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Reducing Pain in the 1st Stage of Labor with the Rebozo Technique in Primigravida Mothers in North Tapanuli District

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Article Info

ABSTRACT:

Objectives: The experience of pain during childbirth is a common occurrence, particularly among primigravida mothers. Pain intensifies when accompanied by emotions such as dread, discomfort, and concern, which transforms pain into a state of suffering. The Rebozo technique is a nonpharmacological approach used for pain management during childbirth. The use of Rebozo swing reportedly induces a state of relaxation in expectant mothers, promoting a more tranquil labor experience and potentially reducing the perception of pain. This study aimed to identify maternal characteristics, assess the intensity of first stage labor pain before and after the use of Rebozo technique, and analyze the effectiveness of Rebozo technique in reducing pain intensity during first-stage labor

Methods: This study was a "Quasy Experiment Pre- Post Test with Control Group," including a total of 28 participants. Consecutive sampling technique was used to assign the participants to either control (n=14) or intervention (n=14) group. The research was conducted at six health centers in the North Tapanuli Regency.

Results: Mann-Whitney test showed that the mean rank of the intervention group (8.25) was lesser than the control group (20.75). Moreover, the Mann-Whitney μ was 10.5 with a value of $\alpha = 0.000$, indicating that the Rebozo technique was very effective in reducing the intensity of labor pain during the first stage of labor

Conclusion: Rebozo technique can be used as a non-pharmacological alternative to reduce pain during first-stage labor.

Keywords: Rebozo, Labor Pain, Primigravida

1. Introduction

Experiencing anxiety and eagerly anticipating the arrival of their newborns is commonly observed in a considerable number of expectant mothers these days. Mothers express the desire for a labor process characterized by smoothness and successful delivery of their babies. Nevertheless, it is important to acknowledge that several pathological disorders or difficulties may occur during pregnancy, which can affect the delivery process. Currently, the Sectio Caesarea serves as a convenient and comfortable alternative to natural or regular childbirth. In Indonesia, the prevalence of cesarean section (CS) deliveries remains high, accounting for approximately 17.5% of the total number of mothers who give birth, amounting to 4.8 million individuals.[1]   this figure exceeds the upper threshold established by the World Health Organization (WHO), which is 10% of the total number of births. It has been reported that approximately 2.5% mothers opt for CS due to medical reasons. The primary grounds for mothers or families from middle or upper class backgrounds making this decision are fear of experiencing pain during vaginal delivery and their belief that cesarean deliveries are more convenient and quicker.[2]

Subekti (2018) posits that there is no discernible correlation between the advantages of CS and the mitigation of maternal and neonatal mortality. Pain reduction during vaginal birth can be achieved through administration of epidural anesthesia and by implementing several additional interventions. In situations where there is no medical necessity for a CS, it is advisable for healthcare professionals to suggest vaginal delivery as the optimal and safest mode of delivery.[3] Despite the potential associated risks and issues, such as infection, hemorrhage, thrombosis, adverse anesthesia reactions, and surgical injuries, expectant mothers tend to favor cesarean deliveries to reduce pain during the birthing process. In addition to the potential harm it may cause to the mother, it also poses risks to the infant, including respiratory complications, skin abrasions, impaired bonding attachment, and hindered early breastfeeding initiation for the newborn.[4]levated CS rates have also been observed at Tarutung Hospital. The findings of the preliminary survey revealed that a total of 1,107 deliveries via CS were performed between January and September 2019, resulting in an average of 21 deliveries per month. Of the total number of cases, 917 (82%) were notified of the occurrence of subcutaneous deliveries . This indicates that the prevalence of births with SC is higher compared to spontaneous, accounting for 18% of cases. Based on interviews performed in the obstetrics setting, it was observed that the elevated CS rates was not attributable to medical causes, but also to non-medical factors, including self-requests stemming from apprehension regarding the perceived intensity of labor pain .

