

Warm compress therapy for postpartum perineal pain in postpartum mothers

Surita Br Ginting^{1*}, Yufdel Yufdel², Elny Lorensi Silalahi³

^{1,2,3}Nursing Department, Politeknik Kesehatan Kementerian Kesehatan Medan

Abstract

Perineal laceration in postpartum women causes pain that affects the mother's activities and can also cause complications such as postpartum hemorrhage, infection, and there is a psychological impact. This study examines the effectiveness of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum mothers. The method used in this study is a quasi-experiment with a pre posttest design on postpartum mothers and a pretest test is carried out by measuring the intensity of pain before intervention, after which a warm compress intervention is then measured again to reduce the intensity of perineal laceration pain. This study was conducted from May to July in 2024 at the NIAR Maternity Clinic with a sample of 37 postpartum mothers. The intensity of perineal laceration pain before the intervention of warm compress therapy, the majority experienced moderate pain as many as 30 respondents (81.1%), severe pain as many as 7 respondents (18.9%), while after the intervention of warm compress therapy there were differences with the results, the majority had no pain as many as 29 respondents (78.4%), mild pain as many as 8 respondents (21.6%), and moderate and severe pain no longer existed. It can be concluded "Warm Compress Therapy is significantly effective in reducing the intensity of perineal laceration pain in post-partum women at the Niar Maternity Clinic, Deli Serdang Regency in 2024 with a p-value of 0.000 < 0.05.

Keywords: Perineal laceration, Post partum mother, Warm compress

Introduction

Postpartum women often have problems that cause pain during childbirth, one of which is the wound to the perineum during childbirth, usually a tear that occurs during childbirth either spontaneously or by using an episiotomy device, this tear usually occurs in the midline between the vulva and anus.^[1,2]

The factors most associated with the incidence of perineal laceration are parity, baby weight and technique of receiving.^[3]

The prevalence of perineal laceration in mothers giving birth in Indonesia is 63% in mothers aged 20-30 years and 37% in mothers aged 31-39 years.^[4] The problem of perineal laceration in Indonesia increased to 67.2% in 2014 from 60% in 2013.^[5]

Perineal wounds during childbirth can cause pain. Pain is an unpleasant sensory and emotional experience resulting from actual and potential tissue damage. Pain is also an unpleasant sensation that is limited to a specific part of the body. The process of tissue damage such as tingling, twisting, burning, nausea, fear and

emotion is often described.^[6] In addition, pain causes discomfort in the body and often causes physical, mental, and emotional disorders.^[7,8]

Perineal pain occurs in tears of the perineum, vagina, cervix, which occur spontaneously or as a result of episiotomy manipulation during childbirth,^[6] causing discomfort when sitting, standing, walking and moving, and can cause problems such as delayed uterine return to normal due to endometrial infection, obstructed elimination, and postpartum bleeding. Perineal wound pain in postpartum women certainly affects maternal mobilization, such as rest, eating habits, sleep time, maternal mood, ability to do household chores, socialize with the environment and society.^[9]

Pain intensity can be classified based on the degree of pain scale. The pain scale in perineal wounds is also influenced by the degree of perineal laceration in postpartum mothers.^[10] Perineal wound pain can affect the comfort level of postpartum women, which if not handled properly can affect the needs of the basic needs of postpartum women such as walking, bathing, maternal psychology, elimination needs, daily activities and functions, to care for babies, therefore nurses must play a role in the management of perineal wounds.

Based on the degree of pain, it is divided into three namely mild pain, moderate pain and severe pain. Mild pain is pain that is felt at any time and usually occurs during daily activities, while moderate pain can persist and interfere with activities then disappear when the patient rests, and severe pain occurs continuously and causes the sufferer to be unable to rest.

Numerical Rating Scales /NRS

Numerical rating scales represent a methodological alternative to verbal descriptors. Patients assess their pain intensity utilizing a scale ranging from 0 to 10. The designation of 0 signifies the absence of pain, whereas the designation of 10 indicates the most extreme level of pain. The Numerical Rating Scale (NRS) bears resemblance to the Visual Analog Scale; however, it incorporates numerical values along its continuum. The numerical ranges utilized can be either 0-10 or 0-100, with patients requested to specify the extent of pain they are experiencing.

