



Research Article

The Effect of Breathing Relaxation Techniques on Pain Intensity in Women in Active Phase 1 of Labor at GMIM Siloam Sonder Hospital

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Abstract. The discomfort and pain that women endure during childbirth makes them feel uneasy and upset. An excessive amount of pain will interfere with the smoothness of the delivery process. It is crucial to manage the mother's pain in order to reduce the effect it has on the delivery's smoothness. Relaxation methods are one non-pharmacological approach to lessen the discomfort of labor. Mothers become calmer during the process of relaxation, which involves allowing the body and mind to recover from all physical and mental stressors. Additionally, relaxation increases blood flow to the uterus, placenta, and fetus. The purpose of this study is to investigate the impact of breathing relaxation methods on the pain intensity experienced by moms during active phase 1 labor. A pre-experimental approach with a one-group pretest-posttest method is used in the study design. The sampling method employs unintentional sampling of thirty mothers who gave birth at GMIM Siloam Sonder Hospital. When the Wilcoxon test was used in the analysis, the p-value was found to be 0.000, which is less than 0.05. At GMIM Siloam Sonder General Hospital, this indicates that H_a is accepted, which means that during the first stage of active labor, the intensity of pain is influenced by breathing relaxation techniques.

Keywords: Breathing Relaxation Techniques; Childbirth Pain; Labor Pain; Mothers in Labor; Pain Intensity.

1. Introduction

Childbirth refers to the act of bringing a baby out of the mother's womb via the birth passage or some other method, either with help or on their own. The majority of women in labor often experience discomfort and distress due to the pain associated with the delivery. Intense pain can affect how smoothly the delivery goes. The discomfort women endure during labor, particularly in the early phase, is due to uterine contractions and the widening of the cervix, and it can also be influenced by feelings of anxiety or fear regarding the birthing process (Safitri and Puspita, 2025).

Every mother who is about to enter the labor phase will experience feelings of fear, but it is precisely these feelings of fear that will increase pain, muscle tension, and fatigue, which will ultimately hinder the mother's labor process (Dharmawati, 2024).

One reason women feel pain during childbirth is because of contractions in the uterus, which make the muscles not get enough blood flow. This lack of blood leads to a shortage of oxygen in the uterine muscles, which then increases the release of chemicals called prostaglandins that trigger pain. When expectant mothers feel anxious or scared, it activates their sympathetic nervous system, causing the muscles of the uterus to spasm and further reducing blood flow. As a result, the shortage of oxygen in the uterus causes more prostaglandins to be released, leading to increased pain. Additionally, the discomfort from the cervix opening sends pain signals to the cervical and spinal nerve clusters, which then communicate with the hypothalamus.

According to data from the World Health Organization in 2022, of all deliveries, over 80% of labor processes were normal, approximately 15-20% experienced labor complications,

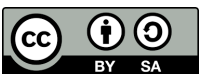
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and an estimated 134 million deliveries occurred within a year. Meanwhile, throughout 2023, there were an estimated 75 million births (Safitri & Puspita, 2025).

As per information from the Central Bureau of Statistics of North Sulawesi Province in 2022, particularly in Minahasa Regency, 93.15% of mothers who gave birth received assistance from healthcare professionals in medical facilities.

Pain is described as a sensory reaction triggered by a stimulus, occurring due to a perceived danger or actual harm to the body's tissues. Labor pain refers to the personal experience of physical sensations associated with uterine contractions, the opening and thinning of the cervix, and the movement of the baby downward during labor. Physiological reactions to pain involve a rise in blood pressure, an increase in heart rate, altered respiration, sweating, changes in pupil size, and heightened muscle tension. Labor pain is marked by the occurrence of contractions. This kind of pain is referred to as visceral pain, and it is recognized for creating unease in the lower back and stomach, spreading toward the thighs. Labor pain is commonly described as a burning feeling that occurs when tissues are stretched (Firizki et al., 2025).

Pain intensity refers to the level of severity of pain experienced by a person. Assessing pain intensity is a very personal and subjective matter. It is probable that two distinct individuals will perceive pain of equal intensity in diverse ways. The most objective method for assessing pain typically relies on the body's physiological reactions to the pain experienced. Nonetheless, utilizing this method for measurement fails to deliver a conclusive understanding of the pain itself (Sari et al., 2021).

