# Effect of Rebozo Techniques on Pain Intensity ,Anxiety and birth experience among Primiparous Women during the Active Phase of Labor

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**Abstract**: Childbirth, particularly during the active phase of labor, can be an intense and challenging experience, especially for primiparous women. The active phase is often associated with significant pain and heightened anxiety, which can affect the overall birth experience. **Purpose**: To determine the effect of applying Rebozo techniques on pain intensity, anxiety and birth experience among primiparous women during the active phase of labor. **Design** A non-randomized controlled clinical trial design **Setting**: The study was carried out in the labor and delivery unit at National Medical Institution in Damanhour, under the Ministry of Health and Population in El-Beheira Governorate, **Sampling**: A convenience sample of 80 laboring women participated in the study. Four Instruments were used: (Basic data structured interview schedule, Visual Analogue Scale (VAS), Beck Anxiety Inventory (BAI) and Childbirth Experience Questionnaire (CEQ). **Results**: The study results revealed that there was a statistically significant difference between the study and control groups in favor of the former in relation to pain levels at both cervical dilation points (4 cm and 8 cm) P= (0.021&.022) respectively, severity of anxiety P= (0.036&.0.003) respectively, Majority of the study group reported a positive experience with labor, compared to the control group. **Conclusion**: Rebozo techniques are effective non-pharmacological methods for alleviating labor pain, reducing anxiety, and improving birth experience among primiparous women during labor. **Recommendation**: Integrating rebozo techniques into nursing care protocols can relieve pain, reduce anxiety levels, and enhance the overall maternal experience during labor.

*Keywords: anxiety, active phase of labor, birth experience, pain intensity and Robozo technique.*

## Introduction

The World Health Organization (WHO, 2020). estimates that approximately 287,000 women died globally in 2020 due to complications from pregnancy or childbirth. The Maternal Mortality Ratio (MMR) in low-income countries was 430 per 100,000 live births compared to just 13 in high-income countries in 2020. Despite some progress, maternal mortality reduction

has stagnated in recent years, underscoring persistent inequalities and the need for enhanced access to quality maternal healthcare, especially in developing regionscountries.

Labor is a critical physiological process involving cervical dilation, uterine contractions, and fetal descent, leading to childbirth. According to WHO, normal labor occurs spontaneously between 37 and 42 weeks of gestation, culminating in a vaginal delivery without complications for the mother or newborn. Labor is divided into four stages the first stage, second stage, third stage, and fourth stage (Kilpatrick SJ, 2021).

The first stage includes the latent and active phases. The latent phase starts with regular contractions and ends at 3 cm cervical dilation. The active phase continues until full dilation at 10 cm. Pain, a hallmark of this stage, can cause discomfort and anxiety, potentially leading to elevated catecholamine levels, which may prolong and complicate labor. Primiparas typically experience longer labor and more severe anxiety than multiparas (Hall M, 2022; Fumić Dunkić L and Vuletić G, 2021).

Pain during labor is common, especially for primigravida. Ineffective pain management can result in abnormal labor patterns and complications, such as prolonged labor, increased risk of fetal distress, and physical harm to the newborn. Prolonged labor also raises the likelihood of cesarean delivery or labor induction (Carlhäll S, Nelson M, Svenvik M, Axelsson D et al., 2022). Childbirth pain is shaped by physical factors (e.g., age, parity, fatigue, cervical condition, and fetal position) and psychological factors (e.g., fear, anxiety, and apprehension). Non-pharmacological techniques and the presence of supportive family members can help alleviate anxiety and improve labor outcomes (Smith et al., 2018 ; Gido R, Yadeta TA, Tura AK. (2021).).

Maternal anxiety is linked to a less favorable birth experience and reduced satisfaction. Increased anxiety can amplify labor pain and contribute to a negative experience with lasting effects on maternal well-being. Emotional support during childbirth is crucial for ensuring positive outcomes alongside high-quality clinical care (Murray & Gayle Huelsmann, 2020; Nilsson et al., 2018).

There are several methods to alleviate labor pains, one of which is the Rebozo Technique. This technique originates from Latin America (Iversen, Midtgaard, Ekelin & Hegaard, 2017) and involves the use of a long cloth known as a "Rebozo" or, in Indonesia, a "Jarik gendong." Made from soft yet strong material, the Rebozo is comfortable against the skin and can support up to weight 225 kg. The technique first, involves wrapping the cloth around the pregnant woman's abdomen. When contractions begin, a birth companion gently pulls and shakes the cloth, which helps ease the discomfort (Febby, 2019).

The second method of the Rebozo technique involves the mother kneeling while a birth companion gently wiggles a cloth around her hips, causing her hips to sway during contractions. The third method involves the mother

sitting on an exercise ball and rocking her body back and forth as labor approaches. Research highlights the Rebozo technique's physical and psychological benefits, noting its ease of use by healthcare professionals and its positive reception by women, leading to improved clinical and psychological outcomes (Damayanti & Fatimah, 2021).