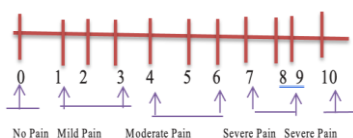


Figure 1. Pain numeric rating scale

The gradations of pain can be delineated as follows:

1. Scale 0: absence of pain.
2. Scale 1-3: characterized as mild pain, wherein the individual has not expressed any complaints regarding pain, or the discomfort remains tolerable as it is still beneath the threshold of stimulation.
3. Scale 4-6: denoted as moderate pain, during which the individual may start to vocalize discomfort and express grievances while applying pressure to the affected area.
4. Scale 7-9: encompassing severe pain, at this level the individual may articulate significant distress and find it challenging to engage in routine activities.
5. Scale 10: also classified as severe pain, at this intensity the individual may lose the capacity for self-recognition.^[11]

Pain management can be classified into two distinct

methodologies, specifically pharmacological and nonpharmacological interventions. ^[12,13] The advancement of nonpharmacological strategies is essential due to their lack of adverse effects, coupled with their simplicity and comfort for mothers, exemplified by the application of warm compresses.

The most elementary non-pharmacological approach that may be employed to alleviate pain and discomfort, particularly in women experiencing postpartum perineal injuries, is the application of warm compress therapy. The application of warm compresses constitutes a specific modality of cutaneous stimulation through thermal means. The mechanism by which this warm compress operates involves the inhibition of nociceptive signal transmission, thereby resulting in a reduction of the quantity of pain impulses that are conveyed to the cerebral cortex.^[14] Warm compresses are capable of delivering a thermal effect intended to enhance comfort, alleviate discomfort, mitigate or avert muscular contractions, and elicit a soothing warmth in the region of perineal lacerations. The application of warm compresses engenders physiological changes within the body, specifically by facilitating the softening of fibrous tissues, influencing the oxygenation of tissues, thereby averting muscular rigidity, enhancing vascular dilation, and promoting blood circulation, ultimately resulting in diminished pain perception. Furthermore, the advantages of warm compresses extend to facilitating wound repair, decreasing the likelihood of infection and inflammation, enhancing circulatory function, and providing a state of tranquility and reassurance to patients. In addition to their analgesic properties, warm compresses may also serve as an effective intervention for alleviating anxiety and trepidation among postpartum mothers. Thermal stimuli also activate nociceptive fibers that occlude the nociceptive pathway, thereby inhibiting the conveyance of pain signals to the spinal cord and cerebral cortex, which consequently engenders a sense of relief for the parturient mother. The optimal temperature for the application of a warm compress should be approximately 37.5°C to 40°C, with maximum threshold not surpassing 42°C. The advantages associated with the utilization of a warm compress include its facilitation of wound healing and the elimination of toxins, in addition to imparting a comforting and analgesic effect on injuries and

discomfort. In a preliminary investigation conducted at the NIAR Patumbak Maternity Clinic, located in the Deli Serdang Regency in the year 2021, it was determined that 214 out of 277 mothers in the process of labor presented with perineal injuries. In the subsequent year of 2022, data was acquired from a cohort of 224 mothers who experienced childbirth accompanied by perineal wounds, of which 205 individuals were identified. Furthermore, in the year 2023, data obtained from a sample of 230 mothers who underwent childbirth with perineal lacerations revealed that 211 individuals were affected. This phenomenon has garnered considerable interest among scholars engaged in nursing research as an alternative therapeutic modality or adjunctive care, specifically known as Compress Therapy. In 2023, an empirical investigation was undertaken that involved administering cold compress therapy to perineal wounds, yielding significant efficacy in alleviating pain intensity. Subsequently, in 2024, the same research site implemented warm compress therapy, which likewise demonstrated effectiveness in diminishing the intensity of perineal wound pain experienced by postpartum mothers.

