

# The Effect Of Deep Breath Relaxation Techniques On Reducing Labour Pain In Active Phase I At Bpm Wulan In Muara Kelingi Village Musi Rawas District

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## ABSTRACT

**Intoduction:** Labour is the process of moving the fetus, placenta and membranes out of the uterus through the birth canal. Most (90%) labours are accompanied by pain. In the active phase there is an increase in the intensity and frequency of contractions, resulting in a peak pain response. Labour pain can cause various physiological and psychological changes in the mother. This study aims to determine the effect of deep breath relaxation techniques on reducing active phase 1 labour pain. The type of design in this study was pre-experimental with one group pretest-posttest design. The number of samples was 30 respondents. The sampling technique used the total sampling method. Data collection techniques using questionnaire sheets and Numeric Rating Scale (NRS) pain scale. Data analysis using paired T test. The results showed that the pain intensity of respondents in the group before treatment averaged 7.00 and after treatment averaged 5.47. The results of data analysis obtained a significance value of  $p = 0.000$  ( $p < 0.05$ ). The conclusion is that there is an effect of giving deep breath relaxation techniques on reducing labour pain during the active phase 1. It is hoped that deep breath relaxation techniques can be applied by health workers as an alternative to labour pain management which can cause a state of physiological and cognitive relaxation marked by a decrease in epinephrine and norepinephrine levels and increase blood oxygenation.

## INTRODUCTION

Childbirth is the process of the fetus, placenta, and membranes coming out of the uterus through the birth canal. This process begins with the opening and dilation of the cervix as a result of uterine contractions with regular frequency, duration, and strength. At first the strength that appears is small, then increases so that it is ready for the fetus to be expelled from the mother's womb (Rohani, 2015, p. 2). Maternal Mortality Rate (MMR) is one indicator to see the success of maternal health efforts. MMR is the ratio of maternal deaths caused by pregnancy, childbirth, and postpartum or their management but not due to other causes such as accidents or falls per 100,000 live births. In general, there was a decrease in maternal deaths during the period 1991-2015 from 390 to 305 per 100,000 live births. Although there is a tendency to decrease MMR, it has not succeeded in achieving the MDGs (Millennium Development Goals) target of 102 per 100,000 live births in 2015. The results of the 2015 Supas showed that MMR was three times higher than the MDGs target (Ministry of Health of the Republic of Indonesia, 2018). One of the global targets of the SDGs (Sustainable Development Goals) in 2030 is also to reduce MMR to 70 per 100,000 Live Births. Referring to this condition, the SDGs target in reducing MMR requires hard and serious work to achieve it (Ministry of Health of the Republic of Indonesia, 2016). The government policy through the Ministry of Health is to implement the Healthy Indonesia Program which focuses on the implementation of Minimum Service Standards (SPM), Family Approach, and the Healthy Living Community Movement (Ministry of Health of the Republic of Indonesia, 2017). Efforts to reduce MMR are carried out by ensuring that every mother is able to access quality health services (Ministry of Health of the Republic of Indonesia, 2018). Most (90%) labors are accompanied by pain (Oxorn, DC, in a study by Sri Rejeki, et al., 2014). Labor pain begins to occur in the first stage of the latent phase, namely cervical dilation from 1 to 3 cm and the active phase, namely cervical dilation from 4 cm to 10 cm. In the active phase, there is an increase in the intensity and frequency of contractions, so that the peak pain response is in this phase (Reeder 2019, in a study by Tetti et al., 2018). Murray reported the occurrence of pain in 2,700 mothers in labor, 15% experienced mild pain, 35% with moderate pain, 30% with severe pain and 20% with very severe pain (Gondo 2011, in a study by Lidia Fitri, et al., 2019). Pain during labor has an impact on increasing the activity of the sympathetic nervous system which causes nausea, vomiting, excessive sweating, and changes in blood pressure, pulse, breathing, and skin color. Certain behavioral changes are also seen such as increased anxiety with narrowing of thoughts, moaning, crying, hand

