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The effect of the rebozo technique on the duration of the active phase of labor among primigravida women

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Abstract

Background: Prolonged labor is one of the complications that can increase maternal and neonatal morbidity and mortality. The active phase of the first stage of labor is a critical period because labor lasting longer than the normal duration may increase the risk of postpartum hemorrhage, infection, fetal distress, and even maternal and neonatal death. Various pharmacological and non-pharmacological interventions have been implemented to accelerate labor progress, one of which is the Rebozo technique. However, the effect of the Rebozo technique on the duration of the active phase of the first stage of labor among primigravida women in Independent Midwifery Practices (PMB) in Bandar Lampung has not been fully established.

Purpose: To determine the effect of the Rebozo technique on the duration of the active phase of the first stage of labor among primigravida.

Method: This quantitative study employed a quasi-experimental design using a posttest-only control group design. The study population consisted of women in the active phase of the first stage of labor who delivered at PMB Marlina Turnip and Midwifery Practices Wirahayu between March and May 2026. A total of 32 respondents were recruited, including 16 women in the intervention group who received the Rebozo technique and 16 women in the control group who received standard care without the Rebozo technique. Data were analyzed using the Independent Samples t-test.

Results: The mean duration of the active phase of the first stage of labor in the intervention group was 301.88 minutes (approximately 5 hours and 1 minute), whereas the control group had a mean duration of 461.25 minutes (approximately 7 hours and 41 minutes). Bivariate analysis demonstrated a statistically significant effect of the Rebozo technique on the duration of the active phase of the first stage of labor among primigravida women ($p = 0.000$; $p < 0.05$).

Conclusion: The Rebozo technique significantly reduced the duration of the active phase of the first stage of labor among primigravida women in Independent Midwifery Practices (PMB) in Bandar Lampung City. Midwives are encouraged to incorporate the Rebozo technique into routine intrapartum care to shorten labor duration and minimize unnecessary medical interventions.

Keywords: Active First Stage of Labor; Labor Duration; Primigravida; Rebozo Technique.

INTRODUCTION

According to the World Health Organization (WHO), the global maternal mortality rate remained unacceptably high in 2023, with an estimated 260,000 women dying during pregnancy, childbirth, or the postpartum period due to pregnancy- and childbirth-

related complications. Most of these complications occur during pregnancy and childbirth and are preventable or treatable with timely and appropriate interventions (Sarli & Putri, 2024). The leading causes, accounting for approximately 75% of

maternal deaths, include postpartum hemorrhage and infection, both of which are frequently associated with prolonged labor (Fitriyaningsih et al., 2023).

Prolonged labor is recognized as one of the major contributors to maternal mortality worldwide (Asry et al., 2024). According to the World Health Organization (WHO), the global incidence of prolonged labor reached 289 cases per 100,000 live births in 2018. In Indonesia, the burden is among the highest in the ASEAN region, with 359 maternal deaths per 100,000 live births attributed to prolonged labor (Wiliandari & Sagita, 2021; Aprianti et al., 2025). Furthermore, data from the Indonesian Ministry of Health (2021) reported that maternal complications in Lampung Province consisted of postpartum hemorrhage (25%), infection (14%), hypertensive disorders of pregnancy (13%), complications of unsafe abortion (13%), and prolonged labor or dystocia (7%) (Ministry of Health of the Republic of Indonesia, 2022; Mujahidah et al., 2024).

The first stage of labor is the cervical dilatation stage, beginning with regular uterine contractions and ending when the cervix reaches full dilatation (10 cm) (Maryati & Nursitiyarah, 2023). This stage is divided into the latent phase and the active phase. During the latent phase, uterine contractions lead to cervical effacement and dilatation up to 3 cm over approximately eight hours (Ratnasari & Tridiyawati, 2024). The active phase is characterized by increasingly frequent and stronger uterine contractions (at least three contractions within ten minutes, each lasting at least forty seconds) (Astuti et al., 2026). Cervical dilatation progresses from 4 cm to complete dilatation at an average rate of 1 cm per hour in primigravida women and 1–2 cm per hour in multigravida women (Widyastuti, 2021; Laili & Nisa, 2019).

The active phase of the first stage of labor is considered the most physically demanding and painful period of childbirth. Obstruction or delayed progress during this phase may result in prolonged labor, which constitutes an obstetric emergency for both the mother and the fetus (Hajirin & Ilmiah, 2025). Maternal complications include postpartum hemorrhage, shock, and death, whereas fetal complications include fetal distress, birth asphyxia, severe caput succedaneum, and neonatal death (Karaga et al., 2023; Suprihatin, 2024).

One non-pharmacological approach that has

gained attention for facilitating labor is the Rebozo technique, a traditional childbirth practice originating from Latin America (Hillier, 2025; Ornaghi et al., 2025). The Rebozo technique is a non-invasive intervention performed while the woman is standing, lying down, or kneeling. It involves gently mobilizing the pelvis using a long woven cloth to promote maternal comfort and optimize fetal positioning. (Sitorus et al., 2024; Tandoğan & Oskay, 2024; Iversen et al., 2017).

