

**THE EFFECT OF ENDORPHIN MESSAGE TO REDUCING PAIN
INTENSITY AND INCREASING COMFORT IN THE FIRST STAGE OF
LABOR IN PMB JAWIRYAH, S.ST**

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ABSTRACT

Childbirth is a physiological process that will be experienced by every pregnant woman in her reproductive cycle. Changes that occur in the body to prepare for childbirth often cause pain in the mother. Labor pain often affects the physical and psychological condition of the mother, such as causing anxiety, fatigue, and reducing comfort, which can ultimately slow down the labor process (Fauzani, et al 2024). Ways to relieve labor pain can be done pharmacologically and non-pharmacologically. One non-pharmacological method to reduce pain during labor is endorphin massage. This study aims to determine the effect of endorphin massage on reducing pain intensity and increasing comfort in the first stage of labor. The research method used is a quasi-experimental design using a pre and post-test without control design. In this design, researchers only intervene in one group without a comparison. The sampling technique in this research was a total sampling technique with a sample of 40 respondents. The results of the Wilcoxon signed rank test before being given the distraction technique and after being given the distraction technique that the calculated Z is -5.477b and significant at 0.000. this shows that the significant value of 0.000 is smaller than 0.05 (5% error rate). So it can be concluded that there is a decrease in the level of normal labor pain in mothers from the results before being given Endorphine Message and after Endorphine Message. to overcome or teach ways to reduce pain in normal labor so that it can maintain excellence, so that joint services improve.

Keywords: Pain, Endorphine Message, Childbirth

INTRODUCTION

The World Health Organization (WHO) estimates that the maternal mortality rate worldwide is 440 per 100,000 live births and 98% occur in developing countries, while in Southeast Asia maternal mortality is 210 per 100,000 births. The lives of 8 million women worldwide are at risk and an estimated 529,000 women die each year as a result of complications arising from pregnancy and childbirth, most of which could actually be prevented by providing quality pregnancy services (WHO, 2018).

Based on the Indonesian Health Profile, there are five major causes of maternal death, namely bleeding (30.1%), hypertension in pregnancy (26.9%), infection (5.5%), obstructed labor (1.8%), abortion (1.6%), and others (34.5%) (Ministry of Health of the Republic of Indonesia, 2016). Data from the Aceh Provincial Health Office in 2021, the Maternal Mortality Rate (MMR) in Aceh Province in 2021 experienced a very significant increase of 223 per 100,000 live births (Aceh Health Profile, 2021). On the other hand, data from the Banda Aceh City Health Office. In 2021, it was recorded that there were 392 mothers giving birth in Meuraxa, 441 in Jaya Baru, 520 in Banda Raya, 810 in Baiturahman, 530 in Lueng Bata, 625 in Kuta Alam, 504 in Lampilo, 258 in Kuta Raja, 364 in Syiah Kuala, 333 in Jeulingke, and 576 in Ule Kareng (Banda Aceh City Health Profile, 2021).

Pregnancy, childbirth and postpartum period are physiological events in every development for women to become mothers. These physiological events can turn pathological or traumatic for the mother because of the pain she experiences. Some mothers are even traumatized to get pregnant and give birth again because they are afraid of experiencing the same pain. For mothers who have given birth, labor pain is the most painful pain, especially for mothers who are experiencing it for the first time (Felina et al., 2015). According to Humaira and Saragih (2016), in the United States 70% to 80% of mothers who give birth expect labor to be painless. In Indonesia, the percentage of cesarean section operations is around 5%. In government hospitals, the average is 11%, while in private hospitals it is around 20% to 50%.

Pain during labor and delivery is a unique and most severe painful event in a woman's life. More than 90% of mothers have experienced tension and stress during labor. In the Netherlands, it was reported that 54.6% of women who gave birth lost control in controlling labor pain. A study conducted in Sweden showed that 41% of participants reported that labor pain was the worst experience they had. Pain stimulates the sympathetic nervous system, which causes increased heart rate, blood pressure, sweat production, and Hyper Endocrine function (Herinawati, 2019). Labor pain experienced by every woman who has given birth has a psychological impact, so that every woman who experiences pregnancy imagines labor pain, especially women who have had unpleasant experiences during their first labor process (Pratiwi, et al., 2016).