The severity of pain felt varies based on multiple elements, including the strength and length of uterine contractions, the extent of cervical dilation, the stretching of the lower birth canal, the age of the mother, her parity (the count of previous pregnancies), the total number of children she has delivered, the size of the fetus, and the mother's mental state. The severity of labor pain is challenging to quantify because it is both a natural occurrence and a personal experience. A higher pain threshold assists patients in lessening the heightened discomfort they feel during labor. The pain that the mother feels is a result of the processes involved in labor. Nerve signals created by pain triggers move along the incoming peripheral nerve fibers. The process of sending pain signals proceeds along the nerve fibers that carry information toward the brain until it reaches its endpoint in the dorsal horn of the spinal cord. Pain signals are carried deeper into the central nervous system and recognized by the brain (Suyani, 2020).

The pain that mothers feel during labor, particularly in the initial stage, is mainly due to contractions of the uterus and the opening of the cervix. Additionally, this pain can be influenced by the mother's feelings of anxiety or fear regarding the process of childbirth. The majority of mothers in labor experience discomfort and distress due to the pain they undergo throughout the delivery process. Severe pain will affect the ease of the childbirth experience. To avoid disruptions to the smooth progress of labor due to this pain, it is essential to address the pain that the mother experiences (Wahyuni et al., 2023).

Pain management is considered an important aspect of meeting the physical needs of laboring mothers, including providing education on relaxation techniques and distraction during contractions. Research shows that the pain experienced by mothers during childbirth is a prominent memory, highlighting the need for adequate support during the process. Research shows that mothers in labor desire continuous labor support throughout the process. However, techniques for reducing labor pain are not always provided by medical professionals, whether doctors or midwives. Most healthcare professionals focus more on the physical progress of labor and efforts to prevent complications (Firizki et al., 2025).

There are two approaches to managing labor pain: pharmacologic and non-pharmacologic. Chemical medications used in pharmacological methods tend to be more expensive and may have less beneficial consequences for both the mother and the fetus. Non-pharmacological methods, however, are easier, less expensive, and more effective to implement, have no negative side effects, and can improve job satisfaction. Relaxation methods are one non-pharmacological approach to alleviating pain throughout childbirth. The act of relieving the body and mind of all physical and mental stresses is known as relaxation, which helps the mother become more at ease. Additionally, relaxation enhances blood flow to the uterus, placenta, and fetus (Simanjuntak & Supriyani, 2023).

For laboring women, breathing relaxation methods are a non-pharmacological approach to lessen pain. Oxygen may be delivered to the blood and then throughout the body

by breathing deeply from the nose using chest breathing during contractions. This generates endorphin hormones, which are a natural pain reliever (Santi Susanti, 2022).

Because the mother may manage her emotions and strength, this relaxation method is inexpensive, easy, efficient, has no side effects, and can improve labor satisfaction. Relaxation techniques are pain relief strategies that provide the most input because they can prevent excessive postpartum errors during labor. Breathing relaxation can maintain the components of the sympathetic nervous system in a homeostatic state, which helps to reduce anxiety and fear so that the mother can adapt to the discomfort of labor (Sri Kartika Yohana, 2017).

Pain reduction thru breathing relaxation techniques occurs because when someone does it, the body stimulates the parasympathetic nervous system. This results in a decrease in cortisol and adrenaline levels, which are associated with stress, which in turn improves concentration and makes the mother calmer. Thus, the mother can regulate her breathing rhythm to become more regular, helping to reduce pain during the labor process (Haasyimiyah et al., 2025).

Given the context of the issues outlined earlier, the research inquiry for this investigation is: What is the “Impact of Breathing Relaxation Methods on Pain Levels in Mothers Experiencing the First Stage of Active Labor at GMIM Siloam Sonder General Hospital?”

2. Research Method

The study used a basic research method, known as the one-group pre-test-post-test design. This meant that a test was given before the treatment, the treatment was then applied, and finally, another test was conducted afterwards.

The study focused on all mothers who were in active labor at GMIM Siloam Sonder General Hospital, adding up to 40 participants in total. To select the sample, an accidental sampling method was employed, which included 30 mothers.

