**West Science Interdisciplinary Studies**
Vol. 03, No. 02, February and 2025: pp. 443-448

# Effectiveness of Endorphine Massage Technique on Labor Pain in Mothers in The Active Phase of First-Stage Labor at PMB Siti Aisyah, Amd.Keb, Bogor Regency

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**ABSTRACT**

Normal childbirth is a natural process that occurs in a woman. During the birthing process, complications are very likely to occur which can endanger both the mother and the baby and are one of the causes of maternal death. This study aims to determine the effectiveness of Endorphine Massage on labor pain in mothers in the first stage of active labor at PMB Siti Aisyah, Amd.Keb, Bogor Regency.The research method used is quasi-experimental with a Two-group pre and posttest design. The sample was taken using a total sampling technique of 20 respondents. The instrument in this study used the Endorphine Massage Standard Operating Procedure (SOP) sheet and the Numeric Rating Scale (NRS) consisting of a scale of 0-10 to describe the intensity of pain experienced by respondents. The results of the study showed that there was a significant difference in the pain scores of respondents before and after being given Endorphine Massage with a paired simple t-test obtained a p-value = 0.000. Endorphin massage technique is effective in reducing pain in mothers giving birth during the first active phase at PMB Siti Aisyah, Amd.Keb, Bogor Regency

***Keywords:*** *Endorphine Massage, Labor Pain, Mothers, First-Stage Labor, Bogor Regency.*

## 1. INTRODUCTION

Labor is a normal physiological event with the process of opening and thinning of the cervix, and the fetus descending into the birth canal. Normal labor and birth are the process of expelling the fetus that occurs in full-term pregnancy (37-42 weeks), born spontaneously with a posterior presentation that lasts within 18 hours, without complications for both the mother and the fetus. Labor begins (inpartu) when the uterus contracts and causes changes in the cervix (opening and thinning) and ends with the complete birth of the placenta [1].

The maternal mortality rate (MMR) is one of the elements that make up the development index and quality of life index and to determine the health status of women [2] According to the World Health Organization (WHO), in 2017 the number of maternal deaths in the world was still very high women die from complications during pregnancy and childbirth around 830. The main causes of maternal death are hemorrhage, hypertension and infection, with around 540 cases occurring in sub-Saharan Africa and 225 in Asia [3].

According to *Sustainable Development Goals*(SDGs) with a new transformative agenda for maternal health to prevent maternal deaths isBy 2030, reduce the maternal mortality ratio to less than 70 per 100,000 live births. By 2030, end preventable deaths of newborns and children under five, with all countries aiming to reduce the Neonatal Mortality Ratio to at least as low as 12 per 1,000 live births and the Under-5 Mortality Ratio to at least as low as 25 per 1,000 live births.Based on the SDGs fact sheet, Indonesia shows increasingly better conditions, namely in the period 1991-2015 the Maternal Mortality Rate (MMR) decreased from 390 per 100,000 live births to 305 per 100,000 live births and in the same period, the Infant Mortality Rate (IMR) also decreased from 68 per 1000 live births to 23 per 1000 live births [4].

The maternal mortality rate in West Java in 2020 was 85.77 per 100,000 live births, according to district/city health data until 2020 the number of maternal deaths reported was 745 cases (85.77/100,000 KH). This number has increased compared to 2019, maternal deaths were 684 cases.

Among the causes of maternal death are bleeding 27.92%, eclampsia 28.86%, infection 3.76%, hypertension 10.07%, metabolic disorders 3.49% and other causes 25.91%.[5]

The infant mortality rate (IMR) according to WHO in 2018 averaged 29 deaths per 1,000 live births caused by asphyxia, infection and birth complications. According to the Indonesian Demographic Health Survey (SDKI) in 2017 IMR in Indonesia reached 17,688 people, in 2018 it increased to 21,095 people then in 2019 (June 2019) it decreased to 5,315 people. The causes of death were by 28.3% complications of childbirth, respiratory and cardiovascular disorders 2 1.3%, Low Birth Weight (LBW) and premature birth 189%, congenital abnormalities 14.8%, infections 7.3%, neonatal tetanus 1.2% and others 8.2% [6] The reported infant mortality rate in Indonesia is 72.0% (20,266 deaths) occurring at the age of 0-28 days. The leading causes of infant death in 2020 wereLBW condition. Other causes of death were asphyxia 27.4%, infection 3.4%, congenital abnormalities 11.4%, neonatal tetanus 0.3%, and others 22.5% [7].

A mother giving birth who experiences severe pain in the first stage if it cannot be resolved properly, this will trigger stress, if a woman is already experiencing stress due to the pain she feels then this can trigger suppression of the release of the hormone oxytocin in the body, because of the increased release of the hormone progesterone which inhibits contractions, thus having an impact on weakening the contractions of the mother's uterus, and this condition causes the first stage to be prolonged, fetal distress and can have even worse impacts such as IUFD (Intra Uterine Fetal Dieth) [8].

