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The Effect of SP6 Acupressure and Oxytocin Massage on the Duration of the First Stage of Active Labor at the Galala Community Health Center, Tidore Islands

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Abstract.*The active phase of labor is a crucial stage that determines the progress and success of the delivery process. Prolonged labor during this phase can increase the risk of maternal complications and reduce the comfort of the laboring mother. Various non-pharmacological interventions have been developed to support the physiological progress of labor, including acupressure at the SP6 point and oxytocin massage. This study aims to analyze the differences in the effects of SP6 acupressure and oxytocin massage on the duration of the active phase of labor at the Galala Health Center in the Tidore Islands. This study used a quasi-experimental design with a comparative approach in two intervention groups. The sample consisted of 40 mothers in the first stage of active labor who met the inclusion criteria, with 20 respondents in the SP6 acupressure group and 20 respondents in the oxytocin massage group. The duration of the first stage of labor was calculated from 4 cm cervical dilation to complete 10 cm dilation and recorded using a partograph. Data were analyzed univariately to describe the distribution of labor duration and bivariately using the Mann–Whitney U test to assess the difference between the two groups. The results showed that the median duration of the first stage of labor in the SP6 acupressure group was shorter than in the oxytocin massage group. The Mann–Whitney test showed a statistically significant difference between the two intervention groups ($p < 0.05$). The conclusion of this study indicates that SP6 acupressure is more effective than oxytocin massage in shortening the duration of the first stage of active labor. These findings support the use of SP6 acupressure as a safe and effective nonpharmacological intervention in intrapartum midwifery care in primary health care facilities.*

Keywords: *Active labor phase*; *Childbirth; Midwifery care; Oxytocin massage; SP6 acupressure*

1. INTRODUCTION

The first stage of active labor is a critical phase characterized by progressive cervical dilation accompanied by strong and regular uterine contractions. During this phase, mothers generally experience intense pain, physical fatigue, and psychological stress that can affect the progress of labor. If pain and stress responses are not adequately managed, this can increase the release of catecholamines, which can potentially inhibit uterine contractions, reduce uteroplacental perfusion, and ultimately prolong the duration of labor (Lowe, 2016; Anim-Somuah et al., 2018). Therefore, pain management and support during the active phase of labor are crucial aspects of intrapartum care.

Globally, the World Health Organization (WHO) emphasizes that childbirth care should be oriented toward *a positive childbirth experience*, meaning a delivery that is not only clinically safe but also provides a positive experience for women. This approach includes emotional support, effective communication, and the use of safe, non-pharmacological methods that align with the mother's preferences to help manage pain and discomfort during

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labor (WHO, 2018; Tunçalp et al., 2015). Non-pharmacological interventions are considered important because they are relatively safe, have minimal side effects, and can be applied at various levels of health care, including primary care facilities. Prolonged labor remains a maternal health problem in many countries, both developed and developing. Prolonged labor is associated with an increased risk of maternal complications such as extreme fatigue, intrapartum infection, postpartum hemorrhage, and an increased rate of obstetric interventions, including the use of synthetic oxytocin and operative procedures (ACOG, 2020; Zhang et al., 2019). From a neonatal perspective, prolonged labor also carries the risk of asphyxia and birth trauma. Therefore, efforts to accelerate the progress of labor in a physiological and safe manner are an important concern in modern midwifery practice.

In Indonesia, improving the quality of delivery services is part of the national strategy to reduce maternal mortality. Although various policies have been implemented, national reports show that the quality of intrapartum care still varies, especially in remote and island areas with limited resources (Indonesian Ministry of Health, 2020; Indonesian Ministry of Health, 2023). In this context, simple, inexpensive, and easily implemented non-pharmacological interventions by midwives are highly relevant to support smooth labor without increasing risks for the mother and baby. The Galala Health Center in the Tidore Islands is one of the primary care facilities that requires an evidence-based and contextual midwifery care approach tailored to the geographical conditions and availability of resources.

