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Rubbing Massage Provides Good Evidence in Reducing Pain in the First Stage of Labor

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Abstract

Pain is a common complaint felt by mothers during labor. Massage can be used as an intervention to reduce labor pain. The study contributes to determining the effect of rubbing massage on pain in the first phase of active labor in Pekalongan City. This quantitative research uses a quasi-experiment approach with a pretest and posttest without a control group design. The population was the first phase of active maternity mothers in Pekalongan, Central Java, Indonesia, in September-November 2017. Samples of 21 mothers were taken using purposive sampling. Statistical tests use the Wilcoxon test. Most respondents of the young age category (> 26 years) are 12 mothers (57%). Respondents had the most junior high school education of 9 mothers (43%). The median of the pretest pain was six, and the posttest pain was 5. The bivariate results obtained a p-value of 0,000. The results showed that rubbing massage effectively reduces pain in first-phase active mothers.

Keywords: *Pain; Labor Pain; Rubbing Massage*

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1. Introduction

Pain is a subjective discomfort expressed verbally, nonverbally, or both. Pain is an unpleasant emotional state accompanied by actual or potential tissue damage (Raja et al., 2020). Mothers who experience labor experience pain. Pain during childbirth is included in the body's defense mechanism. Labor pain occurs when there is tissue damage, and this will cause a person to react by moving the pain stimulus (Pietrzak et al., 2022).

Pain caused by uterine contractions always characterizes labor. Uterine contractions aim to support delivery progress (Makino, 2023). The first stage of delivery progress is the opening period, starting from opening 0 to opening 10 (complete) (McEvoy & Sabir, 2022). Primigravidas experience effacement and dilation of the cervix, lasting 12 hours (Pitchaimuthu & Bhaskaran, 2018). This phase causes pain because the contractions are getting stronger and stronger. Mothers' pain during childbirth has a unique nature. Labor pain can be influenced by several factors, including culture (Navarro-Prado et al., 2022), fear, anxiety (Nurul & Sari, 2021), previous birth experience (Deng et al., 2021), preparation delivery, and support (Samiye Mete et al., 2020).

One part that experiences pain in labour is the spine. The areas of the spine that experience pain are usually the five lumbar vertebrae at the waist, the five sacrum vertebrae, and the four coccyx vertebrae (Terfasa et al., 2022). During the first stage of labor, pain impulses are transmitted by spinal nerve segments (thoracic 11 and 12) and thoracic accessories under the lumbar sympathetic. These nerves originate from the uterus and cervix. Discomfort from cervical changes and uterine ischemia is visceral pain in the lower abdomen spreading to the lumbar region of the back and inner thighs (Sitorus et al., 2017).

Management of labor pain can use pharmacotherapy and non-pharmacotherapy. Pharmacotherapy techniques have minimal side effects (Sembiring, 2023). Non-pharmacologically reducing labor pain can be done in several ways, including skin stimulation, hot and cold compresses, breathing techniques, hypnosis, transcutaneous electrical nerve stimulation (TENS), and acupressure (Rizqi et al., 2023).

Techniques to reduce pain by stimulating the skin are effleurage, rubbing, and deep back massage. Rubbing is a massage technique performed on the back between contractions. Rubbing back massage is a non-pharmacological technique for reducing pain by giving massage and rubbing to the spinal area, namely the thoracic, 10th, 11th, 12th, and lumbar 1. Rubbing massage relieves back pain by providing gentle rubbing when pain occurs. Gentle rubbing on the back

increases endorphins, effectively reducing pain (Pawale & Salunkhe, 2020).

Pekalongan City, Indonesia has four health centres for Basic Emergency Neonatal Obstetric Services (PONED) that serve deliveries, one of which is the Bendan Health Center. Apart from the health centre, there are also maternity homes, such as the Bhakti Ibu Maternity Home. The number of deliveries in June-August 2017 at the Bendan Health Center and the Bhakti Ibu Maternity Home was 62 and 75 people. The application of rubbing massage techniques to reduce labour pain has never been carried out at the Bendan Health Center and Bhakti Ibu Maternity Hospital. Based on this background, this research contributed to know effect of rubbing massage to reduce labour pain in active phase 1.