The Rebozo technique is effective in optimizing fetal position, facilitating cervical dilatation, and promoting fetal head descent, all of which contribute to improved labor outcomes (Uludağ & Kocatürk, 2024; Turan & Yağmur, 2026). In addition, the Rebozo technique is considered a practical option for healthcare providers because it is easy to implement and well accepted by women, resulting in positive psychological and clinical outcomes. (Damayanti & Fatimah, 2021). The technique has also been shown to promote maternal relaxation, shorten the duration of labor, reduce anxiety, and alleviate labor pain (Widiatrilupi, 2023; Sriwahyuni et al., 2026).

This study is expected to provide scientific evidence regarding the effectiveness of the Rebozo technique as a non-pharmacological intervention in midwifery practice, particularly for primigravida women during the active phase of the first stage of labor. Therefore, the researchers were interested in investigating the effect of the Rebozo technique on the duration of the active phase of the first stage of labor among primigravida women in Independent Midwifery Practices (PMB) in Bandar Lampung City.

RESEARCH METHOD

This study employed a quantitative approach using a quasi-experimental design with a posttest-only control group design. The study was conducted at Independent Midwifery Practices Marlina Turnip and Independent Midwifery Practices Wirahayu, Bandar Lampung, Indonesia, from March to May 2026.

The study population consisted of women in the active phase of the first stage of labor who delivered at the study sites during the study period. The sample consisted of primigravida women who met the inclusion and exclusion criteria. The sample size was determined using the Federer formula, resulting in 16 participants in each group and 32 participants in total.

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Participants were recruited using consecutive sampling.

The inclusion criteria were primigravida women in the active phase of the first stage of labor, willing to participate and provide informed consent, experiencing normal labor without complications, and delivering at one of the study sites. Participants were excluded if they developed labor complications, had conditions contraindicating the intervention, or declined or were unable to tolerate the Rebozo technique.

Participants in the intervention group received the Rebozo technique in addition to standard intrapartum care. The technique was performed using a long woven cloth for approximately 5–10 minutes and repeated two to three times during the active phase according to the mother's condition and comfort. The

control group received standard intrapartum care without the Rebozo technique.

The duration of the active phase was assessed using a standardized labor observation sheet. The Rebozo intervention was documented using an observation checklist. Primary data were obtained through observation and interviews.

Data were analyzed using descriptive and bivariate analysis. The normality of the data was assessed using the Shapiro–Wilk test because the sample size in each group was fewer than 50 participants. Since the data were normally distributed, the Independent Samples t-test was used to compare the mean duration between the intervention and control groups. Statistical significance was set at $p < 0.05$.

RESEARCH RESULTS

Table 1. Characteristics of the Respondents (N=32)

Variabel	Intervention Group (n/%)	Control Group(n/%)
Age (Mean±SD) (Years) (Range)		
20–25 years	8/16 (50.0%)	9/16 (56.25%)
>25 years	8/16 (50.0%)	7/16 (43.75%)

Table 1 shows the age distribution of respondents in both study groups. In the intervention group, the proportions of participants aged 20–25 years and over 25 years were equal, with each category representing 50.0% of the sample. In the control group, most respondents were aged 20–25 years (56.25%), while 43.75% were older than 25 years.

Table 2. Duration of the Active Phase of the First Stage of Labor in the Intervention Group

Group	Mean (minutes)	SD	SE	Min (minutes)	Max (minutes)
Intervention	301.88	38.681	9.670	210	360
Control Group	461,25	50,050	12,512	390	540

The mean duration of the active phase of the first stage of labor among women who received the Rebozo technique was 301.88 ± 38.681 minutes (approximately 5 hours and 1 minute). The shortest labor duration was 210 minutes, whereas the longest was 360 minutes. Among women who did not receive the Rebozo technique, the mean duration of the active phase of the first stage of labor was 461.25 ± 50.050 minutes (approximately 7 hours and 41 minutes). The duration ranged from 390 minutes to 540 minutes.

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Table 3. Shapiro–Wilk Normality Test

Group	Shapiro–Wilk Statistic	df	p-value
Intervention	0.923	16	0.188
Control	0.923	16	0.186

Wilk test, as the sample size was fewer than 50 participants. The intervention group yielded a significance value of 0.188, while the control group showed a significance value of 0.186. Since both values exceeded 0.05, the data were considered normally distributed. Therefore, the assumptions for parametric analysis were satisfied, and the Independent Samples t-test was used for hypothesis testing.

