



## The Effect of Cold Compresses On Reducing The Intensity of Postpartum Perineal Pain In PMB of The Sungai Langkai Public Health Center, Batam City in 2024

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### ABSTRACT

Perineal pain occurs due to perineal rupture either spontaneously or episiotomy during the labor process. The feeling of pain will appear when an injury occurs. The perineal pain that is not treated properly will cause the postpartum complications, such as infection and bleeding during postpartum. As indicated by the results of the 2023 Indonesian Health Survey, there are 42.7% of postpartum hemorrhage cases and there are 25.9% of postpartum infections. Cold compresses are one of the alternative nonpharmacological methods to treat perineal pain. The aims of the research is going to analyze In 2024, the Sungai Langkai Community Health Centre in Batam City conducted research on the effect of cold compresses on reducing the intensity of postpartum perineal pain in mothers who had given birth. For this study, a pre-experimental design was used, and a pre-test and post-test group were designed. The sample of this research was 15 postpartum mothers with perineal tears. The results showed that the respondents' perineal pain was severe before the intervention was carried out was an average of 5.73 average intensity of perineal pain after intervention was 1.33. Based on the results of the Paired Sample T-test statistical test, a significance value of 0.000 was obtained, which is smaller than the significance level of 5% ( $p\text{-value} = 0.000 < 0.05$ ). Therefore, it can be concluded that cold compresses help reduce the intensity of perineal pain experienced by mothers after delivery with PMB Sungai Langkai Public Health Center, Batam City in 2024. It is recommended for Midwifery to provide cold compress therapy in providing care for mothers who have just given birth and are experiencing pain in the perineal area

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### 1. Introduction

The perineum are located between the vulva (in females) or the scrotum (in males) and the anus. A perineal laceration refers to a tear in the perineum occurring during the delivery process, either spontaneously or through an episiotomy (Zubaidah et al., 2021). A perineal rupture is an injury to the perineum caused by tissue damage from pressure from the fetal head or shoulders during the second

stage of labor. Perineal rupture can occur automatically or as a result of an episiotomy. Perineal ruptures often occur during labor in both primiparous and multiparous women. Perineal injuries are generally minor, but can sometimes be extensive enough to cause bleeding. (Yulizawati et al., 2019)

Perineal ruptures often occur in women during labor. Perineal ruptures can cause pain in the early postpartum period, necessitating postpartum care. Postpartum care helps mothers maintain their physical and psychological health. (Elliana et al., 2024) Comprehensive postpartum care requires supervision by a midwife to help accelerate the return of reproductive organs to normal. If postpartum care is not met, it can lead to problems later in the postpartum period. (Rukiyah & Yulianti, 2018)

Perineal pain is an unpleasant sensation experienced by individuals, with pain thresholds varying from one person to another. This discomfort is caused by tissue tearing that can occur either spontaneously or intentionally via an episiotomy. (Weissmann-Brenner et al., 2020). Perineal lacerations can occur spontaneously or through an episiotomy for specific reasons. Failure to care for perineal lacerations can lead to postpartum complications, infection, and even bleeding, which can impact maternal morbidity and mortality (Kasmiasi, 2023). The incidence of postpartum hemorrhage due to perineal rupture is 67%. (Ujianti et al., 2023)

**Cold Compression** Cold compression serves as an alternative method for pain management. It is more effective in managing joint pain, reducing swelling, and achieving maximum muscle tension relief compared to warm compression. The application area becomes numb, subsequently delaying the transmission of pain alongside other impulses through sensory neurons (Ningtyas et al., 2023)

Cold compression reduces nerve conduction velocity, inducing anesthesia (numbness) in the affected area. (Saleng & Ahmi, 2020). When the skin is treated with cold compression, endorphins are released, which inhibit sensory nerve fiber A-beta transmitters. This process closes the synaptic gate, reduces pain intensity, and promotes healing. This occurs because the release of endorphins causes the transmission of A-beta fibers to become larger and faster, effectively blocking and decreasing pain transmission through A-delta and C fibers (Munafiah et al., 2022)

Based on data obtained by researchers on February 27, 2024, Sungai Langkai Public Health Center became one of the Public Health Centers number of babies born per mother in Batam City with if the mother gives birth with pain in the perineal area several PMB of the Sungai Langkai Public Health Center in 2023 amounting to 163 mothers giving birth, 141 of whom experienced Perineal Pain spontaneously or due to episiotomy.

