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The Effect of Deep Breathing Relax Technique on Labor Pain Intensity in the Active Phase

Muldaniyah

Graha Edukasi College of Health Sciences, Makassar, South Sulawesi, Indonesia
Corresponding author email: niamilda33@gmail.com

Indah Sri Wahyuni

Politeknik Karya Husada, South Jakarta, DKI Jakarta, Indonesia
Email: indahsekali03@gmail.com

Risnati Malinda

Bustanul Ulum Langsa College of Health Sciences, Aceh, Indonesia
Email: linda.ristama@gmail.com

Neny Yuli Susanti

Universitas Ibrahimy Situbondo, East Java, Indonesia
Email: nenyulisusanti@gmail.com

Lia Fitria

Universitas Ibrahimy Situbondo, East Java, Indonesia
Email: leeafitria@gmail.com

Abstract---Labor pain is a combination of physical pain due to myometrial contractions accompanied by stretching of the lower segment of the uterus fused with the psychological condition of the mother during labor. The purpose of this study was to determine the effect of deep breathing relax technique on labor pain intensity in the active phase. Quasi-experimental Research Design with pre and post test without control. The sample in this study were 16 people. Sampling with purposive sampling method. The results of the research distribution of respondents before Deep Breathing Relax was mostly felt severe pain and after being given Deep breathing relax treatment most respondents experienced moderate to mild pain with a paried t test value of $P = 0.000 < \alpha 0.05$ thus there is an effect of deep breathing relax technique on labor pain intensity in the active phase.

Keywords---active phase, deep breathing relax, labor pain, laboring mothers, quasi-experimental research.

Introduction

Labor care aims to strive for survival and achieve a high degree of health for mothers and their babies. The main focus of normal labor care is to prevent complications during labor to reduce maternal morbidity and mortality. One of the indicators in determining the health status of a nation is characterized by high maternal and infant mortality rates. Maternal mortality is still a very important reproductive health problem in Indonesia (Anissa et al., 2017). According to the World Organization (WHO) in 2018, the number of deliveries reached approximately 108 per 100,000 live births and complications reached 50.3 per 100,000 live births (Ministry of Health, 2018). Some countries have high maternal mortality rates such as Sub-Saharan Africa 179,000, South Asia 69,000, and Southeast Asia 16,000. Maternal mortality rates in Southeast Asian countries where Indonesia is 190 per 100,000 live births,

Vietnam 49 per 100,000 live births, Thailand 26 per 100,000 live births, Brunei 27 per 100,000 live births, and Malaysia 29 per 100,000 live births (WHO, 2020).

In South Sulawesi the number of maternal deaths reported by the District/ City Health Office has increased and decreased, in 2021 the number of maternal deaths was 160 people or 110.26 per 100,000 live births, while in 2020 it decreased to 115 people or 78.38 per 100,000 live births, in 2019 it increased again to 138 people or 93.20 per 100,000 live births. The main causes of maternal death are bleeding, infection, hypertension, preeclampsia-eclampsia, abortion, and prolonged partus (South Sulawesi Health Profile, 2021). Labor pain is a combination of physical pain due to myometrial contractions accompanied by stretching of the lower segment of the uterus together with the psychological condition of the mother during labor. The anxiety of the mother's worries all merge so that they can aggravate the physical pain that already exists. The perception of increasingly intense pain increases maternal anxiety so that a cycle of fear, pain stress and so on occurs. Pain is an unpleasant and complex condition that is an individualized phenomenon that is emotional in nature. Mothers feel worried about the pain that will be faced during labor and birth and how the mother will react to pain and to overcome the pain (Indrayani & Djami, 2016).

Biswan et al. (2017) said that efforts to reduce pain during labor are carried out pharmacologically and non-pharmacologically. Pharmacological pain management is more effective than non-pharmacological methods, but pharmacological methods are more expensive and have the potential to have unfavorable effects, both for the mother and the fetus. Meanwhile, non-pharmacological methods are cheaper, simpler, effective and without adverse effects and can increase satisfaction during labor because the mother can control her feelings and strength (Fitri et al., 2019). Deep breathing relaxation is one of the relaxation techniques that is often used to reduce pain and reduce pain intensity by stimulating the central nervous system, namely the brain and spine to produce endorphins that function as pain inhibitors. According to Andriana, the deep breath relaxation technique is a form of nursing care, in which case the midwife teaches the client how to perform deep breathing techniques during contractions by using chest breathing through the nose will flow oxygen to the blood, then flow throughout the body. So that the laboring mother will feel relaxed and comfortable because the body will flow the endorphin hormone which is a natural pain reliever in the body (Budiana, 2021).