Pain during childbirth is a typical occurrence due to uterine contractions and pressure exerted by the fetuses' head on the uterine channels. However, pain can intensify and become distressing when accompanied by emotions such as fear, concern, or exhaustion. The impact of this ibis on mothers during the labor process has the capacity to transform pain into a state of "suffering." One potential approach for mitigating labor pain is the use of Rebozo technique.[6] The perception of pain among mothers is subject to individual variation. The psychological state of the mother, well-being of the fetus, and birth process itself are all influenced by the intensity of pain experienced during labor. The experience of labor pain can elicit fear in the mother, leading to hyperventilation. This physiological response subsequently results in an increased demand for oxygen, elevated blood pressure, and decreased intestinal motility and bladder function. These circumstances impact the well-being of the mother, manifesting as exhaustion, fear, concern, and stress.[7] If labor pain is not promptly addressed, it may lead to an extended duration of labor. Hence, to mitigate the discomfort experienced during childbirth through the provision of midwifery care, Rebozo technique is one of the several approaches that can be utilized. The Rebozo technique is an alternative non-

pharmacological approach for the management of pain throughout the childbirth process, which is devoid of any pharmacological intervention. The origin of this approach can be traced back to Mexico, where it is customary for women to use Rebozo garments in the prepartum, intrapartum, and postpartum periods. Mexican women frequently use long textiles known as Rebozo to carry items, support infants, and provide warmth. Additionally, it is used during childbirth by enveloping the pelvic and gluteal regions of pregnant women, followed by gentle shaking. Rebozo swings have been recognized for their potential to induce relaxation in mothers and facilitate optimal positioning of infants within the birth canal.[4]

The Rebozo technique was introduced in Indonesia by the Hypnobirthing and Prenatal Gentle Birth Development Team. According to Kuswandy and Aprilia, this approach enhances maternal comfort and expedit the birth process. Despite few studies on the use of Rebozo in Indonesia, a considerable number of midwives have included this technique in their practice.

In the North Tapanuli Regency, a total of 835 mothers gave birth between January and October 2020. Of the total sample size of 10 mothers who underwent normal births at Hospital, five mothers reported experiencing severe pain, three reported experiencing moderate pain, and two reported experiencing mild pain. Researchers according to their interviews elicited that 10 mothers reported that the pain they experienced during childbirth resulted in difficulty in concentrating and breathing. Additionally, these mothers expressed feelings of trauma associated with the labor. Currently, the implementation of non-pharmacological interventions to alleviate labor pain at Tarutung General Hospital is limited. Consequently, researchers have expressed keen interest in conducting further investigations to examine the potential impact of using the Rebozo technique to mitigate pain during normal labor. This study was conducted in the North Tapanuli Regency due to its cultural and traditional practices related to the presentation of cloth by the parents of pregnant women, which serves as a symbolic gesture for celebrating the arrival of their grandchildren and signifying fertility. In Spanish culture, expectant mothers commonly don the traditional garment known as the "Manteada" fabric, whereas in Mexican culture, the "Rebozo" cloth is frequently used. The Toba Batak tribe, recognized as the indigenous population of the North Tapanuli Regency, possesses a precious cultural heritage and maintains sustainable traditions through the utilization of Ulos textiles. Ulos, a woven cloth indigenous to the Batak people, represents various significant concepts, including affection, fertility, life, and joy. Among the several ulos garments in use, Ulos Mangiring holds significance, as it is bestowed upon the first grandchild by the parents accompanied by prayers and aspirations for the future birth of other children within the family who would also be able to use it as a sling cloth, also referred to as ulos parompa. The Rebozo technique is anticipated to be readily embraced by society, particularly expectant mothers, who will employ it as a birthing aid.[8] Hence, the objectives of this study were to ascertain the demographic attributes (age, education, and occupation) of primigravida mothers, evaluate the levels of labor pain prior and subsequent to the application of Rebozo technique, and analyze the efficacy of the Rebozo technique in mitigating pain intensity during the initial stage of labor.

2. Methods

This study was a "Quasy Experimental Pre-post Test with Control Group", wherein treatment was administered in the form of Rebozo technique to the intervention group and then it was observed if there was a decrease in pain intensity compared to the control group which was not given the Rebozo treatment.