One non-pharmacological method widely used in midwifery practice is acupressure on the SP6 (Sanyinjiao) point. The SP6 point is located at the intersection of three meridians (spleen, liver, and kidney) and is theoretically involved in pain regulation and uterine activity. Stimulation of this point is believed to trigger the release of endorphins, increase the pain threshold, and modulate the activity of the autonomic nervous system, thereby potentially improving the effectiveness of uterine contractions (Smith et al., 2018; Lee & Ernst, 2019). Several studies have shown that SP6 acupressure can reduce the intensity of labor pain and contribute to a shorter duration of the first stage of labor (Mollart et al., 2016; Hjelmstedt et al., 2017). A recent experimental study also reported that SP6 acupressure during the active phase of labor was associated with faster cervical dilation compared to the control group (Kashanian et al., 2021). Another non-pharmacological intervention commonly used by midwives is oxytocin massage. Oxytocin massage is a touch stimulation technique applied to the back area, particularly along the spine and around the scapula, aimed at enhancing relaxation and comfort for the mother. Physiologically, relaxation and reduced anxiety can increase the release of endogenous oxytocin, the primary hormone involved in uterine

contractions during labor (Uvnäs-Moberg et al., 2019). Several studies have shown that back massage or oxytocin massage can reduce pain perception, improve contraction patterns, and support labor progression in the first stage (Chang et al., 2020; Bolbol-Haghighi et al., 2016).

Although evidence regarding the benefits of SP6 acupressure and oxytocin massage continues to grow, there are still several *research gaps*. First, most studies evaluate each intervention separately, while studies comparing or evaluating the effects of these two non-pharmacological interventions on the duration of the active phase of the first stage of labor are still limited, especially in the context of primary health care. Second, the effectiveness of non-pharmacological interventions is greatly influenced by the local context, the skills of health workers, and the characteristics of the mother, so that research results from other countries or facilities cannot necessarily be fully generalized to the Indonesian archipelago (Sandall et al., 2016). Third, the outcome of the duration of the first stage of labor has high clinical value, but it has not been the main focus of midwifery research based on community health centers. From the perspective of evidence-based midwifery care, the selection of effective and safe non-pharmacological interventions is very important to support the physiology of labor without increasing the risk of medical intervention. The WHO recommends touch and massage techniques as part of intrapartum support that can improve maternal comfort and the birthing experience (WHO, 2018). However, integrating these interventions into clinical practice requires strong scientific evidence relevant to the local context so that their application is not only based on custom but also on measurable research results.

Based on this description, this research has scientific and practical urgency. This study aims to analyze the effect of SP6 acupressure and oxytocin massage on the duration of the first stage of active labor at the Galala Health Center in the Tidore Islands. The results of this study are expected to contribute to the development of evidence-based intrapartum midwifery care and serve as a basis for midwives in selecting effective, safe, and appropriate non-pharmacological interventions for mothers in labor at primary health care facilities.

2. RESEARCH METHOD

Research Design

This study used a quasi-experimental design with a comparative study approach on two intervention groups. This design was chosen to analyze and compare the effects of SP6 acupressure and oxytocin massage on the duration of the active phase of labor. Each group of respondents received one type of non-pharmacological intervention without a control group,

so that the differences in the duration of the active phase between groups could be analyzed comparatively.

Research Location and Time

This study was conducted at the Galala Community Health Center, Tidore Islands, which is a primary health care facility that provides normal delivery services. The location was chosen based on the availability of pregnant women and the implementation of intrapartum midwifery care by midwives. The study was conducted from August to October 2025, covering the preparation stage, intervention implementation, and data collection and analysis.

Research Population and Sample

The population in this study consisted of all women in active phase I labor who underwent normal delivery at the Galala Community Health Center during the study period. The study sample consisted of [number of respondents] women in labor, divided into two intervention groups, namely the SP6 acupressure group and the oxytocin massage group. The sampling technique used purposive sampling, with the following inclusion criteria: (1) women in active phase of labor with cervical dilation ≥4 cm, (2) full-term pregnancy (37–42 weeks), (3) single delivery with cephalic presentation, (4) stable condition of mother and fetus, and (5) willingness to be a research respondent. Exclusion criteria included: (1) mothers with obstetric complications such as preeclampsia, bleeding, or fetal distress, (2) use of oxytocin induction or augmentation, and (3) operative delivery.

