

Effectiveness of Cold Compress Therapy to Reduce the Intensity of Perineal Laceration Pain in Post-Partum Women

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Abstract: Perineal lacerations in postpartum Mothers cause pain which can affect mobility and can cause complications such as infection, postpartum bleeding, and psychological impacts. This research aims to determine the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in postpartum mothers. This research method is pre-experimental with a one-group pre-post Test design. The sample for this research was 37 postpartum mothers. Sampling used purposive sampling. Data were collected using the NRS (Numeric Rating Scale) and analyzed using the Wilcoxon test. The results of the research after being given cold compress therapy for 15 minutes showed a p-value of $0.00 < 0.05$, which means that there was the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in Postpartum mothers at the Niar Maternity Clinic, Deli Serdang Regency. This study concludes that cold compress therapy is effective in reducing perineal laceration pain in post-partum mothers. It is hoped that the Niar Clinic can apply cold compress therapy as a complementary therapy at the Maternity Clinic to reduce perineal laceration pain in post-partum mothers.

Keywords: Cold compress therapy; Perineal laceration; Post partum

Introduction

Problems that are often experienced by Postpartum mothers and cause pain during the postpartum period, one of which is wounds in the perineal area during the birth process, these wounds are usually in the form of tears that occur when the baby is born either spontaneously or using surgical instruments, these tears generally occur in the midline between the vulva and anus. According Persson et al., (2023), there were 2.7 million cases of perineal wounds among mothers giving birth. In Asia, the problem of perineal tears is very common in society, the first 50% of perineal wound problems occur in Asia. the prevalence of perineal wounds in mothers giving birth in Indonesia is 63% in the 20-30 year age group and 37% in mothers aged 31-39 years (Pont et al., 2023). The number of perineal wound problems in Indonesia in 2014 increased to 67.2% compared to 60% in 2013.

Perineal wounds that occur during the birth process can cause pain. The pain felt by the mother after giving birth can cause unpleasant effects such as discomfort

when sitting, standing, walking, and moving which can cause problems including uterine subinvolution, obstructed lochea elimination, and postpartum bleeding. The pain felt by the mother after giving birth in the perineum also certainly affects the mother's mobilization, such as rest patterns, eating patterns, sleep patterns, the mother's mood, ability to do household work, socialize with the environment and society, as well as obstacles when the mother wants to start tasks (Namuju et al., 2018)

Pain management is divided into two procedures, namely pharmacological and non-pharmacological (Sawleshwarkar et al., 2022). Non-pharmacological procedures need to be carried out and developed because they have no side effects, and are simple and comfortable for mothers, such as giving warm compresses and cold compresses (Boateng et al., 2019). Applying warm compresses and cold compresses is one way of providing skin stimulation using temperature (Burhan et al., 2020). Warm compresses and cold compresses work by blocking the transmission of painful stimuli so that fewer pain impulses reach the

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brain (Henrich et al., 2015). The results of research conducted by Suharja et al. (2022) in 2018, regarding the Effectiveness of Cold Compresses on the Healing Time of Perineal Rupture Wounds in post-Partum Mothers, resulted in a p value of $0.043 < 0.05$ so that H_0 was rejected and H_a was accepted, which means there is effectiveness, cold compresses on perineal wound healing time.

The results of research conducted by (Sari et al., 2023), regarding the Effect of Cold Compresses on Reducing Perineal Wound Pain in post-partum Mothers at RSKDIA Pertiwi Makasar 2017, showed $p = 0.000 < \alpha = 0.05$, so H_0 was rejected and H_a was accepted, meaning there was an effect of cold compresses on reducing pain from perineal wounds in the postpartum period. The results of research conducted by Ulfa et al. (2020) regarding the Effect of Giving Cold Water Compresses on Perineal Wound Pain in post-partum Mothers showed that the p-value was 0.001 because the p-value was < 0.005 , so H_0 was rejected, meaning there was an effect of giving cold water compresses on the intensity of perineal wound pain.

Compresses work by releasing endorphins so that they can interrupt the conduction of the larger and faster A-delta sensory nerve fibers. This system reduces the transmission of pain through the small C and A-delta fibers so that the door is ready to cut off the transmission of pain impulses. Endorphins function to slow down the transmission of pain by inhibiting the transmission of impulses to the brain and spinal cord. Cold compresses are used to reduce pain by increasing the speed of nerve conduction so that it can cause a sensation of numbness and divert pain. Providing a cold compress procedure is related to slowing down the strength of pain nerves in transmitting painful stimuli, to reduce pain and speed up recovery of wounds.