The study population consisted of primigravida mothers residing in the North Tapanuli Regency area, with the Interpretation Date of Childbirth ranging from January to October 2020. The inclusion criteria for this sample were: primigravida mothers who had a normal pregnancy,

cervical dilatation of at least 4 cm, no prior treatment or interventions to expedite labor or manage pain, absence of excessive fear and anxiety, good communication skills, and willingness to participate as a respondens. The exclusion criteria were: mothers who experienced problems during the childbirth process and expressed a lack of willingness to participate as respondents. All participants who fulfilled the criteria for the study were included as samples until the required sample size was reached. Each group consisted of 14 individuals and was designated as either the experimental or the control group by the researcher. The sampling technique used consecutive sampling, determining the sample size by hypothesis testing the difference in means in 2 independent groups using the Stata application with values n1 = 14 people, n2 = 14 people. The Rebozo technique for the mother was initially carried out by birth attendants (midwives) and then by the husbands or birth attendants.

The independent variable in this study was the Rebozo technique, which Involved adjusting the position of the mother in a squatting or standing state with a slight bow or leaning on a chair or gym ball, then placing a cloth around the mother's hips and swinging it from left to right with controlled movements for 5 min and performings it repeatedly. The dependent variable was pain intensity to measure the severity of labor pain felt by the mother during the pre-test and post-test using the visual analog scale measuring instrument. Univariate analysis was carried out to determine the frequency distribution of each variable to describe the variables of age, education, type of work, and delivery assistance. Bivariate analysis was performed to determine whether there was a difference in pain intensity during delivery before and after the Rebozo technique was performed in the intervention group. We then analyzed the effectiveness of the Rebozo technique in the intervention group and compared it with the control group.

Before conducting bivariate analysis, homogeneity of the data was determined by conducting a homogeneity test on the x and y variables. A data normality test was also performed to determine whether the data were normally distributed. If the distribution was normal, the bivariate analysis useds the paired t-test; however, for data that were not normally distributed, the Wilcoxon signed rank test and Mann-Whitney tests were used with a 95% confidence level.

Meanwhile, to prove the effectiveness of the Rebozo technique in reducing pain intensity during childbirth in the intervention and control group, an independent sample t-test was used. The study design was approved by the Ethical Committee of the Poltekkes Kemenkes Medan (nRef: No. 01.1826/KEPK/POLTEKKES KEMENKES MEDAN 2020) and conducted in accordance with the tenets of Declaration of Helsinki.

3. Results

Table 1 Characteristics of the study population

No.	Characteristics of Respondents	Amount			
		Intervention Group		Control Group	
		N	%	N	%
A	Age Group (Years)				
1.	20 – 35	14	100	14	100
B	Level of education				
1.	Elementry	1	7	0	0
2.	Middle School	1	7	1	7
3.	Highh School	8	58	12	86
4.	University	4	28	1	7
C	Type of work				

1.	Civil servant	8	58	0	0
2.	Honorary	2	14	0	0
3.	Private	1	7	4	29
4.	Farmer	1	7	10	7
5.	Housewife	2	14	0	0

The characteristics of the study population are presented in Table 1. The study participants, including the experimental and control groups, ranged in the 20-35 years age group. Majority of the participants had a high school education and were civil servants or farmers. In the intervention group, eight husbands provided support to the expectant mothers participating in the Rebozo technique, while in the control group, nine (64%) husbands encouraged the expectant mothers.

Labor Pain Intensity
Pain intensity was measured using two measurement scales in the laboring mothers. The pre- and post-tests were carried out at 4-6 cm opening and completion of 7 cm opening, respectively. Accompanied by soft, rhythmic Batak ethnic instrumental music, the administration of Rebozo technique was repeated from opening of 4 cm to opening of 6 cm, with a duration of 5 min for each action, and then the average value was taken to determine the intensity of labor pain in the pre-test. Likewise, to measure post-test pain intensity, the Rebozo technique was performed after opening of 7 cm was attained and the average value of labor pain was determined. The control group underwent the procedure simultaneously without the application of Rebozo technique. The distribution of pain intensity is shown in Table 2.

Table 2 Pain Intensity in Respondents

No	Criteria	Respondents			
		Intervention Group		Control Group	
		Before	After	Before	After
		n	n	n	n
		Pain Intensity			
1.	Light	0	3	0	0
2.	Moderate	5	10	3	5
3.	Heavy	7	1	9	8
4.	Very heavy	2	0	2	1
	Total	14	14	14	14

Table 2 shows that the pain level in the intervention group before the Rebozo treatment was generally severe (50%) and that after the Rebozo treatment was generally moderate (71%). The expectant mothers in the control group during pretest generally experienced severe pain (64%). Moreover, these expectant mothers in the control group also experienced severe pain (57%) during the post-test.

