

# Differences in the Effectiveness of Pelvic Rocking and Rebozo Movements in the Lowering of the Fetal Head during First Stage of Maternity at the Clinic in Kwala Bekala Village

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## ABSTRACT

**Background:** The natural process of delivering or expelling the fetus and placenta is a spontaneous and physiological event. Despite the inherent pain experienced by the mother and the extended duration of complete opening, some opt for alternative interventions, such as cesarean sections. Additionally, pharmacological drugs may be administered to facilitate the timely expulsion of the fetus and placenta. **Aim:** The purpose of this study was to analyze the effectiveness of pelvic rocking and rebozo movements in lowering the fetal head in women in the first stage of labor. **Methods:** This study used a quantitative analytic method with a quasi-experimental research design with a two-group comparison of pretest-posttest design. **Results:** The results of the study showed that before and after the pelvic rocking movement was carried out, the asymptote sig value was obtained. The 2-tailed was found to be 0.000 less than the alpha level of 5% (0.05), so it can be concluded that there is a significant difference in decreasing the fetal head. An asymptote sig value was found for the rebozo movement. The fetal head's descent varied significantly before and after the rebozo movement, as shown by the 2-tailed statistic's finding that it was 0.003 less than the 5% alpha threshold (0.05). **Conclusion:** The conclusion of this study was that the significance value of pelvic rocking was 0.000, which was smaller than the rebozo significance value of 0.003, which means that the pelvic rocking group was more effective in decreasing the fetal head compared to the rebozo group. So, it is very useful if the pelvic rocking movement service is carried out when passing through the first stage of labour.

**Keywords:** *First Stage of Labour; Pelvic Rocking; Rebozo*

## INTRODUCTION

The process of labor, which involves the expulsion of the fetus and placenta, is typically a spontaneous event that can occur naturally or physiologically. However, in some cases, healthcare providers may administer injections or medications to stimulate contractions and facilitate the expulsion of the fetus and placenta. This intervention might be chosen by many mothers due to the pain experienced during labor or when the duration of the process exceeds the normal timeframe. Prolonged labor can potentially increase the risks for the mother, leading to higher maternal mortality rates (MMR) (Navas *et al.*, 2021; Goldstein, Pukall, & Goldstein, 2009). Maternal Mortality Rate (MMR) serves as a critical indicator reflecting women's health status and contributes to assessments of development and quality of life indices (Dias *et al.*, 2022). According to the International Classification of Diseases (ICD), maternal death is defined as the death of a woman during pregnancy or within 42 days after the termination of her pregnancy (postpartum), with causes of death encompassing a broad range of factors (Simanullang & Dioso, 2020).

The recorded data on childbirth complications among women aged 10-54 years in Indonesia indicated a 23.2% occurrence rate. When analyzed by province, North Sumatra Province specifically showed a childbirth

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complication rate of 18.2%. These complications encompassed various issues, including breech/latitude delivery (2.7%), bleeding (1.6%), seizures (0.2%), early rupture of amniotic membranes (4.3%), retained placenta (3.7%), umbilical cord complications like twisting (3.4%), placenta previa (0.9%), placental retention (0.7%), hypertension-related complications (1.6%), and other unspecified complications (2.9%) (Whelan, 2021; Edmond *et al.*, 2006).

The professional guidelines for midwives during the initial phase of normal labour, as outlined in Kaur *et al.* (2020), involve refraining from the use of pain relief medications starting from the onset of labour until the complete expulsion of the fetus. Additionally, it includes the continuous monitoring of labor progress by observing contractions and the descent of the fetal head, facilitated by the systematic use of a partograph, as emphasized in Ghulaxe (2022).

According to the findings from Setyorini, Rukmaini, and Azzahroh's (2021) research, the calculated average duration of labor was 4 hours in the intervention group receiving treatment, compared to 5.8 hours in the control group. This revealed a difference of 1.8 hours between the treatment and control groups (Mahmoud Mahmoud Saadon & Fouad Mohammed, 2023). Hence, it can be inferred that pelvic rocking exercises have an impact on advancing labor progress during the active phase of the first stage.