Research by Fitri et al. (2019) entitled the relationship of deep breathing techniques to reducing active phase pain intensity shows that the intensity of labor pain before treatment is 5.40 and after treatment is 4.07. The visible difference value is 1.33 with a standard deviation of 1.163. The statistical test results obtained a p value of 0.000 <0.05, so H_0 is rejected, which means that there is an effect of relaxation techniques on labor pain during phase I with a p value of 0.000 (p value <0.05) (Astuti & Bangsawan, 2019). Based on this, the authors are interested in conducting research on the effect of deep breathing relax techniques on the intensity of labor pain during the active phase at Batara siang Pangkep Hospital (Alwan & Mohsen, 2022; Wahyuni & Maghfiroh, 2022).

Research Method

This study is a Quasi experiment using the one group pretest-posttest type which aims to determine the effect of Deep Breathing Relax on Labor Pain Intensity in the Active Phase. This study uses a Quasi-experimental research design with pre and post test without control, which means that researchers only intervene in one group without comparison. The effect of treatment is assessed by comparing the post test value with the pre test. The population in this study were all laboring mothers with normal labor at Batara Siang Pangkep Hospital. The number of samples in this study were 16 people. Sampling with purposive sampling method. The instruments used were SOAP observation sheet of patented deep breathing technique, comparative plain scale to measure the level of pain before and after the action and questionnaire sheet containing maternal demographic data, namely: name, age, occupation, education, and parity. Data analysis with univariate to determine the frequency distribution of the characteristics of respondents and bivariate analysis with the help of SPSS with paired t test (Annweiler et al., 2020; Been et al., 2020).

Result and Discussion

Univariate Analysis

Table 1
Frequency Distribution of Respondent Characteristics

Respondent Characteristics	N	Frequency	Percentage (%)
Age	18-27 years old	6	37.5
	28-40 years old	10	62.5
total		16	100
Occupation	Working	5	31.2
	Not Work	11	68.8
total		16	100
Education	Elementary	2	12.5
	Middle	4	25
	High School	9	56.2
	Undergraduate	1	6.3
total		16	100
Parity	Primipara	10	62.5
	Multipara	5	31.2
	Grandmultipara	1	6.3
total		16	100

Source: Primary Data

Table 2
Frequency distribution of pain levels before and after Deep Breathing Relax

Level Pain	Pretest		Posttest	
	N	%	N	%
Mild	-	-	6	25.0
Medium	5	31.2	10	75.0
Heavy	11	68.8	-	-
Total	16	100	16	100

Source: Primary Data

Based on table 2 shows that before the back massage was analyzed, the most dominant pain was felt on a heavy pain scale as many as 11 respondents with a percentage of (68.8) and 5 respondents with a percentage of (31.2) on a medium pain scale. After the back massage treatment, the results showed a change in the intensity of the pain felt, there was an increase in the mild pain scale as many as 6 respondents with a percentage of (25.0) and medium pain as many as 10 respondents with a percentage of (75.0) (Muhler et al., 1992; Rouse et al., 1999).

Bivariate Analysis

Bivariate analysis is used to obtain an overview of whether there is a correlation between the independent variable and the dependent variable. The results of this Bivariate analysis are presented in tabular form as follows:

Table 3
Dependent T Test Analysis of the Effect of Deep Breathing Relax on Labor Pain Intensity in the Active Phase

Treatment	N	Mean	SD	P-Value
Pretest	8	7.00	1.069	0.000
Posttest	8	4.38	1.302	

Source: paired t test

Based on table 3, the average pain intensity before the deep breathing relax technique is 7.00 heavy pain with a standard deviation of 1.069, while after treatment it is 4.38 medium pain with a standard deviation of 1.302. $P < 0.000$ means that there is an influence between pain scores before and after deep breathing relax, thus it is concluded that the deep breathing relax technique is effective in reducing the intensity of labor pain in the Active phase. Based on table 3 shows that the distribution of respondents before the deep breathing relax technique was carried out, most of the respondents experienced severe pain as many as 11 people (68.8%), while in the results after being given Deep Breathing Relax most of the respondents experienced a decrease in pain to medium, namely 10 people (75%) and mild as many as 6 people (25%) (Bauernschuster & Schlotter, 2015; Simkin & Bolding, 2004).