The Rebozo technique is a non-pharmacological method that helps widen the pelvic cavity, facilitating fetal descent and potentially speeding up the birth process (Double Symbol & Siburian, 2021). Although research on its use during labor is limited in Egypt, a study has been conducted to evaluate its effects on pain intensity, anxiety, and birth experience among primiparous women in the active labor phase.

**Significance of the study:**

The Rebozo technique is a non-pharmacological method that may reduce pain, alleviate anxiety, and improve the birth experience for primiparous women during active phase of labor. It enhances comfort, supports emotional well-being, and promotes positive childbirth perceptions. Further research could validate its effectiveness and encourage its integration into global maternity care practices.

**Purpose:**

To determine the Effect of Rebozo Techniques on Pain Intensity, Anxiety and birth experience among Primiparous women during the Active Phase of Labor.

**Research Hypotheses:**

- **H1**: Primiparous women who perform Rebozo Techniques during active phase of labor are expected to experience lower labor pain intensity than those who don't.
- **H2**: Primiparous women who perform Rebozo Techniques during active phase of labor are expected to experience lower anxiety level than those who don't.
- **H3**: Primiparous women who perform Rebozo Techniques during active phase of labor are expected to exhibit more positive birth experience than who don't.

**Operational definitions:**

- **Rebozo technique**: is a type of long cloth (shawl). Scarves made of soft materials are used. They must be strong enough to withstand the weight of up to weight 225 kg. Rebozo techniques include belly support, double hip squeeze, sifting, hip shake while pushing.
- **Pain Intensity**: The degree of labor pain experienced by the participant. It will be assessed by Visual analog scale (VAS) (Instrument number two)
- **Anxiety**: An emotional state characterized by feelings of tension, nervousness, or worry during labor. It will be assessed by Beck Anxiety Inventory (BAI). (Instrument number three)
- **Birth experience**: women's satisfaction with various aspects of their first labor and delivery. It contains (Professional Support, Perceived Safety, and Participation perceived pain, control. It will be assessed by Childbirth Experience

Questionnaire (CEQ) (Instrument number four)

- **Active Phase of Labor**: The phase of labor characterized by regular, painful contractions and cervical dilation from 4 cm to full dilation (10 cm). It will be assessed by the researcher.

## Methods

### Research design:

Quasi experimental research (study and control group)

### Settings:

The study was carried out in the labor and delivery unit at National Medical Institution in Damanhour, under the Ministry of Health and Population in El-Beheira Governorate, Egypt.

### Sampling:

Sample type: A convenience sample was recruited in the study. Sample size: 80 laboring women participated in the study, with 40 women in each group. The study group (Group 1) contained 40 women who received Rebozo techniques, while the control group (Group 2) included 40 women who received routine hospital care.

### Sample size calculation:

The sample size of 80 was determined using the Epi-Info 7 program, considering a target population of 1200 individuals per quarter, an expected occurrence rate of 50%, an acceptable error margin of 5%, and a 95% confidence level.

The selected women were evenly split into two groups:

- **Study Group**: It contained 40 women who were guided to use Rebozo techniques during labor.
- **Control Group**: It contained 40 women who followed standard routine care during labor.

### The inclusion criteria include:

- Age ranged from 20 to under 35 years.
- Full term (38-42 weeks of gestation).
- Single living fetus.
- Cephalic presentation.
- Active phase of labor

### Instruments:

Four Instruments were used to collect the necessary data:

### Instrument one: Basic data structured interview schedule:

It was developed by the researcher based on recent relevant literature (Saadoon et al., 2023). It included two main parts:

- **Part 1**: Demographic data such as age, residence, level of education, occupation, type of family and consanguinity to husband.
- **Part 2**: Reproductive history such as current gestational age, gravidity, abortion, planning to get pregnant, training to adapt to childbirth, afraid of the birth process, and cervical dilatation.

### Instrument two: Visual analog scale (VAS).

This Instrument was developed by Melzack and Katz in 1994. It is as a self-reporting pain intensity scale. This Instrument was adopted and translated into Arabic. It is 10-point numerical scale, ranging from 0 (no pain) to 10

(most intense pain), represented by a horizontal line.

**Scoring system:**

According to the responder's score as (0) =no pain, (1-3) =mild pain, (4-6) =moderate pain, (7-9) = very severe pain and (10) =worst pain.

## Instrument three: Beck Anxiety Inventory (BAI).

This Instrument was developed by Beck et al. 1988 to measure anxiety severity. It has been adopted and translated into Arabic. It contains 21 items, each describing a common anxiety symptom, and uses a 4-point Likert scale to assess the severity of each symptom. The total score ranges from 0 to 63.

**Scoring System:**

- Low anxiety ranged from 0 to 21.
- Moderate anxiety ranged from 22 to 35
- High anxiety ranged from 36 to 63.

