women in the *TPMB A* area of Purwakarta Regency. This study addresses this gap by focusing on the active phase of the first stage of labor, where pain management is critical yet under-researched in this demographic, thereby contributing to tailored pain relief strategies.

The novelty of this research lies in its targeted investigation of *BL 32 acupressure's* impact on labor pain intensity, employing a pre-experimental design with a one-group pretest-posttest approach to measure changes before and after intervention. Unlike broader studies, this research zeroes in on a specific acupressure point and its practical application by midwives in a real-world clinical setting. By incorporating variables such as age and education, the study also explores socio-demographic influences on pain perception,

adding depth to existing literature. The findings aim to validate *BL 32 acupressure* as a culturally accessible and easily replicable method for pain reduction, particularly in resource-limited settings where pharmacological options may be scarce or undesirable.

The primary objective of this study is to determine the effect of *BL 32 acupressure* on reducing labor pain intensity during the active phase of the first stage of labor among women in Purwakarta Regency. By demonstrating its efficacy through quantitative analysis, the research seeks to empower healthcare providers with evidence-based, non-pharmacological tools to enhance maternal comfort and outcomes. The benefits extend beyond immediate pain relief, potentially reducing stress-related complications, shortening labor duration, and minimizing reliance on invasive interventions. Ultimately, this study advocates for the integration of *acupressure* into standard midwifery care, offering a low-risk, high-impact solution to improve the childbirth experience for women in similar contexts.

METHOD

This research used a quantitative approach with a pre-experimental design, specifically a one-group pretest-posttest design. The one-group pretest-posttest design first conducts observation through a pretest, then provides treatment or intervention, and subsequently administers a posttest to assess and determine changes that occur before and after the treatment or intervention; however, in this design there is no control group as a comparison between groups (Anggreni, 2022).

This research design aims to examine the effect of *BL 32* acupressure point on reducing labor pain intensity during the active phase of the first stage in laboring women in the *TPMB A* area, Purwakarta Regency in 2024.

Study Population and Sample

The population in this study included all laboring mothers in the *TPMB A* area, Purwakarta Regency, from October to December 2024, totaling 50 people. The research sample consisted of 34 active phase first stage laboring mothers in the *TPMB A* area, Purwakarta Regency in 2024, determined using the *Slovin* formula with a 10% error rate.

Sampling Technique

The sampling technique in this research used *purposive sampling*. *Purposive sampling* is a sampling technique that prioritizes certain criteria and objectives. This technique is also used to assess the effectiveness of the treatment provided (Swarjana, 2016). The inclusion criteria were: laboring mothers in active phase first stage (4–8 cm), laboring mothers experiencing labor pain, laboring mothers not experiencing pregnancy complications, and mothers willing to become respondents and receive the intervention. Exclusion criteria were: laboring mothers who had been given other non-pharmacological therapy interventions, laboring mothers experiencing complications, and laboring mothers unwilling to become respondents.

Data Collection Instruments

The independent variable in this study was the *BL 32* acupressure point. Data collection instruments were based on the SOP (*Standard Operating Procedure*). The dependent variable in this study was labor pain during the active phase of the first stage. The instrument used to measure the labor pain scale experienced by subjects was the *NRS* (*Numerical Rating Scale*) pain assessment scale. Confounding variables in this study were age and education, obtained using questionnaires or checklists during direct *anamnesis* with subjects.

Data Collection Procedure

Data collection began by selecting laboring mothers in the active phase who met the inclusion criteria in the *TPMB A* area, Purwakarta Regency, from October to December 2024. Researchers provided information about the purpose, benefits, and procedures of the *BL 32* acupressure point, and requested consent to perform the intervention. After each prospective

respondent understood and agreed to participate, the respondent signed an informed consent as proof of agreement to participate in this research.

The intervention was performed with gentle pressure in a clockwise direction 20–30 times using the thumb in the area around the tailbone (*coccyx*) for 30 seconds to 2 minutes. The instrument used to measure pain scale was the *Numerical Rating Scale* (*NRS*) questionnaire, measured on a scale of 0–10. Pain levels were categorized as follows: 0: No pain; 1–3: Mild pain; 4–6: Moderate pain; 7–10: Severe pain.

Data Analysis

Data analysis in this research was conducted using the *Statistical Product and Service Solution* (*SPSS*) program. Univariate analysis was conducted to describe the characteristics of each research variable. Bivariate analysis was used to analyze the effect of *BL 32* acupressure massage on reducing active phase first stage labor pain intensity using the *Wilcoxon* test analysis.