Differences in the intensity of pain during labor in the first stage of primigravida women before and after the Rebozo technique was carried out in the intervention group

Table 3 Intensity of Pain in Labor Before and After Performing the Rebozo Technique with wilcoxon Signed Rank Test

		N	MeanRanking	Sum of Ranks	z	Asymp. Sig-(2-tailed)
Post test – Pre test	Negative Ranks	14 [a]	7.50	105.00	- 3,376	001
	Positive Ranks	0 [b]	.00	.00		
	ties	0 [c]				
	Total	14				

Following the Wilcoxon test, an examination was conducted to determine whether there was a disparity in pain intensity before and after the use of the Rebozo approach. The ensuing outcomes were ascertained, and the Table 3 presents the relevant data in tabular format.

The Wilcoxon signed rank test was used to analyze the disparity in mean values before and after the implementation of the Rebozo therapy, as indicated in Table 3. The collected test results yielded a negative rank value of 14 for both pre and post-test This indicated that all intervention groups experienced a negative difference, with 14 expectant mothers reporting a decrease in pain intensity as a result of the Rebozo method therapy. In contrast, the Ties value of 0 c indicateds a lack of discernible disparity in pain intensity experienced by the participants in the control group before and after the implementation of the Rebozo intervention.

4. Discussion

Differences in the Intensity of Labor Pain in the Active Phase of the First Stage of Labor in Primigravida Women before and After the Rebozo Technique

We observed a notable distinction in the level of pain intensity between the pre-test and post-test phases after the application of Rebozo technique. The findings of this study indicated that the use of the Rebozo technique resulted in a significant reduction in the intensity of labor pain within the intervention group. Pain during birth typically arises from intense contractions of the uterine muscles and is a common and inherent phenomenon encountered by diverse women. The pain response and thresholds vary for each mother. The occurrence of pain during childbirth can be attributed to either physical factors or physiological processes, or it may result from emotional factors or the maternal affective state. The delivery process can be facilitated and enhanced by utilizing several methods, one of which is the Rebozo technique, a traditional practice originating in Mexico that involves the use of a scarf. The shawl is positioned on the mother's hips and oscillated in a consistent manner, reminiscent of a pendulum's motion. In Indonesia, traditional midwives use scarves to alleviate discomfort experienced by pregnant women. This practice involves employing a gentle swaying motion to encourage the baby within the womb to assume a balanced and optimal position for delivery.[6]

The Rebozo technique encompasses two distinct methods. Shifting, which is employed during the latent phase of movement, involves swinging the cloth to induce pleasurable rhythmic pelvic movements, promoting relaxation, and potentially facilitating the fetuses' movement. The shake the apples technique, on the other hand, is performed during the active phase and involves regular shaking of the mother's pelvis to optimize the baby's positioning.[9] According to a previous study, employing the techniques of shifting and shaking apples had a beneficial impact on labor. The notable outcomes included augmentation of comfort levels experienced during labor and a significant influence on the perception of labor pain.[6] Stretching exercises have also been found to significantly reduce the intensity of pain.[10]

The rhythmic movement of the pelvis in a birthing woman generates a swinging motion that exerts pressure on specific anatomical structures, namely the lumbar, sacral, and coccyx bones. This pressure is applied during contractions using a Rebozo cloth. In the lumbosacral region, the uterine sensory nerves enter the spinal cord through the 10th, 11th, 12th, and 1st lumbar thoracic nerves. By employing techniques such as Rebozo, shaking the apples, or shifting while in a supine position, it is possible to block the transmission of pain impulses. This is achieved by stimulating large-diameter nerves, which causes pain impulses originating from the uterus to travel along the C-fiber of nerve fibers towards the substantia gelatinosa in the spinal column. Subsequently, these cells project pain messages in the opposite direction along the A-delta fiber of nerve fibers. Consequently, the gate control mechanism is activated, preventing the passage of pain stimuli to the cerebral cortex. This results in diminishing of pain perception in the brain. The utilization of the Rebozo mechanism has been found to be effective in mitigating labor discomfort.[9]

