

Original Research

The Relationship Between Oxytocin Massage and Labor Pain in Mother at Mrs. A Midwife's Practice, Mande District, Cianjur Regency, Indonesia

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ABSTRACT

Background: Childbirth is a natural physiological event. For many expectant mothers nearing delivery, labor pain is the primary source of anxiety. Pain perception can be assessed using pain intensity measurement tools like the Numeric Rating Scale. This instrument can be used to assess the pain that mothers endure to ease their discomfort during the active phase I, with one method being oxytocin massage. The objective is to assess the degree of discomfort the mother feels prior to and following the oxytocin massage. **Methods:** This study utilizes a quantitative methodology that adopts an analytical survey approach featuring a cross-sectional design. The entire study population consists of 25 individuals, which were selected through a total sampling technique. The data collection method utilized is a questionnaire in the form of a rating scale. The analysis conducted incorporates both univariate and bivariate examinations utilizing an Independent T-test. **Results:** The findings of the study indicated that the pain experienced by pregnant women during the first active phase changed. This was evidenced by a reduction in the number of respondents categorized as experiencing severe pain, which decreased from 17 individuals (68.0%) in the pre-test to 3 individuals (12.0%) in the post-test. **Conclusion:** Oxytocin massage influences the reduction of of maternal discomfort during the early stage of the active phase, showing a p value of 0.002, which is less than 0.05.

Keywords: Labour pain; oxytocin massage; numeric rating scale

1. INTRODUCTION

Childbirth refers to the process during which the fetus, along with the placenta and membranes, passes through the birth canal to leave the uterus. This process begins with the cervix opening and dilating due to regular, strong, and timed uterine contractions. Labor is deemed normal when it occurs after 37 weeks of gestation without complications.^(1,2) Every pregnant woman typically desires a natural childbirth and minimal pain. However, for many women, particularly younger mothers, the experience of childbirth can often feel daunting and closely associated with pain.⁽³⁾

Phase I of labor is the beginning of true labor contractions, which are characterized by progressive cervical changes and end with a complete opening (10 cm). One of the problems that occurs in childbirth in the first stage is caused by irregularities in the frequency of contraction pain as a result of insufficient stimulation of the uterine smooth muscles. Phase I of the active phase of contractions that occur during the active phase becomes more serrated, the duration is longer and the intensity becomes stronger. Based on research by Peisner and Rosen, 90% of women who

give birth normally pass the active phase with a cervical opening speed of 1 cm/hour. The nature of the contraction of the active phase is that the longer it gets stronger. The duration of uterine muscle contractions is > 40 seconds. If the pain and irregularities of contractions are not treated properly, it will cause problems such as increased anxiety or worry about the delivery process.⁽⁴⁾

Discomfort during labor arises from the contractions of the uterine muscles and the pressure exerted on the cervix. This pain can be experienced as severe cramping in the abdomen, groin, and back, along with other regions. Some women may also feel pain in their sides or thighs. A study examining women during the initial phase of labor, it was found that 60% of first-time mothers reported the pain from uterine contractions as very severe, while 30% classified it as moderate. In contrast, among women who have given birth before, 45% felt intense discomfort, 30% reported mild discomfort, and 25% experienced mild pain.⁽⁵⁾

Pain perception can be measured using pain intensity measuring tools such as the Numeric Rating Scale. This measuring tool can be used to measure the aches and pains experienced by maternity mothers. Pain management and regularity of the frequency of contractions before delivery can be applied by medicinal and non-medicinal approaches. Treatment to overcome pain requires the management of pain agents, namely by pharmacological and non-pharmacological methods. Pharmacological therapy can be done by administering analgesics or painkillers. Meanwhile, non-pharmacological therapy without administering drugs, is not dangerous and provides side effects for the mother and fetus.⁽⁶⁾ However, there are still few midwives who use non-pharmacological therapy to minimize pain during childbirth. The results of the study conducted by Iis Tri Utami (2018) were that 58.8% of midwives had not applied pharmacological therapy and as many as 41.2% of midwives had applied non-pharmacological therapy.⁽⁷⁾ Non-pharmacological therapy that can be done to reduce the intensity of pain is oxytocin massage.

Oxytocin massage involves gentle touch or back massage targeting the area between the ribs and the area around the scapula, which can lead to a soothing effect by encouraging the mind to reduce levels of the adrenaline hormone and enhance the generation of oxytocin.^(3,8) This method is successful as it exerts pressure on certain points of the body, which could

improve blood flow, activate the uterus, and induce contractions to facilitate the delivery process. This oxytocin massage can be most beneficial for initiating labor only when the cervix is fully mature and the body is prepared for childbirth.⁽⁹⁾ In line with the research of Himawati and Kodyah, it is stated that oxytocin massage is necessary for mothers in childbirth since the first period.⁽⁸⁾ According to research conducted by Merry Wijaya on maternity mothers who were given oxytocin massage, mothers felt calmer more at ease when confronting childbirth. The massage offered advantages to the expectant mother, specifically enhancing blood flow and elongating the muscles to alleviate the discomfort felt during labor.⁽¹⁰⁾