Methods

This investigation constitutes a quantitative analysis employing the research design termed “Quasi-Experimental Pre-Post Test One Group,” which exclusively examines the outcomes within a singular cohort of subjects without the inclusion of a comparative or control group. In the course of this study, a pre-test was administered prior to the application of the treatment, followed by a post-test that was conducted subsequent to the treatment. [15,16]

This study was conducted to determine the effectiveness of warm compress therapy on reducing the intensity of parineal laceration pain in postpartum mothers. This research design begins with a measurement of pain intensity then given a warm compress intervention for 15 - 20 minutes then a measurement is taken again, this is done 3 times a day for 2 consecutive days. To measure differences in pain intensity, researchers conducted a *pre-test* before intervention and *post-test* after intervention with a design:

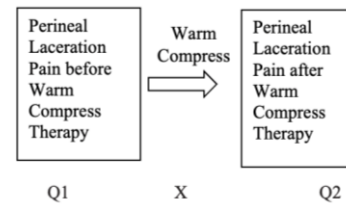


Figure 2. Research design

Population and Sample

The population of this study were postpartum mothers who experienced perineal laceration pain at the NIAR Maternity Clinic, Patumbak District, Deli Serdang Regency in 2024 as many as 211 people, determining the number of samples using the slovin formula so as to obtain a sample size of 37 respondents and sampling by purposive sampling.

Result

Univariate analysis

Univariate analysis was carried out to determine the frequency distribution and percentage of each variable on the effectiveness of the use of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum mothers at the NIAR maternity clinic, Deli Serdang Regency, the data obtained was then processed and presented in the form of a frequency distribution table as follows:

Characteristics of the respondents

Table 1: Frequency distribution of respondents based on characteristics at the NIAR maternity clinic, deli Serdang regency

Characteristics	Frequency	Percentage (%)
Age		
17-23	9	24,3
24-30	20	54,1
31-37	8	21,6
Total	37	100
Education		
Secondary High School	3	8,1
Senior High School	33	89,2
University	1	2,7
Total	37	100
Parity:		
First	15	40,5
Second	13	35,1
Third	8	21,6
Forth	1	2,7
Total	37	100

Based on table 1, it shows that the characteristics of the most respondents based on age range 24-30 years were 20 respondents (54.1%), based on education the majority had a high school education as many as 33 respondents (82.9%), based on the most partuses were first partuses as many as 15 respondents (40.5%).

Perineal laceration pain scale pre warm compress therapy

Table 2: Frequency distribution of respondents based on pain scale pre warm compress therapy at the NIAR maternity clinic, deli Serdang regency

Pain Scale	Pre Test	Percentage (%)
Severe Pain	7	18,9
Moderate pain	30	81,1
Mild pain	0	0,0
No Pain	0	0,0
Total	37	100,0

Table 2 shows that before therapy, the intensity of perineal wound pain was found to be the majority of the moderate pain scale (81.1%) and severe pain as many as 7 respondents (18.9%).

Perineal laceration pain scale post warm compress therapy

Table 3: Frequency distribution of respondents of warm compress therapy on perinium laceration

Pain Scale	Post Test	Percentage (%)
Severe Pain	0	0,0
Moderate pain	0	0,0
Mild pain	8	21,6
No Pain	29	78,4
Total	37	100,0

Table 3 shows that after the intervention the majority of the results were no more pain as many as 29 respondents (78.4%) and mild pain as many as 8 respondents (21.6%) and moderate and severe scales no longer exist.

Based Based on Pain Scale Post Warm Compress Therapy at the NIAR Maternity Clinic, Deli Serdang Regency.

Bivariate analysis

Bivariate analysis in this study was conducted to analyze the effectiveness of the use of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum women at the NIAR maternity clinic, Deli Serdang Regency. The data normality test is carried out to determine the category and determine the distribution of a data distribution whether normal or not. For samples ≥ 50 used Kolmogorov-smirnov and samples ≤ 50 used Shapiro-Wilk.^[17] The test used in this study was Shapiro-Wilk because the sample size was ≤ 50 .

Normality test of data before and after warm compress therapy intervention

Table 4: Data normality test

Pain Intensity	p-value	Information
Pre-test	0,00	Not normally distributed
Post-test	0,00	Not normally distributed

Based on table 4. it can be seen that in the pre and posttest normality test the results were found with a p-value of 0.00. it can be concluded that the data in this study are not normally distributed. And furthermore, because the data is not normally distributed, it will be tested with the Wilcoxon test. The Wilcoxon test in this study was used to answer the formulation of the problem "Is there an effectiveness of the use of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum mothers at the NIAR maternity clinic, Deli Serdang Regency in 2024. Names of place are not translated and discussed in the works by Sembiring, M.,et.al (2022)^[18], and Sembiring, M.et.al (2023)^[19].

