

EFFECTIVENESS OF LI4 AND SP6 ACUPRESSURE ON LABOR PAIN AND POSITIVE CHILDBIRTH EXPERIENCE

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ABSTRACT

Background: Labor pain is a major challenge during childbirth that can negatively affect maternal satisfaction and labor outcomes. Acupressure is a sustainable complementary therapy that can be integrated into midwifery practice to support positive childbirth experiences. **Objectives:** This study aimed to examine the effectiveness of acupressure at LI4 and SP6 sites in reducing labor pain and enhancing positive childbirth experiences during the active phase of first-stage labor. **Methods:** A one-group pretest-posttest quasi-experimental study was conducted in Medan involving 30 laboring women selected through purposive sampling. Pain severity was measured using the Numeric Rating Scale (NRS), and childbirth experiences were evaluated using a structured questionnaire. Data were analyzed using the Wilcoxon Signed Rank Test. **Results:** The mean labor pain score significantly decreased from 8.10 ± 0.85 before intervention to 5.30 ± 1.04 after intervention. Concurrently, maternal satisfaction and childbirth experience scores significantly increased after acupressure therapy ($p < 0.001$). **Conclusions:** Acupressure at LI4 and SP6 points effectively reduces labor pain and improves childbirth experiences. As a low-cost and sustainable intervention, it should be integrated into routine maternity care to support positive childbirth experiences.

Keywords: Acupressure, Positive Childbirth Experience, Labor Pain, Sustainable Healthcare, Midwifery Care

INTRODUCTION

Positive childbirth experience is increasingly recognized as an essential component of quality maternal healthcare. The World Health Organization (WHO) emphasizes that women should receive respectful, individualized, and evidence-based care throughout labor and childbirth. A positive childbirth experience contributes not only to maternal satisfaction but also to improved physical and psychological outcomes for both mother and baby (Bohren MA, et al. 2023).

Labor pain is a physiological response associated with uterine contractions, cervical dilatation, and fetal descent. Although labor pain is a natural process, excessive pain can trigger anxiety, stress, increased catecholamine secretion, ineffective uterine contractions, prolonged labor, and negative birth experiences. Poor childbirth experiences may affect maternal mental health and influence future reproductive decisions (Cunningham FG, et al. 2022).

Conventional pain management strategies often rely on pharmacological interventions. While effective, these methods may be associated with side effects, increased healthcare costs, and limited accessibility in primary healthcare facilities. Consequently, complementary and non-pharmacological interventions have gained significant attention as safe and cost-effective alternatives (Smith CA, et al. 2022).

One of the most popular alternative therapies from Traditional Chinese medicine is acupressure. In order to trigger physiological reactions and reduce pain, the method entails manually applying pressure to particular body areas. LI4 (Hegu) and SP6 (Sanyinjiao) are two acupressure spots that are frequently used during labor (Akbarzadeh M, et al. 2021).

Known for its analgesic qualities, LI4 is located between the first and second metacarpal bones on the dorsum of the hand. SP6 is related to uterine function and reproductive health and is situated about four finger widths above the medial malleolus. It has been shown that stimulating these sites increases endorphin release, improves circulation, lessens pain perception, and encourages relaxation. (Lee EJ, Frazier SK, 2021).

In the context of sustainable healthcare, acupressure represents an environmentally friendly intervention because it requires minimal equipment, generates no medical waste, and can be implemented in diverse healthcare settings. Sustainable healthcare interventions are increasingly important in achieving global health goals and improving maternal well-being (Greenhalgh T, 2021).

Furthermore, integrating complementary therapies into midwifery care supports the transformation of healthcare services toward patient-centered and evidence-based practice. Such approaches align with current global initiatives promoting positive childbirth experiences, maternal empowerment, and healthcare sustainability International (Hunter B et al., 2023).

The efficacy of LI4 and SP6 acupressure in reducing labor pain during childbirth has been shown in earlier research. However, little research has examined the impact of acupressure on a happy birthing experience, especially utilizing the birthing Experience Questionnaire (CEQ) in Indonesian maternity settings. Instead, the majority of studies have mostly concentrated on pain reduction results. Additionally, there are very few studies that use both the severity of labor pain and the experience of delivery as outcome measures. Thus, the purpose of this study was to assess how well LI4 and SP6 acupressure reduced labor pain and enhanced women's experiences giving birth during the active phase of first-stage labor (Smith CA, et al., 2022; Akbarzadeh M, et al., 202).

Thus, the purpose of this study was to assess how well acupressure at LI4 and SP6 sites might reduce labor pain and enhance women's pleasant delivery experiences during the active phase of first-stage labor.