## Instrument four: Childbirth Experience Questionnaire (CEQ)

Childbirth Experience Questionnaire (CEQ) was developed by Dencker et al. in 2010 in Sweden. It was later validated in English by Walker et al.in 2015 in UK. It contains 22 items referring to the childbirth experience. Women's responses to 19 items in CEQ will be rated on a 4-point Likert scale and remaining 3 items will be evaluated by VAS. These VAS scores will then be converted into categorical variables facilitating interpretation and analysis; 0–40 = 1, 41–60 = 2, 61–80 = 3 and 81–100 = 4. Here, negatively worded items will be reversed. All 22 items in CEQ

are divided into 4 groups as 4 main domains as mentioned above; "own capacity" (8 items about sense of control, their feelings during birth process and labour pain; 1, 2, 4, 5, 6, 19, 20, 21 items), professional support (5 items regarding information and the midwifery care they received; 13, 14, 15, 16, 17 items), perceived safety (6 items about sense of security and memories from their labour and childbirth; 3, 7, 8, 9, 18, 22 items), and participation (3 items about own possibilities to influence maternal position, their movements and pain relief in labour; 10, 11, 12 items).This will be evaluated using Cronbach's coefficient alpha. Usually, Cronbach's alpha $\geq 0.7$ is considered as a satisfactory level of internal consistency.

**Validity and reliability:**

Prior to using the instruments in the study. The researchers adopted and translated instruments two, three, and four into Arabic. A panel of five Professors in obstetrics and gynecological nursing assessed the face validity of all instruments. The reliability of instruments two, three, and four was evaluated using Cronbach's alpha, yielding coefficients of 0.91, 0.88, and 0.89, respectively.

**Ethical consideration:**

After the research proposal was approved by the Research Ethics Committee at the Faculty of Nursing, Damanhour University, (approval number 79-d,). From each participant, a written formal consent was obtained, privacy was protected through providing anonymous instruments for

participants (only code number was inserted). Participants were assured of their right to withdraw at any time.

**Pilot Study:**

A pilot study was conducted on 8 women, who were excluded from the main sample. The main objectives of this pilot study were to determine the Instruments' applicability, clarity, and usefulness. The amount of time was calculated as well as data collection problems were identified before data collection. After the pilot study, the instruments were rebuilt and prepared for usage. As a consequence of the pilot study, a few terms were changed as Question number 5 in instrument One ("Are you planned for the pregnancy?") was deleted. Some words in instrument Four were linguistically modified due to unclear phrasing identified during the pilot study.

**Procedure:**

- An official letter was submitted from the Dean of the Faculty of Nursing, Damanhour University to the directors of the labor and delivery unit at National Medical Institution in Damanhour, it included the purpose of the study and methods of data collection. After receiving official approval from the directors of National Medical Institution, data were collected over the period of a 3-month, (May and ending in July 2024).
- This study was conducted through three phases; preparatory and assessment phase, implementation and outcomes evaluation.

**Preparatory and assessment phase:**

An extensive review related to the study was conducted, including dissertation, available books, and articles. Each eligible laboring woman who agreed to participate in the study was assigned to either the intervention or control group. The researcher was started by control group before the intervention group to prevent contamination of the study.

Data for Instrument one was collected from both groups through individual, private interviews. Additionally, labor pain and anxiety levels were assessed using Instrument two, three before the intervention.

**Implementation phase:**

Control group: The control group received only the routine hospital care recommended by their obstetricians during the active phase of the first stage of labor. The labor pain and anxiety levels of the primiparous women were assessed at the beginning of the active phase, when cervical dilation was at 4 cm, and again when it reached 8 cm.

**Study group:**

Besides the routine care of the 1st labor stage, the participants of this group were asked to perform Rebozo techniques when contractions began shake hips for 5 minutes and stop after contractions finish (at 4 Cm & 8cm cervical dilatation in the active phase of labor)

- **The first technique**, known as "Hip Shake," requires the woman to be on her hands and knees. A Rebozo (or a hospital sheet, as used in this study) is draped over her hips and buttocks.

The ends of the Rebozo or sheet are pulled downward toward the floor while the researchers gently shake her hips by moving their hands back and forth, as illustrated in Figure1.

- **The second technique**, called "Sifting," involves the woman supporting herself on her hands and knees. The researcher stands behind her, spreads the Rebozo over her abdomen, and slightly lifts it. They then gently rock or sift back and forth, as depicted in Figure 2.
- **The third technique**, "Double Hip Squeeze," involves placing the Rebozo under the belly and around the hips. The researcher pulls the fabric in opposite directions—pulling the left-hand strap to the right and vice versa. Additionally, they add a twist to maintain tension and apply counter pressure on the back, as shown in Figure 3.