An initial survey conducted at the NIAR Patumbak Maternity Clinic, Deli Serdang Regency, obtained data in 2021 that as many as 277 women gave birth with perineal lacerations as many as 214 people. In 2022, data will be obtained on 224 women giving birth with perineal lacerations, totaling 205 people. This phenomenon made researchers interested in researching nursing therapy as a complementary therapy, namely how effective cold compress therapy is in reducing the intensity of pain in perineal wounds in postpartum mothers at the NIAR Patumbak Maternity Clinic, Deli Serdang Regency.

Based on the background above, this research aims to determine the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in post-partum mothers. Meanwhile, the specific aim is to determine the characteristics of perineal laceration pain in post-partum mothers and to test the effectiveness of

cold compress therapy using a dry method using gel to reduce the intensity of perineal laceration pain in post-partum mothers.

Method

This research is a quantitative study using the Quasy Experimental Pre-Post Test one Group research design (Singh, 2021). This research was conducted to determine the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in post-partum mothers at the "NIAR" maternity clinic, Kec. Patumbak, Deli Serdang Regency, 2023. This study did not use a control group in providing cold compress therapy. This design technique begins with measuring the intensity of pain, then giving a cold compress intervention for 15 minutes, then measuring again, this is done 3 times a day for 2 days. To measure differences in pain intensity, researchers conducted a pre-test before the intervention and a post-test after the intervention with the following design:

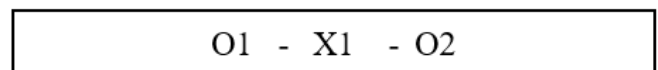


Figure 1. Pre-test-post test design

Information:

O1 =pre-test measurements carried out before intervention

O2 =post-test measurement after cold compress intervention

X1 =Cold compress intervention

Observations carried out before treatment are called (O1) called pre-test. Observations made after treatment (O2) are called post-test.

Population and Sample

The population in this study was 205 post-partum mothers who experienced perineal laceration pain at the NIAR Maternity Clinic, Patumbak District, Deli Serdang Regency in 2022. The sample is part of the population used in research. The sampling technique uses purposive sampling.

Sampling Technique

The sampling technique was carried out using purposive sampling, using the Slovin formula, namely:

Information:

n = Sample size

N = Population size

e = error level (e = 15%)

Based on the Slovin formula, the sample size is as follows:

$$n = \frac{205}{1 + (205 \times 0.15^2)}$$

$$n = \frac{205}{1 + 4.6125}$$

$$n = \frac{205}{5.6125}$$

$$n = 36.5$$

So, the number of samples to be studied in this research is 37 respondents. The first step is for the researcher to look at and select research respondents who match the predetermined criteria and to ensure a sufficient number of respondents have been determined, purposive sampling is carried out. Data analysis in this study used Univariate Analysis and Bivariate Analysis.

Result and Discussion

Characteristics of Respondents Based on Partum Maternal Age

In general, the characteristics of respondents are as follows:

Table 1. Characteristics of Respondents Based on Age of Post Partum Mothers at the Niar Maternity Clinic, Deli Medium District, 2023.

Age (years)	Respondent Characteristics	
	Frequency	Percentage (%)
15-49	37	100
Total	37	100

Table 1 above shows that based on the age of the majority of respondents, postpartum mothers at the Niar clinic, Deli Serdang Regency were aged 15-49 years, 37 respondents (100%).

Characteristics of Respondents Based on Post-Partum Mother's Education

Table 2. Characteristics of Respondents Based on Education of Post Partum Mothers at the Niar Maternity Clinic, Deli Serdang Regency, 2023.

Education	Respondent Characteristics	
	Frequency	Percentage (%)
SD	3	8.10
SMP	14	37.80
SMA	20	54.10
Total	37	100

Table 2 above shows that based on the education of the majority of respondents, postpartum mothers at the Niar clinic, Deli Serdang Regency, were high school, 20

respondents (54.10%), 14 respondents (37.80%) postpartum mothers were junior high school graduates and 3 respondents (8.10%) Postpartum mothers were elementary school graduates.