RESEARCH METHOD

Study Design

This study employed a quasi-experimental design using a one-group pretest-posttest approach.

Study Setting

The study was conducted at Independent Midwifery Practices Supiani in Medan, Indonesia, between January and April 2025.

Ethical Considerations

The STIKes Flora Medan Health Research Ethics Committee granted ethical permission for this study (No.341/KEPK/FL-05/I/2025). Prior to enrollment, each participant provided written informed permission, and study confidentiality was upheld.

Population and Sample

The target population consisted of laboring women experiencing active phase first-stage labor. A purposive sampling technique was used to recruit 30 participants.

Inclusion Criteria

1. Active phase first-stage labor (4–8 cm cervical dilatation)
2. Singleton pregnancy
3. Cephalic presentation
4. Gestational age 37–42 weeks
5. No obstetric complications
6. Ability to communicate effectively
7. Willingness to participate

Exclusion Criteria

1. High-risk pregnancy
2. Use of pharmacological analgesia during intervention
3. Emergency obstetric conditions

Intervention

Acupressure was performed by trained midwives during the active phase of the first stage of labor. Pressure was applied bilaterally at LI4 and SP6 points using the thumb in circular movements for approximately 2–3 minutes per point during contractions and repeated intermittently over a 30-minute period.

Instruments

Data collection utilized:

1. Numeric Rating Scale (NRS) for labor pain assessment.
2. Within 24 hours of giving delivery, mothers' experiences were evaluated using the Childbirth Experience Questionnaire (CEQ). The 22 items on the questionnaire address participation, perceived safety, professional assistance, and one's own capabilities. The test has shown strong reliability (Cronbach's $\alpha > 0.80$), and higher scores suggest a happier delivery experience. The CEQ was originally developed in 2010 by Dr. Dencker's team in Sweden to measure first-time mothers' perceptions of labor and birth (Machín-Martín et al., 2024).

Validation and adaptations

The CEQ tools have undergone rigorous psychometric evaluation, demonstrating high construct

validity and internal consistency. Validated translations of the CEQ and CEQ 2.0 are available internationally, including cultural adaptations in the United Kingdom, Spain, Hong Kong, and Iran.

Data Analysis

The features of the participants were described using univariate analysis. Pain intensity and delivery experience scores were compared before and after the intervention using the Wilcoxon Signed Rank Test. The significance level was established at $\alpha = 0.05$.

RESULT

Table 1. Characteristics of Respondents

Characteristics	Frequency	Percentage (%)
Age 20–35 years	25	83.3
Age >35 years	5	16.7
Primipara	14	46.7
Multipara	16	53.3
High School Education	21	70.0
Higher Education	9	30.0

Table 1 shows the demographic characteristics of the respondents ($n = 30$). Most respondents were aged 20–35 years (83.3%), while 16.7% were older than 35 years. Based on parity, multiparous mothers constituted a slightly larger proportion (53.3%) compared to primiparous mothers (46.7%). Regarding educational attainment, the majority of respondents had completed high school education (70.0%), whereas 30.0% had higher education qualifications. These data indicate that the study population was predominantly composed of women of reproductive age, multiparous mothers, and individuals with a high school educational background.

Table 2. Labor Pain Intensity Before and After Acupressure

Variable	Before	After	Mean Difference	p-value
Labor pain	8.10 ± 0.85	5.30 ± 1.04	-2.80	<0.001

Table 2 compares the level of labor pain prior to and following acupressure treatment. Prior to the intervention, the average pain intensity score was 8.10 ± 0.85 ; Following the intervention, the average score dropped to 5.30 ± 1.04 . This result shows that the average pain score decreased by 2.80 points after acupressure. Acupressure may help women in the active phase of labor have less pain, as shown by the reduction in pain intensity. The findings provide credence to acupressure's potential efficacy as an additional non-pharmacological treatment for labor pain.

Table 3. Childbirth Experience Scores Before and After Acupressure

Variable	Before	After	Mean Difference	p-value
CEQ Score	58.7 ± 6.5	82.4 ± 5.8	+23.7	<0.001

Table 3 shows the comparison of childbirth experience scores before and after the acupressure

intervention. The mean childbirth experience score increased from 58.7 ± 6.5 before the intervention to 82.4 ± 5.8 after the intervention.

This represents an increase of 23.7 points, indicating a significant improvement in respondents' perceptions of their childbirth experience. The findings suggest that acupressure may positively influence maternal childbirth experiences by promoting comfort, reducing distress, and enhancing satisfaction during labor. These results support the use of acupressure as a complementary midwifery intervention to foster a more positive childbirth experience.

