

## Effect of Endorphin Massage on The Level of Anxiety among >36 Weeks Pregnant Women

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### A B S T R A C T

The weeks leading up to delivery are always anxiety-provoking for pregnant women. Pregnant women may have negative effects from anxiety such as prenatal attachment, the term used to describe the bonding between both mother and baby. Such condition can lead to poor uterine contraction, prolonged labor, uterine atony, bleeding wounds, infections, maternal exhaustion and shock, while also increasing the likelihood of premature birth and low birth weight. A non-pharmacological therapy named endorphin massage may stimulate the body to release endorphins. Such hormone may minimize anxiety and promote maternal and fetal well-being. This study aims to determine the effect of endorphin massage on the level of anxiety among >36 weeks pregnant women at Private Practice Midwife Listiorini in 2022. This was a pre-experimental study with a one group, pre-test post-test design. The current study was conducted on March 20-April 20 at Private Practice Midwife Listiorini. The accident sampling approach was applied to select the study samples, which consisted of 30 >36 weeks pregnant women who performed ANC visits at Private Practice Midwife Listiorini and met the inclusion criteria. The instruments used were the HARS Scale and the Endorphin Massage SOP. In accordance with the results, there was a decrease in the median anxiety levels of pregnant women after receiving the endorphin massage intervention by 8.17. The Wilcoxon statistical test result showed a p-value of 0.000 (<0.05), which indicated that endorphin massage intervention had an effect on the level of anxiety among pregnant women in the third trimester. The study finding is expected to help pregnant women lowering their anxiety levels before delivery.

*Wanita hamil sering mengalami kecemasan menjelang persalinan. Pengaruh kecemasan pada ibu hamil dapat mempengaruhi hubungan antara ibu dan janin yang disebut dengan prenatal attachment dan dapat menyebabkan melemahnya kontraksi rahim, yang dapat menyebabkan persalinan lama, atonia uteri, perdarahan robekan, infeksi, kelelahan ibu, dan syok, serta pada bayi dapat meningkatkan risiko kelahiran prematur dan berat badan lahir rendah. Pijat endorfin adalah terapi non-obat yang merangsang tubuh untuk melepaskan endorfin. Hormon ini meminimalkan kecemasan dan menciptakan rasa sejahtera. Tujuan penelitian ini adalah untuk mengetahui pengaruh endorphin massage terhadap tingkat kecemasan pada ibu hamil dengan BPM Listiorini > 36 minggu tahun 2022. Metodologi penelitian menggunakan pendekatan pra-eksperimen dan seperangkat desain pra-tes pasca-tes. Penelitian di BPM Listiorini dari tanggal 20 Maret hingga 20 April. Sampel penelitian ini adalah ibu hamil berumur lebih dari 36 minggu yang melakukan wawancara ANC di BPM Listiorini dan memenuhi kriteria inklusi dengan metode accident sampling sebanyak 30 responden. Instrumen yang digunakan adalah skala HARS dan SOP endorphin massage. Hasil penelitian menunjukkan bahwa median tingkat kecemasan ibu hamil menurun sebesar 8,17 sesudah dilakukan intervensi endorphin massage. Hasil uji statistik Wilcoxon diperoleh nilai p-value 0,000 (p-value <0,05), yang berarti pemberian intervensi endorphin massage berpengaruh terhadap kecemasan pada ibu hamil lebih dari 36 minggu. Temuan penelitian*

## Introduction

Pregnancy and childbirth are life events waited for by women and their families. There are physical and psychological changes experienced by women during pregnancy and childbirth (Maesaroh, 2019). According to WHO report in 2017, 295,000 women died during pregnancy and childbirth. Anemia, malaria, and heart disease are indirect causes of maternal morbidity and mortality in addition to bleeding, infection, high blood pressure, abortion, and obstructed labor. Actually, most maternal deaths are avoidable through prompt care management by qualified healthcare professionals (WHO, 2020). However, the success of treatment depends on more than just reducing complication and impairment; it also depends on enhancing health and well-being, including psychological well-being (L. L. Sari, 2022).

Being in good mental health during pregnancy is essential since it has a significant impact on both the mother's and the unborn child's well-being. Mental health issues that manifest during pregnancy might lead to dangerous complications throughout pregnancy and childbirth (D. Sari, 2022). One of the psychological issues and emotional reactions is anxiety that persists up until delivery, which raises the possibility of a obstructed and prolonged labor as well as the likelihood of maternal and newborn mortality. In developed countries, the prevalence of anxiety and depression ranges from 7 to 20%, while it is almost 20% in developing countries (Arianti, 2019a).