One of the non-pharmacological management methods to reduce labor pain is endorphin massage. *Endorphin massage*or endorphin massage is a massage or touch that is applied to the skin so that it stimulates the central nervous system and pituitary gland to produce endorphin hormones. The effect is that the mother will feel relaxed and comfortable, and stimulate the release of the hormone oxytocin which can stimulate uterine contractions. This is because massage stimulates the body to release endorphin compounds which are pain relievers and can create a feeling of comfort. So far, endorphins have been known as substances that have many benefits [9].

Based on interviews conducted by researchers, PMB Siti Aisyah, Amd.Keb Bogor Regency has implemented complementary therapy care for women in labor and there were 20 prospective mothers in labor in May-June 2024. Of the 5 mothers who had never received information about Endorphine Massage, they only used relaxation techniques to reduce pain and 15 of them already knew information about Endorphine Massage.

Therefore, the researcher is interested in conducting this research with the title "Effectiveness of Endorphine Massage Technique on Labor Pain in Women Giving Birth in the First Active Phase at PMB Siti Aisyah, Amd.Keb, Bogor Regency".

## 2. METHODS

The type of research used is quasi-experimental with a one-group pre and post test design. In this study, a pretest was conducted to determine the initial condition of the subject before being given treatment so that researchers can determine the condition of the subject being studied before or after being given treatment, the results of which can be compared or changes can be seen [10].

### 2.1 Research Variables

a. Independent (free) variable

Independent variable is a variable whose value determines another variable.The independent variable in this study was the provision of Endorphin massage therapy to mothers giving birth in the active phase of the first stage of labor.

b. Dependent variable (bound)

A dependent variable is a variable whose value is determined by another variable. The

dependent variable in this study is the reduction in labor pain in mothers giving birth during the first stage of the Active Phase.

### 2.2 Population and Sample

The population in this study was all mothers giving birth in the first active phase at PMB Siti Aisyah, Amd.Keb, Bogor Regency who will give birth in November - December 2024, totaling 20 people.

The sample of this study used a total sampling technique where the number of samples was the same as the population, namely 20 people.

### 2.3 Time and Place of Research

1. Research Time
   This research was conducted in the period November – December 2024.
2. Research Place
   The location of this research was conducted at PMB Siti Aisyah, Amd.keb, Bogor Regency.

### 2.4 Characteristics of Research Respondents

Table 1. Frequency Distribution Characteristics of Research Respondent Characteristics

| No | Respondent Characteristics | N | % |
|---|---|---|---|
| 1. | **Age** | | |
| | <20 years | 4 | 20.0 |
| | 20-35 years | 12 | 60.0 |
| | >35 years | 4 | 20.0 |
| 2. | **Education** | | |
| | JUNIOR HIGH SCHOOL | 6 | 30.0 |
| | SENIOR HIGH SCHOOL | 10 | 50.0 |
| | College | 4 | 20.0 |
| 3. | **Work** | | |
| | Work | 8 | 40.0 |
| | Doesn't work | 12 | 60.0 |
| 4. | **Parity** | | |
| | Primipara | 7 | 35.0 |
| | Multipara | 13 | 65.0 |
| | **Total** | **20** | **100** |

Based on the table above, it is known that the frequency distribution of respondents aged 20-35 years is 12 people with a percentage of (60.0%). While high school education is 10 people with a percentage of (50.0%). While the work with no work is 12 people with a percentage of (60.0%) and parity is multipara as many as 13 people with a percentage of (65.0%).

## 3. RESULTS AND DISCUSSION

### 3.1 Univariate Analysis

This data analysis was conducted to determine the frequency distribution and percentage of the research variables. The data is displayed in the form of tables and text below. The intensity of labor pain during the first active phase before and after endorphin massage can be seen in the table below.

Table 2. Frequency Distribution of Pain Levels in the First Active Phase of Labor Before and After Endorphine Massage at PMB Siti Aisyah, Amd.Keb Bogor Regency

| No | Category | Before | After |
|---|---|---|---|

| | | N | % | N | % |
|---|---|---|---|---|---|
| 1 | No pain (0) | 0 | 0 | 3 | 15.0 |
| 2 | Mild pain (1-3) | 0 | 0 | 13 | 65.0 |
| 3 | Moderate pain (4-6) | 10 | 50.0 | 4 | 20.0 |
| 4 | Severe pain (7-10) | 10 | 50.0 | 0 | 0 |
| **Amount** | | **20** | **100** | **20** | **100** |

Based on the table above, it can be seen that the frequency distribution of labor pain intensity before endorphin massage respondents were on a scale of 4-6 (Moderate pain) as many as 10 people (50.0%) and respondents on a scale of 7-10 (Severe pain) as many as 10 people (50.0%). While the intensity of labor pain after endorphin massage respondents were on a scale of 0 (No pain) as many as 3 people (15.0%), 1-3 (Light pain) as many as 13 people (65.0%) and respondents on a scale of 4-6 (Moderate pain) as many as 4 people (20.0%).