Endorphin massage therapy, reducing the patient's concentration of stimulation, can reduce anxiety and the sensation of pain. Relaxation is one of the psychological effects of massage therapy which can reduce heart rate, breathing and metabolism. Massage is given to the mother in a side-lying position, with a pillow positioned behind her back and between her legs for support. Medium pressure is applied in the following sequence for 10 minutes. Massage starts with the head and neck then moves to the back, waist and legs. Pregnant women who are about to give birth experience increased pain which causes increased levels of cortisol and norepinephrine and low levels of dopamine and serotonin, then give birth to newborns with symptoms such as depression, increased levels of cortisone and norepinephrine (stress hormones) and lower levels of dopamine and serotonin. , (Sulistiyawati, 2020).

Based on data obtained from the Jawiriyah Independent Midwife Practice (PMB) in January 2024, 8 mothers giving birth in the first active phase at the birthing place said that the labor process was very painful and they said they could not stand the pain, especially in the first stage. The mother felt pain in the stomach, waist, back, and spreading to the spine, and felt the labor pain getting worse as the dilation increased. Therefore, it is necessary to conduct research on the effectiveness of massage in reducing pain intensity in mothers giving birth in the first active phase

Based on the results (Sulistiyawati, 2020) of the study, a significant decrease in pain intensity was found after being given endorphin massage. The results of the study before being given endorphin massage experienced very severe pain 18 people (75%), and after being given endorphin massage experienced a change in experiencing moderate pain 17 people (70.83%). In this study, endorphin massage was given during contractions. Endorphin massage can have a physiological effect on the body. In this study, a value ($P = 0.000$) was obtained after being given treatment, this shows that endorphin massage has a significant effect on reducing pain in mothers in the first stage of active phase labor. Giving endorphin massage to mothers in labor is a relaxation technique to reduce pain, endorphin consists of 30 amino acid units such as ketocholamines, corticotrophin, cortisol which are produced by the body to relieve pain and reduce stress. This relaxation process strengthens the bond between husband and wife in preparation for childbirth. The touch that is done helps increase the release of the hormone oxytocin and through increased endorphins, signal transmission between nerve cells can reduce the pain threshold.

This is supported by research (Maita, 2021) on mothers in labor showing a significant decrease in the pain scale before and after being given the deep back massage method, based on the statistical test p value: 0.004 ($p < 0.05$). From the results of the study, it can be seen that there is a difference in the intensity of labor pain in the first stage of the active phase of physiological labor. From the results of the study, there was a significant difference in pain before and after being given a deep back massage.

METHOD

The research design used in this study is quantitative research with a quasi-experimental design approach. This study uses the Pre-experimental method with one group pre-test post-test design. The post-test was carried out as a benchmark for the intervention given on the same day. If the post-test is carried out on a different day, there is concern about information bias. The sample in this study was some mothers who underwent active phase 1 labor at the Independent Practice of Midwife Jawiryah, S. ST in the Banda Aceh City area as many as 45 respondents. The sampling technique in this study was the total sampling technique.

RESULTS AND DISCUSSION

Univariate Analysis

Table 2 Frequency Distribution of the Effect of Endorphine Messages on Reducing Pain Intensity and Increasing Comfort

No.	Before Being Given Endorphine Message			After Being Given Endorphine Message		
	Pre-Test	F	%	Post-Test	F	%
1	Mild pain	8	20	No pain	2	5.0
2	Moderate pain	32	80	Mild pain	32	85.0
				Moderate pain	6	10.0
	Total	40	100%	total	40	100

Source: primary data (processed in 2024)

Based on the results of the study related to the frequency of the effect of reducing pain levels before being given Endorphine Message (Pre-Test), a small portion was categorized as mild pain, as many as 8 people (20%) and the majority was categorized as moderate pain, as many as 32 people (80%). While the level of pain after being given Endorphine Message (Post-Test), the majority was categorized as no pain, as many as 2 people (5.0%), while those categorized as mild pain were 31 (85.0%) and those categorized as moderate pain were 6 people (10.0%).