The findings from Merry Wijaya's research on oxytocin massage should be examined thoroughly to ensure the massage achieves its intended benefits. One important aspect to consider is the technique used during the massage. Furthermore, the length of the oxytocin massage is also essential; an optimal duration for the massage is about 3 to 5 minutes.⁽¹¹⁾ The research results showed a significant decrease in pain intensity among pregnant women receiving oxytocin massage during the early active phase, where the average pain before oxytocin massage was 5.16 and afterwards was 3.16 so that an average decrease of 2.00 was found.⁽¹¹⁾ Based on the initial data collection conducted by researchers in February 2024 at the Independent Practice of Midwifery Mrs. A, 25 mothers were obtained. Some midwives in the Mande District area perform oxytocin massage to reduce pain during childbirth, but not all midwives apply oxytocin massage so it is still slightly used by maternity mothers. Based on this description, in order to prevent complications in childbirth above, health workers, especially midwives, have responsibilities and challenges in providing adequate care to help the delivery process. Oxytocin massage is one way to overcome pain and speed up labor. The aim of this research is to evaluate the intensity of pain experienced by mothers prior to and following the administration of oxytocin massage at Mrs. A Midwife's Practice in Mande District

2. METHODS

2.1 Study Design

This study uses a quantitative approach with a cross-sectional methodology. The study took place at Mrs. A Midwife's Practice in Mande District, Cianjur

Regency, between April and July 2024. The target population for this research consisted of all maternity mothers, totaling 25 respondents. In this study, the total sampling technique was applied to select the sample. The inclusion criteria for participants were pregnant women in the first active phase who consented to participate, while the exclusion criteria applied to those in the first active phase who were uncooperative.

2.2 Data Collection

The data gathering method for this research involves primary data collected via a pain scale questionnaire. In this research, the Numeric Rating Scale (NRS) questionnaire is used as the instrument for gathering information. The questionnaire was administered prior to the intervention to collect pretest data, followed by three sessions of oxytocin massage lasting 3-5 minutes each for the respondents. After the intervention, the questionnaire was distributed again to gather posttest data, and the primary data was analyzed using SPSS.

Table 1. Frequency distribution before oxytocin massage in mothers giving birth at the Independent Midwife Practice, Mrs. A Mande District, Cianjur Regency in 2024

Before an oxytocin massage	Frequency (F)	Percentage (%)
No Pain	0	0%
Mild Pain	0	0%
Moderate Pain	8	32.0%
Severe Pain	17	68.0%
Total	25	100%

Based on the analysis results in Table 2 from, it was found that the majority of respondents in the first stage of labor were in the active phase during the posttest or after being given an oxytocin massage. Of the 25 respondents who entered, the category experienced a decline. This was proven by the decrease in the

Table 2. Frequency distribution after oxytocin massage in mothers giving birth at the Independent Midwife Practice, Mrs. A Mande District, Cianjur Regency in 2024

After Oxytocin Massage	Frequency (F)	Percentage (%)
No Pain	0	0%
Mild Pain	4	16.0%
Moderate Pain	18	72.0%
Severe Pain	3	12.0%
Total	25	100

2.3 Data Analysis

Data processing used univariate analysis, namely to determine the level of labor pain in the first stage and oxytocin massage intervention. Bivariate analysis using the Independent T-test to determine the relationship between oxytocin massage and the reduction of labor pain in maternity.

2.4 Ethical Clearance

The ethical approval for this study issued in Sekolah Tinggi Ilmu Kesehatan Cianjur with reference no. 361/KEPK-STIKES/IV/2024.

3. RESULTS

Based on the analysis results in Table 1, most respondents who gave birth during the first stage of the active phase in the pretest (before receiving an oxytocin massage) experienced severe pain. Among the 25 respondents, 17 (68%) reported severe pain, while 8 (32%) experienced moderate pain.

number of respondents who were in the light category of 0% at the time. pretest became 16% during the post test, moderate pain was 32% during the pretest to 72% during the post test, while severe pain was 68% during the pretest to 12% during the post test.

Based on the analysis results in Table 3, regarding the connection between oxytocin massage and maternal labor discomfort experienced during the initial stage of

the active phase show significant findings. The Independent T-test indicates $P = 0.002$, which is less than 0.05.

Table 3. Independent T-test of the relationship between oxytocin massage against childbirth discomfort experienced by mothers at the Independent Midwife Practice, Mrs. A Mande District, Cianjur Regency in 2024

Maternal pain in childbirth	Mean	SD	SE	p-value
Before the oxytocin massage	2.50	0.535	0.189	0.002
After an oxytocin massage	3.18	0.393	0.095	

Therefore, there is a connection between oxytocin massage and labor pain at Mrs. A Midwife's Practice in Mande District, Cianjur Regency

4. DISCUSSION

Based on the research from the results of the analysis, it was found that most of the respondents who gave birth during the first active phase during the pretest or before being given oxytocin massage from the 25 respondents who entered the hospital were seen from the highest pain level was severe pain of 17 respondents (68%).