Building upon the findings of the Simbolon, & Siburian, (2021), which demonstrated the Rebozo technique's significant effectiveness in expediting the active phase of the first stage of labor using an independent t test (Iversen *et al.*, 2017), a potential study could explore and compare the efficacy of the Pelvic Rocking Movement and the Rebozo Movement in facilitating the descent of fetal heads during Maternity Stage I at the Kwala Bekala Village Maternity Clinic in 2022.

## METHODOLOGY

### Participant Characteristics and Research Design

This quantitative analytic study employs a quasi-experimental research design known as the Two Group Comparison Pretest-Posttest Design, focusing on a comparative approach. The primary aim is to investigate and compare the effectiveness of the Pelvic Rocking Movement and the Rebozo Movement in reducing the descent of the fetal head during the initial stage of labor.

### Sampling Procedures, Sample Size, Power and Time.

In this study, the participants were expectant mothers in the advanced stages of the first phase of labour. The study included approximately 34 mothers preparing for childbirth. The research sample consisted of 17 participants who received pelvic skirting movements and another group of 17 participants who underwent Rebozo movements. These interventions were conducted at the maternity clinic located in Kwala Bekala village during the year 2023.

### Data Collection

The data collection methods involved direct observation of the participants. The research was conducted at a designated research site conducive to the study, where the researcher facilitated pelvic rocking movements and Rebozo movements. The participants were divided into two groups: one receiving pelvic rocking movements and the other receiving Rebozo movements. Observations during these movements contributed to the data collected for the study.

### Data Analysis

Data analysis used was univariate and bivariate. The bivariate analysis was performed using the Shapiro-Wilk test and the Wilcoxon test.

### Ethical Consideration

The research protocol was approved by the Research Ethics Committee of Sekolah Tinggi Ilmu Kesehatan, Mitra Husada Medan Sumatera, Indonesia vide reference number 1772/KEPMHM/X/2022 dated 14<sup>th</sup> October 2022.

## RESULTS

### Description of Research Data

This research was conducted at the Maternity Clinic in Kwala Bekala Village by conducting 2 treatments, namely Pelvic Rocking and Rebozo, to get the most effective movement by assessing the opening before and after the treatment and with different samples.

### Data Collection and Recapitalization Results

All 17 participants who underwent pelvic rocking treatment demonstrated an increase in cervical dilation when observed before and after the treatment. Among the 17 participants who received Rebozo treatment and were monitored for changes in cervical dilation, 11 exhibited increased cervical opening, while the remaining 6 did not show any increase in cervical dilation.

### Characteristics of Research Respondents

Characteristics of respondents in Pelvic Rocking group and in Rebozo group based on parity.

**Table 1: Distribution of Parity Characteristics in the Pelvic Rocking Group and the Rebozo Group**

No	Characteristics of Respondents	Group 1		Group 2	
		Frequency	Presentation	Frequency	Presentation
1	Parity Primipara	9	52.47%	9	52.47%
2	Multipara	8	47.53%	8	47.53%
	<b>Total</b>	17	100%	17	100%

Based on table 1 above, it shows the distribution of respondents according to parity in both groups: for all respondents 1 (Pelvic Rocking), there are 17 respondents, including 9 respondents and 8 other multipara respondents. The participants in the Rebozo group had 17 respondents, including 9 respondents and 8 other multipara respondents. The total number of respondents was 34.

**Table 2: Distribution of Age Characteristics in the Pelvic Rocking Group and the Rebozo Group**

No	Characteristics of Respondents	Group 1		Group 2	
		Frequency	Presentation	Frequency	Presentation
1	20-35 Years	16	94.06%	17	100%
2	>35 Years	1	5.94%	-	-
	<b>Total</b>	17	100%	17	100%

Based on Table 2 above, it shows the distribution of respondents according to age in both groups. There were 17 respondents in the Pelvic Rocking group, 16 respondents aged between 20 and 35 years, and 1 respondent aged >35 years old. In the Rebozo group, all respondents were in the age range of 20–35 years.