movements and muscle tension throughout the body which can increase the perception of pain during labor (Bobak 2005, in Wan Anita's research, 2017). Labor pain can also cause hyperventilation so that oxygen needs increase, blood pressure increases, and intestinal and urinary bladder motility decreases. This condition stimulates an increase in catecholamines which causes disruption of uterine contraction strength so that uterine inertia occurs. If labor pain is not treated, it will cause prolonged labor (Llewlyn 2001, in Wan Anita's research, 2017). Prolonged labor is 8% of the cause of maternal death in the world. Complications that can occur are vesicovaginal and/or rectovaginal fistula, sepsis, uterine rupture which can ultimately result in bleeding and shock, even maternal death (Wiknjosastro 2009, in Agnis' research, 2016). The number of maternal health services that received standard delivery services was 7436 in 2020. The target number of mothers giving birth in the Musi Rawas Regency work area in the same period was 7843 in 2020. (Musi Rawas Health Office) One of the basic efforts that can be made to reduce MMR is to minimize labor pain felt by the mother. Labor pain can be controlled with 2 (two) methods, namely pharmacological and non-pharmacological. The pharmacological method uses chemical drugs, tends to be more expensive and has the potential to have adverse effects on the mother and fetus. While the non-pharmacological method can be done more simply, cheaply, effectively, without adverse effects and increases satisfaction during labor (Biswan 2017, in the research of Lidia Fitri, et al., 2019). Some non-pharmacological methods are counter pressure, hypnobirthing, endorphin massage, massage effleurage, relaxation techniques, warm compresses, classical Mozart music, murottal therapy, acupressure and aromatherapy (Wan Anita, 2017). One of the non-pharmacological methods of reducing labor pain is relaxation techniques. Relaxation is the process of resting the body and mind from all physical and mental burdens, so that the mother becomes calmer. Relaxation also makes the blood circulation of the uterus, placenta, and fetus smooth. Smooth blood circulation makes the pelvic, back and abdominal muscles become limp and loose. Meanwhile, during labor, relaxation makes the contraction process safe, natural, and smooth. According to Mander, this method can prevent excessive errors after childbirth (Priyanto, D. 2008, in Elly Susilawati's research, 2017). According to research conducted by Septiani, M., & Agustia, L. (2022) regarding the most effective relaxation techniques in reducing labor pain in the first stage, the results obtained from four types of relaxation techniques including breathing, muscle, mind and visualization relaxation, the most effective relaxation technique is breathing relaxation. Breathing relaxation during the labor process can maintain the components of the sympathetic nervous system in a homeostatic state so that there is no increase in blood supply, reduce anxiety and fear so that the mother can adapt to pain during the labor process. One type of breathing relaxation technique is the deep breathing relaxation technique. The deep breathing relaxation technique is a form of care in which the midwife teaches the client how to take deep breaths, slow breaths (holding inspiration to the maximum) and how to exhale slowly (Smeltzer & Bare, 2020). The method is to take a deep breath when there is a contraction using chest breathing through the nose which will flow oxygen into the blood and then flow throughout the body so that it can release endorphin hormones which function to minimize pain in the body (Andriana 2007, in Winny's research, 2015).

## RESEARCH METHODS

This type of research is quantitative research with a Pre-Experimental research design. According to Sugiyono (2018, p. 72), the experimental research method can be interpreted as a research method used to find the effect of certain treatments on others under controlled conditions. The type of design used in this study is pre-experimental with one group pretest-posttest design, a study conducted with one group given a certain treatment, then observed before and after the treatment (Suharman, et al., 2016, p. 79).

### Univariate Analysis

Univariate analysis aims to explain or describe the characteristics of each research variable (Notoatmodjo, 2010). Univariate analysis in this study is to describe labor pain using quantitative descriptive techniques with the formula:

$$P = \frac{F}{n} \times 100$$

### Bivariate Analysis

If univariate analysis has been carried out, the characteristics or distribution of each variable will be known, and bivariate analysis can be continued. Bivariate analysis is carried out on two variables that are suspected of being related or correlated (Notoatmodjo, 2014). Bivariate analysis is

used to determine the effect of Deep Breathing Techniques on Labor Pain in the First Active Phase using Paired Sample T-Test. The results can be analyzed as follows:

- a. If the P-value <0.05 means that there is an effect of Deep Breathing Relaxation Techniques on Reducing Labor Pain in the First Active Phase at BPM Wulan, Muara Kelingi Village, Musi Rawas Regency.
- b. If the P-value > 0.05 means that there is no effect of Deep Breathing Relaxation Techniques on Reducing Labor Pain in the First Active Phase at BPM Wulan, Muara Kelingi Village, Musi Rawas Regency.