Postpartum mothers with Perineal Pain inevitably experience pain. According to research by Azzah, et al (2022), postpartum mothers experience pain in their Perineal Pain from 2 hours postpartum to 7 days postpartum. Applying a cold compress to the perineal wound provides an analgesic effect, reducing pain and accelerating the healing process. Applying a cold compress for 10–15 minutes for 3 days can be can reduce pain caused by perineal wounds. (Yusayyrotul Jannah & Oktafia, 2022)

Based on the background and the truth that has occurred, the researcher wishes to study and conduct research on the Effect of Cold Compresses on Reducing the Intensity of Perineal Pain in PMB of Sungai Langkai Public Health Center, Batam City in 2024.

## 2. Methods

This research is a quantitative research using the experimental research method of Pre-Experiment research design with the One Group Pretest Posttest Design approach. The sample in this study were postpartum mothers with Perineal Pain in the PMB working area of the Sungai Langkai Public Health Center, Batam City in 2024. Participants were eligible for inclusion if they were postpartum mothers with a grade II or higher perineal rupture, reported a pain score of  $\geq 4$ , were assessed at 6 hours postpartum, and had received a single dose of analgesic medication at least 2 hours after delivery. Mothers with a history of cold hypersensitivity or allergy, those diagnosed with sexually transmitted infections, and those who declined to participate were excluded from the study. This study used a Nonprobability Sampling sampling technique with a Purposive Sampling Technique. Data collection was carried out using the Wong Baker Scale Pain observation sheet and the Cold Compress SOP. Furthermore, data analysis was carried out using the Paired T-Test with a p-value ( $\alpha < 0.05$ ).

### 3. Results and Discussion

#### 3.1. General Data

Table 1.  
Characteristics Based on Age of Postpartum Mothers with Perineal Pain in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Age	Frequency (n)	Percentage (%)
< 20 Years	1	6.7
20 – 35 Years	12	80.0
> 35 Years	2	13.3
Total	15	100.0

Based on table 3.1, it is known that the majority of postpartum mothers with Perineal Pain are aged 20-35 years, numbering 12 (80.0%).

Table 2.  
Characteristics Based on Education of Postpartum Mothers with Perineal Pain in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Education	Frequency (n)	Percentage (%)
Base	0	00.0
Intermediate	8	53.3
Tall	7	46.7
Total	15	100.0

Based on table 3.2, it is known that the majority of postpartum mothers with Perineal Pain have secondary education, namely 8 (53.3%).

Table 3.  
Occupational Characteristics of Postpartum Mothers with Perineal Pain in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Work	Frequency (n)	Percentage (%)
Work	3	20.0
Doesn't work	12	80.0
Total	15	100.0

Based on table 3.3, it is known that the majority of postpartum mothers with Perineal Pain do not work, numbering 12 (80.0%).

Table 4.  
Characteristics Based on Parity of Postpartum Mothers with Perineal Pain in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Parity	Frequency (n)	Percentage (%)
Primipara	5	33.3
Multipara	10	66.7
Total	15	100.0

Based on table 3.4, the majority of postpartum mothers with Perineal Pain were multiparous, namely 10 (66.7%).

#### 3.2. Special Data

Table 5.  
Characteristics Based on Pain Scale Before Intervention Given Postpartum Mothers in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Pain Scale Before	Frequency (n)	Percent age (%)
No Pain	0	00.0
A little pain	0	00.0
A bit painful	5	33.3
Painful	5	33.3
Very Painful	5	33.3
Unbearable Pain	0	00.0
Total	15	100.0

Table 3.5 shows that the pain scale for mothers experiencing perineal pain after delivery is at same pain scale, namely 5 respondents with a score of 4 in the slightly painful category, 5 respondents with a score of 6 in the painful category and 5 respondents with a score of 8 in the very painful category.

Table 6.  
Characteristics Based on Pain Scale After Intervention Given Postpartum Mothers in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Pain Scale After	Frequency (n)	Percent age (%)
No Pain	4	26.7
A little pain	9	60.0
A bit painful	2	13.3
Painful	0	00.0
Very Painful	0	00.0
Unbearable Pain	0	00.0
Total	15	100.0

Based on table 3.6, the majority of postpartum mothers with Perineal Pain were at score 2, including the slightly painful category, namely 9 (73.3%).

Table 7.  
Results of Comparative Statistical Test of Postpartum Maternal Pain Scale with Perineal Pain Before and After Cold Compress Intervention in PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Pain Scale	Before Intervention		After Intervention		p
	n	Percentage	n	Percentage	
No Pain	0	00.0	4	26.7	.000
A little pain	0	00.0	9	60.0	
A bit painful	5	33.3	2	13.3	
Painful	5	33.3	0	00.0	
Very Painful	5	33.3	0	00.0	
Unbearable Pain	0	00.0	0	00.0	
Total	15	100	15	100	

Researchers as the sample size was less than 50, the Shapiro-Wilk test was used to test normality because the results showed that the significance value was greater than 0.05 indicating a normal distribution of the data. Therefore, researchers used a parametric statistical test, namely the Paired Sample T-Test.