### Wilcoxon Signed Test

The Wilcoxon signed-rank test is a non-parametric statistical method used to assess differences between paired variables that possess non-normally distributed data. The decision-making criterion for this test is as follows: If the significance value is greater than alpha, it suggests there is no statistically significant difference between the values before and after the learning process (specifically in the reduction of the fetal head). Conversely, if the significance value is less than alpha, it indicates a significant difference between the values before and after the learning process (notably a decrease in the size of the fetal head).

### Variable Pelvic Rocking

**Table 3: Wilcoxon Scale 1 Test Results (Pelvic Rocking)**

		Ranks			Test Statistics	
		N	Mean Ranks	Sum of Ranks		After-Before
After-Before	Negative Ranks	0 <sup>a</sup> 17 <sup>b</sup> 0 <sup>c</sup>	0.00	0.00	With Asymptotic Significance (2-tailed)	-3.716 <sup>b</sup>
	Positive Ranks	17	9.00	153.00		0.000

From the results of the Wilcoxon signed test, it was obtained in Table 3 of the asymptotic significance value. The (2-tailed) obtained 0.000 less than the alpha level of 5% (0.05), so it can be concluded that there is a significant difference in the decrease of the head of the fetus before and after pelvic movements rocking.

### Variable Rebozo

**Table 4: Wilcoxon Scale 2 Test Results (Rebozo)**

		Ranks			Test Statistics	
		N	Mean Ranks	Sum of Ranks		After-Before
After-Before	Negative Ranks	0 <sup>a</sup> 9 <sup>b</sup> 8 <sup>c</sup> 17	0.00	0.00	With Asymptotic Significance (2-tailed)	-3.00 <sup>b</sup>
	Positive Ranks		5.00	45.00		0.003

From the results of the Wilcoxon test, the asymptotic significance value is obtained in Table 4. (2-tailed) obtained 0.003 less than the alpha level of 5% (0.05), so it can be concluded that there is a significant difference in the decrease in the head of the fetus before and after the Rebozo movement.

### Pelvic Rocking and Rebozo Comparison Variables

**Table 5: Comparison Results**

	Opening After Pelvic Rocking - Opening Before Pelvic Rocking	Opening After Rebozo - Opening Before Rebozo
With	-3.716 <sup>b</sup>	3.000 <sup>b</sup>
Asymptotic Significance (2-tailed)	0.000	0.003

From Table 5, it can be known that the magnitude of the asymptotic significance (2-tailed) in pelvic rocking is 0.000, where the result is less than the alpha (0.05) and asymptotic values. Sig. (2-tailed) on Rebozo, i.e., of 0.003, where the result is less than the alpha value (0.05). The value of each significance <0.05 means that there is a significant difference between the decrease in fetal head before and after intervention in two groups, namely pelvic rocking and Rebozo. The significance value of pelvic rocking = 0.000 is smaller compared to the significance value of Rebozo = 0.003, which means that the pelvic rocking group is more effective against fetal head reduction compared to the Rebozo group.

## DISCUSSION

An occurrence often observed during labor, contributing to Maternal Mortality Rates (MMR) and adverse childbirth outcomes (AKB), is the presence of prolonged labor (old partus). Extended labor duration leads to increased stress and fatigue for the mother, intensifying pain levels. This prolonged process can be attributed to factors such as higher-than-normal baby weight or pelvic abnormalities, amplifying discomfort and fatigue as labor extends (Sim *et al.*, 2021).

According to the World Health Organization (WHO) in 2018, developing countries exhibited a maternal

mortality rate of 239 per 100,000 live births, significantly higher compared to developed nations with a rate of 12 per 100,000 live births. In Indonesia's Health Profile for 2020, the maternal mortality rate was recorded at 4,197 per 100,000 live births, whereas in North Sumatra, the rate was reported at 202 per 100,000 live births (Podungge, 2020).