## RESULTS

### Univariate Analysis

Univariate analysis is used to explain or describe the characteristics of each research variable, and only produces the frequency distribution and percentage of each variable.

**Table 1 Frequency Distribution of Respondents Based on the Level of Labor Pain Before Being Given Deep Breathing Relaxation Technique Treatment at BPM Wulan.**

Level of labor pain	Frequency	%
4-6 or moderate pain	10	33,3
7-10 or severe pain	20	66,7
Total	30	100

Based on Table 1, it can be seen that before being given deep breathing relaxation technique treatment, most respondents experienced severe pain or pain levels on a scale of 7-10, namely 20 respondents (66.7%). While other respondents experienced moderate pain or pain levels on a scale of 4-6, as many as 10 respondents (33.3%).

**Table 2 Frequency Distribution of Respondents Based on the Level of Labor Pain After Being Given Deep Breathing Relaxation Technique Treatment at BPM Wulan.**

Level of labor pain	Frequency	%
1-3 or mild pain	2	6,67
4-6 or moderate pain	23	76,67
7-10 or severe pain	5	16,67
Total	30	100

Based on table 2 above, it can be seen that after being given deep breathing relaxation technique treatment, the majority of respondents experienced moderate pain (scale 4-6) as many as 23 respondents (76.67%). While other respondents experienced mild pain (scale 1-3) as many as 2 respondents (6.67%) and severe pain (scale 7-10) as many as 5 respondents (16.67%).

### Bivariate Analysis

This analysis is used to determine the effect of deep breathing relaxation techniques on reducing labor pain in the first active phase using a statistical test that is in accordance with the research, namely the paired T test. The data is displayed in the following table:

**Table 3 The Effect of Deep Breathing Relaxation Techniques on Reducing Labor Pain in the First Active Phase in BPM Wulan.**

Variable	Frequency	Mean	SD	p-value
Level of labor pain sebelum diberikan teknik relaksasi napas dalam	30	7,00	1,232	0,000
Level of labor pain sesudah diberikan teknik relaksasi napas dalam	30	5,50	1,432	

Based on Table 3, the results of the paired T statistical test obtained a significance value of  $\rho = 0.000$  ( $\rho < 0.05$ ) meaning that there is a significant difference between the level of labor pain before and after being given deep breathing relaxation technique treatment, so it can be concluded that there

is an effect of providing deep breathing relaxation techniques on reducing labor pain in the first active phase in BPM Wulan. Thus, the hypothesis stating that there is an effect of providing deep breathing relaxation techniques on reducing labor pain in the first active phase can be accepted (with a paired T statistical test:  $p$  value 0.000).

## DISCUSSION

### Frequency Distribution Of Respondents Of Deep Breathing Relaxation Technique

Based on the results of the study, the frequency distribution of respondents was 30 people (100%). Of the 30 respondents, before being given deep breathing relaxation technique treatment, it was found that 10 respondents (33.3%) felt the level of labor pain on a scale of 4-6 or experienced moderate pain and most of the others, namely 20 respondents (66.7%) felt the level of labor pain 7-10 or experienced severe pain. This is in accordance with Potter and Perry's theory that pain is a comprehensive experience felt by all humans and is subjective, so that its value can vary from one person to another and vary from time to time (Susilawati, 2017). Furthermore, after being given deep breathing relaxation technique treatment, the results showed that 23 respondents (76.67%) experienced moderate pain, 5 respondents (16.67%) experienced severe pain, and 2 respondents (6.67%) experienced mild pain.