**Figure (1)**



**Figure (2)**



**Figure (3)**

https://www.modernalternativemama.com/5-ways-to-use-a-rebozo-during-labor/

**Evaluation phase:**

- Labor pain was assessed using Instrument two, followed by an evaluation of the primiparous anxiety level using Instrument Three. Both assessments were conducted in the control and intervention groups at 4 cm and 8 cm cervical dilation during the post-test.
- Childbirth Experience was evaluated using Instrument four in both groups after the intervention.

**Statistical analysis:**

After data collection, the data was categorized, coded, computerized, tabulated, and analyzed using SPSS version 20. Descriptive statistics, such as frequency distributions, percentages, means, and standard deviations, were employed. To determine the statistical significance of the results, the Chi-square test, independent t-test (at the 0.05 significance level), and Pearson correlation test (at the 0.01 significance level) were used.

**RESULTS**

**Table 1**: reveals no statistically significant differences in sociodemographic characteristics between the control and study groups. Over two-fifths, 47.5% of the control group and 45% of the intervention group, were aged between 20-25 years. Besides, 12.5%, of both groups were illiterate, 22.5% of the control group were employed, compared to 15% in the study group. Regarding residency and family type, a significant proportion of the participants (62.5%

and 72.5% in the control group, and 62.5% and 70% in the study group) were urban residents and lived in extended families respectively.

**Table 2**: shows that the mean of gestational age for control group was 39.10±1.33 compared to 38.63±1.05 among the study group. The majority of the (87.5%) control group were pregnant for the first time compared to 92.5%, among study group. There is no statistically significant difference between the control and study groups in relation to reproductive history.

**Table 3**: shows that before the intervention, there were no statistically significant differences in pain levels between the control and study groups. However, after the intervention, the study group reported lower pain levels than the control group at both cervical dilation points (4 cm and 8 cm) in which p=0.021, 0.022 respectively.

**Table 4**: No statistically significant was observed before and after intervention between the control group at both point of cervical dilatation (4cm and 8 cm). But there was highly statistically Severe pain was decreased from 57.5% before intervention to 27.5% after intervention among the study group compared to increase from 77.5% to 85% before and after intervention among the control group respectively. Furthermore, there are statistically significant was observed after intervention when cervical dilatation 8 cm, which p=0.025.

**Table 5**: illustrates that before the intervention, there were no statistically significant differences in anxiety levels between the study and control groups. However, after the intervention, the study group reported significantly lower anxiety levels than the control group at both cervical dilation points (4 cm and 8 cm) where p= 0.036 and 0.003 respectively.

**Table 6**: shows No statistically significant changes in anxiety levels within the control group before and after the intervention. In contrast, the study group showed a significant reduction in anxiety levels at 8 cm dilation. Severe anxiety in the study group dropped notably from 35% before the intervention to 10% after the intervention, whereas in the control group, it slightly increased from 35% to 37%. Additionally, significant differences in anxiety levels were identified between the control and study groups after the intervention at 8 cm dilation where p=0.000.

**Table 7**: The table highlights significant improvements across all domain's own capacity, professional support, perceived safety, participation, and the overall score in the study group compared to the control group. The P values for all domains are highly statistically significant where p= 0.000, 0.001,0.000 and 0.001 respectively, indicating that the intervention had a meaningful positive impact on these measures.

**Table 8**: The table shows that there is a positive correlation between pain levels and anxiety levels during the active phase of labor, both before and after intervention.

**Figure 4** The table shows that the majority of the study group (87.5%) reported a positive experience with labor, compared to 57.5% in the control group. Only 12.5% of the study group

reported a negative experience, as compared to 42.5% of the control group.

**Table (1) Distribution of the studied sample in both groups according to their Socio-demographic data (n=80)**

| Socio-demographic data | Control group n=40 | | Study group n=40 | | X2 | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **Age:** | | | | | | |
| <20 | 9 | 22.5 | 7 | 17.5 | 0.610 | 0.737 |
| 20 – 30 | 19 | 47.5 | 18 | 45.0 | | |
| >30 | 12 | 30.0 | 15 | 37.5 | | |
| Mean ± SD = | 25.83±6.13 | | 26.90±5.24 | | | |
| **Residence:** | | | | | | |
| Rural | 25 | 62.5 | 29 | 72.5 | 0.912 | 0.340 |
| Urban | 15 | 37.5 | 11 | 27.5 | | |
| **Level of education:** | | | | | | |
| Read/write | 5 | 12.5 | 5 | 12.5 | 0.236 | 0.972 |
| Primary education | 6 | 15.0 | 7 | 17.5 | | |
| Secondary education | 19 | 47.5 | 17 | 42.5 | | |
| University education | 10 | 25.0 | 11 | 27.5 | | |
| **Occupation:** | | | | | | |
| Housewife | 20 | 50.0 | 22 | 55.0 | 0.739 | 0.691 |
| Free working | 11 | 27.5 | 12 | 30.0 | | |
| Employee | 9 | 22.5 | 6 | 15.0 | | |
| **Type of family:** | | | | | | |
| Nuclear | 15 | 37.5 | 12 | 30.0 | 0.503 | 0.478 |
| Extended | 25 | 62.5 | 28 | 70.0 | | |
| **Relationship to husband:** | | | | | | |
| Yes | 16 | 40.0 | 21 | 52.5 | 1.25 | 0.262 |
| No | 24 | 60.0 | 19 | 47.5 | | |