Table 4. the comparison of labor duration between the intervention and control groups is presented

Variable	Intervention Group Mean	Control Group Mean	Mean Difference	95% CI	p-value
Duration of the Active Phase of the First Stage of Labor	301.88	461.25	-159.372	-191.671 - -127.079	0.000

Based on Table 4. the mean duration of the active phase of the first stage of labor in the intervention group that received the Rebozo technique was 301.88 minutes (approximately 5 hours and 1 minute), whereas the mean duration in the control group that did not receive the Rebozo technique was 461.25 minutes (approximately 7 hours and 41 minutes). The mean difference in labor duration between the two groups was -159.37 minutes. The results of the Independent Samples t-test revealed a p-value < 0.001, indicating a statistically significant difference between the two groups. Therefore, it can be concluded that the Rebozo technique had a significant effect on reducing the duration of the active phase of the first stage of labor among primigravida women.

DISCUSSION

The present study found that the mean duration of the active phase of the first stage of labor among primigravida women was 301.88 ± 38.68 minutes in the Rebozo group, with a range of 210–360 minutes. In the control group, the mean duration was 461.25 ± 50.05 minutes, with a range of 390–540 minutes. The Independent Samples t-test demonstrated a statistically significant difference between the two groups (p < 0.001). These findings indicate that the

application of the Rebozo technique was associated with a shorter duration of the active phase of the first stage of labor.

The results are consistent with another study who reported that 81.25% of women receiving the Rebozo technique experienced a shorter first stage of labor, whereas 68.75% of women in the control group experienced prolonged labor (Surtiningsih, 2019). Similar findings have been reported, who found that the Rebozo technique could facilitate labor progression and reduce the duration of the first stage. These findings strengthen the evidence that Rebozo may be used as a non-pharmacological intervention to support physiological labor (Afrilia & Suksesty, 2021; Tuncay et al., 2025).

The Rebozo technique may facilitate labor through several mechanisms. Rhythmic rocking and gentle movement of the pelvic region may promote relaxation of the pelvic muscles, ligaments, and surrounding tissues, increase maternal comfort, and improve pelvic mobility. The technique may also create additional space within the pelvis, facilitating fetal descent and supporting a more optimal fetal position (Munafiah et al., 2020; Ermiati et al., 2026). These effects may subsequently facilitate cervical dilatation and contribute to more efficient labor progression.

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In the present study, the Rebozo technique was performed by placing a woven cloth around the pelvic or abdominal region and applying gentle, rhythmic movements during uterine contractions. The movement was stopped after the contraction ended. This application is intended to provide continuous but comfortable stimulation without the use of pharmacological agents. The rhythmic movement may help mothers cope with contractions while reducing muscle tension and discomfort.

Maternal relaxation is another possible mechanism underlying the effectiveness of the Rebozo technique. Anxiety and fear during labor may increase maternal tension and negatively affect the progression of labor. Conversely, increased comfort and relaxation may support physiological hormonal responses, including endogenous oxytocin release, which plays an important role in uterine contractions and labor progression (Tandoğan & Oskay, 2024). Thus, the combination of physical relaxation and psychological comfort may contribute to more effective uterine contractions and cervical dilatation.

The present findings are also supported by another study who reported a significant difference in cervical dilatation during the active phase between women receiving the Rebozo technique and those receiving standard care ($p = 0.018$) (Munafiah et al., 2020). This finding suggests that the effect of Rebozo may not be limited to maternal comfort but may also contribute to physiological mechanisms involved in cervical dilatation and fetal descent.

Based on observations and interviews conducted during the study, mothers in the intervention group reported that the Rebozo technique provided a greater sense of comfort during contractions. The use of the cloth was perceived as more comfortable than direct manual manipulation because the pressure and movement were distributed more evenly across the pelvic and abdominal areas. This comfort may reduce muscle tension and improve the mother's ability to cope with contractions, thereby supporting the physiological progression of labor.

The Rebozo technique may also have benefits beyond its application during labor. Previous research has reported that Rebozo can be introduced during the third trimester to reduce pregnancy-related discomfort, particularly low back pain, and to prepare women physically and psychologically for childbirth (Tuncay et al., 2025). In addition, the technique can involve the husband or birth companion, potentially

strengthening their participation in providing physical and emotional support to the mother.

Overall, the significant difference between the intervention and control groups in this study, together with findings from previous research, suggests that the Rebozo technique may be an effective, simple, and non-pharmacological approach to support physiological labor progression. Its potential benefits include improving maternal comfort, promoting pelvic relaxation and mobility, facilitating fetal descent and cervical dilatation, and potentially supporting more effective uterine contractions. Therefore, the Rebozo technique may be considered as an additional intervention for midwives in supporting labor progression, particularly among primigravida women.

CONCLUSION

The mean duration of the active phase of the first stage of labor was 301.88 ± 38.68 minutes in the group receiving the Rebozo technique and 461.25 ± 50.05 minutes in the control group. The Independent Samples t-test demonstrated a statistically significant difference between the two groups ($p < 0.001$). The Rebozo technique was therefore associated with a significantly shorter duration of the active phase among primigravida women.

SUGGESTION

The Rebozo technique is recommended for implementation in maternity clinics and independent midwifery practices as part of routine intrapartum care. Its application may help shorten the duration of labor, reduce the need for unnecessary medical interventions, and improve maternal comfort during childbirth.

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