Bivariate Analysis

Table 3 Results of Normality Test with Kolmogorov-Smirnov

Variables	A	Interpretation
Before Endorphine Message	0.00	Not Normally Distributed
After Endorphine Message	0.00	Not Normally Distributed

Source: primary data (processed in 2024)

Based on the results of the normality test with Kolmogorov-Smirnov, it was concluded that the p value before the distraction technique was given ($\alpha > 0.000$), and the p value after the distraction technique was given ($\alpha > 0.000$), it can be concluded that all variables are not normally distributed, so the test used is the Wilcoxon Signed Ranks Test.

Table 4 Differences in Pain Levels Due to Normal Childbirth Before Endorphine Message and After Endorphine Message

<i>Pain Level Reduction</i>	<i>N</i>	<i>Mean rank</i>	<i>Min-max</i>	<i>Z</i>	<i>a</i>
<i>Before Endorphine Message</i>	40	1.80	1-2	-5,477	0,000
<i>After Endorphine Message</i>	40	1.05	0-2		

Source: Primary Data processed in 2024

Based on the test results of the difference in pain levels due to normal labor before Endorphine Message and after Endorphine Message using the Wilcoxon Signed Rank Test. The results of the Wilcoxon Signed Rank test with a mean rank value before Endorphine Message 1.80 and after Endorphine Message 1.05 min-max value before Endorphine Message 1-2 and after Endorphine Message 0-2, the Z value is -5.477a and significant at 0.000.

Table 5 Results of the Wilcoxon Signed Rank Test Before Endorphine Message and After Endorphine Message

Test Statistics^b

	POST TEST - PRE TEST
Z	-5,477b
Asymp. Sig. (2-tailed)	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Based on the results of the Wilcoxon signed rank test before being given the distraction technique and after being given the distraction technique, the calculated Z was -5.477b and significant at 0.000. This shows that the significant value of 0.000 is smaller than 0.05 (5% error rate). So it can be concluded that there is a decrease in the level of normal labor pain in mothers from the results before being given Endorphine Message and after Endorphine Message.

Decrease Pain Level Due to Normal Childbirth Before Endorphine Message and After Endorphine Message

Based on table 2 above, it shows that the level of pain due to normal labor before the administration of Endorphine Message (Pre-Test) was found to be a small portion categorized as moderate pain as many as 32 people (80%) and the majority categorized as mild pain as many as 8 people (20%). While the level of pain after the administration of Endorphine Message (Post-Test) was found to be mostly categorized as no pain as many as 2 people (5.0%), while those categorized as mild pain as many as 31 (85.0%) and those categorized as moderate pain as many as 6 people (10.0%).

This study began with a pretest where researchers observed mothers in labor who experienced pain during normal labor based on an observation sheet with 4 levels of pain, namely no pain, mild pain, moderate pain, and severe pain, to see the difference before and after being given endorphine messages. The

results of the pretest before being given endorphine messages showed that most patients still experienced pain during labor.

After the pretest was conducted, patients who were going to have a normal delivery were given an endorphin message, and after the post-test was conducted, the researcher conducted another observation and found that most of the patients who experienced pain during normal delivery experienced a significant decrease in pain levels so that there were 2 patients who did not experience pain (5.0%) respondents and 32 respondents (85.0%) with mild pain.

Pain relief is a basic need and right of mothers in labor. Pain relief methods can be grouped into two categories, namely non-pharmacological and pharmacological. Pharmacological is a technique for reducing pain using drugs. Non-pharmacological is a technique for reducing pain without using drugs including relaxation, hypnosis, guided imagery, massage, music therapy, distraction, warm compresses and cold compresses (Handayani, 2020).

Based on the results of a study conducted by Khasanah and Sulistyawati (2020) after being given an endorphin massage intervention in reducing the intensity of labor pain from 24 respondents, before being given an endorphin massage, 18 people (41.6%) experienced very severe pain, after being given an endorphin massage experienced moderate pain 17 people (50%) because endorphin massage on the back can reduce pain so that it makes the mother give birth more comfortable. Meanwhile, the results of a study by Tanjung and Antoni (2019) after being given an endorphin massage from 16 respondents experienced a decrease in pain intensity, namely: 2 respondents (12.5%) severe pain, 12 respondents (75%) moderate pain and 2 respondents (12.5%) mild pain.