$x^2$(P): Chi-Square Test & P for $x^2$Test          F (P):Fisher Exact test & P for FTest

*: Significant at P ≤0.05

**Table (2): Distribution of the studied sample in both groups according to their obstetric history (n=80).**

| Obstetric history | Control group n=40 | | Study group n=40 | | X2 | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| Current gestational age in weeks: | | | | | | |
| Mean ± SD = | 39.10±1.33 | | 38.63±1.05 | | Independent t-test= 1.76 | 0.081 |
| Gravida: | | | | | | |
| One | 35 | 87.5 | 37 | 92.5 | 2.11 | 0.335 |
| Two | 4 | 10.0 | 1 | 2.5 | | |
| Three and more | 1 | 2.5 | 2 | 5.0 | | |
| Number of abortion: | | | | | | |
| No | 35 | 87.5 | 37 | 92.5 | 3.53 | 0.282 |
| One | 4 | 10.0 | 1 | 2.5 | | |
| Two | 1 | 2.5 | 1 | 2.5 | | |
| Three and more | 0 | 0.0 | 1 | 2.5 | | |
| Trained to adapt to childbirth: | | | | | | |
| Yes | 6 | 15.0 | 8 | 20.0 | 0.346 | 0.556 |
| No | 34 | 85.0 | 32 | 80.0 | | |
| Afraid of the birth process | | | | | | |
| Yes | 40 | 100.0 | 40 | 100.0 | - | - |
| No | 0 | 0.0 | 0 | 0.0 | | |

$X^2$(P): Chi-Square Test & P for$X^2$Test   F (P):Fisher Exact test & P for F Test

*: Significant at P ≤0.05

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**Table ( 3): Mean labor pain scores among studied sample in both groups during the active phase of labor before and after intervention (n=80)**

| Labor pain assessment | | Min./Max. score | Control group n=40 | Study group n=40 | Independent t test | P value |
|---|---|---|---|---|---|---|
| | | | Mean ±SD | Mean ±SD | | |
| **Level of pain in two points (4 cm, 8 cm of CD).** | | | | | | |
| CD (4 cm) | Before intervention | 0/10 | 3.93±0.97 | 4.10±0.95 | 0.812 | 0.419 |
| | After intervention | | 4.13±1.01 | 3.63±0.86 | 2.36 | 0.021* |
| CD (8 cm) | Before intervention | | 8.40±1.12 | 8.65±1.21 | 0.956 | 0.342 |
| | After intervention | | 8.60±1.08 | 8.03±1.12 | 2.33 | .022* |

$x^2$(P): Chi-Square   Test & P for $x^2$ Test   *: Significant at P ≤0.05

**Table(4): Percentage distribution of studied groups according to labor pain severity during the active phase of labor before and after intervention(n=80)**

| Severity of pain | Control group cervical dilation(4cm) | | | | study group cervical dilation(4cm) | | | | Control group cervical dilation(8cm) | | | | study group cervical dilation(8cm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Before intervention | | After intervention | | Before intervention | | After intervention | | Before intervention | | After intervention | | Before intervention | | After intervention | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| **Mild** | 4 | 10 | 3 | 7.5 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **moderate** | 31 | 77.5 | 7 | 17.5 | 30 | 75 | 23 | 57.5 | 7 | 17.5 | 5 | 12.5 | 6 | 30 | 26 | 65 |
| **Severe** | 5 | 12.5 | 30 | 75 | 8 | 20 | 12 | 30 | 31 | 77.5 | 34 | 85.0 | 30 | 57.5 | 11 | 27.5 |
| **Intolerable** | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 5 | 12.5 | 2 | 5 | 1 | 2.5 | 4 | 12.5 | 3 | 7.5 |
| **Test of significance (P-value)** | Chi-square test χ2=0.2847 P=0.9628 | | | | Chi-square test χ2=20.3382 P=0.001** | | | | Chi-square test χ2=0.5504 P=0.9076 | | | | Chi-square test χ2=21.4477 P=0.000** | | | |
| **χ2(p) Test of significant between group after intervention** | χ2=19.9143 P=0.001* | | | | | | | | χ2 =9.2919 P=0.025 | | | | | | | |