RESULTS AND DISCUSSION

Univariate Analysis

The research results on reducing active phase first stage labor pain intensity in laboring women in TPMB A area, Purwakarta Regency in 2024, obtained results before and after BL 32 acupressure point intervention with a total sample of 34 respondents (100%).

Table 1. Active Phase First Stage Labor Pain Intensity Before BL 32 Acupressure Point Intervention

Category	Frequency	Percentage (%)
Moderate Pain (4-6)	9	26
Severe Pain (7-10)	25	74
Total	**34**	**100**

Based on research results in Table 1, active phase first stage laboring mothers before intervention in TPMB A area, Purwakarta Regency in 2024, it was found that out of 34 respondents studied, the majority experienced pain intensity with severe pain category (7-10) as many as 25 people (74%).

Table 2. Active Phase First Stage Labor Pain Intensity After BL 32 Acupressure Point Intervention

Category	Frequency	Percentage (%)
Mild Pain (1-3)	4	11.8
Moderate Pain (4-6)	25	73.5
Severe Pain (7-10)	5	14.7
Total	**34**	**100**

Based on research results in Table 2, active phase first stage laboring mothers after intervention in TPMB A area, Purwakarta Regency in 2024, it was found that out of 34 respondents studied, the majority experienced pain intensity with moderate pain category (4-6) as many as 25 people (73.5%).

Table 3. Frequency Distribution Based on Age of Laboring Mothers

Age	Frequency	Percentage (%)
<20 Years	4	11.8
20-35 Years	30	88.2
Total	**34**	**100**

Based on research results in Table 3, it is known that out of 34 respondents studied, the majority of respondents were aged 20-35 years as many as 30 respondents (88.2%).

Table 4. Frequency Distribution Based on Education of Laboring Mothers

Education	Frequency	Percentage (%)
Elementary School	3	8.8
Junior High School	8	23.5
Senior High School	21	61.8
Higher Education	2	5.9
Total	**34**	**100**

Based on research results in Table 4, it is known that out of 34 respondents studied, the majority of respondents with senior high school education were 21 respondents (61.8%).

Bivariate Analysis

After conducting frequency distribution analysis of respondent characteristics, the next step was conducting normality tests on the independent variable, including pretest and posttest variables of active phase first stage labor pain intensity before and after BL 32 acupressure point intervention.

Table 5. Normality Test for Active Phase First Stage Labor Pain Intensity Before and After BL 32 Acupressure Point

Pain Intensity	N	Probability Value (P-Value)	Information
Pre-test	34	0.000	Not Normal
Post-test	34	0.002	Not Normal

*Shapiro Wilk Test

Based on Table 5, it is known that the probability value (P-value) of active phase first stage pain intensity before and after BL 32 acupressure point showed P-value <0.05. Based on the normality test conducted, it can be concluded that all data were not normally distributed and could be tested with non-parametric tests, namely Wilcoxon statistical test to see the effect of BL 32 acupressure point on reducing active phase first stage labor pain intensity in laboring mothers.

Table 6. Effect of BL 32 Acupressure Point on Reducing Active Phase First Stage Labor Pain Intensity in Laboring Mothers

Pain Intensity	N	Mean	SD	SE Mean	P-Value
Pre-test	34	7.28	0.851	0.150	
Post-test	34	5.41	1.188	0.210	0.000
Reduction	34	1.88	0.707	0.125	

*Wilcoxon Test

Table 6 shows that the reduction in active phase first stage pain intensity after BL 32 acupressure point intervention in laboring mothers in TPMB A area, Purwakarta Regency was 1.88. Wilcoxon test results obtained a p-value of 0.000, which means the p-value <0.05, so it can be said that there is an effect of BL 32 acupressure point on reducing active phase first stage labor pain intensity in laboring mothers in TPMB A area, Purwakarta Regency in 2024.

Table 7. Effect of Age and Education on Reducing Active Phase First Stage Labor Pain Intensity in Laboring Mothers

Respondent Characteristics	N	Mean	Std. Deviation	P-Value
Age	34	1.91	0.296	0.000
Education	34	2.59	0.712	0.000

*Based on: Wilcoxon Test

Based on Table 7, it was found that the Wilcoxon test results for the effect of age and education on reducing active phase first stage labor pain intensity in laboring mothers showed a p-value of 0.000. Therefore, p-value <0.05, so it can be said that there is an effect of age and education on reducing active phase first stage labor pain intensity in laboring mothers in TPMB A area, Purwakarta Regency in 2024.

