

## Healing Touch Intervention in Obstetrics: Influence on Endorphin Levels and Active Labor Phase Duration

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### ABSTRACT

**Introduction:** Anxiety during labor can disrupt maternal homeostasis and prolong the labor process, leading to complications for both mother and baby. Healing touch therapy is a complementary method aimed at reducing anxiety and facilitating labor progression, but its effects on physiological outcomes like endorphin levels and labor duration require further investigation. **Objective:** This study aimed to evaluate the effect of healing touch therapy on endorphin levels and the duration of the active phase of the first stage of labor. **Methods:** A pre-experimental one-group pre-post-test design was used. A total of 40 pregnant women were divided into control (n=20) and intervention (n=20) groups. The intervention group received healing touch therapy three times for 30 minutes. Blood samples were taken before and after the therapy to measure endorphin levels, and labor duration was recorded. **Results:** Mann-Whitney tests showed no significant change in endorphin levels after healing touch therapy (p=0.379). However, the duration of the active phase of labor was significantly shorter in the intervention group (median: 254.5 minutes) compared to the control group (280 minutes) (p=0.005). **Conclusion:** While healing touch therapy did not significantly impact endorphin levels, it effectively reduced the duration of the active phase of labor, suggesting its potential to support labor progression. Further research is needed to confirm these findings.



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## INTRODUCTION

One of the factors that determine the quality of life of a country is the health of its people. An important aspect of a country's health is the quality of maternal and child health (MCH). One of the parameters to measure maternal and child health is determined by the maternal mortality rate (MMR) in a country. Indonesia is one of the countries in Asia with a record high MMR of 305 per 100,000 live births (Kemenkes, 2019).

Accelerating efforts to reduce MMR requires innovative, proactive, and anticipatory efforts through a risk approach, including activities to improve access to health and increase early detection of high-risk pregnant women, including support for childbirth and pregnancy complications. One of the efforts to reduce MMR in

Indonesia is the mandatory antenatal check-up program for pregnant women (Prawiroharjo, 2014).

Excessive anxiety can cause the birth canal muscles to work in the opposite direction because the mother is in pain. As a result, the birth canal narrows, labor becomes longer and very painful, and even has to be stopped. Anxiety, fear, loneliness and excessive stress can increase levels of stress-related hormones such as cortisol and epinephrine. These hormones act on the smooth muscles of the uterus. Increased levels of these hormones can reduce uterine contractions so that they can cause prolonged labor (Hayati, et al, 2017).

Anxiety in pregnant women if not treated seriously will have a physical and psychological impact on the mother and her fetus. In mothers who feel anxious or stressed, signals pass through the HPA axis (hypothalamus-pituitary-adrenal) which can cause the release of stress hormones, including corticotropin, adrenal (ACTH), cortisol, catecholamines,  $\beta$ -endorphins, and growth hormone (GH), prolactin and luteinizing hormone (LH)/folliculus stimulating hormone (FSH). The release of these stress hormones causes systemic vasoconstriction, including uterine vasoconstriction of the placenta, leading to disruption of blood flow to the uterus, causing fetal distress and prolonging the first stage of labor or prolonged labor. On average, prolonged labor worldwide causes 8% of maternal deaths (Joseph, 2010). In addition, an increase in plasma cortisol causes a decrease in the immune response of the mother and fetus (Suliswati, 2012).

Endorphin is a combination of endogenous hormones and morphine. Therefore, we can conclude that this endorphin hormone functions like morphine, some even say 200 times stronger than morphine. Endorphins are produced naturally by our body. Methods used to release endorphins include relaxation techniques (deep breathing, laughing, smiling, hypnotherapy, exercise, acupuncture techniques, meditation techniques, even active meditation and massage). Endorphins interact with opiate receptors in our brain in response to pain. Endorphins, stress and pain will be reduced. Unlike opiate drugs (morphine, codeine) because endorphins are produced directly by our body, they are not addictive (Mochtar, et al, 2016).

Complementary therapies are a group of different medical and healthcare systems, practices and products that are not usually part of conventional medicine. These therapies can be used to lower blood pressure, such as cupping therapy, relaxation therapy, massage therapy, and also touch therapy. Therapeutic touch is a therapy that aims to identify and correct a client's energy imbalance by placing/rubbing hands on the patient or body that feels pain. In this role, the brain and skin are very important organs. The skin is the most important organ system and appreciates the therapeutic value of touch, especially as a tool to reduce the effects of stress. The skin is the most powerful organ that can receive stimuli in the human body, and when its sensory receptors are stimulated, the hormone oxytocin (which makes the body feel better) is released. At the same time, cortisol (the stress hormone) decreases. Connecting with others through touch is a simple expression of kindness and a powerful therapeutic experience. The purpose of this study was to determine the effect of healing touch on endorphin levels and duration of kala 1 in laboring mothers.