$c^2$(P): Chi-Square Test & P for$c^2$Test   *: Significant at P ≤0.05

**Table (5): Mean labor anxiety scores among studied sample in both groups during the active phase of labor before and after intervention (n=80)**

| Anxiety assessment | | Min./Max. score | Control group n=40 | Study group n=40 | Independent t test | P value |
|---|---|---|---|---|---|---|
| | | | Mean ±SD | Mean ±SD | | |
| Level of anxiety in two points (4 cm, 8 cm of CD). | | | | | | |
| CD (4 cm) | Before intervention | 0/63 | 26.25±7.34 | 25.67±7.43 | 0.348 | 0.729 |
| | After intervention | | 27.70±7.78 | 24.12±7.16 | 2.13 | 0.036* |
| CD (8 cm) | Before intervention | | 34.95±10.94 | 37.22±11.94 | 0.888 | 0.377 |
| | After intervention | | 38.02±11.67 | 30.65±9.38 | 3.11 | 0.003* |

$c^2$(P): Chi-Square Test & P for$c^2$Test   *: Significant at P ≤0.05

**Table (6): Percentage distribution of studied groups according to anxiety level during the active phase of labor before and after intervention(n=80)**

| Severity of anxiety | Control group cervical dilation(4cm) | | | | study group cervical dilation(4cm) | | | | Control group cervical dilation(8cm) | | | | study group cervical dilation(8cm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Before intervention | | After intervention | | Before intervention | | After intervention | | Before intervention | | After intervention | | Before intervention | | After intervention | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| **Mild** | 16 | 40 | 15 | 37.5 | 12 | 30 | 20 | 50 | 7 | 17.5 | 6 | 15 | 5 | 12.5 | 22 | 55 |
| **moderate** | 21 | 52.5 | 20 | 50 | 21 | 52.5 | 14 | 35 | 19 | 47.5 | 19 | 47.5 | 21 | 52.5 | 14 | 35 |
| **Severe** | 3 | 7.5 | 5 | 12.5 | 7 | 17.5 | 6 | 15 | 14 | 35 | 15 | 37.5 | 14 | 35 | 4 | 10 |
| **Test of significance (P-value)** | Chi-square test $\chi2=0.5566$ P=0.7570 | | | | Chi-square test $\chi2=3.4769$ P=0.1757 | | | | Chi-square test $\chi2=0.1111$ P=0.9458 | | | | Chi-square test $\chi2=17.65$ P=0.001** | | | |
| **χ2(p) Test of significant between group after intervention** | $\chi2=1.864$ P=0.3937 | | | | | | | | $\chi2 =16.268$ P=0.000** | | | | | | | |

c²(P): Chi- Square Test & P forc²Test   *: Significant at P ≤0.05

**Table (7): Mean scores of birth duration in both groups after intervention (n=80**

| Domains | Min./Max. score | Control group n=40 | Study group n=40 | Independent t-test | P value |
|---|---|---|---|---|---|
| | | Mean ± SD | Mean ± SD | | |
| Own capacity (8 items) | 8-32 | 23.90±5.87 | 28.20±4.60 | 3.64 | 0.000** |
| Professional support (5 items) | 5-20 | 16.28±2.34 | 18.18±2.34 | 3.62 | 0.001** |
| Perceived safety (5 items) | 5-20 | 13.03±4.12 | 15.90±2.55 | 3.75 | 0.000** |
| Participation (3 items) | 3-12 | 6.63±2.90 | 8.98±2.94 | 3.59 | 0.001** |
| Total score | 21-84 | 59.82±8.28 | 71.25±8.10 | 6.23 | 0.000** |

$c^2$(P): Chi-Square Test & P for$c^2$Test   *: Significant at P ≤0.05

**Table (8) Correlation coefficients between total pain score and total anxiety score before and after intervention among studied group women (n=80)**

| Pain during the active phase of labor | | Anxiety during the active phase of labor | |
|---|---|---|---|
| | | R | P value |
| Before intervention | Pain at CD 4 cm | 0.540 | 0.000** |
| | Pain at CD 8 cm | 0.675 | 0.000** |
| After intervention | Pain at CD 4 cm | 0.430 | 0.000** |
| | Pain at CD 8 cm | 0.575 | 0.000** |