2. Method

The type of research used is a quasi-experiment with a pretest and posttest without a control group design. The research was conducted from September to November 2017 at the Bendan Inpatient Health Center and the Bhakti Ibu Maternity Hospital in Pekalongan, Central Java, Indonesia. The research sample is 21 respondents calculated by the formula, according to Lameshow. Samples according to the inclusion criteria are willing to be respondents, primiparous mothers, normal delivery, and the first stage of the active phase. Exclusion criteria were all mothers giving birth by action. The sampling technique used was purposive sampling.

Pain is measured by a numerical pain scale of 1-10. Pretest pain was measured 5 minutes before the rubbing massage, and posttest pain was measured immediately after the rubbing massage was finished. Rubbing is done by massage and rubbing the back area (thoracic vertebrae 10, 11, 12 and lumbar vertebra 1). Rubbing massage is given from entering the 1st stage until the complete opening. The normality test used the Shapiro-Wilk test and obtained abnormal results. Bivariate analysis using the Wilcoxon test.

3. Result And Discussion

Table 1 shows that most mothers are in the young age category (57%). Most mothers have a junior high school education level (43%). Table 2 shows that the median pain scale before a rubbing massage is 6, while the median joint pain scale for respondents after a rubbing massage is 5.

Table 3 shows that the median decrease in pain scale for the young age category was 0.5, while for the old mothers, it was decreased by 1. In primary education, the reduction in pain was 1, junior high school decreased by 1, and senior high school decreased by 1.5.

Table 1. Distribution of the Characteristics of Maternity Mothers in the Active Phase 1

Characteristics of Respondents	(f)	(%)
Age		
Young	12	57
Old	9	43
Education		
Primary	3	14
Junior High School	9	43
Senior High School	8	38
Bachelor	1	5

Table 2. Pretest and Posttest Pain Scales in Active Phase 1 Labor Mothers

Pain Scale	Min	Max	Median
Pretest	4	10	6
Posttest	3	9	5

Table 3. Age and Education with Pretest and Posttest Pain Scales in Active Phase 1 Labor Mothers

Characteristics	Σ	Pretest-posttest of pain			
		Min	Max	Median	Difference
Age					
Young	12	4-4	10-9	6,5-6	-0,5
Old	6	4-3	8-7	6-5	-1
Education					
Primary	3	5-4	7-7	6-5	-1
JHS	9	4-3	4-7	6-5	-1
SHS	8	4-4	10-9	7-4,5	-1,5
Primary	1	4-4	4-4	4-4	0

Table 4 shows that the median pretest and posttest pain levels are 6 and 5, with a decrease of 1. The results of statistical tests using the Wilcoxon test obtained a p-value of <0.001, meaning that rubbing massage is effective in reducing pain in labour during the first active phase

Table 4. The Effectiveness of Rubbing Massage on Pretest and Posttest Pain in First-Stage Mothers

Pain Scale	Median	Difference	*p*
Pretest	6	-1	<0.001
Posttest	5		

Pain is an unpleasant sensory and emotional experience. Pain has a subjective nature, the pain felt by one person and another is not the same. The response to the resulting pain is also different. No two events of the same pain produce identical responses or feelings in an individual (Siyoum & Mekonnen, 2019).

The pain referred to in this study is the pain felt by the mother during the first active phase of labour, measured before and after treatment. Normal delivery is expelling viable products of conception from the uterus through the vagina to the outside world. Delivery occurs in full-term pregnancies (37–42 weeks) characterized by uterine contractions which cause effacement, cervical dilatation, and push the fetus out through the birth canal by percentage behind the head without tools or assistance (spontaneous birth) and no complications for the mother and fetus (McEvoy & Sabir, 2022).