Characteristics of Respondents Based on Occupation of Post-Partum Mothers

Table 3 shows that based on occupation, the majority of postpartum mothers' respondents are housewives (27 respondents (73%), 6 respondents (16.2%) are self-employed and 4 respondents (10.8%) are self-employed. Civil servants.

Table 3. Characteristics of Respondents Based on Occupation of Post Partum Mothers at the Niar Clinic, Deli Serdang Regency in 2023

Work	Respondent Characteristics	
	Frequency	Percentage (%)
Housewife	27	73
Self-employed	6	16.20
Government employees	4	10.80
Total	37	100

Perineal Pain Intensity Before Cold Compress Therapy

Based on Table 4, it can be seen that the frequency distribution of perineal pain intensity before the cold compress therapy intervention was carried out. The results showed that the majority experienced severe pain as many as 22 respondents (59.5%), experienced moderate pain as many as 15 respondents (40.5%), and none experienced moderate pain. respondents who experienced mild pain and no pain.

Table 4. Frequency Distribution of Perineal Pain Intensity Before Cold Compress Therapy.

Pain Intensity	Pre-test Results	
	Frequency	Percentage (%)
No Pain	0	0
Mild Pain	0	0
Moderate Pain	15	40.50
Severe Pain	22	59.50
Total	37	100

Perineal Pain Intensity After Cold Compress Therapy

Table 5. Frequency Distribution of Perineal Pain Intensity After Cold Compress Therapy

Pain Intensity	Post-test results	
	Frequency	Percentage (%)
No Pain	9	24.40
Mild Pain	18	48.60
Moderate Pain	10	27.00
Severe Pain	0	0
Total	37	100

Based on Table 5, it can be seen that the frequency distribution of perineal pain intensity after the cold compress therapy intervention was carried out, the majority experienced mild pain, 18 respondents (48.6%), 9 respondents experienced no pain (24.4%), 10 respondents experienced moderate pain (27.0%) and not a single respondent experienced severe pain.

Normality Test

The data normality test is carried out to determine categories and find out whether a distribution is normal or not. For samples ≥ 50 , Kolmogorov-Smirnov is used and for samples ≤ 50 , Shapiro-Wilk is used (Surahman, et al, 2016). The data normality test used in this study is Shapiro-Wilk because the sample size is ≤ 50 .

Table 6. Data Normality Test

Pain Intensity	p-value	Information
Pre-test	0.089	Normal
Post-test	0.00	Abnormal

Based on Table 6, it can be seen that the p-value in the pre-test data is 0.088, while the p-value in the post-test data is 0.000. The value on the post-test is smaller than 0.05. So it can be concluded that the data used in this study is not normally distributed, so the statistical test used is the Wilcoxon test.

Wilcoxon Test

Based on Table 7, the statistical test results show that the p-value is 0.000, which means that H_0 is rejected and H_a is accepted, meaning that there is a difference between the intensity of perineal pain before and after the cold compress therapy intervention, so it can be concluded that there is the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in postpartum mother at the Niar Maternity Clinic, Deli Serdang Regency.

Table 7. Wilcoxon Test Results

Variable	Posttest-Pretest
Z	-5.21 ^b
Asymp. Sig. (2-tailed)	0.00

Univariate Analysis

Characteristics of Post-Partum Mother Respondents at the Niar Maternity Clinic, Deli Serdang Regency

Women of childbearing age (WUS) are women aged 15 -49 years without taking into account their marital status. This theory is in line with the research results in Table 1 based on the age of the majority of respondents. Partum mothers at the Niar clinic, Deli Serdang Regency were in the age range of 15-49 years with 37 respondents (100%). Women of childbearing age have reproductive organs that are still functioning well between the ages of

20-45 years (Peck et al., 2023). Women's fertile age progresses faster than men's (Sirard, 2022). Peak fertility is in the age range of 20-29 years. At this age, women have a 95% chance of getting pregnant. In your 30s the percentage decreases to 90%. Meanwhile, entering the age of 40, the chance of getting pregnant decreases to 40%. After the age of 40 women only have a maximum of 10% chance of getting pregnant.

