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Cold Compresses in Overcoming First Stage Labor Pain at PMB Andina

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Abstract. On average, 85-90% of pregnant women in Indonesia experience severe labor pain and 7-15% of those who do not experience labor pain. Labor pain results in increased activity of the sympathetic nervous system which causes an increase in blood pressure, pulse rate, respiration, nausea, vomiting, and diaphoresis. Data shows that 15% of mothers in Indonesia experience birth complications and 21% are caused by experiencing very severe pain. The aim of the research was to analyze the effect of cold compresses on first stage labor pain. The research design used a quasi-experimental one group pre-posttest. The population, namely all mothers giving birth at PMB Andina in May 2024, totaled 30 respondents. The sampling technique uses total sampling. Statistical tests use the Wilcoxon test. The research results obtained were that the average labor pain before the cold compress was 5.13 and the average labor pain after the cold compress was 4.00, meaning there was a decrease in the level of pain by 1.13. The significant value was found to be p: 0.001 < 0.05, meaning that there was an effect of cold compresses on labor pain in mothers giving birth at PMB Andina Palembang. It is hoped that health workers can improve maternal care during childbirth, one of which is by providing complementary services in the form of cold compresses.

Keywords: cold compress, labor pain, pregnant women.

1. BACKGROUND

Childbirth is a natural process that occurs when fetus has reach age Enough marked month with exists opening and contraction. Contractions that occur causes pain which can disturb your comfort and can affect your psychological condition (Rahayu, 2018).

Labor pain results in increased activity of the sympathetic nervous system which causes an increase in blood pressure, pulse rate, respiration, nausea, vomiting, and diaphoresis . Labor pain also increases anxiety accompanied by narrowing of the perceptual field, moaning, crying and muscle tension. This condition will stimulate an increase in catecholamines which can inhibit uterine contractions, which can cause uterine inertia, prolonged labor, hypoxia and fetal distress, as well as maternal and/or fetal death if labor pain is not treated (Solehati *et al.*, 2018).

According to Rosyidah (2020), on average, pregnant women in Indonesia experience severe labor pain of 85-90% and those who do not experience labor pain are 7-15% (Rosyidah, 2020) . Data shows that 15% of mothers in Indonesia experience birth complications and 21% are caused by experiencing very severe pain (Ariyanti, 2019) .

To overcome complications triggered by strong contractions, efforts are made to reduce labor pain which are not only pharmacological but also non-pharmacological. Non-pharmacological therapy, also known as complementary therapy, is a practice or treatment that has been medically proven as a complement to the main therapy or treatment. (Magfirah et al., 2022).

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One of the complementary therapies that can be used to treat first stage labor pain is cold therapy (*ice pack*) or cold compress. Cold therapy is effective in reducing the intensity of labor pain by causing vasoconstriction in the area of pain and the body will inhibit the sensation of heat. Cold therapy will reduce blood flow and inhibit bleeding which causes edema due to the analgesic effect (Mardliyana et al., 2017).

Cold compress therapy is considered effective, cheap, simple and without side effects. Cold compresses can be given during the first stage of labor to reduce pain. A cold compress will block pain in the uterus, cervix and upper part of the vagina. However, the pelvic muscles can still rotate the baby's head to exit through the birth canal (Setyani, 2020).

According to Pratama (2021) in his research entitled "Giving Cold Compresses to Reduce Labor Pain", the results showed that after applying a cold compress in the first stage of labor in the active phase every 30 minutes and within 10 minutes with an ice temperature of 10-15ºC, there was a decrease average pain measured using the *Numeric Ratting Scale* (NRS). Giving cold compress therapy is useful in reducing pain during the first stage of labor. In line with the results of this research, Nopliza and Susanti (2019) in their research stated that the t-test results showed that *the p value was* 0.000, which means that cold compresses had an effect on reducing pain in the first stage of labor.

2. THEORETICAL STUDY

Pain is an uncomfortable condition caused by tissue damage that occurs in a certain area (Cholifah *et al*., 2021). Pain is an uncomfortable sensory and emotional experience that occurs as a result of tissue damage, or existing or future tissue damage (Aydede, 2017).

Childbirth is the process where the baby, placenta, and amniotic membranes exit the mother's uterus. Labor begins (inpartu) when the uterus contracts and causes changes in the cervix (opening and thinning) and ends with the complete birth of the placenta (JNPK-KR, 2017).

Labor pain is myometrial contractions, which is a physiological process with different intensity in each individual. Pain during labor is a manifestation of contractions (shortening) of the uterine muscles. These contractions cause pain in the waist, stomach area and radiate to the thighs. These contractions cause the opening of the cervix. By opening the cervix, labor will occur (Kennedy, 2019).

In this study, pain was measured using the Numeric Ratting Scale (NRS). This scale is commonly used and has been validated. Heavy and its light flavor Sick or painful made become measurable with make objective opinion subjective painful. Scale numeric from 0 (zero)

to 10 (ten), where 0 (zero) is a state of no or limit pain, while 10 (ten) is very severe pain. (Smeltzer, 2013).