The application of Rebozo technique is likely to induce a sense of comfort. Properly positioning a cloth on the mother's body might induce the sensation of being embraced, thus facilitating the production of oxytocin, a hormone that aids in childbirth. The soft movements of the Rebozo can also stimulate the parasympathetic nervous system, thereby eliciting a sensation of tranquility and affection.[11] The therapeutic impact of stretching has been correlated with the augmentation of endorphin generation. The Rebozo technique, a stretching exercise, is simple, safe, and effective. Stretching offers several advantages in alleviating pain. These include enhanced elasticity and fortification of the spine and pelvic muscles, increased elasticity and strength of the diaphragm, improved circulation of oxygen and other fluids to the uterus, reduced joint and back pain, increased appetite and bowel movement, decreased anemia, and facilitation of labor.[12]

The biological perception of pain arises from the interplay between stimuli and the subsequent conscious or unconscious response, which is regulated by the forebrain and central nervous system encompassing the spinal cord. By employing neurotransmitter communication within the forebrain and amygdala, it is possible to regulate the trajectory of the stimulus and pain response via descending pain control pathways.[13] Affirmation has the potential to counteract default suppression, which refers to the obligatory inhibition of amygdaloid functional activity. This in turn facilities activation of the descending pathway, which effectively obstructs pain signals en-route to the spinal cord. This finding suggests that the transmission of pain signals along the ascending pathway to the central nervous system and brain can be inhibited. Individual pain perception is altered by suppression of pain transduction.[14]

Iversen et al's conducted a qualitative exploratory study of Danish women's experiences with the Rebozo technique during labor and reported that the technique was implemented for durations ranging from 5-25 min. This was performed while the participants were in a standing position, squatting with the assistance of their hands and feet, or transitioning from a standing to a lying down position. The outcomes of this approach included generation of bodily sensations, pain reduction, and an increase in the mothers' self-confidence. These positive effects were attributed to the involvement of a companion (the mother's partner) and a birth attendant. The findings of this study indicated that the Rebozo approach yielded a favorable outcome, encompassing both physical and psychological aspects.

The findings of the abovementioned and present study alignes with those of Afika (2017) regarding the impact of hypnobirthing on the reduction of anxiety levels among pregnant women in Malang. As part of the hypnobirthing approach for expectant mothers, physical activities were incorporated, including the utilization of the Rebozo technique facilitated by the husband acting as a birth partner. The swinging motion of the shawl induced a series of movements in the pelvic region, resulting in a calming effect on the hip area and the creation

of room withing the abdominal region for the baby. This, in turn, led to a reduction in the pain experienced during contractions.

Yusniarita (2021) investigated the impact of presence of birth attendants on stress levels experienced by women. The findings revealed that most participants expressed a preference for being accompanied by their spouses and relatives during childbirth. This preference was attributed to the belief that receiving mental support and psychological motivation from loved ones would enhance their ability to cope with pain and endure the birth process. This study incorporated family participation as birth attendants in the implementation of the Rebozo technique.[15]

Differences in the intensity of labor pain during the first stage of the active phase pre and post-tests in the control group.

Table 4 Differences in labor pain intensity at pretest and posttest group control with wilcoxon-signed rank Test

		N	MeanRanking	Sum of Ranks	z	Asymp. Sig-(2-tailed)
Post test – Pre test	Negative Ranks	3 [a]	2.00	6.00	- 1633 [b]	.102
	Positive Ranks	0 [b]	.00	.00		
	ties	11 [c]				
	Total	14				

Based on the results of the Wilcoxon test Table 4, no difference was observed in the intensity of pain between the pre and post-tests in the control group without Rebozo treatment. Therefore, it can be concluded that without Rebozo treatment, there was no decrease in pain intensity in the control group. Heni et all (2013) research regarding the need for the birth process to deal with the mother's pain during childbirth showed that the pain felt by the mother during childbirth was felt even though the mother tried to overcome it. Therefore, more specific interventions are recommended, including cognitive interventions in the form of relaxation or hypnotherapy, to change the regular positioning and movements (including Rebozos).[16] Similar to Tetti (2018) regarding non-pharmacological therapy for reducing labor pain, a systematic review of 16 articles from databases such as Google Scholar, Science Direct, PubMed, and Sinta from 2014-2018, in an effort to reduce pain during childbirth, explained several non-pharmacological methods, including birth ball exercises, which are also performed using the Rebozo technique. Another non-pharmacological method was used by Ririn (2018) in her research on reducing labor pain. This method involved massaging the spine (sacrum) in a circular motion using deep and strong palm pressure, which reduced the pain during first stage of labor in primigravida mothers.