This is consistent with the studies that have been conducted. It showed that the severity of labor pain during the early phase before the combination of oxytocin massage intervention was obtained as a result of respondents with moderate and severe pain with a comparison of the percentage of moderate pain, which was 51.5% or 17 respondents, while severe pain was 48.5% or 16 respondents. Based on the phenomenon in the field expectant mothers in the early active stage before the oxytocin massage report an average level of high intensity.⁽¹²⁾

In the initial phase of labor, discomfort occurs due to the dilation of the cervix. and the lower section of the uterus and distension of the uterine corpus. The intensity of pain during this period is caused by the force of contractions and the pressure generated which results in pain.^(13,14)

Labor pain is a mix of physical discomfort from myometrium contractions, along with the stretching of the lower uterine segment, influenced by the mother's emotional state during childbirth, which is triggered by cervical dilation, hypoxia of the uterine muscle during contractions, insufficient blood flow to the uterine body, elongation of the lower uterine segment, and nerve pressure in the cervix.^(15,16)

Labor pain can lead to stress, resulting in an excessive release of hormones like catecholamines and steroids. This tension causes the smooth muscles to tighten and leads to vasoconstriction of blood vessels, potentially resulting in a reduction in uterine contractions.⁽¹⁵⁾

This is in line with the research conducted. It shows that the level of labor pain in the first stage before the combination of oxytocin massage intervention was carried out, the results of respondents with moderate and severe pain were obtained with a ratio of the percentage of moderate pain, which was 51.5% or 17 respondents, while severe pain was 48.5% or 16 respondents.⁽¹²⁾

Based on the results of research, theory and related research. Midwives provide a form of maternal care when caring for maternity patients by performing oxytocin massage to reduce pain during contractions, relax the body and give confidence to mothers during the delivery process.⁽¹⁷⁾

Oxytocin massage involves applying firm pressure with the fingers or the index finger at specific points to aid in inducing or facilitating labor, especially in areas where energy is primarily stored.⁽¹⁸⁾ This type of massage also incorporates a gentle touch or spinal manipulation from the rib cage to the shoulder blade region, promoting a relaxing experience. The mother's state of relaxation aids in reducing adrenaline levels in the brain and boosts the production of oxytocin, which is vital for triggering proper uterine contractions. Furthermore, oxytocin massage can reduce the severity of pain for mothers-to-be in the initial phase of active labor.^(17,19)

According to research, mothers in labor who received oxytocin massage experienced a greater sense of comfort, enabling them to cope better with childbirth. The massage offers advantages for the expectant mother by enhancing blood circulation and relaxing the

muscles, which helps to alleviate the pain felt during the delivery process. Additionally, the application of oxytocin massage in mothers can reduce the occurrence of side effects.⁽³⁾

Midwives play a crucial role in the childbirth process, making it essential to acknowledge labor pain in women to determine the most effective methods for pain management. It is vital for midwives to understand their significant contribution to enhance the well-being of all women, including both first-time and experienced mothers, during and after the birthing experience.⁽¹⁶⁾

Pain relief during childbirth can be achieved through oxytocin massage, which promotes a sense of relaxation. This state of relaxation can activate the brain, decreasing adrenaline levels while enhancing the production of oxytocin, a key element in the initiation of effective uterine contractions.⁽³⁾

Merry Wijaya's research indicates that the statistical analysis yielded a P value of (0.007), which is less than (0.005). This suggests that oxytocin massage is effective in alleviating labor pain. Mothers who received the oxytocin massage reported a pain level of 57% during the pretest, which decreased to 36.7% in the posttest. In the group that underwent oxytocin massage, those experiencing severe pain dropped from 14.3% in the pretest to 0% in the posttest.⁽¹⁰⁾

5. CONCLUSION

The majority of the maternity mothers prior to receiving the oxytocin massage fell into the category of experiencing severe pain, totaling 17 respondents (68%). Following the administration of the oxytocin massage, there was a notable decrease in the number of mothers experiencing severe pain, with only 3 respondents (12%) remaining in that category. A significant association was found between oxytocin massage and the reduction of pain in mothers, indicated by a P-Value of 0.002.

It is advised that midwives offer obstetric care, particularly for expectant mothers, by incorporating complementary therapies like oxytocin massage to help alleviate labor pain during the first trimester. Future researchers are encouraged to explore additional methods for pain relief during labor beyond oxytocin massage.

Ethics Approval

The ethical approval for this study issued in Sekolah Tinggi Ilmu Kesehatan Cianjur with reference no. 361/KEPK-STIKES/IV/2024.

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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