Table 4. Effect of Acupressure on Labor Pain and Childbirth Experience

Variable	p-value
Labor Pain Intensity	0.001
Childbirth Experience Score	0.001

Table 4 displays the findings of the statistical study looking at how acupressure affects the degree of labor pain and the experience of giving birth. With p-values of 0.001 ($p < 0.05$), the study showed statistically significant changes in both variables after the intervention. These results show that acupressure considerably improved the subjects' delivery experience scores and greatly decreased the severity of labor pain. The results of the study thus confirm the usefulness of acupressure as an additional non-pharmacological intervention for managing pain and fostering a happy labor and delivery experience. The findings show statistically significant changes in the degree of labor pain and the experience of giving birth after acupressure treatment.

DISCUSSION

The present study demonstrated that acupressure at LI4 and SP6 points significantly reduced labor pain intensity and enhanced positive childbirth experiences among laboring women. The reduction in pain intensity observed after intervention is consistent with the physiological principles underlying acupressure. According to the Gate Control Theory, stimulation of peripheral sensory receptors may inhibit transmission of pain impulses to the central nervous system. Activation of large-diameter nerve fibers reduces the perception of pain and promotes maternal comfort (Hajiamini Z, et al., 2020; Akbarzadeh M, et al., 2021).

In addition to neural mechanisms, acupressure stimulates the release of endogenous opioids, including endorphins and enkephalins. These substances naturally suppress pain pathways and contribute to relaxation. Reduced anxiety levels further enhance labor progress and maternal coping ability (Lee EJ, Frazier SK, 2021).

The reduction of 2.8 points in labor pain intensity observed in the present study is comparable to the findings reported by Hajiamini et al. (2020), who demonstrated significant reductions in labor pain following stimulation of LI4 and SP6 acupressure points. Similarly, a Cochrane review conducted by Smith et al. (2022) concluded that acupressure may contribute to lower pain perception during labor and improve maternal satisfaction. The consistency of these findings with previous evidence strengthens the potential role of acupressure as an effective non-pharmacological intervention for labor pain management and maternal comfort enhancement.

Positive childbirth experience extends beyond pain management. Women who experience adequate emotional support, comfort, and involvement in decision-making processes are more likely to report satisfaction with childbirth. The increase in childbirth experience scores observed in this study indicates that acupressure contributed not only to physical comfort but also to psychological well-being (Dencker A, et al., 2021).

From a sustainability perspective, acupressure represents an innovative and environmentally responsible healthcare intervention. Unlike pharmacological approaches, acupressure requires



~~no medication, no specialized equipment, and produces no medical waste. Therefore, it aligns with sustainable healthcare principles and supports resource-efficient maternity services (Greenhalgh T, 2021).~~

The integration of evidence-based complementary therapies into midwifery practice reflects current trends in healthcare transformation. Such interventions promote patient-centered care while maintaining safety, effectiveness, and affordability. This approach supports the broader goals of global recovery, maternal well-being, and healthcare sustainability (Hunter B, et al., 2023). Moreover, complementary midwifery interventions empower women by encouraging –

active participation in childbirth. Empowerment contributes to improved self-confidence, reduced fear, and enhanced maternal satisfaction (Bohren MA, et al., 2023; WHO, 2024).

Therefore, acupressure should be considered a valuable component of sustainable maternity care and positive childbirth promotion strategies (Akbarzadeh M, et al., 2021; Yanti D, Damayanti D, 2023).

CONCLUSION

Acupressure at LI4 and SP6 significantly reduced labor pain and improved childbirth experience among women in active labor. The intervention decreased the mean labor pain score by 2.8 points and increased the childbirth experience score by 23.7 points ($p < 0.001$). These findings support the integration of acupressure as an evidence-based complementary midwifery intervention to promote positive childbirth experiences.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

The authors hereby declare that there are no personal, professional, institutional, financial, or commercial conflicts of interest associated with the execution of this study or the publication of this manuscript. None of the authors have received any financial incentives, honorariums, or personal benefits from pharmaceutical companies, medical device manufacturers, or commercial entities that could inappropriately influence, bias, or compromise the integrity, objectivity, and presentation of the research findings.

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AUTHOR CONTRIBUTIONS

YFN : conceptual, methodology, supervision, writing review and editing; YF : data curation, investigation; ANN : formal analysis, software; DE : resources, validation; RASH : visualization, roles/writing original draft; ZABL : project administration, investigation, writing review & editing.

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