

# The Influence Of Respiratory Relaxation Techniques On Pain Intensity In The First Stage Of Labor At The Atikah Sipolu-Polu Midwifery Clinic, Panyabungan District, Mandailing Natal Regency

Khourinisa<sup>1</sup>, Helmi Wardah Nasution<sup>2</sup>

<sup>1,2</sup>Akademi Kebidanan Madina Husada

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## ARTICLE INFO

## ABSTRACT

### Keywords:

Labor Pain, Respiratory Relaxation

Pain is a part that is always present in the birthing process. The discomfort and pain felt during the labor process is the cause of prolonged labor. Non-pharmacological therapies that can be given to reduce pain include breathing relaxation techniques. The aim of this research is to determine the effect of respiratory relaxation on pain intensity in the first stage of labor at the Atikah Midwife Clinic in 2022. This research is a quantitative research method with a one group pre-test and post-test design. The sample in this study was approximately 10 mothers giving birth at the Atikah Midwife Clinic. The research instrument used was a questionnaire using the numeric rating scale (NRS). The results of the study showed that the intensity of pain in the first stage of labor after being given treatment was lower than the level of pain before being given breathing relaxation techniques, indicated by median values of 3 and 7.5 respectively. Before treatment was given, the highest pain level was a score of 9 (severe pain) and the lowest was a score of 5 (moderate pain). Meanwhile, after being given breathing relaxation technique treatment, the highest level of pain was a score of 6 (moderate pain) and the lowest was a score of 2 (mild pain). The results of statistical tests using the Wilcoxon Test showed that the p value ( $0.004 < \alpha (0.05)$ ) means  $H_0$  is rejected, so there is a difference in reducing pain in the first stage of labor before and after the breathing relaxation technique. These results prove that there is a significant effect of respiratory relaxation on reducing pain in the first stage of labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency in 2022. These results prove that breathing relaxation techniques can reduce pain in the first stage of labor.

Email :

[rinisa@gmail.com](mailto:rinisa@gmail.com)

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## 1. INTRODUCTION

Some mothers in labor will feel uncomfortable and disturbed by the pain they experience during the birthing process. Excessive pain will have an impact on the smoothness of the birth process. The pain felt by the mother during labor, especially during the first stage, is caused by uterine contractions, cervical dilatation and can also be caused by the mother's anxiety or pain facing childbirth. Pharmacologically and non-pharmacologically. One of the interventions provided non-pharmacologically is by teaching patients breathing relaxation techniques (Aji, et al, 2021).

Pain is a part that is always present in the birthing process. If you do not receive appropriate treatment when experiencing pain, it will increase the level of morbidity during childbirth due to pain and emotional tension which will then increase catecholamine and cortisol levels which can affect the length and intensity of labor. Pain during labor causes uncoordinated uterine activity and results in prolonged labor (Heni & Heri, 2020).

WHO estimates that every year 210 million pregnancies occur worldwide, and 20 million women experience pain during childbirth. According to WHO, the maternal mortality ratio in developing countries is 239 per 100,000 live births. On the other hand, the 2012 Indonesian demographic and health survey recorded that at least 359 mothers died per 100,000 live births, while in 2016 the MMR

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was recorded at 4912 with a percentage of 28.7% of all birth mothers in Indonesia reported experiencing anxiety due to labor pain (Basyiroh et al., 2021).

Throughout 2022, the maternal mortality rate in North Sumatra will reach 131 cases. This figure has decreased compared to 2021, namely the number of maternal deaths was 248. Medan City was in third place with 6.87%, 9 cases, Labuhan Batu 10 cases, and Deli Serdang 16 cases. The causes are hypertension, bleeding, heart disease and slow labor (North Sumatra Health Service, 2022). Deputy Regent of Mandailing Natal Atika Azmi Utammi Nasution stated that the maternal and child mortality rate in Mandailing Natal district is still in the high category for the North Sumatra region (Madina, 2021).