Labour pain is caused by myometrial contractions and physiological and biochemical changes (Joensuu et al., 2022). Factors that can affect labour pain are physical factors, psychological factors, emotional factors, and motivation (Chang et al., 2022). Labour pain causes feelings of fear and stress for the mother. Stress will cause the release of stress hormones such as catecholamines and steroids, resulting in a reduction in maternal blood flow to the fetus. Severe and continuous pain due to uterine contractions can cause physiological changes in the body, such as hyperventilation, increased cardiac output (50-150%), increased blood pressure (20-40%), increased metabolic processes and oxygen use, and decreased digestive tract motility (Tan et al., 2021).

One of the inclusion criteria set by the researchers was primigravid mothers. In primiparas, the opening will be preceded by the effacement of the cervix, so it is longer than in multiparas. The duration of this process can cause the mother to experience fatigue, which affects the increased perception of pain (Parthasarathy et al., 2016). Labour pain can be reduced by non-pharmacological techniques (Boateng et al., 2019). The treatment given in this study was a rubbing massage on the spine. The spine in question is the thoracic 10, 11, 12 and first lumbar areas. In these areas, massage and rubbing are given. Rubbing massage is given during the active phase 1.

Most of the respondents were young, ranging from 16 to 26 years. All age groups experienced decreased pain after being given a rubbing massage. The average decrease in pain scale after treatment at a young age is 0.5, while the old generation is 1. The results of this study are not the same as previous studies, which found that young people experienced a more significant decrease in pain after treatment than mothers over 26 years of age (Sumarni et al., 2020).

Adding age to a person will cause physical and psychological (mental) changes. These changes occur due to the maturation of organ function. In the psychological (mental) aspect, the older a person becomes, the more mature and mature he is. The older you get, the more experience you get so that mothers understand themselves, are mentally mature, and think maturely (Iridiastadi et al., 2019). The maturity of thinking affects birth mothers when dealing with the pain they feel. Age can indirectly affect labour pain. Age affects the mother's emotions and influences parturients' expectations of care during labour.

The results of the study showed that rubbing massage was effective in reducing pain in labour during the first active phase. The median pretest and posttest showed a decrease of 1 scale. Rubbing is giving a massage or gentle strokes on the back and rubbing given triggers relaxation, thereby reducing pain when the uterus is contracting by closing the gate of the gate control theory. Giving rubbing massage also increases the production of neurotransmitters and neuromodulators, endorphins. Endorphins have the effect of inhibiting or reducing the sensation of pain (Bajaj et al., 2019). The results of this study support previous research, which found that there was an effect of massage on reducing pain in first-time mother (Fogarty et al., 2020).

Several non-pharmacological methods can reduce labour pain. The results of this study indicate that rubbing massage is an effective method that can be used. Other techniques can be done by giving warm compresses and in combination with rubbing massage. Giving warm wet, or dry compresses can give a feeling of warmth to some regions of the body that are given these compresses. The heat generated from the compress can make the blood vessels dilate so that blood flow and oxygen will be adequately supplied. This condition can relieve muscle tension so the pain can go down the scale. The results of previous studies showed that warm compresses could reduce pain in the neck (Sumarni et al., 2020). The combination of rubbing massage can speed up pain relief with different methods.

This study has several limitations, including research using only one group without control, so there is no comparison. Furthermore, generalizability cannot be achieved because the respondents are only primiparous women. The absence of randomization was also a limitation of the study

4. Conclusion and Suggestion

The study showed that rubbing massage effectively reduced pain in labour during the first active phase. The results of this study can be used as a basis for the implementation of giving rubbing massages to mothers when facing labour. Rubbing massage can be done with the help of birth attendants or accompanying family using massage with circular movements on the back around thoracic 10, 11, 12, lumbar one and sacral 2, 3, 4

during uterine contractions and repeat if there are contractions

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