There were two main factors in the study: the independent factor was breathing relaxation, while the dependent factor was the level of labor pain during the active phase of the first stage of labor. The tools used for this research included observation sheets that checked whether the mothers could carry out deep breathing relaxation therapy at a slow, rhythmic, and easy pace. Furthermore, to assess the level of labor pain intensity during the latent phase of the first stage, the NRS (Numeric Rating Scale) and the VAS (Visual Analog Scale) were utilized, with pain rated on a scale from 0 to 10.

Next, the deep breathing relaxation methods were carried out by helping the mother to be relaxed and calm. Her position was made comfortable, and she continued the deep breathing by loosening her abdominal muscles. One or two hands were placed on her abdomen just below her rib cage. The mother was instructed to breathe deeply through her nose while keeping her mouth closed for a count of 1, 2, 3 as she inhaled. She was encouraged to think of each contraction as gentle waves of love towards her and her baby. It was important for her to stay relaxed and ensure her back was straight. If she found it hard to lift her abdomen, she was advised to take a quick deep breath and then exhale strongly through her nose.

During the first 30 minutes of observation, the mothers breathed in through their noses for 3-5 seconds and then breathed out for 3-5 seconds during contractions. After that, they returned to normal breathing for 1-2 minutes, followed by deep breaths that involved relaxing their abdominal areas and exhaling through their mouths for 3-5 seconds. They combined standing for 10 minutes, sitting for 10 minutes, and lying in bed for 10 minutes during this process.

An analysis of the data was performed using univariate analysis to systematically describe the features of each research variable. Univariate analysis included frequency distributions related to age, education, job status, and the number of children. Furthermore, a bivariate analysis was performed to assess the impact of the research variables. Bivariate analysis employs the Wilcoxon test, which is a non-parametric statistical method.

3. Results and Discussion

Result

Table 1. Frequency Distribution of Respondent Characteristics Based on Age, Education, Occupation, and IUD Parity at GMIM Siloam Sonder General Hospital.

Respondent Characteristics	f	%
Age		
<20 years	4	13.3
20-35 years	22	73.3
>35 years	4	13.3
Education		
SD	5	16.7
SMP	7	23.3
SMA	16	53.3
Higher Education	2	6.7
Occupation		
Working	18	60.0
Not Working	12	40.0
Parity		
Primipara	7	23.3
Multipara	19	63.3
Grandemultipara	4	13.3

According to Table 1, the age distribution of the respondents is as follows: the majority of respondents are between the ages of 20 and 35, totaling 22 respondents (73.3%); only 4 respondents (13.3%) are under the age of 20; and only 4 respondents (13.3%) are over the age of 35. Only two individuals (6.7%) had completed higher education, while sixteen respondents (53.3%) had completed high school, seven respondents (23.3%) had completed junior high school, and five respondents (16.7%) had completed elementary school, according to their educational background.

The majority of respondents, 18 (60%) were employed, while 12 (40.0%) were jobless, according to their job profile. Only seven respondents (23.3%) were primiparas, the majority were multiparas, totaling 19 respondents (63.3%), and only four respondents (13.3%) were grandemultiparas, according to parity characteristics.

Table 2. Pain Intensity in First Stage Laboring Mothers Before and After Relaxation Breathing Technique at GMIM Siloam Sonder General Hospital.

Intervention	N	Mean	Std Deviation	Min	Max	P value
Before Intervention	30	2.63	0.490	2	3	0.000
After Intervention	30	1.43	0.504	1	2	0.000

According to Table 2, the typical (mean) level of pain experienced by mothers in the first stage of labor prior to using breathing relaxation methods was 2.63, while the typical (mean) level of pain after employing these techniques dropped to 1.43. The statistical analysis indicated a significant difference in pain levels before and after the implementation of breathing relaxation techniques for mothers in this labor stage, yielding a P-value of 0.000.

Discussion

The statistical data analysis using the Wilcoxon test with SPSS found that the use of breathing relaxation techniques had an effect on the intensity of pain in mothers in the first stage of active labor, with a P-value (asymptotic, Sig 2-tailed) of $0.000 < 0.05$, which indicates that the use of breathing relaxation techniques has an impact on pain intensity in mothers in the first stage of active labor. As a result, we may infer that breathing relaxation techniques have an impact on pain intensity in mothers in labor during the active phase of the first stage, and we can reject H₀ and accept H₁.