From the results of Septiani and Agustia's research, 54.2% of 35 mothers in labor experienced labor pain and research conducted by Novita, Rompas and Bataha of 26 mothers in labor 10 people were on a pain scale of 6, 8 people were on a pain scale of 7, 3 people were There were 8 people on a pain scale of 3 using breathing relaxation techniques on pain intensity (Septiani and Agustia, 2021).

From initial survey data in October at the Atikah midwife clinic in Sipolu-polu, researchers conducted interviews with 10 mothers in labor, and the results of these interviews revealed that 8 mothers in labor did not feel pain after using breathing relaxation techniques and 2 mothers in labor felt pain. Based on the description and data above, the author is interested in conducting research with the title "The Effect of Respiratory Relaxation Techniques on Pain Intensity in the First Stage of Labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency, 2022."

## 2. METHOD

The type of design used in this research is pre-experimental, a design that includes only one group or class that is given pre- and post-tests. In this research, the type of design "One group pre-test and post-test" is a research activity that provides an initial test (pre-test) before being given treatment, after being given treatment then giving a final test (post-test).

This research was conducted at the Atikah midwife clinic. This research was conducted in August 2022. The population in this study was mothers giving birth at the Atikah midwife clinic. Sampling in this research was carried out using Accidental Sampling, a technique for determining samples based on chance, that is, any patient who coincidentally meets the researcher can be used as a sample, if it is deemed that the person they accidentally met is suitable as a data source (Sugiono, 2019). The sample in this study was approximately 10 women giving birth at the Atikah Sipolu-Polu midwife clinic, Panyabungan District, Mandailing Natal Regency.

## 3. RESULTS

### Univariate Analysis

#### Frequency Distribution of Respondents by Age at the Atikah Si Polu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, 2022

| No    | Age           | F  | %    |
|-------|---------------|----|------|
| 1     | < 20 Years    | 1  | 10.0 |
| 2     | 20 - 35 Years | 7  | 70.0 |
| 3     | >35 Years     | 2  | 20.0 |
| Total |               | 10 | 100  |

Based on the table above, it can be concluded that of the 10 respondents studied, the majority were between 20-35 years old, namely 7 people (70.0%) and 1 person (10.0%) was a minority of respondents < 20 years old.

#### Frequency Distribution of Respondents based on Education at the Atikah Si Polu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, 2022

| No | Knowledge          | F | %    |
|----|--------------------|---|------|
| 1  | elementary school  | 0 | 0.0  |
| 2  | JUNIOR HIGH SCHOOL | 3 | 30.0 |
| 3  | SENIOR HIGH SCHOOL | 6 | 60.0 |
| 4  | College            | 1 | 10.0 |

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| NoKnowledge | F  | %   |
|-------------|----|-----|
| Total       | 10 | 100 |

Based on the table above, it can be concluded that Of the 10 respondents studied, the majority of respondents had a high school education, namely 6 people (60.0%) and the minority of respondents had a university education, namely 1 person (10.0%).

**Frequency Distribution of Respondents by Occupation at the Atikah Si Polu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, 2022**

| No | Work          | F  | %    |
|----|---------------|----|------|
| 1  | IRT           | 7  | 70.0 |
| 2  | Self-employed | 3  | 30.0 |
|    | Total         | 10 | 100  |

Based on the table above, it can be concluded that The most respondents worked as Housewives (IRT) as many as 7 people (70.0%) and the least number of respondents worked as farmers as many as 3 people (30.0%).

**Frequency Distribution of Respondents based on Parity at the Atikah Si Polu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, 2022**

| No | Parity      | F  | %    |
|----|-------------|----|------|
| 1  | Primipara   | 5  | 50.0 |
| 2  | Scundipara  | 3  | 30.0 |
| 3  | Multiparous | 2  | 20.0 |
|    | Total       | 10 | 100  |

Based on the table above, it can be concluded that The most respondents were primiparous parity, namely 5 people (50.0%) and the fewest respondents had multiparous parity, namely 2 people (20.0%).