## **METHODS**

This research is a pre-experiment study that uses a one group pre-post-test design. The type of approach used is cross sectional. This research was conducted from January 2023 to October 2023 at the Dince Syafrina Midwife Clinic in

Pekanbaru City. The population in this study were all pregnant women who performed prenatal examinations at Dince Syafrina Clinic and Siti Juleha Clinic in January - May 2023.

This study used purposive sampling technique. In this study, researchers limited the sample size to 40 people, namely pregnant women in the second and third trimesters as a control group of 20 people and the intervention following the healing touch amounted to 20 people. The instruments in this study were the SOP for the implementation of Healing Touch, Partograph Sheet and Equipment for taking blood serum before pregnant women in the second and third trimester facing labor are one pair of gloves, one tourniquet, one 3 ml disposable syringe, one 5 cc vacuum blood tube (sterile blood collection tube), one wound plaster, alcohol cotton, micro pipette, 1½ mL serum cup, centrifuge and mattress.

Data collection techniques were carried out by means of Informed Consent to the respondent before the intervention, then taking blood samples for Endorphin examination as a pre-test. Furthermore, in the healing touch intervention group, the intervention was carried out for  $\pm$  30 minutes using an observation sheet according to the SOP, which was carried out 10 times and then the blood endorphin levels were checked.

## RESULTS

This research has been conducted from April to September 2023 at PMB Dince Safrina, PMB Rosita Pekanbaru City and and Biomedical Laboratory of the Faculty of Medicine, Andalas University. The study was conducted on 30 pregnant women who met the inclusion criteria, namely Trimester III pregnant women without pregnancy complications. Respondents were divided into two groups, namely the case group given the healing touch intervention as many as 30 people and the control group as many as 30 people. Before the research was carried out, the researcher first asked for Informed Consent to the respondent. Furthermore, the case group was given a healing touch intervention according to a predetermined procedure then blood was taken to check endorphin levels and researchers calculated the length of the first stage of labor. While the case group was not intervened and blood was taken to check endorphin levels and researchers calculated the length of the first stage of labor.

### Normality Test

Normality test using Shapiro Wilk test (data <50 samples). The test results showed that the data were not normally distributed ( $p < 0.05$ ). For univariate analysis, the median and minimum-maximum values were calculated, while for bivariate analysis a nonparametric test was used, namely the Mann Whitney correlation test to see the effect of healing touch on endorphin levels and active phase I.

#### A. Differences in Endorphin Levels in Case and Control Groups in Laboring Mothers

The results of the study of endorphin levels in the case and control groups in laboring mothers can be seen in the following table:

**Table 1. Differences in Endorphin Levels in Case and Control Groups in Laboring Mothers**

Variabel	n	Median	Min-Max
Endorphin Levels in the Case Group (ng/L)	30	203.71	(23-265)
Endorphin Levels in the Control Group (ng/L)	30	193.84	(2-421)

Table 1 shows that the median endorphin levels in the case and control groups in laboring mothers were 203.71 and 193.84.

#### B. Difference in Duration of Active Phase I in Case and Control Groups in Laboring Mothers

The results of the study of the duration of the active phase I in the case and control groups in laboring mothers can be seen in the following table:

**Table 2: Differences in the Duration of Active Period I in the Case and Control Groups in Laboring Mothers**

Variabel	N	Median	(Min-Max)
Duration of Active Phase of Period I Case Group (Minutes)	30	254.5	(185-320)
Length of Active Phase of Period I Control Group (Minutes)	30	280	(195-330)

Table 2 shows that the median duration of active phase I in the case and control groups in laboring mothers was 254.5 and 280, respectively.

#### C. The Effect of Healing Touch on Endorphin Levels and the Duration of the Active Phase of the First Stage of Labor in Birthing Mothers

The results of the study of the effect of healing touch on endorphin levels and the duration of active phase I in laboring women can be seen in the following table:

**Table 3. Effect of Healing Touch on Endorphin Levels and Duration of Active Phase I in Laboring Mothers**

Variabel	n	Median (Min-Max)	<i>P value</i>
Kadar Endorphin ((ng/L))	30	199.942 (1.578-420.896)	0,379
Active Phase I Duration (Minutes)	30	260 (185-330)	0,005

Table 3 shows that based on the results of the Mann-Whitney test, there is no effect of healing touch on endorphin levels in laboring women ( $p = 0.379$ ) and there is an effect of healing touch on the duration of the active phase I in laboring women ( $p = 0.005$ ).