The Wilcoxon test yielded a P-value of 0.000, which led to the rejection of H₀. This study supports previous studies by Supriyani and Herlina Simanjuntak (2023), which were

titled "The Effect of Breathing Relaxation Techniques on Pain Intensity in Active Phase I Laboring Mothers at PMB M Karawang." The results of this study suggest that breathing relaxation methods have an impact on the severity of labor discomfort during the active phase of the first stage.

For expectant mothers, childbirth is the event they most look forward to, even if it's also a stressful experience. However, pain is also a part of childbirth, which causes dread and worry to overshadow the desired happiness. According to some research, childbirth is longer and more painful in primitive societies, but it is painless in advanced ones, and the majority (90%) of births are accompanied by pain (Imelda Diana, 2021).

The majority of mothers who give birth find the pain they experience throughout labor to be unpleasant and upsetting. Too much pain can interfere with the labor process itself. Anxiety or dread of labor, cervical dilatation, and uterine contractions are all contributors to the mother's pain (Haasyimiyah et al., 2025).

Pain is a defense mechanism for the body, prompting people to take action to get rid of the pain signal. The "signal" that a mother has entered the stages of the labor process is the discomfort she experiences throughout her pregnancy and delivery. When the uterine muscles contract in an attempt to widen the cervix and drive the baby's head towards the pelvis, there is pain. The pain in the lower back, abdomen, and thighs is brought on by these contractions. The cervix dilates as a result of these contractions (Fitri et al., 2019).

Labor pain is something that all mothers go through when they have a baby. If this pain is not properly addressed, it can lead to worry, fear, and tension for the mother, which will make the pain feel even worse. The discomfort of labor can lead to anxiety and exhaustion for the mother, which can slow down labor and affect the health of the baby (Djafar et al., 2023).

Pain in the early phase of labor stems from the beginning of contractions, the stretching of the cervix during dilation, insufficient blood flow in the uterus, and the stretching of the lower part of the uterus. In this first phase, contractions of the uterus lead to the opening of the cervix and a lack of blood flow to the uterus. Pain signals travel through specific spinal nerves in the lower back and other nerves associated with them. These nerves come from the uterus and cervix. The discomfort caused by changes in the cervix and poor blood flow to the uterus is visceral pain felt below the stomach, spreading to the lower back and inner thighs. Typically, this pain is only there during contractions and goes away when the person relaxes (Sari et al., 2021).

What starts as a normal bodily reaction to pain can begin to hinder the labor process. Labor problems due to a mother's worry or the pain she experiences are very likely to happen. Labor pain may cause a 20-40% rise in stress hormones in the body. This heightened response can lead to increased resistance in blood vessels, greater heart output and blood pressure, and a rise in the mother's oxygen use during labor. Over-breathing can lead to a condition called respiratory alkalosis, raise adrenaline levels, and reduce blood flow to the uterus. This can ultimately disrupt normal uterine contractions, causing labor to take longer. Increased levels of the stress hormone cortisol can weaken the immune system of both the mother and the baby. Stress hormones reaching the baby through the placenta can make the baby acidotic. This situation can lead to heightened anxiety, and as anxiety rises, pain intensity also increases, affecting how long labor lasts. Therefore, it is very important to provide suitable care to lessen pain during labor, especially in the dilation stage (Wijayanti, 2020).

The pain and unease experienced during labor are primarily due to strong contractions that lead to delivery, making it a natural process. Each woman experiences pain differently. Pain might come from other physical issues or emotional states. Negative thoughts can affect the subconscious, which doesn't always distinguish between what's real and what's imagined. The tension and fear that the mother feels can increase pain during labor, slowing down the delivery process (Septiani and Agustia, 2021).

Efforts to ease labor pain can be made using both medical and non-medical approaches. Medical pain relief tends to work better than non-medical methods, but it is usually more

costly and comes with various techniques that might negatively affect both the mother and baby. On the other hand, non-medical methods are cheaper, easier, effective, without negative side effects, and can improve a mother's satisfaction during labor as she can manage her feelings and strength (Sri Kartika Yohana, 2017).