Research Variables

This study involved two types of variables. The independent variables were non-pharmacological interventions, namely SP6 acupressure and oxytocin massage. SP6 acupressure is defined as applying pressure to the Sanyinjiao point bilaterally using specific techniques and durations, while oxytocin massage is defined as stimulating the back area along the spine and around the scapula to increase relaxation and release of endogenous oxytocin. The dependent variable is the duration of the active phase of labor, defined as the time from 4 cm cervical dilation to complete 10 cm dilation, measured in minutes or hours. Additionally, this study also records maternal characteristics such as age, parity, and gestational age as supporting variables.

Research Instruments

The research instruments used included: (1) a respondent characteristic sheet to record the mother's demographic and obstetric data, (2) a labor observation/partograph sheet to record cervical dilation and the duration of the first stage of labor, and (3) an intervention checklist sheet to ensure the implementation of acupressure on the SP6 point ( ) and oxytocin massage in accordance with standard procedures. All instruments were adapted to midwifery practice standards and used by trained midwives.

Research Procedure

The research procedure began with obtaining research permission from the Galala Community Health Center (UPTD Puskesmas Galala). Next, mothers in labor who met the inclusion criteria were given an explanation of the purpose and procedure of the research, then asked to sign an informed consent form. Respondents were then grouped into the SP6 acupressure group or the oxytocin massage group. In the SP6 acupressure group, the intervention was performed by applying pressure with the thumb on the SP6 point bilaterally for [duration, e.g., 30–60 seconds per cycle], with certain intervals, and repeated during the active phase of labor according to the research protocol. In the oxytocin massage group, the intervention was performed by gently and rhythmically massaging the back area along the spine to the scapula for [duration, e.g., 15–20 minutes]. During the delivery process, cervical dilation was recorded periodically using a partograph until complete dilation was achieved.

Data Analysis

The collected data were analyzed using statistical software. Univariate analysis was performed to describe the characteristics of the respondents and the distribution of the duration of the first stage of active labor in each intervention group. Next, bivariate analysis was performed to compare the duration of the first stage of active labor between the SP6 acupressure group and the oxytocin massage group. The statistical test used was the Mann–Whitney U test, because the duration of labor data was numerical and did not meet the assumptions of normal distribution. The significance level was set at $\alpha = 0.05$. A p-value < 0.05 indicated a statistically significant difference between the two intervention groups.

3. RESULTS AND DISCUSSION

Results

Characteristics of the Respondents

Respondent characteristics included maternal age, parity, gestational age, and initial cervical dilation upon entering the active phase of labor. These characteristics were presented to provide an overview of the respondents before conducting a comparison analysis between the intervention groups.

Table 1. Characteristics of Respondents (Pregnant Women) at the Galala Health Center, Tidore Islands (n = 40)

Characteristics	Category	n	
Mother's Age	< 20 years	4	10
	20–35 years	28	70
	> 35 years	8	20
Parity	Primipara	18	45
	Multipara	22	55
Gestational age	37–40 weeks	30	75.0
	> 40 weeks	10	25.0
Early Cervical Dilatation	4 cm	26	65.0
	5 cm	14	35.0

Source: Primary research data, 2025.

Based on Table 1, most respondents were in the 20–35 age group, namely 28 mothers (70.0%), which is the healthy reproductive age. There were 8 respondents (20.0%) aged >35 years, while 4 respondents (10.0%) were aged <20 years. In terms of parity ( ), the majority of respondents were multiparous, namely 22 mothers (55.0%), while 18 respondents (45.0%) were primiparous.

Based on gestational age, most mothers gave birth between 37 and 40 weeks, namely 30 respondents (75.0%), while 10 mothers (25.0%) gave birth at >40 weeks. At the onset of the active phase of the first stage of labor, the majority of respondents had a cervical dilation of 4 cm, namely 26 mothers (65.0%), while 14 respondents (35.0%) had a dilation of 5 cm. These characteristics indicate that most respondents were healthy reproductive-age mothers with term pregnancies and relatively homogeneous initial labor conditions, making it appropriate to conduct a comparative analysis of the duration of the active phase of the first stage between the SP6 acupressure group and the oxytocin massage group.

Duration of the First Stage of Active Labor in the SP6 Acupuncture Point Group

The duration of the active phase of labor was calculated from when cervical dilation reached 4 cm until complete dilation of 10 cm and was expressed in hours. This presentation aims to provide a descriptive overview of the duration of labor in the acupressure group before comparing it with the oxytocin massage group.