Pain is a condition in the form of unpleasant feelings that are very subjective because feelings of pain are different in each person in terms of scale or level, and only that person can explain or evaluate the pain he is experiencing (Yuliasari & Santriani, 2018). One of the factors that cause pain in labor is anxiety/ fear in laboring women will stimulate sympathetic nerves which result in spasm of uterine muscles resulting in ischemia of the uterine muscles, as a result there is a lack of oxygen in the uterine muscles which stimulates the release of prostaglandins to cause pain, and pain due to cervical dilatation stimulates the pain response to the cervical and vertebral ganglion and then to the hypothalamus (Herawati, 2016).

In reducing pain can use respiratory relaxation techniques because it can increase concentration so that it makes it easier to regulate breathing. If breathing can be regulated, oxygen in the blood will increase so as to provide a sense of calm, reduce heart rate, and blood pressure so that pain will decrease (Hindriati, 2017). Relaxation is an effective method to reduce pain which is an unpleasant sensory and emotional experience. One way to reduce pain is by means of respiratory relaxation techniques. Relaxation techniques are techniques that can reduce the tension experienced by laboring mothers and their babies, (Biswan et al., 2017). Maintaining components of the sympathetic nervous system in a homeostatic state so that there is no increase in blood supply, reducing anxiety and fear so that the mother can adapt to pain during labor and is more effective since pregnancy (Marmi, 2016).

Breathing is controlled automatically by the respiratory center in the brain, this respiratory center will respond to carbon dioxide levels in the blood flowing through the center so that differences in carbon dioxide levels will disrupt breathing patterns (fast and deep breaths) to normalize levels. Conditions of fear, anxiety, anger, frustration, pain or the onset of strong contractions during labor will result in the use of oxygen and produce excessive carbon dioxide. Encourage the mother to exhale slowly and forcefully. This breathing is done with the aim of preventing respiratory distress and prolonged hyperventilation (Sonya & Monica, 2018).

From the calculation of data analysis using the Paired T test, the P value is 0.000 while the α value is 0.05. Due to the value of $P \text{ Value} < \alpha$, H_0 is rejected H_a is accepted, meaning that there is an effect of deep breathing relax technique on the intensity of labor pain during the active phase at Batara siang Pangkep Hospital. Based on the results of the study, it can be concluded that deep breathing techniques can reduce pain intensity in the active phase, where before the pain intervention was carried out on a scale of 5.04 with a standard deviation of 1.595 and a standard error of 0.4. After the intervention of deep breathing techniques, the pain intensity is on a scale of 4.07 and a standard deviation of 1.163 where the standard error is 0.3. The results showed that there was a relationship between the deep breathing technique method and the decrease in active phase labor pain intensity (Jarrah et al., 2022; Chung et al., 2010).

From the results of this study, there is a significant difference in pain before and after being given deep breath relaxation techniques, because the benefits of deep breath relaxation techniques can provide a sense of comfort to the mother. Respiratory relaxation is one of the most useful skills to overcome labor pain. Respiratory relaxation skills to overcome this pain can be used during labor in order to cope well with labor means not being overwhelmed or panicked when facing a series of contractions. Women who use these skills usually feel less pain than women who do not use them. Relaxation is the most commonly used non-pharmacological pain control method in the UK, in a study reported by Steer in 1993 that 34% of women used relaxation techniques (Mander, 2012).

According to the researcher's assumption that during the labor process, deep breath relaxation techniques will reduce pain. Mothers who do the deep breath relaxation technique will decrease their pain according to the his/contractions experienced. The stronger the contractions, the more pain is felt. With the provision of deep breath relaxation techniques, it can be concluded that there is a positive influence for laboring mothers who perform deep breath relaxation techniques compared to mothers who do not perform deep breath relaxation techniques during the labor process. Overall, based on what the researchers have observed, all respondents on average said that the labor pain felt reduced and felt more comfortable even though the responses given were different (Notoatmodjo, 2012; Lowe, 2002; Huntley et al., 2004).

Conclusion

After the author conducts the research, it can be concluded that from the results of the calculation of data analysis using the Paired T test, the P value is 0.000 while the α value is 0.05. Due to the value of P Value $< \alpha$, H_0 is rejected H_a is accepted, meaning that there is an effect of deep breathing relax technique on labor pain intensity in the Active phase at Batara siang Pangkep Hospital. It is expected for mothers to add knowledge about the importance of doing deep breathing relaxation techniques to reduce the intensity of pain, especially when facing the onset of labor, and for health workers to apply the deep breath relaxation technique that can be used as a consideration for midwives in providing maternal care in order to reduce the level of pain and pain in facing childbirth.

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