Effect of the Rebozo technique on pre and post-test control birth pain
To assess the potential impact of the Rebozo technique on pain levels within both the intervention and control groups, Mann-Whitney U test was used due to the non-normal distribution of the data.
According to the findings presented in Table 5, the analysis revealed a significant difference in pain intensity between the intervention and control groups (Mann Whitney $\mu = 10.5$; $z = -4.1$; $\alpha < 0.05$). Based on the findings obtained from the analysis of the test data, it was determined

that implementation of the Rebozo technique yielded positive outcomes in terms of mitigating the severity of pain experienced by expectant mothers in the initial active phase of labor.

The findings of this study align with those of Nurpratiwi (2020), who observed a mean disparity in pain intensity during the initial active stage of labor among multigravida women before and after the application of techniques such as Rebozo, shaking the apples, and shifting while lying down. statistical analysis yielded a p-value of 0.007.[9]

The experience of pain during labor may be understood as a physiological response that indicates the opening and dilation of the cervix. When the mother has difficulty managing pain during childbirth, she may experience fatigue, frustration, hopelessness, and stress. These emotional states can potentially contribute to the prolongation of the labor as uterine contractions may diminish. The mother experiences heightened levels of anxiety and discomfort during labor. According to Wijayarini (2012), the majority of labor, specifically 85-90%, is associated with discomfort, whereas a smaller percentage, approximately 10-15%, is not associated with pain.

This study demonstrated that the experience of pain persisteds in the mother both before and after the administration of the test. Hence, it is imperative that researchers offer measures or interventions to assist women in alleviating their discomfort during the initial phase of labor. We used the Rebozo technique on birthing mothers in the intervention group, and this approach effectively alleviated labor pain intensity. The Rebozo approach is based on the physiological principles of the autonomic nervous system, an integral part of the peripheral nerves that govern homeostasis within an individual's internal milieu.[17] The Rebozo technique has the potential to be included in the curriculum of antenatal care (ANC) as a method of instruction for expectant mothers in preparation for childbirth. Pregnant women, particularly those experiencing their first pregnancy (primigravida), rely on ANC visits to ensure a secure and satisfactory childbirth experience. ANC visits have been correlated with improvements in the decision-making capacity of pregnant women.[18]

Numerous pregnant women express concerns over the potential discomfort experienced during labor as well as the various modalities for pain management. The provision of pain treatment during labor is a crucial component of women's healthcare and warrants significant attention.[19] The prevailing social norms for women often emphasize the cultivation of pain tolerance instead of the utilization of pharmaceutical interventions, as this practice is commonly associated with traditional notions of femininity and is imbued with a sense of personal accomplishment.[20]

Certain pregnant women may lack knowledge of different tactics for managing labor pain and methods for alleviating discomfort. The limited understanding of the potential advantages and disadvantages associated with different pain management techniques among women has the potential to heighten their feelings of worry.[22-24] Providing women with comprehensive knowledge pertaining to the birthing process and pain management techniques, particularly during ANC, is important. The confidence exhibited in this context is facilitated by the establishment of a trusting connection between women and midwives as well as the recognition of the significance of attentively acknowledging women's experiences. These experiences enhance the women's capacity to confront anxiety and self-doubt when confronted with pain.[21]

Nevertheless, the limited provision of antenatal education and the presence of negative cultural ideas towards the treatment of labor pain have been linked to decreased acceptance among women and the attitudes of midwives towards providing ways to alleviate labor pain.

In conclusion, the Rebozo approach exhibited a notable level of efficacy in mitigating the discomfort experienced by primigravida mothers during birth. This phenomenon occurs due to the suppression of pain signal transmission along the ascending pathway into the central nervous system and brain.

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