## DISCUSSION

#### a. Differences in Endorphin Levels in Case and Control Groups in Laboring Mothers

From the results of this study it can be seen that there are differences in Endorphin levels in each group. The case group has a higher median value compared to the median value in the control group, namely a median value of 203.71, meaning that there is an increase in Endorphin levels in the group of pregnant women who are given the Healing Touch intervention.

Endorphin is a chemical in the brain that sends electrical signals to the nervous system. Stress and pain are the most common factors that cause the release of endorphins. Endorphins react with opioid receptors in the brain to reduce the perception of stress and pain, acting like the drugs morphine and codeine. Activation of the body's natural endorphins does not cause dependence or addiction like opioid drugs (Sharma and Verma, 2014).

In addition to pain relief, the release of endorphins can induce feelings of

euphoria (feelings of comfort, joy, or happiness), regulate appetite, release sex hormones, and enhance immune response. Endorphin secretion varies from person to person (Koneru A; Satyanarayana S; Rizman S, 2009).

The impact that occurs during trimester emotional changes in pregnancy month 5 seems real because the baby has started to move so that the mother begins to pay attention to her baby and wonders whether the baby is born healthy or not. Feelings of anxiety in pregnant women will continue to increase along with the development of their pregnancy. Emotional changes in the third trimester include pregnant women's concerns about childbirth.

The third trimester is called the period of vigilant waiting. Fear begins to appear in the third trimester. Pregnant women begin to worry about the life of their baby and their own life, such as whether the baby will be born abnormally, during the labor process (pain, loss of control, and other unknown complications), whether the mother realizes she will be born. born. give birth or if the baby is not born naturally, even with perineal damage (Handayani Rika et al, 2021).

According to Apriliya, (2016) states that the human body can produce endorphins, which are hormones that have a very good pain relieving effect. By doing activities such as meditation, deep breathing, and relaxation, you can produce endorphins naturally (Putri, 2021).

Meditation is a practice in which one trains the mind or creates awareness. Meditation often involves a person's inner efforts to organize themselves and their thoughts. Meditation can increase endorphin hormones that can regulate mood by doing breathing exercises, and slowing the heart rate can reduce brain stem activity so that parasympathetic nerve activity is greater than sympathetic nerve brain activity (Dhayal, 2015).

Endorphins have a role in pregnancy such as, endorphin production acts as a contradictory transition from mother to fetus, the effect of endorphins in the mother's blood varies greatly depending on the mother's diet, and can increase endorphin secretion from the mother's pituitary gland. (Senudin et al., 2019).

Physiological and psychological changes during pregnancy occur due to hormonal changes during pregnancy, so pregnant women do not need to worry. Support, advice, information, education and proper care will help pregnant women adapt to the physiological and psychological changes they experience.

Considering the important role of endorphins during pregnancy, pregnant women are encouraged to engage in activities that help increase endorphin levels to reduce anxiety during pregnancy. Activities that stimulate endorphin release into the bloodstream include regular exercise for 30-60 minutes, meditation, acupuncture, and acupressure. These activities have been proven safe for pregnant women with a healthy pregnancy (Senudin et al., 2019).

#### **b. Difference in Duration of Active Phase I in Case and Control Groups in Laboring Mothers**

From the results of this study, it is stated that there is a difference in the length of Active Phase I in each group. In the case group, the median value is lower than the median value in the control group, namely the median value of 254.5, meaning that the Active Phase I occurs shorter or faster than in the group of pregnant women who are not given the Healing Touch intervention.

The first phase (I) or active phase is a very important phase in the labor process, therefore every midwife must be able to control and monitor the labor process so as not to fall into a pathological situation. To avoid things that endanger the condition of the mother and fetus during labor, especially in the early stages of the active phase,

the labor process must be carried out based on the movement of the fetus, the bottom of the fetus, and the development of the opening of the cervix. greatly influenced by perfect contractions. The contractions that occur are unique because uterine contractions are physiological muscle contractions that cause pain (Syaflindawati et al., 2015)

### **c. The Effect of Healing Touch on Endorphin Levels and the Duration of the Active Phase of the First Stage of Labor in Birthing Mothers**

Based on the results of this study, it shows that based on the results of the Mann-Whitney test, there is no effect of healing touch on endorphin levels in laboring women ( $p = 0.379$ ) and there is an effect of healing touch on the duration of the active phase of kala I in laboring women ( $p = 0.005$ ).