Over the span of 7 years from 2014 to 2020, the Maternal Mortality Rate (MMR) in North Sumatra exhibited fluctuations rather than a consistent trend. In 2014, the MMR stood at 187 cases, which slightly decreased to 176 cases in 2015. However, in 2016, there was an increase in MMR with 231 reported cases. The trend fluctuated again in 2017, dropping to 180 cases. Subsequently, there was an upward trend in maternal deaths, rising to 186 cases in 2018 and further increasing to 202 cases in 2019. Nevertheless, there was a decline in maternal mortality in 2020, recording the same number of cases as in 2014, with 187 reported cases (Ministry of Health of the Republic of Indonesia, 2019).

As per the Yogyakarta City Population and Civil Registration Service (2018), the causes of maternal mortality in 2020 were predominantly related to abortion and obstetric embolism, accounting for 30.48% or 57 cases. According to the findings of a study conducted by Setyorini, Rukmaini, and Azzahroh (2021), the calculated average duration of labor was 4 hours for the intervention group receiving treatment compared to 5.8 hours for the control group. The observed time difference between the treatment and control groups was an average of 1.8 hours. Hence, it can be inferred that pelvic rocking exercise had a significant impact on the progress of childbirth during the active phase at the Cimanggu Pandeglang Banten Health Center in 2021 (Gardstrom & Willenbrink-Conte, 2021).

A prior study by Simbolon and Siburian (2021), observed that the Rebozo Technique significantly expedited the duration of childbirth during the initial active phase. This conclusion was drawn utilizing an independent *t*-test, as reported. According to the research findings, both independent variables were observed to impact the descent of the fetal head. However, it was concluded that pelvic rocking movements displayed a higher efficacy compared to Rebozo movements in reducing the fetal head position (Iversen *et al.*, 2017). This assessment was based on Wilcoxon's test outcomes, where the asymptotic significance (2-tailed) for pelvic rocking (ex 1) was 0.000, indicating a result lower than the alpha value (0.05). Similarly, the asymptotic significance (2-tailed) for Rebozo (ex 2) was 0.003, also lower than the alpha value (0.05). The significance values being less than 0.05 for both interventions indicate a notable difference between the fetal head descent before and after the interventions in both the pelvic rocking and Rebozo groups.

The significant value of pelvic rocking = 0.000 is smaller compared to the significance value of Rebozo = 0.003, which means that the pelvic rocking group is more effective against fetal head reduction compared to the Rebozo group. As per the study conducted by Permatasari and Setyaningsih in 2021, the calculated average duration of labor was 4 hours for the intervention group compared to 5.8 hours for the control group. The observed time difference between the treatment and control groups averaged 1.8 hours. These findings suggest that pelvic rocking exercise significantly influences childbirth progress during the active phase, aligning with the research conducted by Simbolon and Siburian (2021) and Iversen *et al.*, (2017). According to the outcomes of a prior study it was determined that the Rebozo Technique significantly sped up the duration of childbirth during the initial active phase (Simbolon & Siburian, 2021).

## CONCLUSION

Following the completion of Wilcoxon's analysis on the effectiveness of Pelvic Rocking and Rebozo Movements in reducing fetal head descent during Maternity Stage I at the Maternity Clinic in Kwala Bekala Village, the conclusions are as follows:

1. Pelvic rocking movements demonstrate efficacy in decreasing the descent of the fetal head during Maternity Stage I.
2. The Rebozo rocking technique proves effective in decreasing the descent of the fetal head in mothers during Stage I of maternity.
3. Among the movements studied, the pelvic rocking motion displays the highest effectiveness in reducing the descent of the fetal head in mothers during Stage I.



## Conflict of Interest

The authors declare that they have no conflict of interests.

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