Non-drug methods are ways to ease pain without using medicines, such as having someone there for support during labor, finding comfortable positions, practicing relaxation and breathing exercises, ensuring rest and privacy, explaining what is happening, taking care of the body, and using touch. One example of a non-drug method is breathing relaxation exercises. To use this technique, the person should take a big breath and fill their lungs, then slowly let the air out, relax their hands, feet, belly, and back, and keep doing this while focusing until they feel comfort and calm. Breathing relaxation exercises can also help with concentration, making it easier to control breathing. When breathing is steady, the oxygen levels in the blood can rise, leading to a feeling of peace, which can lower heart rate and blood pressure, helping to reduce pain (Nurhayati, 2019).

Relaxation is a powerful way to lessen pain, which is an unpleasant feeling both physically and emotionally. One method to ease pain is through breathing relaxation techniques. These relaxation strategies can decrease the stress felt by both the mother and her baby and work best when used during pregnancy. This breathing technique will ensure that the mother receives enough oxygen. That oxygen can aid the mother in speeding up the delivery so that she does not have to endure a long labor (Nurhayati, 2019).

One of the most effective techniques for coping with labor pain is breathing relaxation. This pain management method of relaxation may be used during labor to maintain composure and avoid being overcome or terrified while experiencing a sequence of contractions. Compared to women who don't utilize this talent, those who do often experience less discomfort. In England, the most popular non-pharmacological approach to pain management is relaxation. According to a study conducted by Steer in 1993, 34% of women employed relaxation strategies (Septiani & Agustia, 2021).

Relaxation methods for breathing are pain relief strategies that give the most input since they can help avoid mistakes during labor and delivery. When it comes to respiratory relaxation during labor, it can keep the elements of the sympathetic nervous system in a state of homeostasis, which helps the mother cope with the discomfort of labor by preventing an increase in blood flow and lessening anxiety and fear. Breathing relaxation methods reduce pain when someone practices the prescribed breathing relaxation to lower pain. The body then activates the parasympathetic nervous system, which lowers cortisol and adrenaline levels, which has an impact on a person's stress levels and ultimately helps the client control their breathing rhythm by promoting relaxation and focus (Sari et al., 2021).

The researcher posits that pain will be lessened when deep breathing relaxation methods are employed during the birthing process. The pain experienced by the mother who uses the deep breathing relaxation method will be lessened in proportion to the severity of her contractions. The pain intensifies as the contractions get more intense. It can be deduced from the use of deep breathing relaxation methods that moms who use them during childbirth experience a beneficial impact as compared to those who do not. Overall, despite the varied responses, the researcher noted that, on average, all respondents reported experiencing less labor pain and greater comfort.

4. Conclusion

Conclusion

According to the findings of data analysis utilizing the Wilcoxon test via the SPSS software, a p-value of 0.000 (0.05) was found, indicating that the provision of breathing relaxation strategies had a significant impact on pain intensity in first-stage active laboring moms. This result supports the use of breathing relaxation methods as a helpful non-pharmacological approach for pain relief during labor. The findings of this study are also in

line with earlier studies that found that breathing relaxation techniques can lessen pain intensity by lowering anxiety and fear, reducing muscle tension, and increasing oxygenation—all of which are common in laboring moms.

By lowering the levels of stress hormones like adrenaline and cortisol, which can exacerbate pain perception and extend the labor process when they are high, breathing relaxation helps to balance the sympathetic and parasympathetic nervous systems. Mothers can achieve a calmer state, regulate their respiratory rhythm, and better respond to contractions by using the proper breathing relaxation methods, which will help make labor go more smoothly.

The findings of this research, taken as a whole, demonstrate that postpartum moms may utilize the breathing relaxation method as a straightforward, secure, and side-effect-free way to manage pain. This strategy is worthy of being incorporated into midwifery care for laboring women in an attempt to improve the quality of delivery services that are more comfortable and effective.

Recommendations

According to the findings of this research, it is advisable for healthcare providers, especially midwives, to incorporate breathing relaxation methods into their non-drug strategies for managing pain in women who are in active labor during the first stage. Comprehensive training and guidance on this technique should be offered starting from pregnancy through prenatal education sessions or services, ensuring that mothers are well-equipped to use this method when labor begins. It is also important for healthcare settings to foster an environment that facilitates the use of breathing relaxation techniques by providing a soothing and pleasant atmosphere, along with having a support

person available to assist the mother during the labor process. In addition, it is recommended that future researchers carry out investigations with larger participant groups or assess breathing relaxation techniques against other non-pharmaceutical alternatives, so that the insights gained about managing labor pain can be more thorough and contribute significantly to the field of midwifery

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