Based on the educational characteristics of post-partum mothers in Table 2, the results showed that the majority of respondents for post-partum mothers at the Niar clinic, Deli Serdang Regency were high school, 20 respondents (54.10%), 14 respondents (37.80%) post-partum mothers were junior high school graduates. and 3 respondents (8.10%) Postpartum mothers were elementary school graduates (Zeyneloğlu & Kısa, 2018). A person's level of education can support or influence a person's level of knowledge and a low level of education is always associated with limited information and knowledge (Kurniati et al., 2020). The higher a person's level of education, the higher a person's understanding of the information obtained and their knowledge will be higher (Raghupathi & Raghupathi, 2020). Education will also influence a person's decision-making. Highly educated women can receive information more easily than women with low education so that the information can be implemented (Neyt et al., 2019).

Based on the job characteristics of post-partum mother respondents in Table 3, the results show that the majority of post-partum mother respondents' occupations are housewives (housewives), 27 respondents (73%), 6 respondents (16.2%) are self-employed and 4 respondents (73%). 10.8% are civil servants. Housewives (IRT) have more time at home to take care of housework and family compared to mothers who work outside the home (Power, 2020). This allows Postpartum mothers to visit health workers such as midwives or nurses more often to receive perineal care.

Perineal Pain Intensity Before Cold Compress Therapy Intervention

Based on Table 4, it can be seen that the frequency distribution of perineal pain intensity before the cold compress therapy intervention was carried out. The results showed that the majority experienced severe pain, 22 respondents (59.5%), 15 respondents experienced moderate pain (40.5%), and none experienced moderate pain. respondents who experienced mild pain and no pain. Behavioral responses to pain can include verbal responses, facial expressions, body movements, physical contact with other people, or changes in response to the environment. Every mother who has undergone the birth process with a perineal wound will feel pain (Hartinah et al., 2021).

The pain felt by every mother with a perineal wound causes unpleasant impacts such as pain and fear of moving so many mothers with perineal wounds rarely want to move after giving birth, which can result in there are many problems including sub-uterine involution, irregular discharge of lochea, and postpartum hemorrhage (Luo et al., 2021).

Perineal Pain Intensity After Cold Compress Therapy Intervention

Based on Table 5, it can be seen that the frequency distribution of perineal pain intensity after the cold compress therapy intervention was carried out, the majority experienced mild pain, 18 respondents (48.6%), 10 respondents (27.0%) experienced moderate pain and 9 respondents (24.4%) experienced moderate pain. %) no longer experiencing pain. From the table, it can be seen that there is a decrease in pain intensity after being given cold compress therapy intervention. Pain management can be done in 2 ways, namely pharmacological with drugs and non-pharmacological which consists of various actions, namely physical stimulation and cognitive behavior (Priyank et al., 2023). Physical treatment includes skin stimulation (massage), contralateral stimulation compresses, reflexology, and immobilization, cognitive behavioral interventions include distraction measures, relaxation techniques, and therapeutic touch. A simple method that can be used to reduce pain naturally is by applying a cold compress to the wound. This is a natural and simple alternative option for reducing pain other than with medication (El Geziry et al., 2018).

Applying a cold compress will provide a feeling of comfort to the post-partum mother because the effect of the cold compress can reduce the speed of nerve conduction so that fewer pain impulses reach the brain and cause a decrease in the sensation of pain felt. Apart from that, this cold compress will indirectly create a good relationship between patients and health workers because postpartum mothers can undergo their postpartum period safely and comfortably using cold compresses, which is a non-pharmacological method that can be used to reduce pain.

Bivariate Analysis

Effectiveness of Cold Compress Therapy in Reducing the Pain Intensity of Parineal Lacerations in Post-Partum Mothers

Based on Table 7, the statistical test results show that the p-value is $0.000 < 0.05$, which means that H_0 is rejected and H_a is accepted, meaning that there is a difference between the intensity of perineal pain before and after the cold compress therapy intervention, so it can be concluded that there is the effectiveness of cold compress therapy in reducing the intensity. perineal laceration pain in postpartum mothers at the Niar

Maternity Clinic, Deli Serdang Regency. Pain in the perineal area in postpartum mothers is caused by tears in this area during the birthing process. Perineal wound pain can be interpreted as when a mother feels pain due to an injury to the perineal area after the birth of her baby. The intensity of pain felt by each individual will be different because pain is an unpleasant emotional feeling that interferes with activities (Gilam et al., 2020). The discomfort and pain experienced by post-partum mothers due to perineal tears usually makes mothers afraid to move after giving birth, even the pain will affect mobilization, rest patterns, eating patterns, psychology, ability to defecate or urinate, daily activities in breastfeeding and taking care of the baby (Priddis et al., 2014).