$c^2$(P): Chi-Square Test & P for$c^2$Test   *: Significant at P ≤0.05

**Figure (4): Percentage distribution of studied groups according birth experience after intervention(n=80)**



Birth Experience

control group    study group

■ Good experience  ■ Bad experience

57.5   42.5   87.5   12.5
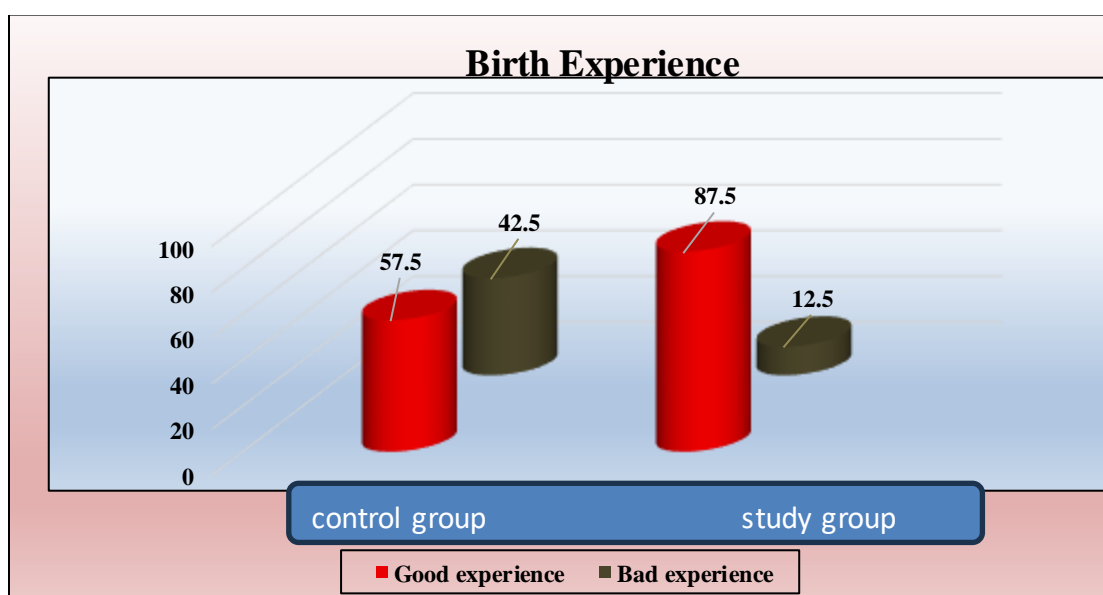
## Discussion

The study demonstrates compelling evidence for the effectiveness of applying Rebozo techniques on pain intensity, Anxiety and birth experience among Primiparous Women during the Active Phase of labor. The current study indicated that the study group found statistically significant lower pain levels compared to the control group at both points of cervical dilation (4 cm and 8 cm). This suggests that the intervention was effective in reducing labor pain. The researcher interpreted reduction in labor pain intensity between both groups in favor of the intervention group due to Rebozo techniques.

These findings align closely with the work of Saadoon Oet al. (2023) in his study entitled effect of Applying Rebozo Techniques on Pain Intensity and Anxiety among primiparous women during the active phase of labor. In this study, the intervention group consistently experienced reduced labor pain across various time points (the 1st, 2nd, and 3rd hours of the active phase). This agreement further supports the effectiveness of Rebozo techniques as a dependable intervention for pain management during labor, emphasizing its consistent advantages in reducing pain intensity and enhancing maternal comfort during key stages of childbirth. Also, these findings align with other different studies such as Purwanti (2020) who demonstrated a significant reduction in maternal pain levels during the first phase of labor.

Additionally, Damayanti and Fatimah (2021) provided complementary insights, showing that Rebozo techniques not only alleviated pain but also significantly accelerated labor progress in the intervention group.

Moreover, Sales et al. (2020) supported the broader application of Rebozo techniques, emphasizing their safety, efficiency, and versatility. Their integrated review concluded that the method promotes relaxation and pain relief, making it suitable not only during labor but throughout pregnancy and the postpartum period.

The efficacy of Rebozo techniques can be attributed to four key mechanisms, as supported by the literature: First, Stretching and Pain Relief: The Rebozo movements provide targeted stretching to the thighs, legs, back, and spine, effectively reducing discomfort during labor and aiding postpartum recovery. This is supported by Double Symbol and Siburian (2021), who highlighted the physical relief these movements offer. Second, Oxytocin Stimulation: The appropriate twisting motions involved in Rebozo techniques encourage the production of oxytocin, a hormone critical for facilitating uterine contractions and easing the birthing process. Amelia (2017) emphasized this hormonal benefit, which contributes to a smoother labor. Third, Non-Medicinal Relaxation: Rebozo techniques promote relaxation without relying on medications, making them a natural and non-invasive option for managing labor discomfort and anxiety. Purwanti (2020) noted the significant calming effects of these techniques. And Finally, Fetal Positioning and Delivery: By creating more space in the pelvis, Rebozo techniques enhance the

positioning and movement of the baby. This not only facilitates fetal expulsion but also shortens labor duration, as demonstrated by Nadina (2018) and Iversen et al. (2017).

The results of the current study highlight the significant impact of Rebozo techniques in reducing maternal anxiety during labor, particularly at advanced cervical dilation (8 cm). These findings support the intervention's effectiveness not only in managing labor pain but also in promoting emotional well-being. This is consistent with Saadoon Oet al. (2023), who observed decreased levels of both pain and anxiety in the intervention group at multiple time points during the active phase of labor. Similarly, Purwanti (2020) reported a significant reduction in anxiety levels, with an average improvement of 7.41, reinforcing the calming effects of the Rebozo technique during labor.