Similar to the research conducted by Karuniawati (2019) from 22 respondents there was a decrease in pain intensity after being given endorphin massage, namely 8 respondents (36.4%) severe pain, 11 respondents (50%) moderate pain, 3 respondents (13.6%) mild pain because this light touch and massage provide a relaxing effect. Meanwhile, the results of Fitriana and Putri's (2017) study from 30 respondents, the average pain value after a 5-minute massage was 6.13 while the average value after a 15-minute endorphin massage was 6.73.

The researcher's assumption before giving endorphin massage (pretest) with observation using observation sheet with 4 levels of pain including no pain, mild pain, moderate pain, severe pain, it was found that most respondents still experienced severe pain and did not know how to reduce the pain. Most of the mothers who gave birth normally who were observed before being given distraction technique were still afraid and cried when the infusion was installed.

Furthermore, in the post-test stage, the researcher assumed that respondents who had been given endorphin massage experienced a difference because they had been given endorphin massage, although it was not perfect in eliminating pain, respondents saw a gradual change, starting from moderate pain to mild pain.

Discussion of Normality Test and Differences in Hallucination Development Before Endorphine Message and After Endorphine Message

Based on the table above, the results of the normality test with Kolmogorov-Smirnov conclude that the p value before the distraction technique was given ($\alpha > 0.000$), and the p value after the distraction technique was given ($\alpha > 0.000$), it can be concluded that all variables are not normally distributed, so the test used is the Wilcoxon Signed Ranks Test.

Based on table 3, the difference in the level of normal labor pain before and after endorphin massage using the Wilcoxon Signed Rank Test. The results of the Wilcoxon Signed Rank test with a mean rank value before endorphin massage of 1.80 and after endorphin massage of 1.05, the min-max value before endorphin massage 1-2 and after endorphin massage 0-2, the Z value is -5.477b and significant at 0.000.

Based on the statement above, it can be concluded that there is a significant difference before and after endorphin massage is given due to the provision of endorphin massage in visual form and monitored using an observation sheet according to the level of pain in the mother giving birth.

According to Dewi's research (2023), the results of the study before being given endorphin massage experienced very severe pain 18 people (75%), and after being given endorphin massage experienced a change to experiencing moderate pain 17 people (70.83%). In this study, endorphin massage was given during contractions. Endorphin massage can have a physiological effect on the body. In this study, a value ($P = 0.000$) was obtained after being given treatment, this shows that endorphin massage has a significant effect on reducing pain in mothers in labor in the first active phase.

In addition, the results of this study are reinforced by research conducted by Karuniawati (2022), with 35 respondents given endorphin massage intervention, there was a decrease in pain intensity from before and after endorphin massage was given. The decrease in intensity can be seen from the mean value before being carried out of 6.94 and the mean after the intervention was 4.74 so that there was a decrease in pain intensity of 2.2. This is reinforced by the results of the Wilcoxon analysis test, which obtained a sig value of 0.000. This study is also in line with the study conducted by Sulistyawati (2020). Based on the results of the study, a significant decrease in pain intensity was found after being given endorphin massage. The results of the study before being given endorphin massage experienced very severe pain 18 people (75%), and after being given endorphin massage experienced a change in experiencing moderate pain 17 people (70.83%). In this study, endorphin massage was given during contractions. Endorphin massage can have a physiological effect on the body. In this study, a value ($P = 0.000$) was obtained after being given treatment, this shows that endorphin massage has a significant effect on reducing pain in mothers inpartu in the first active phase.

CONCLUSION

The level of pain due to normal labor before and after endorphin massage was very significant. There was a decrease in the level of pain in normal labor in mothers from the results before and after Endorphine Message. To overcome or teach how to reduce pain in normal labor so that midwives at the service can maintain excellence, so that the quality of service improves, with the help of 60 APN (normal labor care).

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It is expected that this study can provide a means of information or knowledge for health workers, especially for midwives at PMB Jawiryah, S, ST. Banda Aceh City to be used as an alternative therapy without drugs to reduce the intensity of labor pain and provide comfort to mothers giving birth.

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