Various methods for treating perineal wound pain can be done either pharmacologically or non-pharmacologically. Non-pharmacological therapies that can be given to reduce pain include massage, distraction, self-hypnosis, and cold compresses. Applying cold compresses is an alternative method of non-pharmacological treatment that uses local low temperatures which can cause several physiological effects, such as reducing pain, including perineal wound pain (East et al., 2012). The results of this research are in line with research conducted by Isnaini et al. (2022) with the title "The Effect of Giving Cold Water Compresses on Perineal Wound Pain in Post Partum Mothers". The results of the study showed that after giving cold water compresses to postpartum mothers, the result was $p\text{-value} = 0.001 < 0.05$, which means that there was an effect of giving cold water compresses on the intensity of perineal wound pain. There are differences in the intensity of cold compress pain because the body's physiological response is different. Cold compresses reduce blood flow to the wound area, thereby reducing the risk of bleeding and edema.

This is also in line with research conducted by (Kim et al., 2020) with the title Effectiveness of Warm and Cold Compresses on Perineal Laceration Pain in Primiparous Post-Partum Mothers in Depok. This means that cold compress therapy is more effective in treating perineal wound pain in post-partum mothers. The use of cold compresses has been proven to relieve pain and have an analgesic effect which slows down the speed of nerve conduction so that fewer pain impulses reach the brain. Furthermore, according to research conducted by Ulfa et al. (2020), with the title The Effectiveness of Giving Cold Compress in Pain Reduction Intensity of Parineal Wound of Postpartum Mothers, the results of the research show that giving cold compresses can reduce the intensity of perineal wound pain in postpartum mothers. The p-value was obtained $0.003 < 0.05$. Giving a cold compress in the form of an ice pack, namely ice

packed using an ice bag containing ice cubes and wrapped in something clean such as a washcloth or sterile gauze for 5-10 minutes on the perineal wound can significantly reduce the pain of the perineal wound. Based on the research results which can be strengthened by several previous research results, it can be concluded that there is effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in postpartum mothers.

Conclusion

Based on the results of the research that has been carried out, the researcher can conclude that it is known that the characteristics of respondents are based on the age of the majority of respondents. Post-partum mothers at the Niar clinic, Deli Serdang Regency are aged 15-49 years as many as 37 respondents (100%), it is known that the characteristics of respondents are based on the education of the majority of respondents. Postpartum at the Niar clinic, Deli Serdang Regency, 20 respondents (54.10%) were high school, 14 respondents (37.80%) Post partum mothers were junior high school graduates, and 3 respondents (8.10%) Postpartum mothers were graduates Elementary school, it is known that the characteristics of respondents are that based on their occupation, the majority of respondents, Postpartum mothers, are housewives (housewives), 27 respondents (73%), 6 respondents (16.20%) are self-employed and 4 respondents (10.8%) are self-employed. Civil servants, it is known that the frequency distribution of the intensity of perineal pain before the cold compress therapy intervention was carried out, the majority experienced severe pain as many as 22 respondents (59.5%), and 15 respondents experienced moderate pain (40.5%), it is known the frequency distribution of the intensity of perineal pain after it was carried out. The majority of cold compress therapy interventions experienced mild pain in as many as 18 respondents (48.6%), experienced no pain in as many as 9 respondents (24.4%), experienced moderate pain in as many as 10 respondents (27.0%) and there was no more one respondent. who experience severe pain, there is the effectiveness of cold compress therapy in reducing the intensity of perineal laceration pain in postpartum mothers at the near maternity Clinic, Deli Serdang Regency with a p-value of $0.00 < 0.05$.

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Author Contributions

Conceptualization, S. B. G., Y. Y., E. L. S.; methodology, S. B. G.; validation, Y. Y. and E. L. S.; formal analysis, S. B. G.;

investigation, Y. Y. and E. L. S.; resources, S. B. G. and Y. Y.; data curation, E. L. S.; writing—original draft preparation, S. B. G. and Y. Y.; writing—review and editing, E. L. S.; visualization, and S. B. G. and Y. Y. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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