Anxiety is a state of confusion or fear that can be brought on by something, as well as by unreliable judgment and a sense of powerlessness as the outcome of an evaluation of an object (Hastuti, 2019). Anxiety can occur during pregnancy and childbirth. It is a condition in which a person is unable to act bravely and sensibly and is at danger of experiencing prolonged labor (Yanti, 2022). According to IDHS (2012), anxiety accounts for 5% of maternal mortality and is one of the reasons of prolonged labor and fetal death. Pregnant women who are anxious may have higher levels of the progesterone hormone, which can make them feel agitated and exhausted and increase the risk of antepartum bleeding (Abdullah, 2021).

Pregnant women with low socioeconomic class may have anxiety events more frequently due to the factors of poverty, low income, and lack of prenatal care. In order to prevent postpartum depression among women before and throughout pregnancy, it is crucial to address depression and anxiety symptoms as soon as they arise (Adina, 2022).

According to Stuart (2012) in Anjani, there are a number of strategies for helping pregnant women deal with their anxiety before labor, including the use of pharmacological and non-pharmacological therapies. Non-pharmacological therapies can be used to relieve anxiety, such as relaxation, acupuncture, warm water compresses, and massage. Pharmacological treatment can be performed by administering drugs, although administration of drugs to pregnant women needs to be restricted (Anjani, 2022). Previous studies showed that pregnant women often chose non-pharmacological treatment than

pharmacological treatment because the latter puts the unborn child at risk (Callanan, Tuohy, Bright, 2022).

Massage technique to relieve anxiety can help women feel more refreshed, relaxed, and comfortable. Massage is one way to relieve fatigue, improve blood circulation, stimulate the body to remove toxins, and improve mental health (Sukmaningtyas, 2016). Endorphins are local opioid neuropeptide chemical compounds and peptide hormones that make a person feel happy and can increase the body's immunity (Samsugito, 2022)

Endorphin massage is a type of therapeutic light touch massage that is beneficial for pregnant women at 36 weeks of gestation. When such massage is performed, the body releases endorphins as the natural painkillers. Previous study conducted in the city of Padang by Arianti (2019) revealed that there was a difference in the level of anxiety in the experimental group before and after endorphin massage (Arianti, 2019b). After the therapy was administered, most of respondents had mild level of anxiety. Furthermore, according to a study conducted by Qomari et al. in 2020, there were significant differences in the level of anxiety among pregnant women treated with ROP, endorphine massage, and without intervention (Control) (Qomari, N et al, 2020).

Five pregnant women at 36 weeks of gestation participated in a preliminary study at Private Practice Midwife (BPM) Listiorini. After conducting interview to determine whether the women felt anxious during labor, it was found that the women felt more relaxed and experienced a decrease in the level of anxiety. The background led to the formulation of the study's problem, whether endorphin massage affects the level of anxiety among >36 weeks pregnant women. This study aims to determine the effect of endorphin massage on the level of anxiety among >36 weeks pregnant women at BPM Listiorini, South Bengkulu District.

## Methods

This was a pre-experimental study with a one-group pre-test-post-test design to compare pre-test and post-test outcomes. The dependent variable in this study was the level of anxiety among >36 weeks pregnant women, while the independent variable was endorphin massage. This study covered all pregnant women at BPM Listiorini who were at >36 weeks of gestation who visited between March 20 and April 20, 2022. An unintentional sampling method was applied to obtain a total sample of 30. This study included pregnant women at >36 weeks of gestation, had single pregnancy, had cephalic presentation, and were willing to taking part as the study samples. This study excluded pregnant women with major psychological conditions and back disorders.

Interviews were used to collect primary data, including the respondent's age, education, employment status, family income, and parity characteristics. Secondary data were obtained from knowledge of the coverage of K4 medical records at BPM Listiorini. The Hamilton Anxiety Rating Scale (HARS) questionnaire with 14 items was used to assess respondents' levels of anxiety before and after receiving endorphin massage. Respondents were observed and given a score between 0 and 4. There are

four categories of anxiety namely physical, emotional, social, and vocational (Intanwati, Mardiyono, 2022).