Furthermore, Febby (2019) added that the twisting movements in Rebozo mimic a "hug-like" sensation, triggering oxytocin release. This hormonal response not only facilitates a smoother and quicker delivery but also enhances maternal comfort and reduces anxiety. Overall, these findings underscore the dual benefits of Rebozo techniques in alleviating both physical and psychological challenges during labor.

The current study demonstrates that Rebozo techniques significantly enhance satisfaction among primiparous women by reducing labor pain and anxiety levels, resulting in a more positive childbirth experience. The majority of participants in the intervention group reported higher satisfaction compared to the control group. The findings suggest that the combination of physical relief, emotional comfort, and enhanced labor experience significantly contributes to the participants' overall satisfaction, validating Rebozo's role in holistic childbirth support. These findings align closely with the work of Saadoon Oet al. (2023), who reported that nearly three-quarters of the intervention group expressed satisfaction or strong satisfaction with the application of Rebozo techniques.

Additionally, these findings resonate with Musonda and Mabathoana (2022), who conducted a descriptive cross-sectional study in peri-urban South Africa and reported that more than half of laboring women expressed satisfaction with non-pharmacological pain management techniques. This suggests that methods like Rebozo, which emphasize holistic support and natural processes, are well-received by laboring women.

The American College of Obstetricians and Gynecologists (2019) further supports this by advocating for non-pharmacological strategies such as Rebozo techniques, massage, and hydrotherapy during labor. These methods assist the natural physiological and hormonal processes of childbirth, improve comfort, reduce medical interventions, and enhance maternal satisfaction without adverse effects.

Similarly, Czech et al. (2018) highlighted that satisfaction during childbirth is influenced by both the level of pain management and the care provided. They found that non-

pharmacological methods positively impact the overall perception of the birthing process, aligning with the current study's results.

However, the findings contrast with Rantala et al. (2022), who reported that women preferred pharmacological pain relief methods and were less satisfied with non-pharmacological techniques. This discrepancy may stem from differences in cultural expectations, availability of skilled practitioners, or individual preferences in pain management strategies.

The current findings reveal a positive correlation between pain levels and anxiety levels during the active phase of labor, both before and after the intervention, at cervical dilations of 4 cm and 8 cm. Specifically, as pain levels increase, anxiety levels also tend to rise significantly. This highlights the interrelationship between pain and anxiety during labor, suggesting that effective management of one may help alleviate the other. It suggests that addressing both pain and anxiety is crucial to improve the overall childbirth experience. By integrating strategies like Rebozo techniques, which target both physical discomfort and emotional distress, healthcare providers can offer a more holistic approach to labor care, ultimately enhancing maternal well-being and satisfaction.

Finally, the findings of the current study emphasize the effectiveness of Rebozo techniques as an affordable, non-pharmacological pain relief measure with no reported adverse effects. These techniques can be readily incorporated into maternity nursing strategies to achieve multiple benefits,

including: reducing Labor Pain: By alleviating pain intensity, Rebozo techniques help decrease maternal discomfort during labor, encouraging Relaxation: The physical movements and rhythmic applications of the Rebozo promote relaxation, aiding in a smoother labor process, lowering Anxiety Levels: The calming effects of the technique contribute to reduced anxiety, improving maternal emotional well-being during childbirth, enhancing Satisfaction: Women who experience reduced pain and anxiety are more likely to report higher levels of satisfaction with their labor and delivery experience.

The cost-effectiveness and safety profile of Rebozo techniques make them a valuable addition to maternity care practices, empowering maternity nurses to provide holistic, patient-centered support during labor. The findings support the hypothesis (H1) that primiparous women who use Rebozo techniques experience lower pain levels and anxiety compared to those who do not. The observed reduction in pain intensity can be attributed to the Rebozo's ability to alleviate round ligament pain, ease pelvic discomfort, and enhance overall comfort during contractions. Additionally, the study supports the second hypothesis (H2) by suggesting that these techniques enhance the overall birth experience, likely due to the physical and emotional comfort they provide. This positive impact highlights the potential of Rebozo techniques as a non-invasive, supportive practice for improving maternal well-being during labor.

## Conclusion

The current study concluded that Rebozo techniques are an effective method for pain relief, reducing anxiety levels and enhancing the birth experience of women during the labor process. These findings highlight the value of Rebozo as a holistic, non-pharmacological intervention that not only addresses physical discomfort but also promotes emotional well-being, leading to a more positive childbirth experience.

## Recommendation

Based on the results, the following recommendations are suggested:

1) Rebozo techniques should be included in Nursing Care Protocols as a non-pharmacological pain management approach.

2) In-Service Training for Maternity Nurses: Implement in-service training programs for maternity nurses on the application of Rebozo techniques in various health settings. This will ensure that nurses are well-equipped with the necessary skills to effectively apply these techniques and provide holistic support to women during labor.

3) Reapplication of the study on a larger sample size is required to ensure the generalizability of results.

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