Wilcoxon test of data

The basis for decision making in the Wilcoxon test is:

- If the asmp. Sig value < 0.05 , then H_a is accepted.
- If the value of asmp Sig > 0.05 , then H_a is rejected.
- Statistic Testa

Table 5: Wilcoxon test

	Pain Scale Posttest-Pretest
Z	-5.453
Asymp. Sig. (2-tailed)	0.000

- Wilcoxon Signed Ranks Test
- Based on positive ranks.

Based on table 4 that the *Wilcoxon* test results above on the posttest-pretest pain scale the probability value (p) is $0.000 < 0.05$, so the hypothesis is accepted. So it can be concluded that there is a significant effectiveness of using warm compress therapy on reducing the intensity of perineal laceration pain in postpartum mothers at the NIAR maternity clinic, Deli Serdang Regency, 2024.

Discussion

Characteristics of Respondents at NIAR Maternity Clinic, Deli Serdang Regency

The characteristics of respondents in this study were found in the age group ranging from 17 years to 37 years of age. Women of childbearing age (WCA) are women who enter the age of 15-49 years without taking into account their marital status. This theory is in line with the results of the study in table 1 based on the age of the majority of respondents of postpartum mothers at the Niar clinic, Deli Serdang Regency, the most were in the age range of 24-30 years as many as 20 respondents (54.1%). In the age range 17-23 years as many as 9 respondents (24.3%) and in the age range 31-37 years as many as 8 respondents (21.6%).

Women of childbearing age have reproductive organs that are still functioning properly between the ages of 20-45 years. Fertile age in women lasts faster than in men. Peak fertility is in the age range of 20-29 years. At this age women have a 95% chance of getting pregnant. In the 30s, the percentage decreases to a 90% chance of getting pregnant. While 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, and all mothers giving birth can experience perineal laceration. Women of childbearing age have reproductive organs that are still functioning properly between the ages of 20-45 years. Fertile age in women lasts faster than in men. Peak fertility is in the age range of 20-29 years. At this age women have a 95% chance of getting pregnant. In the 30s, the percentage decreases to a 90% chance of getting pregnant. While 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, and all mothers giving birth can experience perineal laceration.

Based on the characteristics of respondents' education in table 4.1, the results of the majority of respondents of postpartum mothers at the Niar clinic, Deli Serdang Regency, had the last high school education as many as 33 respondents (89.2%), junior high school as many as 3 respondents (8.1%) and college as many as 1 respondent (2.7%). A person's level of education can support or influence a person's level of knowledge and a low level of education is always related to limited information and knowledge, the higher the level of education of a person, the higher a person's understanding of the information obtained and the knowledge will be higher. Education will also affect a person in making decisions. Highly educated women can receive information more easily than women with low education so that the information can be implemented. This allows postpartum mothers to visit health workers such as midwives or nurses more often to get perineal care.

Based on the characteristics of the respondents, in table 4.1 the results obtained, the most respondents were the first partus as many as 15 respondents (40.5%), the second partus was 13 respondents (35.1%) the third partus was 8 respondents (21.6%) the fourth partus was 1 respondent (2.7%) The factors most associated with the incidence of perineal laceration are parity, baby weight and technique of receiving.^[3]

Perineal Pain Intensity before Warm Compress Therapy Intervention

Based on table 4.2, it can be seen that the frequency distribution of perineal pain intensity before the intervention of warm compress therapy showed that the majority experienced moderate pain as many as 30 respondents (81.1%), experienced severe pain as many as 7 respondents (18.9%), and none of the respondents experienced mild pain or no pain. Behavioural responses to pain can be in the form of verbal responses, facial expressions, body movements, physical contact with others or changes in response to the environment.