Standard operating procedures in (Aprilia, 2010) were applied in this study as the implementation tool for endorphin massage. For three consecutive days, a midwife performed endorphin massage for 30 minutes. The first implementation was performed at BPM Listiorini, and the second and third implementations were performed at the respondent's house. The univariate analysis was described by the characteristics of respondents and the independent variable (endorphin massage). In addition, the Shapiro-Wilk analysis was performed to assess whether the data regarding dependent variable (level of anxiety among >36 weeks pregnant women) were normally distributed. The statistical test applied a 2-group paired parametric test with a numerical comparative hypothesis. Since all variables were significant at 0.05 and the data were not normally distributed, the bivariate analysis employed a Wilcoxon test. The SPSS 26 software was used to process the statistical analysis.

## Results

**Table 1.** Frequency Distribution of General Characteristics of Respondents at BPM Listiorini in 2022

General Characteristic	Frequency	(%)
<b>Age</b>		
< 20 years	3	10
20-35 years	20	66.7
>35 years	7	23.3
<b>Education</b>		
Elementary school	2	6.7
Junior High School	7	23.3
Senior High School	18	60
College	3	10
<b>Employment Status</b>		
Unemployed	20	66.7
Employed	10	33.3
<b>Family Income</b>		
<IDR 1.000.000	3	10
IDR 1.000.000-2.000.000	16	53.3
>IDR 2.000.000	11	36.7
<b>Parity</b>		
Primigravida	7	23.3
Multigravida	23	76.7

Based on table 1, it was known that most of respondents aged 20-35 years (66.7%), had a senior high school education as many as 18 respondents (60%), were unemployed as many as 20 respondents (66.7%), had family income of IDR 1,000 000-2000000 as many as 16 respondents (53.3%), and were multigravida as many as 23 respondents (76.7%).

**Table 2.** Results of Normality Test

Variable	p-value	Distribution
>36 weeks pregnant women before endorphin massage	0.009	Not Normal
>36 weeks pregnant women after endorphin massage	0.035	Not Normal

Based on the results of the normality analysis using Shapiro Wilk test, it was known that the levels of anxiety among >36 weeks pregnant women before and after endorphin massage obtained a p value

of <0.05. Such finding indicated that all variables were not normally distributed, so the bivariate test should apply the non-parametric test, namely the Wilcoxon alternative test.

**Table 3.** Analysis of the Anxiety Scale for Pregnant Women > 36 Weeks Before and After Being Given an Endorphin Massage at BPM Listiorini in 2022

Variable	N	Mean	SD	Median (Min-Max)
>36 weeks pregnant women before endorphin massage	30	19.60	6.110	21.25 (6-26)
>36 weeks pregnant women after endorphin massage	30	12.04	4.409	10.20 (3-18)

Table 2 indicated that there was a decline in the mean (from 19.67 to 12.07) and median scores on the level of anxiety after an endorphin massage (from 20.50 to 11.50).

**Table 4.** Analysis on the Effect of Endorphin Massage on the Level of Anxiety among >36 weeks Pregnant Women at BPM Listiorini in 2022

Variable	N	Mean	SD	Median (Min-Max)	p-value
>36 weeks pregnant women before endorphin massage	30	19.60	6.110	21.25 (6-26)	0,000
>36 weeks pregnant women after endorphin massage	30	12.04	4.409	10.20 (3-18)	

Based on Table 3, it was found that the Wilcoxon statistical test resulted in a p-value of 0.000 (< 0.05). Such finding indicated that the Endorphin Massage intervention had an effect on the level of anxiety among >36 weeks pregnant women at BPM Listiorini in 2022. It is expected that endorphin massage can be an effective intervention to help lower the level of anxiety among >36 weeks pregnant women.

## Discussion

According to the study finding, the majority of respondents (66.7%) aged between 20 and 35. At this age range, the respondents were mature and prepared to become pregnant, especially to face psychological issues like anxiety often experienced during pregnancy and childbirth. Similarly, women at this age will prioritize their own health and be more receptive to learning, especially when they have a higher level of education (Rinata, 2018). Higher knowledge and problem-solving skills are associated with higher levels of education (Handayany, 2020).