From the results of the study obtained that there is no effect of healing touch on endorphin levels in laboring women. This is not in accordance with the theory that if someone already feels safe, comfortable and happy it should be followed by an increase in endorphin hormone in the body. The author cannot explain the results of related research because the author has not found a journal that examines the effect of Healing Touch on increasing endorphin levels in the blood serum of pregnant women.

Although touch should be an expression of care and a powerful therapeutic experience, its use has expanded in the context of healing. Healing Touch is based on the theory (Lieawald, 2016) that Healing Touch works by influencing the human energy system, opening the human energy system, balancing energy flow to reduce anxiety and tends to cause a feeling of relaxation on touch.

Healing Touch is centered on the body, thoughts and emotions merge into a complex energy, Krieger and Kuntz based their theory on martha ronger's theory which emphasizes that humans are surrounded by an energy field that extends on the surface of the skin, the theory states that the energy field is symmetrical and balanced when a person is healthy which allows energy evenly, physical and psychological symptoms such as pain and anxiety, Healing Touch is used to restore energy imbalances in the body (Jackson et al., 2008).

Practitioners who perform Healing Touch on pregnant women become calmer. This is in accordance with the theory of Martha Rogers who states her theory of unitary human being, and assumes the existence of four fields in the model that explain environmental energy, open systems of the universe and patterns or arrangements.

Based on the above theory in accordance with (C. Valerie, Scanlon, & Tina, 2007), which states that healing touch is a compassionate, heart-centered therapy in which practitioners and clients use gentle touch to influence and support the human energy system in and around the body with the aim of restoring harmony, energy, and balance in the human energy system.

A way to reduce anxiety is by using Healing Touch. Healing Touch is a therapy that aims to identify and correct the client's energy imbalances by placing/rubbing 60 hands on the affected body. In this role, the brain and skin are the most important organs. When practicing Healing Touch, the therapeutic value of touch is prioritized, especially as a tool to reduce the effects of stress. The skin is the most powerful organ that can receive stimuli in the human body, and when its sensory receptors are stimulated, the hormone oxytocin helps the body relax. At the same time, the hormone cortisol (stress hormone) will be reduced (Sartika et al., 2023).

Many studies have found that using Healing Touch for patients can not only

reduce anxiety and stress, but also help support the life transition process, promote self-empowerment and enhance spiritual development (Van & Taylor, 2010). Therefore, it is highly likely that people suffering from anxiety can benefit from Healing Touch in the primary care setting. Healing Touch has been used for various symptoms since the 1970s, but research and widespread use is lacking (Jain et al., 2012).

In addition, healing contact affects the length of a mother's first active period of labor. Indeed, the factor that affects the active labor of the first stage is the psychological state of the mother during childbirth. Mothers who experience stress during labor, especially in the early stages of active labor, will affect the progress of cervical opening. Therefore, the opening of the cervix becomes longer (Suryani et al., 2021).

The results of this study are also in line with research obtained by Feinstein & Ashland, (2012) which explains that when a person's fear point in a state of fear is tapped, the amygdala activity will decrease, in other words, brain wave activity will also decrease, which also stops the person's fight or flight response. This then creates a relaxing effect that helps neutralize the emotional stress the individual is experiencing.

Pregnant women receive support from their family and environment and some pregnant women regularly participate in prenatal exercises, yoga and meditation during pregnancy so that the mother can happily undergo her pregnancy successfully. In addition, full-term pregnant women also experience pain in the back and lower abdomen due to false or insufficient contractions. All pregnant women interviewed had good nutritional status and none had chronic anemia or low energy. The better the mother eats, the placenta will produce large amounts of endorphin hormones that enter the bloodstream to meet the needs of the mother and fetus. (Putriatri Krimasusini Senudin & Nurdin, 2019).

This study proves that the increase in endorphin hormone during pregnancy occurs not because of the influence of healing touch but because of physiological factors of pregnancy in response to various conditions that occur in the mother and fetus. In addition, researchers did not control factors that affect the increase or decrease of endorphin hormones such as endocrine diseases suffered by mothers, metabolic diseases and maternal activities. The provision of healing touch therapy was carried out in the PMB whose atmosphere was not in accordance with the standards.

## **CONCLUSIONS AND SUGGESTIONS**

Based on the results of the research that has been conducted, healing touch therapy in pregnant women which is done for 3 times with a duration of 30 minutes is not proven to increase endorphin levels in the mother's blood but can accelerate the length of the first stage of labor so that labor can run faster and better.

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