



Original Research Paper

The Effect of Endorphine Massage on Anxiety in The Third Trimester of Pregnancy in Karangraharja Village, North Cikarang District, Bekasi Regency

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Abstract

Background: One of the psychological factors that influence childbirth is anxiety and fear during childbirth. Pregnancy anxiety and depression are major problems in society due to their high prevalence. In Pakistan, 48.4% of women experience depression during pregnancy, and in Canada, 31.2% of pregnant women experience depression. Meanwhile, in Indonesia, 53.8% of pregnant women experience severe anxiety in the third trimester.

Objective: The purpose of this study was to determine the effect of endorphin massage on anxiety during the third trimester of pregnancy in Karangraharja Village, North Cikarang District, Bekasi Regency in 2022. **Methods:** This study used a pre-experimental method with a one-group pre-test post-test design. The population of all pregnant women in the third trimester in Karangraharja Village was 100 people. The sampling technique used purposive sampling with stated criteria. The sample in this study was 40 respondents. Data analysis used the Wilcoxon test and multiple logistic regression. **Results:** The results of statistical tests showed that endorphin massage had an effect on anxiety in the third trimester of pregnancy in primigravida mothers with a p value <0.05. **Conclusion:** There was an effect of endorphin massage on anxiety in the third trimester of pregnancy in primigravida mothers in Karangraharja Village.

Keywords: Endorphine Massage; Anxiety; Pregnancy.

Introduction

The problem of pregnancy and childbirth is a very important focus of attention in social life. In the process of childbirth, there is a combination of physical processes and emotional experiences for a woman¹. One of the psychological factors that affect childbirth is anxiety and fear in facing childbirth. Anxiety and depression during pregnancy are major problems that occur in society due to their high prevalence. The WHO predicts that this disorder will be the second largest cause of disease by 2020^{2,3}.

This anxiety occurs from the first trimester to the approach to childbirth, but some studies

state that the level of depression or anxiety during the beginning of the trimester is the same as regular anxiety, while the level of depression during the second and third trimesters is almost double that of the first trimester².

Anxiety occurs due to changes in body shape and weight gain during pregnancy so that the husband is afraid that he is no longer interested, in addition to the feeling of not being able to adapt to the pregnancy process⁴. Meanwhile, the causes of anxiety that occur in the third trimester are generally due to mothers who are afraid of not being able to give birth normally, bleeding, deformed babies,

complications of pregnancy and childbirth, pain and stitches during childbirth⁵.

The incidence of anxiety was based on the results of a study in Sweden in mothers with a gestational age of 35 weeks, 24% of mothers experienced anxiety and 22% experienced depression. In Pakistan during pregnancy women experienced depression 48.4% and in Canada Aboriginal women experienced depression 31.2%⁶. Meanwhile, in Indonesia, pregnant women who experienced severe anxiety in the third trimester amounted to 53.8%⁷.

The results of the study on the level of anxiety of pregnant women during the pandemic showed inconsistent results, it was found that the prevalence of increased anxiety in pregnant women when compared to the incidence of anxiety in pregnant women before the Covid-19 pandemic⁸. Studies conducted by⁹ in China at the beginning of the outbreak, it was found that as many as 29% experienced moderate to severe anxiety. This is in accordance with a study conducted in Wuhan, China, it was found that 29% of pregnant women experienced symptoms of anxiety¹⁰. Different results were found in an online survey 3 conducted in Turkey showing the prevalence of anxiety and depression levels among pregnant women during the Covid-19 pandemic at 64.5% and 56.3%. This is in accordance with a study that reported that pregnant women who experienced anxiety during the Covid-19 pandemic reached 63-68%¹¹.

Anxiety during pregnancy can pose a risk to pregnancy in both mother and fetus. Risks that occur in mothers include pre-eclampsia, postpartum hemorrhage, blocked placenta and long partus and postpartum depression. Postpartum depression occurs in 3-6 months 13%-22% is caused by depression that occurs in the third trimester of pregnancy. Meanwhile, the risk to the fetus will result in premature

birth (13%), low birth weight. Fetal distress (*tachycardia*, *bradycardia*, and *meconium staining*). Low birth weight and psychological disorders when the child grows up. Excess hormone stress that occurs in the mother can interfere with the blood supply to the fetus which makes the fetus hyperactive so that the child experiences autism¹².

Overcoming anxiety problems that can be done such as pharmacological and non-pharmacological therapies¹³. One of the non-pharmacological therapies that can overcome anxiety in pregnant women is *endorphine massage*¹⁴. *Endorphine massage* That is one of the therapies by doing touch or light massage which is very important to do for pregnant women. This therapy can be done as a pain manager, reduce anxiety during the childbirth process, and can increase relaxation which can make feelings more comfortable through skin healing¹⁵. Massage on the back stimulates a specific point along the meridians of the spinal medulla which is transmitted through large nerve fibers to the reticular formatio, thalamus and limbic system of the body will release endorphins, this is because massage stimulates the body to stimulate endorphin compounds which are pain relievers and can create a sense of comfort¹².