### 3.3. The Effect of Cold Compresses on Reducing The Intensity of Postpartum Perineal Pain In PMB of The Sungai Langkai Public Health Center, Batam City in 2024

Bivariate analysis was used the t-test (where data is normally distributed) was used to determine how effective cold compresses are in reducing perineal pain in mothers after childbirth. A p-value of 0.000, which is less than the significance level of 5%, was found based on the significance value. As a result, it can be concluded that that  $H_a$  is accepted, which means there is an Effect of Cold Compresses on Reducing Pain Intensity of Postpartum Mothers Perineal Pain in PMB in the Puskesmas Sei Langkai, Batam City in 2024.

On This study involved cold compress intervention given to postpartum mothers with Perineal Pain for 6 hours. Cold compresses were given twice in 3 days. Pain scale measurements were taken before the respondents were given cold compresses (pretest), then the pain scale of the respondents after being given cold compresses (posttest) was measured on the 3rd day. After being given cold compresses, the respondents' pain scale changed from very painful, painful, and somewhat painful to somewhat painful, slightly painful, and no pain.

Cold compresses can slow nerve conduction, causing numbness in the area of skin where the cold compress is applied. (Bini et al., 2019). Applying a cold compress to a perineal pain stimulates the release of endorphins, which inhibit A-beta sensory nerve fiber receptors, reducing pain impulses to the brain and leading to a dominant perception of cold, thus decreasing pain intensity. (Munafiah et al., 2022; Potter & Perry, 2005)

Applying a cold compress can help reduce pain in Perineal Pain. Apply a cold compress to the perineal area for approximately 20 minutes, two to three times daily. (Rukiyah & Yulianti, 2018; Retno Indra Utami & Dewi Putri, 2023)

Based on research results Meilani, et al. (2023) showed a decrease in twenty-four hours after delivery before intervention, the intensity of perineal pain in the treatment group was 5.57 and in the control group was 5.74, while after the administration of ice gel the average intensity of perineal pain in the treatment group was 2.79 and in the control group it became 3.57. So, it can be concluded that the administration of ice gel has an effect on reducing the intensity of perineal pain in mothers 24 hours postpartum.

Based on the findings of this study, the researchers concluded that perineal pain becomes less severe after cold compresses were administered in PMB of The Sungai Langkai Public Health Center, Batam City in 2024. The results showed that the respondents' perineal pain was severe before the intervention was carried out was an average of 5.73 average intensity of perineal pain after intervention was 1.33. Clinically, this change indicates improved maternal function, as severe pain is commonly associated with limitations in mobility, discomfort during sitting and walking, disturbed sleep, and difficulties in breastfeeding positioning. In contrast, mild or minimal pain allows postpartum mothers to move more comfortably, maintain adequate sleep, and breastfeed more effectively, thereby supporting early recovery and overall maternal well-being. Cold compresses are beneficial for reducing perineal pain in postpartum mothers. Cold compresses are a non-pharmacological alternative that can be used by postpartum mothers with Perineal Pain.

#### 4. Conclusion

Based on the research there are several limitations, including a small sample size ( $n = 15$ ), the absence of a control group, and a single-site pre-experimental design, which may limit generalizability and restrict causal inference. Notwithstanding these limitations of the research, cold compresses have been proven to be highly effective in reducing the intensity of perineal pain in mothers ( $p\text{-value} = 0.000 < 0.05$ ). This intervention successfully reduced pain levels from moderate-severe to mostly mild and no pain. As an inexpensive and applicable non-pharmacological therapy, cold compresses are recommended as part of the Standard Operating Procedure (SOP) for postpartum care to reduce perineal wound pain and improve maternal comfort independently. Future research is expected to expand the sample size and

compare its effectiveness with other complementary methods in perineal pain management in the postpartum period.