**Intensity of Labor Pain in the 1st Stage Before Respiratory Relaxation Techniques at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, Christmas 2022**

| No | Intensity of labor pain in the first stage (Pre) | F  | %    |
|----|--|----|------|
| 1  | No pain  | 0  | 0.0  |
| 2  | Mild pain (1-3)                                  | 0  | 0.0  |
| 3  | Moderate pain (4-6)                              | 3  | 30.0 |
| 4  | Severe pain (7-9)                                | 7  | 70.0 |
|    | Total  | 10 | 100  |

Based on the above you can concluded that The intensity of pain in the first stage of labor in mothers giving birth before using breathing relaxation techniques, the majority experienced severe pain as many as 7 respondents (70.0%).

**Intensity of Labor Pain in the 1st Stage After Respiratory Relaxation Techniques at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, Natal 2022**

| No | Intensity of labor pain in the first stage (Post) | F  | %    |
|----|---|----|------|
| 1  | No pain   | 0  | 0.0  |
| 2  | Mild pain (1-3)                                   | 6  | 60.0 |
| 3  | Moderate pain (4-6)                               | 4  | 40.0 |
| 4  | Severe pain (7-9)                                 | 0  | 0.0  |
|    | Total   | 10 | 100  |

Based on the table above, it shows that the intensity of labor pain in the first stage of labor in women giving birth after using breathing relaxation techniques, the majority experienced mild pain, 6 respondents (60.0%).

**Bivariate Analysis**

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| First Labor Pain | Stage N | Mediu m | Z      | Pvalu e |
|------------------|---------|---------|--------|---------|
| Before           | 10      | 4 (5-9) | -2,919 | 0.004   |
| After            | 10      | 2 (2-6) |        |         |

In the table above you can see The intensity of pain in the first stage of labor after treatment was lower than the level of pain before breathing relaxation techniques were given, as indicated by median values of 3 and 7.5, respectively. Before treatment was given, the highest pain level was a score of 9 (severe pain) and the lowest was a score of 5 (moderate pain). Meanwhile, after being given breathing relaxation technique treatment, the highest level of pain was a score of 6 (moderate pain) and the lowest was a score of 2 (mild pain).

The results of statistical tests using the Wilcoxon test show that the p value (0.004) <  $\alpha$  (0.05) means that  $H_0$  is rejected, so there is a difference in the reduction of labor pain in the first stage before and after the breathing relaxation technique. These results prove that there is a significant effect of respiratory relaxation on reducing pain in the first stage of labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency in 2023. These results prove that breathing relaxation techniques can reduce pain in the first stage of labor.

**Discussion**

**Intensity of Labor Pain in the First Stage Before Respiratory Relaxation Techniques at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, Christmas 2022**

The pain score was between 5 and 9, namely 7 respondents (70%), and 3 respondents (30.0%) experienced moderate pain. Based on the research results, it can be seen that the majority of labor pain in the first stage before breathing relaxation is carried out, experiencing severe pain with a median value of 7.5, namely. According to Judha (2012), in Marsilia and Tresnayanti (2021), the level of labor pain is described by the intensity of pain prepared by the mother. during the birthing process. The intensity of labor pain can be determined by asking the level of intensity or referring to the pain scale. For example, using a 0 – 10 scale instrument (Numeric Scale).

Labor pain is a combination of physical pain caused by the myometrium combined with stretching of the lower uterine segment combined with the psychological condition of the mother during labor. The mother's worries and worries all come together so that they can exacerbate existing physical pain. The increasingly intense perception of pain increases the mother's anxiety, resulting in a cycle of fear-stress-pain and so on. Pain is influenced by several physiological and psychological factors. Pain in labor has a fairly predictable pattern. The location of the pain changes during labor. The intensity and frequency of pain increases along with increased uterine contractions (Syaripudin A. Nurhaeni, 2019).

During treatment, researchers assessed the mother's psychological condition. Anxiety, restlessness and fear during the process leading up to complete opening in Primigravida mothers and multigravida mothers and the mother's pain level before intervention was carried out by many mothers who complained of pain. The waist feels hot, pain in the lower part. The contractions get stronger, causing pressure on the mother's abdomen which causes pain. Researchers assessed the rate of labor pain starting from when the patient arrived 4 cm – 6 cm dilated. ask the patient to fill out a pain level questionnaire from the numbers 0 – 10. And then carry out an intervention by providing deep breathing relaxation techniques on the intensity of labor pain during the first active phase.