Endorphins are natural hormones produced by the human body, so endorphins are the best pain relievers. An obstetrician, Constance Palinsky was moved to use endorphins to reduce or reduce or relieve pain in mothers who are about to give birth. Endorphin Massage was created, which is a gentle touch and massage technique, which can normalize heart rate and blood pressure, as well as improve the state of relaxation in the pregnant woman's body by triggering a feeling of comfort through the surface of the skin. It is evident from the results of the study that this technique can increase the release of oxytocin, a hormone that facilitates childbirth¹⁶.

The results of the research conducted by¹⁷, getting the results of giving *massage endorphine* able to reduce the anxiety of pregnant women in facing the labor process. In addition to being able to reduce anxiety levels in pregnant women, *Massage endorphine* It can also reduce pain in pregnant women and women giving birth. Massage can also reduce anxiety, provide comfort and relieve pain¹⁷.

Materials and Methods

Study Design

This study uses a *pre-experimental* design with *one group pre-test post-test*. The research was conducted in Karangraharja Village, North Cikarang District, Bekasi Regency in 2022.

Sample

Samples were carried out using purposive sampling, stating several criteria. The number of samples in this study is 40 respondents. The independent variable in this study is *endorphine massage* and its dependent variable is anxiety in the third trimester of pregnancy.

Data Collection Technique

Data were collected through questionnaires, in-depth interviews, and an endorphin massage intervention. The data collection procedure was conducted at the Karangraharja Village Office over a one-month period. All participants were assessed before and after the intervention to evaluate changes in the study outcomes and ensure consistency in data collection

Data Analysis Technique

Data analysis consists of univariate and bivariate analysis. Univariate analysis is used to determine the frequency distribution of each variable. Bivariate analysis was used to determine the effect of *endorphine massage* on anxiety in the third trimester of pregnancy using the wilcoxon test. The influence between

variables is said to be meaningful if the p-value < 0.05.

Ethical Consideration

This study has received approval from the Health Research Ethics Committee of Aisyiyah University Yogyakarta under letter number: No. 2342/KEP-UNISA/X/2022. All participants provided informed consent before participating in this study, and the confidentiality of the collected data is guaranteed in accordance with the ethical principles of health research.

Results

Table 1. Frequency Distribution Based on Anxiety in the Third Trimester of Pregnancy Before Giving *Endorphine Massage* to Primigravida Mothers in Karang Raharja Village, North Cikarang District, Bekasi Regency in 2022

Anxiety	n	%
No anxiety	0	0
Mild anxiety	0	0
Moderate anxiety	18	45
Severe anxiety	22	55
Severe anxiety	0	0
Total	40	100

Based on table 1, it can be seen that most of the respondents before being given endorphin *massage* experienced severe anxiety, namely 22 respondents (55%), respondents who experienced moderate anxiety as many as 18 respondents (45%), and no respondents (0%) experienced mild anxiety and severe anxiety.

Based on table 2, it can be seen that most of the respondents after being given endorphin massage most of the respondents experienced mild anxiety, namely 24 respondents (60%), while the least respondents experienced moderate anxiety as many as 6 respondents (15%), and no respondents (0%) experienced severe anxiety and severe anxiety.

Table 2. Frequency Distribution Based on Anxiety in the Third Trimester of Pregnancy After Giving *Endorphin Massage* to Primigravida Mothers in Karang Raharja Village, North Cikarang District, Bekasi Regency in 2022

Anxiety	n	%
No anxiety	10	25
Mild anxiety	24	60
Moderate anxiety	6	15
Severe anxiety	0	0
Severe anxiety	0	0
Total	40	100

Table 3. The Effect of *Endorphine Massage* on Anxiety in the Third Trimester of Pregnancy in Primigravida Mothers in Karang Raharja Village, North Cikarang District, Bekasi Regency in 2022

Variabel	N	Mean ± s.d	Median (min-max)	p value
Anxiety Levels in the Third Trimester of Pregnancy in Primigravida Mothers Before Endorphine Massage	40	29,83 ± 3,289	31,00 (25 – 35)	0,000
Anxiety Levels in the Third Trimester of Pregnancy in Primigravida Mothers After Endorphine Massage	40	17,55 ± 3,849	18,00 (12 – 26)	

Based on table 3, it can be seen that the results of the wilcoxon statistical test obtained a p value of 0.000 ($\alpha < 0.05$), meaning that there is an effect of endorphine massage on anxiety in the third trimester of pregnancy. Thus, the administration of endorphin massage interventions is effective in reducing anxiety in the third trimester of pregnancy in primigravida

mothers in Karang Raharja Village, North Cikarang District, Bekasi Regency in 2022.

Discussion

Endorphins are substances in the body that are a combination of *endogenous* and *morphine*, produced by human stem cells and nerve cells, and composed of protein elements. Touch and touch techniques through *endorphine massage* can stimulate the body to release *endorphin* compounds which are pain relievers and provide a sense of comfort¹⁷.

Previous studies by Arianti and Restipa (2019) and Kuswandi (2014) highlight that endorphin massage is a light massage therapy that plays a significant role for pregnant women prior to delivery^{12,18}. *Endorphine massage* Focuses on reducing labor pain through massage therapy that can stimulate the body to release compounds *endorphine* which is a pain reliever and can cause a feeling of comfort during the labor process.