Cold compress therapy is a non-pharmacological method for treating pain. This therapy needs to be given to all mothers giving birth as one of the pain therapy interventions in health services, namely hospitals, community health centers and maternity clinics (Sastra and Despitasari, 2018).

Pratama's research (2021) shows that after applying a cold compress in the active phase of first stage of labor every 30 minutes and within 10 minutes with an ice temperature of 10-15 degrees Celsius, there was a decrease in the average pain as measured by the NRS scale. Research by Aulia and Afni (2021) shows that cold water compresses made with a towel filled with cold water at a temperature of 15-18 degrees Celsius for 20 minutes during the first active phase show a change in the pain scale. At an opening of 5 cm, the pain felt by the mother was on the moderate pain scale, after that a pain evaluation was carried out at an opening of 7 cm, the pain felt by the mother was reduced and was on the mild pain scale.

3. RESEARCH METHODS

The design in this research was *a quasi-experimental one group pre-posttest* . Respondents will be measured on the labor pain scale in the first active phase before and after the cold compress. Pain scale measurement using *Numeric Rating Scales* (NRS). The population in this study were all mothers giving birth at PMB Andina in May 2024, totaling 30 respondents. The sampling technique used is *total sampling* . The statistical test used is the *Wilcoxon test*.

4. RESULTS AND DISCUSSION

Frequency Distribution of Labor Pain Scale Before and After Cold Compress

Table 4.1 Frequency Distribution of Labor Pain Scale Before and After Cold Compress

Pain Scale	*Pretest*		*Posttest*	
	F	**%**	**F**	**%**
Light (1-3)	0	0	7	23
Medium (4-6)	30	100	23	77
Amount	**30**	**100**	**30**	**100**

Results of the Wilcoxon Test on the Effect of Cold Compresses on Labor Pain

Table 4.2 Results of the Wilcoxon Test on the Effect of Cold Compresses on Labor Pain

Labor pain	Mean	Mean Difference	elementary school	*p value*
Pretest	5.13	1.13	0.714	0.001
Posttest	4.00		0.926	

Table 4.1 shows that 100% of respondents before the cold compress had a moderate pain scale, while after the cold compress there were 23% of respondents with a mild scale and 77% of respondents with a moderate scale.

These results are supported by Pratama's research (2021) which proves that there is a decrease in the average pain as measured by the NRS scale after applying a cold compress in the first stage of labor in the active phase every 30 minutes and within 10 minutes with an ice temperature of 10-15ºC. Giving cold compress therapy to Mrs "D" was useful in reducing pain during the first stage of labor.

This research is also in line with research in line with research by Nopliza and Susanti (2019), the mean value of pain intensity before applying a cold compress was 6.80 ± 2.57 and after applying a cold compress was 4.60 + 1.30 out of a total score of 30. This shows that there is a decrease in the average labor pain scale.

Physiologically, the first stage of labor occurs due to uterine contractions or his. These contractions cause pain which can disturb comfort and can affect psychological conditions (Rahayu, 2018).

Cold compresses can be used to reduce the pain scale during the first stage of labor because they have a relaxing effect accompanied by suppressing some of the sensation of the mother's uterine contractions and improving the ability to push. This compress can also stimulate the nerve fibers that close the gates, thereby inhibiting the transmission of pain impulses to the spinal cord and brain.

Table 4.2 explains the results of the *Wilcoxon test* on the effect of cold compresses on labor pain. The results obtained were that the average labor pain before the cold compress was 5.13 and the average labor pain after the cold compress was 4.00, meaning there was a decrease in the level of pain by 1.13. The significant value was found to be p: 0.001 < 0.05, meaning that there was an effect of cold compresses on labor pain in mothers giving birth at PMB Andina Palembang.

The results of this study were supported by Andryani et al (2023) in their research which showed that there was a difference in pain intensity before and after being given *ice gel compress treatment* with a value of p=0.003 with a significance value of 5% (0.05) so that the value of p=0.03 <a=0.05.

The results of this research are also supported by research by Mardiyana (2020) which shows that there is an effect of cold compresses on first stage labor pain with *a p value of* 0.000.

In this study, cold compresses used pieces of ice cubes covered with a cloth/towel. Cold compresses can reduce temperature by absorbing calories from the area of labor pain. In addition, cold compresses can block pain transmission so that the cerebral cortex cannot receive signals because the cold stimulus that first reached the brain has blocked the pain.

Researchers assume that the cold sensation felt in the compressed area can numb the pain in that area because cold compresses can block pain transmission. The use of cold compresses has a positive effect in reducing physiological labor pain because it does not affect the labor process. Therefore, cold compresses are safe to give to pregnant women to provide gentle care.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research carried out, it can be concluded that cold compresses can have a relaxing effect so that they can reduce the scale of pain in the first stage of labor. It is hoped that health workers can improve maternal care during labor, one of which is by providing complementary services in the form of cold compresses.

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