Discussion

Based on research results on reducing active phase first stage labor pain intensity in laboring mothers in TPMB A area, Purwakarta Regency in 2024, results were obtained before and after BL 32 acupressure point intervention with a total sample of 34 respondents (100%). Research results conducted on 34 respondents before BL 32 acupressure point intervention showed that most respondents experienced pain intensity with severe pain category (7-10) in 25 people (74%). Research results conducted after BL 32 acupressure point intervention showed that most respondents experienced pain intensity with moderate pain category (4-6) in 25 people (73.5%).

Analysis results based on age in laboring mothers in TPMB A area showed that most respondents were aged 20-35 years as many as 30 respondents (88.2%). This is consistent with research conducted by Puspa (2022) that at age <20 years and >35 years are high-risk ages for labor complications and discomfort due to emerging pain. While at age 20-35 years, it is considered safe to undergo labor because that age is in the prime condition range. The uterus is able to provide protection, and mentally ready to face labor.

Analysis results of respondents based on education in laboring mothers in TPMB A area showed that the majority of respondents with senior high school education were 21 respondents (61.8%). This is consistent with theory research by Katili (2018) stating that most laboring mothers with senior high school education, with education information obtained during interaction with others including adaptation to pain has been obtained, so feelings of fear and anxiety about labor pain will be minimized, thus pain in laboring mothers tends to be lighter.

Based on Table 5 above, it can be known that after conducting data normality tests, a P-value of 0.000 was obtained before BL 32 acupressure point intervention and 0.002 after BL 32 acupressure point intervention, the value is smaller than 0.05, so the data is not normally distributed, meaning normality assumptions are not met, so the Wilcoxon test was conducted.

Wilcoxon test results showed a p-value of 0.000, meaning p-value <0.05, so it can be concluded that H0 is rejected and H1 is accepted. Therefore, hypothesis testing results show that there is a significant effect between BL 32 acupressure point provision on reducing active phase first stage labor pain intensity in laboring mothers in TPMB A area, Purwakarta Regency in 2024.

This is consistent with research conducted by Hutabarat (2022) stating that after conducting data normality tests, a Sig. value of 0.000 was obtained before acupressure and 0.000 after acupressure, the value is smaller than 0.05, so the conclusion is that data is not normally distributed, meaning normality assumptions are not met, so the Wilcoxon test was conducted. After the Wilcoxon test was conducted, a Sig value of 0.004 was known, where this value is <0.05, so this test shows meaningful results that there is an effect of acupressure technique on labor pain.

Based on research results on 34 respondents before intervention, the mean value was 7.28, meaning on average active phase first stage laboring mothers experienced severe pain intensity scale (7-10), but after BL 32 acupressure point intervention, the mean value was 5.41, meaning on average active phase first stage laboring mothers experienced moderate pain intensity scale (4-6). From these results, it can be concluded that most respondents after BL 32 acupressure point intervention experienced reduced pain felt. This can be caused by the effect of pressure techniques at that point that can stimulate sensory nerve cells that will stimulate endorphin and oxytocin hormone production that can help manage labor pain, thus reducing discomfort during active phase first stage labor.

Research results on the effect of age and education on reducing active phase first stage labor pain intensity in laboring mothers obtained a p-value of 0.000. Therefore, p-value <0.05, so it can be said that there is an effect of age and education on reducing active phase first stage labor pain intensity in laboring mothers in TPMB A area, Purwakarta Regency in 2024.

This research is consistent with research results conducted by Puspa (2022), statistical test results for age effect obtained p-value 0.007 (P<0.05), and effect between parity p-value 0.001 (P<0.05). It can be concluded that there is a relationship between age and parity with First Stage Labor Pain Intensity. Statistical test results for education effect are consistent with research conducted by Katili (2018), obtaining p-value 0.002 (P<0.05). It can be concluded that there is a relationship between education and active phase first stage labor pain reduction in primigravida.

CONCLUSION

Based on univariate and bivariate analysis results conducted on 34 respondents and discussions referring to research objectives and hypotheses about the effect of *BL 32* acupressure point on reducing active phase first stage labor pain intensity in the *TPMB A* area, Purwakarta Regency in 2024, it can be concluded that there is a significant effect of *BL 32* acupressure point on reducing active phase first stage labor pain intensity in the *TPMB A* area, Purwakarta Regency in 2024, with *p*-value = 0.000 (<0.05). There is also a significant effect of age and education on reducing active phase first stage labor pain intensity in the *TPMB A* area, Purwakarta Regency in 2024, with *p*-value = 0.000 (<0.05). Healthcare workers can apply non-pharmacological therapy to mothers laboring in the active phase of the first stage, specifically the provision of *BL 32* acupressure to reduce labor pain intensity. Educational institutions can facilitate students in improving skills and knowledge about non-pharmacological therapy for laboring mothers, specifically regarding *acupressure*, through seminars and training so that it can be applied by students in the community.

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