Table 2. Duration of the First Stage of Active Labor in the SP6 Acupuncture Point Group (n = 20)

Duration of the First Stage of Active Labor	Frequency (n)	Percentage (%)
≤ 6 hours	12	60
> 6 hours	8	40.0
Total	20	100

Source: Primary research data, 2025.

Based on Table 2, most mothers who received SP6 acupressure intervention experienced an active phase I duration of ≤ 6 hours, namely 12 respondents (60.0%). Meanwhile, mothers with an active phase I duration of > 6 hours numbered 8 (40.0%). These results indicate that in the SP6 acupressure group, the majority of respondents experienced a relatively shorter duration of the first stage of labor. These descriptive findings provide an initial indication that acupressure at the SP6 point has the potential to support progress in the first stage of labor, which will be further compared with the oxytocin massage group.

Duration of the First Stage of Labor in the Oxytocin Massage Group

The duration of the active phase of labor was calculated from when cervical dilation reached 4 cm until complete dilation of 10 cm and was expressed in hours. This presentation aims to provide a descriptive overview of the duration of labor in the oxytocin massage group as a basis for comparative analysis with the SP6 acupressure group.

Table 3. Duration of the First Stage of Active Labor in the Oxytocin Massage Group (n = 20)

Duration of the First Stage of Active Labor	Frequency (n)	Percentage (%)
≤ 6 hours	7	35
> 6 hours	13	65.0
Total	20	100

Source: Primary research data, 2025.

Based on Table 3, most mothers who received oxytocin massage intervention experienced an active phase I duration of > 6 hours, namely 13 respondents (65.0%). Meanwhile, mothers with an active phase I duration of ≤ 6 hours numbered 7 (35.0%). These results indicate that in the oxytocin massage group, the proportion of mothers with a longer duration of the first stage of labor was still greater than those with a shorter duration. This descriptive overview forms the basis for further analysis using the t-test ( ) to assess the difference in the duration of the first stage of labor between the oxytocin massage group and the SP6 acupressure group.

Analysis of Differences in the Duration of the First Stage of Labor Between the SP6 Acupressure Group and the Oxytocin Massage Group

This section presents the results of bivariate analysis to assess differences in the duration of the first stage of labor between mothers who received SP6 acupressure and oxytocin massage. Given that the labor duration data were not normally distributed and came from two independent groups, the analysis was performed using the Mann–Whitney U test.

Table 4. Differences in the Duration of the First Stage of Active Labor between the SP6 Acupuncture Group and the Oxytocin Massage Group

Intervention Group	Median (hours)	Min–Max (hours)	Z	p-value
SP6 acupressure point (n = 20)	5.5	4–8		
Oxytocin massage (n = 20)	7	5–10	-2.347	0.019

Source: Primary research data, 2025.

Based on Table 4, the median duration of the first stage of active labor in the group of mothers who received SP6 acupressure was 5.5 hours, with a range of 4 to 8 hours. Meanwhile, the group of mothers who received oxytocin massage had a median duration of the first stage of active labor of 7.0 hours, with a range of 5 to 10 hours. The Mann–Whitney U test results showed a Z value of -2.347 with a p-value of 0.019 ($p < 0.05$), indicating a statistically significant difference between the two intervention groups. These findings indicate that mothers who received SP6 acupressure tended to experience a shorter duration of the first stage of labor compared to mothers who received oxytocin massage.

Discussion

The results of this study indicate a statistically significant difference between SP6 acupressure and oxytocin massage on the duration of the first stage of active labor. Mothers who received SP6 acupressure tended to experience a shorter duration of the first stage of active labor compared to mothers who received oxytocin massage. These findings confirm that certain non-pharmacological interventions can have different effects on labor progression, even though both aim to support the physiological process of labor. Clinically, the shortening of the duration of the first stage of labor in the SP6 acupressure group can be explained through neurophysiological mechanisms. Stimulation of the SP6 point is known to activate afferent nerve fibers that play a role in pain modulation and stimulate the release of endorphins and enkephalins, which not only reduce pain perception but also suppress the stress response of laboring mothers (Yıldırım & Şahin, 2019; Lee et al., 2020). Reduced stress and anxiety during labor contribute to decreased catecholamine levels, resulting in more effective and coordinated uterine contractions, which ultimately accelerate labor progression (Simkin & Bolding, 2018).