## References

- Azzah, I., Setyarini, A. I., & Mediawati, M. (2022). *Kompres Dingin pada Penurunan Intensitas Nyeri Luka Perineum pada Ibu Nifas: Studi Literatur*. 14(3). <https://journal2.stikeskendal.ac.id/index.php/PSKM/article/view/1979/1260>
- Bini, Solomon, R. J., & Ahitha, V. (2019). *Effectiveness of Cold Application on Episiotomy Pain among Postnatal Mothers in selected Hospitals at Kanyakumari District*. 9(2). <https://doi.org/10.5958/2349-2996.2019.00039.9>
- Elliana, D., Mularsih, S., & Dosen Institut Karya Mulia Bangsa. (2024). Gambaran Karakteristik dan Tingkat Pengetahuan Ibu Nifas Tentang Manfaat ASI dan Metode Amenorea Laktasi (MAL) Di Praktik Mandiri Bidan (PMB) Ny. Masriah Kelurahan Kejambon Kecamatan Tegal Timur Kota Tegal. *Jurnal Ilmiah Kesehatan*, 16(1), 78–87.
- Meilani, M., Anwar, M., & Hidayat, A. (2023). Aplikasi Pemberian Kompres Ice Gel Terhadap Nyeri Luka Perineum Pada Ibu 24 Jam Postpartum. *Jurnal Kebidanan Indonesia*, 14(1), 36–42. <https://doi.org/10.36419/jki.v14i1.759>
- Munafiah, D., Rahayu, H., Mujahidah, S., Mustika Dewi, M., & Nuringtyas Rahayu, D. (2022). Manfaat Kompres Dingin Pada Nyeri Perineum Kala IV. *Indonesian Health Issue*, 1(1), 26–33. <https://doi.org/10.47134/inhis.v1i1.7>
- Ningtyas, N. W. R., Amanupunnyo, N. A., Manueke, I., Ainurrahmah, Y., Pramesti, D., Yuliana, Yanti, R. D., Siregar, M. A., Samutri, E., Syaftriani, A. M., Qorahman, W., Hesty, Ekawaty, F., Kusumahati, E., Fitria, K. T., & Laoh, J. M. (2023). Bunga Rampai Manajemen Nyeri. In L. O. Alifariki & H. J. Siagian (Eds.), *Angewandte Chemie International Edition*, 6(11), 951–952. PT Media Pustaka Indo. [http://repo.iain-tulungagung.ac.id/5510/5/BAB\\_2.pdf](http://repo.iain-tulungagung.ac.id/5510/5/BAB_2.pdf)
- Potter, P. A., & Perry, A. G. (2005). *Buku Ajar Fundamental Keperawatan (Konsep, Proses dan Praktik)* (M. Ester, D. Yuliantu, & I. Parulian (eds.); 4th ed.). EGC.
- Retno Indra Utami, D., & Dewi Putri, R. (2023). Perbedaan Kompres Hangat Dan Kompres Dingin Terhadap Pengurangan Nyeri Laserasi Perineum Pada Ibu Post Partum. *Jurnal Ilmiah Kesehatan Indonesia*, 1(2), 87–92.
- Rukiyah, A. Y., & Yulianti, L. (2018). *Buku Saku Asuhan Kebidanan pada Ibu Masa Nifas*. CV. Trans Info Media.
- Saleng, H., & Ahmi, S. (2020). Kompres Dingin Terhadap Pengurangan Nyeri Luka Perineum Ibu Post Partum di RSKDIA Pertiwi. *Madu : Jurnal Kesehatan*, 9(1), 1. <https://doi.org/10.31314/mjk.9.1.1-7.2020>
- Ujiyanti, T., Julian, J., & Zakiah, V. (2023). Hubungan Rupture Perineum dengan Kejadian Perdarahan Postpartum di Rumah Sakit Umum Dewi Sartika Kota Kendari. *Jurnal Pelita Sains Kesehatan*, 4(3), 23–31.
- Weissmann-Brenner, A., Heusler, I., Manteka, R., Dulitzky, M., & Baum, M. (2020). Postpartum Visits in The Gynecological Emergency Room: How can we improve? *BMC Pregnancy and Childbirth*, 20(1), 1–8. <https://doi.org/10.1186/s12884-020-02927-7>
- Yulizawati, Insani, A. A., Sinta, L. El, & Andriani, F. (2019). *Buku Ajar Asuhan Kebidanan Pada Persalinan*. In *Asuhan Kebidanan Pada Persalinan (Pertama)*. Indomedia Pustaka.
- Yusayyirotul Jannah, F., & Oktafia, R. (2022). *Application of Ice Compresses to Reduce Pain in Postpartum Mothers with Episiotomy Wounds: Case Study*. 2(2), 85–91. <https://prosidings.umy.ac.id/grace/index.php/pgrace/article/view/495>
- Zubaidah, Rusdiana, Norfitri, R., & Pusparina, I. (2021). *Asuhan Keperawatan Nifas*. Deepublish. <https://webadmin-ipusnas.perpusnas.go.id/ipusnas/publications/books/177768/>