### The Effect Of Deep Breathing Relaxation Techniques On Reducing Labor Pain In The First Active Phase In BPM Wulan

Based on the research that has been conducted, the results of the level of labor pain after being given deep breathing relaxation technique treatment, the Mean value from 7.00 decreased to 5.50. The Standard Deviation value from 1.232 to 1.432. The results of the paired T statistical test obtained a significance value of  $p = 0.000$  ( $p < 0.05$ ) meaning that there is a significant difference between the level of labor pain before and after being given deep breathing relaxation technique treatment. Thus, the hypothesis stating that there is an effect of giving deep breathing relaxation techniques on reducing labor pain in the first active phase can be accepted. The results of this study are in accordance with the theory that relaxation techniques focus on controlling breathing and ensuring that the breathing process functions properly to achieve a relaxed condition. This means that when the entire nervous system, body organs, and five senses rest to release existing tension, the individual basically remains aware of one of the most commonly used methods, namely breathing control. By taking a deep breath, the individual circulates oxygen into the blood which is then distributed throughout the body. The result will feel calmer and more stable. A mother giving birth who is able to do deep breathing relaxation techniques during contractions will feel more comfortable during her labor. The use of correct deep breathing relaxation techniques can improve the mother's ability to control her pain, reduce anxiety, reduce catecholamine levels, stimulate blood flow to the uterus, and reduce muscle tension (Yuliantun 2008, in Astuti, et al., 2019). Deep breathing relaxation techniques are the easiest way to control or reduce pain. Relaxation involves the muscular and respiratory systems and does not require other tools so it is easy to do anytime or anywhere. In addition to being easy to do, this technique does not require a lot of money and high concentration (Trullyen, 2013). The relationship between deep breathing relaxation techniques and reducing the intensity of labor pain according to theory is because this technique makes a person free from pressure or returns to balance (equilibrium). Deep breathing relaxation techniques can achieve a state of physiological and cognitive relaxation which is characterized by decreased levels of epinephrine and norepinephrine in the blood. In addition to reducing pain intensity, deep breathing relaxation techniques can also increase blood oxygenation so that blood oxygen levels will increase (Fitri, et al., 2019). In line with the results of research by Titi Astuti, et al. (2019) which is a quantitative study with a quasi-experimental design. The sample consisted of 64 respondents, consisting of 32 respondents in the intervention group and 32 respondents in the control group. Data analysis used the independent t-test. The average labor pain in the intervention group was 4.13 while in the control group the average pain was 5.72. The results of the statistical test showed that there was a difference in labor pain between mothers in the intervention group and the control group ( $p$  value = 0.000). The results of this study concluded that deep breathing relaxation techniques in mothers in labor can reduce the intensity of labor pain in the first stage. Another supporting study was conducted by Lidia Fitri, et al. (2019) entitled the relationship between deep breathing techniques and reducing the intensity of pain in the first stage of the active phase. The type of quantitative research with a quasi-experimental approach. Sampling using a non-random assignment technique which was divided into

control and intervention groups. Data analysis using the t-test. In this study, it was found that the average value of the intensity of labor pain in the first stage of the active phase before being given treatment was 5.40. After being given treatment, the pain intensity decreased to 4.07. The mean difference between the first and second measurements was 1.33 with a standard deviation of 1.163. The results of the statistical test obtained a p value of 0.000 <0.05, meaning that there is a relationship between deep breathing techniques and reducing the intensity of pain in the first stage of the active phase. From the results of the study, it was found that after being given treatment, there was a decrease in the intensity of labor pain so it can be concluded that deep breathing relaxation techniques have an effect on reducing labor pain in the first stage of the active phase. Deep breathing relaxation techniques can reduce pain because when the mother controls her breathing well, there is an increase in the supply of oxygen in the body. This is indicated by the mother's feeling more comfortable and relaxed.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research conducted at PMB Wulan, it can be concluded that:

1. Before the Deep Breathing Technique intervention, the average value of labor pain intensity in mothers giving birth was 7.00 or severe pain.
2. After the Deep Breathing Technique intervention, the average value of labor pain intensity in mothers giving birth was 5.47 or moderate pain.
3. The results of the statistical test obtained a p-value of 0.000, so it can be concluded that deep breathing techniques can reduce labor pain in the first active phase.

### Recommendation

#### 1. Theoretical

The results of this study will add references, and prove whether or not there is an Effect of Deep Breathing Relaxation Techniques on Reducing Pain in the First Stage of Active Labor at BPM Wulan, Muara Kelingi Village, Musi Rawas Regency. In addition, the results of this study can increase students' knowledge.

#### 2. Practical

- a. For Further Researchers, It is hoped that further researchers, in conducting similar research, can reduce the limitations that researchers currently do, both in terms of measuring instruments, limitations in collecting data from respondents, especially if further researchers can use multivariate analysis by comparing several variables so that more varied data is obtained which can be used as input in compiling midwifery action plans, and with a larger number of samples, adding more references and related research.
- b. For PBM Wulan, Can improve the provision of IEC (communication, information and education) and factors that influence the reduction of labor pain.
- c. For Educational Institutions It is expected to be used as reference material for insight and knowledge in the scope of Dehasen University Bengkulu.

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