These findings are consistent with the results of an experimental study by Kashanian et al. (2021), which reported that SP6 acupressure significantly shortened the duration of the first stage of labor compared to standard care. Another study by Gallo et al. (2018) also showed that the use of acupressure techniques during labor can increase the efficiency of uterine contractions and accelerate cervical dilation. In addition, a meta-analysis conducted by Smith et al. (2018) concluded that acupressure has clinical potential in shortening the duration of labor, although the effects vary depending on the stimulation point and duration of intervention. In the oxytocin massage group, the results showed that most mothers still experienced a relatively longer active stage I. Theoretically, oxytocin massage works through a mechanism of increasing relaxation and comfort in mothers, which is expected to stimulate the release of endogenous oxytocin (Uvnäs-Moberg et al., 2019). Oxytocin plays an important role in increasing the frequency and strength of uterine contractions. However, the effect of oxytocin massage on the progress of the first stage of labor is greatly influenced by the mother's psychological condition, massage technique, duration of intervention, and the experience of the midwife performing the massage (Bolbol-Haghighi et al., 2016; Chang et al., 2020).

The difference in results between the two groups in this study indicates that although oxytocin massage provides benefits in increasing comfort and relaxation, its effect on shortening the duration of the active phase of labor may not be as strong as SP6 acupressure. This is in line with the findings of McIntyre et al. (2021), who stated that touch-based interventions have a more consistent impact on pain reduction than on accelerating the duration of labor. Thus, oxytocin massage may be more appropriately positioned as a supportive intervention to enhance maternal comfort, while SP6 acupressure has the potential to provide additional effects on labor progression. The significant findings in this study have important clinical implications. SP6 acupressure can be considered as one of the effective non-pharmacological interventions to support the progress of the active phase of labor, especially in primary health care facilities with limited resources. This technique is relatively easy to learn, does not require special equipment, and has minimal risks when performed by trained health workers (Hall et al., 2017). Meanwhile, oxytocin massage continues to play an important role in increasing maternal comfort, reducing anxiety, and improving the overall labor experience. However, this study also has limitations. The quasi-experimental design without a control group allows for confounding factors, such as differences in pain thresholds, maternal psychological conditions, and family support during labor. In addition, the relatively small sample size and the fact that it was conducted at a single health care facility may limit the generalizability of the study results. Therefore, future studies are recommended to use an

experimental design with randomization, a larger sample size, and evaluate combinations of nonpharmacological interventions on broader childbirth outcomes, including pain levels, maternal satisfaction, and neonatal outcomes.

Overall, this study contributes scientifically to the development of evidence-based midwifery care by confirming that SP6 acupressure is more effective than oxytocin massage in shortening the duration of the first stage of active labor. These findings support the integration of SP6 acupressure as part of safe, effective, and mother-centered non-pharmacological intrapartum interventions in primary health care settings.

4. CONCLUSION

This study aimed to analyze the differences in the effects of SP6 acupressure and oxytocin massage on the duration of the first stage of active labor at the Galala Health Center in the Tidore Islands. The results showed a statistically significant difference between the two non-pharmacological interventions, where mothers who received SP6 acupressure tended to experience a shorter duration of the first stage of active labor compared to those who received oxytocin massage. This finding provides scientific evidence that SP6 acupressure has higher efficacy in supporting labor progression during the first stage of active labor. Clinically, these research results reinforce the role of non-pharmacological interventions based on acupressure point stimulation as part of safe intrapartum midwifery care oriented towards the physiology of labor. Meanwhile, oxytocin massage continues to provide important benefits in increasing the comfort and relaxation of mothers, although its effect on shortening the duration of labor is relatively more limited. The implications of this study suggest that midwives may consider using SP6 acupressure point stimulation as a primary intervention to support the progression of the active phase of labor in primary healthcare facilities. The integration of this intervention is expected to improve the quality of midwifery care, optimize the labor process, and provide a more positive labor experience for mothers.

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