### 3.2 Bivariate Analysis

**1. Normality Test Results Using Shapiro Wilk**

The results of the normality test using Shapiro Wilk can be seen in the table below:

Table 3. Results of Normality Test Using Shapiro Wilk Before and After Endorphine Massage at PMB Siti Aisyah, Amd. Keb Bogor Regency

| Data types | Statistics | Df | *P* |
|---|---|---|---|
| Before being given Endorphine Massage | .930 | 20 | .156 |
| After being given Endorphine Massage | .930 | 20 | .153 |

Based on the table above, it can be seen that the results of the normality test obtained a p value = 0.156 for data before endorphin massage, while for data after endorphin massage, a p value = 0.153 was obtained. Because the p value> 0.05, it can be concluded that the data distribution is normal. Furthermore, data analysis uses the Paired Sample t test.

**2. Results of Data Analysis Using Paired Sample t-test**

From the results obtained above, the numbers are then arranged in a table presented in the research report. The form of presentation and interpretation is as follows.

Table 4. Analysis of the Effect of Endorphine Massage Technique on the Intensity of Pain in the First Active Phase Before and After Intervention at PMB Siti Aisyah, Amd.Keb, Bogor Regency

| | Mean | SD | T | df | *P value* |
|---|---|---|---|---|---|
| Results before and after Endorphine *Massage* | 4.150 | 1,899 | 9,771 | 19 | 0,000 |

Based on the table above, it can be seen that the results of the t-test obtained the mean value of the endorphin massage technique is 4.150, the t value is 9.771, and the P value is 0.000. The results of the t-test obtained a P value of 0.000 <0.05 so that Ho is rejected and Ha is accepted, namely there is an effectiveness of the endorphin massage technique on labor pain in PMB Siti Aisyah, Amd.Keb.

### Discussion

**1. Univariate Analysis**

**a. Respondent Characteristics**

Based on the respondent characteristics table, it is known that the frequency distribution of respondents aged 20-35 years is 12 people with a percentage of (60.0%). While high school education is 10 people with a percentage of (50.0%). While the occupation with no work is 12 people with a percentage of (60.0%) and parity is multipara as many as 13 people with a percentage of (65.0%).

**b. Distribution of Respondents of Pain in the First Stage of Labor in the Active Phase Before and After Endorphine Massage at PMB Siti Aisyah, Amd.Keb, Bogor Regency**

Based on the respondent distribution table above, it can be seen that the intensity of labor pain before endorphin massage respondents were on a scale of 4-6 (moderate pain) as many as 10 people (50.0%) and respondents on a scale of 7-10 (severe pain) as many as 10 people (50.0%). While the intensity of labor pain after endorphin massage respondents were on a scale of 0 (no pain) as many as 3 people (15.0%), 1-3 (mild pain) as many as 13 people (65.0%) and respondents on a scale of 4-6 (moderate pain) as many as 4 people (20.0%).

**2. Bivariate Analysis**

**a. Analysis of the Effect of Endorphine Massage Technique on Labor Pain Intensity in Mothers Giving Birth in the First Active Phase at PMB Siti Aisyah, Amd.Keb**

Based on the table, it can be seen that the results of the t-test obtained the mean value of the endorphin massage technique is 4.150, the t value is 9.771, and the P value is 0.000. The results of the t-test obtained a P value of 0.000 <0.05 so that Ho is rejected and Ha is accepted, namely there is an effectiveness of the endorphin massage technique on labor pain in PMB Sri Mulyati, S.ST., Bd.

## CONCLUSION

1. The frequency distribution of respondents aged 20-35 years was 12 people with a percentage of (60.0%), high school education was 10 people with a percentage of (50.0%), occupation with no work was 12 people with a percentage of (60.0%) and parity was multipara as many as 13 people with a percentage of (65.0%).
2. Frequency distribution of labor pain intensity before endorphin massage respondents were on a scale of 4-6 (moderate pain) as many as 10 people (50.0%) and respondents on a scale of 7-10 (severe pain) as many as 10 people (50.0%). While the intensity of labor pain after endorphin massage respondents were on a scale of 0 (no pain) as many as 3 people (15.0%), 1-3 (mild pain) as many as 13 people (65.0%) and respondents on a scale of 4-6 (moderate pain) as many as 4 people (20.0%).
3. Analysis of the Effect of Endorphin Massage Technique on the Intensity of Pain in the First Stage of Active Phase Before and After Intervention using the paired sample t test obtained a significance value of 0.000 smaller (p value = 0.000 <0.05). So, it can be stated that there is effectiveness of endorphin massage in reducing pain in the first stage of active phase labor.

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