Based on the research results, the age characteristics of mothers aged 20-35 years were the largest age in this study with 25 pregnant women with a percentage of 62.5%. The largest number of characteristics based on parity was primipara, numbering 15 people with a percentage of 37.5%. Meanwhile, in terms of job characteristics, there are 17 housewives with a percentage of 42.5%. Younger mothers have more intense pain sensations than mothers who are older. Younger age tends to be associated with unstable psychological conditions which trigger anxiety so that the pain felt is stronger. In parity primiparous mothers, the intensity of uterine contractions is stronger than in multiparous mothers and multiparous mothers who have previous experience of childbirth will adapt

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more easily to pain compared to mothers who have never had experience, in this case primiparous mothers.

Research conducted by Lidia Fitri (2019) on the effect of breathing relaxation techniques on the intensity of labor pain in the first stage of labor at the Pratama Rose Clinic, pre-experimental research design, the average level of pain before the deep breathing technique was 6.73 and the average after the deep breathing technique is 5.33. The statistical test results show that the P value is  $0.000 < 0.05$ , so  $H_0$  is rejected, the conclusion is that there is a relationship between deep breathing techniques and reducing the intensity of labor pain in the first stage. Pain intensity is a description of how severe the pain is felt by the individual, measuring pain intensity is very subjective and individual and it is likely that pain of the same intensity is felt very differently by two different people by two different people. Measuring pain with an objective approach most likely uses the body's physiological response to pain itself. However, measurements using this technique also cannot provide a definite picture of the pain itself. (Mulya Sari, et al., 2021).

Based on this research, researchers assume that pain during childbirth is an important problem in midwifery care, because the effects caused by pain cause feelings of anxiety, fear and tension during the birth process, this pain process is caused by uterine contractions, opening of the cervix, stretching of the pelvic bones and muscles. vagina. The deep breathing relaxation technique is one way to reduce pain in birthing mothers non-pharmacologically by taking a deep breath during contractions through the nose while inflating the stomach and exhaling slowly through the mouth while deflated the stomach. This technique can reduce the sensation of pain and control the intensity of the mother's reaction to pain.

#### **Intensity of Labor Pain in the First Stage after Respiratory Relaxation Techniques at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, Natal 2022**

Based on the research results, it shows that the majority of labor pain in the first stage after using breathing relaxation techniques experienced mild pain as many as 6 respondents (60.0%) with a median value of 3 (2-6), and the minority of respondents experienced moderate pain as many as 4 respondents (40.0%). The results of this study showed that there was a reduction in the level of pain in the first stage of labor after the breathing relaxation technique was carried out.

Likewise with the research results of Marsilia and Tresnawati (2021), which said that the effect of breathing relaxation on the intensity of labor pain in the first stage of the active phase at PMB Y Karawang is an effective method in providing deep breathing relaxation techniques that can influence pain perception and self-control abilities in mothers regarding the labor process to reduce pain during the labor process, obtained statistical test results with a value of  $p = 0.000$  ( $p < 0.05$ ) which means there is an influence of deep breathing relaxation techniques on reducing the intensity of labor pain during the first active phase. This is reinforced by Maryunani's theory (2020). This deep breathing relaxation technique is a non-pharmacological method of pain relief. In principle, this deep breathing relaxation technique can reduce tension in the mother which causes stress during labor pain. By carrying out this deep breathing relaxation technique you can control pain by minimizing sympathetic nerve activity in the autonomic nervous system. This technique can reduce the sensation of pain and control the intensity of the mother's reaction to pain. The hormones adrenaline and cortisol which cause stress will decrease, the mother can increase concentration and feel calm, making it easier for the mother to regulate breathing.

This is in line with research by Mulia Sari, et al., (2021), that the average level of pain in mothers giving birth before being given relaxation technique treatment was 6.18 (moderate category), the minimum pain level was 4, the maximum was 9, with a standard deviation of 1,435. The average level of pain in mothers giving birth after being given relaxation technique treatment is 4.77 (moderate category), the minimum pain level is 3, the maximum is 6, with a standard deviation of 1,270. The statistical test results obtained a p value of 0.000, so it can be concluded that there is an influence of relaxation techniques in reducing the level of pain in mothers giving birth during the 1st Active Phase.