It was found that 18 of 30 respondents (60%) had a senior high school education. It seems that the women would find it simpler to learn information based on the more knowledge they had, especially regarding health education. Education and counseling can help pregnant women prepare for childbirth without anxiety and they should enhance their knowledge during antenatal care visits. Preventing or managing maternal psychological stress may support the welfare of the mother and fetus as well as encouraging the physiological process of labor (Ernawati, 2016).

It was further found in the characteristics of respondents that the majority of women were unemployed as many as 20 respondents (66.7%). A study conducted by Murdayah (2021) claimed that there was a relationship between maternal employment status and level of anxiety. Employment may increase social interaction, so it could lower the level of anxiety. If a woman works, she will socialize more frequently and find it simpler to process information on pregnancy and childbirth. (Murdayah, 2021).

Furthermore, 16 respondents (53.3%) reported a monthly family income of IDR 1,000,000 - 2,000,000. A relationship between family income and the level of anxiety among primigravida women was found in a study conducted by Said et al. (2015). If the family income was high enough, the women wouldn't experience anxiety during pregnancy and childbirth because pregnancy requires certain budget such as costs for ANC visits, nutritious food for pregnant women and infants, labor costs, clothing, and other needs (Said, 2015).

23 respondents (76.7%) were multigravida, making up the majority of the samples. Anxiety during motherhood can occur in both primigravida and multigravida women due to fear, tension, and confusion. Women may feel anxious due to the shadow of the pain to be experienced during childbirth (Rinata, 2018).

A normality test was conducted on the dependent variable, which represented the level of anxiety among >36 weeks pregnant women before and after receiving endorphin. It was known that the levels of anxiety among >36 weeks pregnant women before and after endorphin massage obtained a p value of <0.05. Such finding indicated that all variables were not normally distributed, so the bivariate test should apply the non-parametric test, namely the Wilcoxon alternative test (Norfai, 2021).

According to the univariate analysis table, the median value of the respondent's anxiety level before the intervention of Endorphin Massage was 19.60 with a range of 6-26 among 30 respondents under study. Furthermore, the median value of the respondent's anxiety level after the intervention of Endorphin Massage was 12.04 with a range of 3-18. An assessment on the median and minimum-maximum scores in the study variables showed that there was a difference in the anxiety level of pregnant women between before and after the intervention.

The level of anxiety among pregnant women tends to increase in the second and third trimesters, or at 18 and 32 weeks of gestation, respectively. At this moment, anxiety screening is a crucial action. Anxiety in pregnancy can be exacerbated by past pregnancy losses, a lack of family support, and a lack of financial support. One method to reduce a pregnant woman's anxiety is pregnancy classes offered by midwives (Bastard, 2009). The risk of preterm birth, low birth weight, and intrauterine growth retardation is increased by postpartum depression, which is a risk factor for prenatal mental health disorders (Zhao, Ma, Wang, Zhoe, Meng, Li, 22 C.E.).

The study found that the Wilcoxon statistical test resulted in a p-value of 0.000 (< 0.05). Such finding indicated that the Endorphin Massage intervention had an effect on the level of anxiety among >36 weeks pregnant women at BPM Listiorini in 2022. Such finding is consistent with a study conducted by Arianti (2019) which claimed that endorphin massage had an effect on maternal level of anxiety since it could cause the body to release endorphins. Endorphins act by regulating heart rate, relieving pain, regulating feelings of tension, and fostering sensations of comfort and body relaxation. Endorphin massage induces a sense of well-being via the skin's surface.

Similarly, a study conducted by Wulandara, et al (2022) showed a difference in the levels of anxiety before and after endorphin massage. Endorphin massage could provide comfort to women, and

there was also interaction between healthcare workers and women about the benefits and goals of doing massage to relieve anxiety during pregnancy and childbirth (Wulandara, 2022).

By generating positive emotions at the skin's surface, endorphin massage treatment is applied to relieve labor pain and promote relaxation. Pregnant women at >36 week of gestation can apply such approach. Due to the fact that the husband can also apply this endorphin massage at home, this approach also encourages deep relaxation techniques and fosters relationships between the mother, husband, and fetus (Aprilia, 2010).

## Conclusions

The level of anxiety among pregnant women with >36 weeks gestation at BPM Listiorini in 2022 was significantly lowered by endorphin massage with a p-value of 0.000 (<0.05). Since endorphin massage was found to be effective to manage maternal anxiety, it is expected that pregnant women can apply it up to the time of delivery.

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