Massage is a technique used to relieve discomfort during childbirth through the surface of the skin. During childbirth, massage can act as an analgesic to reduce pain and stress and provide a sense of comfort. *Endorphin massage* is one of the techniques that can be done, which is a way to do light touches that are used to reduce pain and reduce anxiety^{19,20}.

In this study, the types of anxiety that could be overcome/minimized after being given Endorphin massage based on the HARS scale questionnaire, were mostly in the form of feelings of anxiety (bad gut feelings, fear of one's own thoughts), tension (restlessness, shaking, lethargy), and sleep disturbances (difficulty sleeping). This is in line with research conducted by Rahayu et al (2018), that endorphins are also able to normalize heart rate, reduce pain, control feelings of anxiety, create feelings of comfort, and increase body comfort²⁰.

As for the²¹ which states that *endorphin massage* is a therapeutic massage that needs to be given to pregnant women in the third trimester until before childbirth. Endorphin massage helps pregnant women feel comfortable, relaxed, and fresher during pregnancy and affects the delivery process. This is in line with research conducted by Sukmaningtyas and Windiarti (2016) which states that Endorphin massage can reduce pain during childbirth so that it causes anxiety²².

According to Ismail et al (2019)²³ in Sukmaningtyas and Windiarti (2016)²², that the action *Massage* It is considered to be able to "close the gate" that is, inhibiting the passage of pain stimuli in the central nervous system, then the tactile stimuli and positive feelings of the massage will strengthen the pain relief effect to reduce anxiety. Ismail et al (2019) also said that it is better to *endorphin massage* It is carried out by the mother with the husband because it can support relaxation therapy that helps in forming a psychological bond between the mother, the baby, and the husband²³.

Meanwhile, based on research conducted by¹² that psychological anxiety disorders during pregnancy are related to the occurrence of resistance indexes in the uterine arteries. This is due to an increase in the concentration of noradrenaline in the blood plasma, so that blood flow to the uterus is disrupted. The uterus is very sensitive to noradrenaline and can cause a vasoconstrictive effect.

This mechanism results in the inhibition of the process of partation and intrauterine fetal development due to lack of oxygen and nutrition resulting in the occurrence of low birth weight (BBLR)²⁴. In addition, stressful and anxious conditions can stimulate an increase in the hormone corticotropin which interacts with the hormones oxytocin and progstaglandin. The hormone oxytocin mediates uterine contractions so that premature birth occurs²⁵.

Based on research conducted by Arianti and Restipa (2019) that anxiety in childbirth is influenced by pain or pain factors during period I which causes the mother to be very anxious¹². However, when given an Endorphin massage for 20 minutes every hour during labor, it can reduce maternal anxiety. Technique *endorphin massage* able to make individuals control themselves When there is discomfort or anxiety, physical stress, and emotions caused by anxiety. This happens because massage stimulates the body to release compounds *endorphin* which is a natural pain reliever^{26,6}.

In research Maesaroh et al (2019)²⁷ and Hall et al (2016)²⁸, Anxiety in childbirth is influenced by pain or pain factors during the first childbirth process which causes the mother to be very anxious because she is afraid of increasing pain and needs attention. When given *endorphine massage* for 20 minutes during the delivery process can reduce the mother's anxiety, because by doing it *endorphine massage* It can help the mother become more relaxed and comfortable and can reduce pain and *discomfort* during the labor process. Technique *endorphine massage* It can also give individuals self-control when there is discomfort or anxiety, physical and emotional stress caused by anxiety. This happened because *Massage* stimulates the body to release compounds *endorphine* which is a pain reliever experienced²⁹.

This aligns with research by³⁰, which shows that massage techniques can help pregnant women feel comfortable, relaxed, and more refreshed during labor. Massage can stimulate the body to release endorphins, which normalize the heart rate and reduce pain, manage stress, and create a sense of comfort and relaxation by triggering feelings of well-being through the skin.

This study has several strengths, particularly the use of a large sample size and the application of appropriate statistical

analysis techniques, which enhance the reliability and validity of the findings. Nevertheless, it also has certain limitations, as it does not take into account other potential factors that may influence the observed variables. Therefore, future research is recommended to examine additional determinants that may contribute to anxiety during pregnancy, so as to provide a more comprehensive understanding of this issue.

Conclusion

Before being given *endorphin massage* therapy, most of the respondents experienced severe anxiety, which was 22 respondents (55%), while after being given *endorphin massage* therapy, the anxiety decreased, most of which experienced mild anxiety as many as 24 respondents (60%). There was an effect of *endorphine massage* on anxiety in the third trimester of pregnancy in primigravida mothers in Karangraharja Village, North Cikarang District, Bekasi Regency in 2022 with a *p* value of 0.000 ($\alpha < 0.05$).

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Conflict of Interest Statement

The author(s) declare no commercial, financial, or personal conflicts of interest related to this research. All authors approved the final manuscript and consented to its publication in *Healthy Tadulako Journal*.

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