In the opinion of researchers, from the research results it is known that the range of pain after breathing relaxation is between 3-7, by providing breathing relaxation techniques it can provide a perfect relaxation effect and can reduce muscle tension and feelings of boredom and anxiety thereby

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preventing the pain stimulus from getting worse by exhaling slowly. Apart from reducing pain intensity, breathing relaxation techniques can also increase lung ventilation and increase blood oxygenation.

### **The Effect of Respiratory Relaxation on Pain Intensity in the First Stage of Labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Regency, Natal 2022**

Based on the results of data analysis, it is known that the intensity of pain in the first stage of labor after being given treatment is lower than the level of pain before being given breathing relaxation techniques, indicated by median values of 3 and 7.5 respectively. Before treatment was given, the highest pain level was a score of 9 (severe pain) and the lowest was a score of 5 (moderate pain). Meanwhile, after being given breathing relaxation technique treatment, the highest level of pain was a score of 6 (moderate pain) and the lowest was a score of 2 (mild pain).

The results of statistical tests using the Wilcoxon test show that the p value ( $0.004 < \alpha (0.05)$ ) means that  $H_0$  is rejected, so there is a difference in the reduction of labor pain in the first stage before and after the breathing relaxation technique. These results prove that there is a significant effect of respiratory relaxation on reducing pain in the first stage of labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency in 2022. These results prove that breathing relaxation techniques can reduce pain in the first stage of labor. This is in accordance with research. Taqwin (2018), who said that deep breathing relaxation techniques for labor pain in the first active phase of labor in mothers giving birth at PMB Anatapura can reduce labor pain in mothers giving birth. This is proven based on a decrease in posttest results. Therefore, deep breathing relaxation techniques can be used as an intervention in midwifery care for mothers in the first stage of labor to reduce pain. The statistical test results obtained had a value of  $p = 0.000$ .

The pain felt by each individual is very different, according to the individual's perception of the pain they experience, based on factors that influence the intensity of the pain itself. In mothers who do breathing relaxation but still experience pain, it could be due to bad experiences in previous births which will also increase anxiety and the mother's personality plays an important role in pain, mothers who are naturally tense and anxious will take longer to deal with stress compared to women who are relaxed and confident. self.

According to researchers, many factors play a role in reducing pain during childbirth, as in the research results, it can be seen that mothers who received breathing relaxation techniques felt mild pain in the first stage of labor, this is because when the mother relaxes her breathing, the mother's blood circulation will be smooth and can provide mother's comfort. The respiratory relaxant used does not have dangerous side effects.

#### **4. CONCLUSION**

The intensity of labor pain in the first stage of labor in mothers giving birth before breathing relaxation is carried out at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency. In 2022, the majority experienced severe pain, 7 respondents (70.0%). Reduction of first stage labor pain in mothers giving birth after breathing relaxation at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency. In 2022, the majority experienced mild pain, 6 respondents (60.0%). There was a difference in the reduction in the intensity of pain in the first stage of labor in mothers giving birth before and after breathing relaxation, with a p value ( $0.004 < \alpha (0.05)$ ). These results prove that there is a significant effect of respiratory relaxation on the intensity of pain in the first stage of labor at the Atikah Sipolu-Polu Midwife Clinic, Panyabungan District, Mandailing Natal Regency in 2023. These results prove that the provision of deep breathing relaxation techniques is very effective in reducing the intensity of pain for mothers in labor. Stage I active phase is based on measurements on the Numeric Rating Scale. For mothers giving birth, it is hoped that mothers giving birth during the first active phase can use breathing relaxation techniques as an effort to reduce the labor pain they feel because breathing relaxation techniques have been proven to have an influence in reducing labor pain. For researchers it is hoped that this research can be a reference for further research and further research needs to be carried out using different methods to find out other factors that can reduce pain levels.

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