The pain felt by mothers with perineal wounds causes unpleasant effects such as pain and fear of moving so that many mothers with perineal wounds rarely want to move after childbirth so that it can cause many problems including uterine involution, poor lochea

output, and postpartum hemorrhage.^[9]

Perineal Pain Intensity after Warm Compress Therapy Intervention

Based on table 2, it can be seen that the frequency distribution of perineal pain intensity after the intervention of warm compress therapy found the majority of respondents no longer had pain as many as 29 respondents (78.4%), who experienced mild pain as many as 8 respondents (21.6%), then the scale of moderate and severe pain no longer exists. From this table it can be seen that there is a decrease in pain intensity after being given a warm compress therapy intervention.

By giving a warm compress, it will provide a feeling of comfort to postpartum mothers because the effect given by warm compresses can reduce the speed of nerve transmission so that fewer pain implants reach the brain and cause a decrease in the sensation of pain felt. In addition, this warm compress will indirectly create a good relationship between patients and health workers because postpartum women can undergo their postpartum period safely and comfortably through warm compresses which are a non-pharmacological way that can be used to reduce pain.

Effectiveness of warm compress therapy on reducing perineal laceration pain intensity in post partum mothers

To test the effectiveness of the use of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum women at the NIAR maternity clinic, a pre and posttest normality test was carried out, the results were found with a p-value of 0.00. Then this study the data is not normally distributed and then tested with the Wilcoxon test. The statistical test results obtained a p-value of 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 laceration pain before and after the intervention of warm compress therapy, so it can be concluded that there is a significant effectiveness of warm compress therapy on reducing the intensity of perineal laceration pain in postpartum women at the Niar Maternity Clinic, Deli Serdang Regency in 2024.

The results of this study are in line with the research of Elly and Wita (2019): regarding the effectiveness of warm compresses on the intensity of perineal laceration pain in postpartum women at BPM Siti Juliaha Pekanbaru. As a measuring tool for the management of warm compress therapy against perineal laceration pain is the Numerical rating scale (NRS), and the results show that warm compresses are effective in treating perineal laceration pain in postpartum women with a p-value of 0.003 ($p < 0.05$). Warm compress therapy can be used as an alternative treatment for postpartum perineal wound pain.

The Effectiveness of Warm and Cold Compresses on Perineal Laceration Pain in Primipara Post Partum Mothers in Depok," the p-value was 0.003 <0.05 following the application of compress therapy, indicating that it is a successful treatment for postpartum mothers' perineal wound pain. The use of compress therapy is proven to relieve pain and cause an analgesic effect that slows the speed of nerve transmission so that fewer pain impulses reach the brain.

Perineal Pain Intensity After Warm Compress Therapy Intervention

Based on table 2, it can be seen that the frequency distribution of perineal pain intensity after the warm compress therapy intervention was carried out, it was found that the majority of respondents no longer felt pain, 29 respondents (78.4%), 8 respondents (21.6%) experienced mild pain, then the pain scale medium and heavy no longer exist. From the table it can be seen that there was a decrease in pain intensity after the warm compress therapy intervention was given.

By giving a warm compress, it will provide a feeling of comfort to postpartum mothers because the effect given by warm compresses can reduce the speed of nerve transmission so that fewer pain implants reach the brain and cause a decrease in the sensation of pain felt. In addition, this warm compress will indirectly create a good relationship between patients and health workers because postpartum women can undergo their postpartum period safely and comfortably through warm compresses which are a non-pharmacological way that can be used to reduce pain.

Effectiveness of warm compress therapy in reducing the pain intensity of perineal lacerations in post-partum mothers

To test the effectiveness of using warm compress therapy in reducing the pain intensity of perineal lacerations in post-partum mothers at the NIAR maternity clinic, a pre- and post-test normality test was carried out, the results were found with a p-value of 0.00. So in this study the data was not normally distributed and then tested using the Wilcoxon test. The statistical test results showed that the p-value was $0.000 < 0.05$, which means H_0 was rejected and H_a was accepted, meaning there was a difference between the intensity of perineal laceration pain before and after the warm compress therapy intervention, so it can be concluded that there is significant effectiveness of warm compress therapy in reducing the intensity. perineal laceration pain in post-partum mothers at the NIAR Maternity Clinic, Deli Serdang Regency in 2024. Based on the results of research that can be strengthened by some previous research results, it can be concluded that there is an effectiveness of warm compress therapy on reducing the intensity of parineal laceration pain in post-partum mothers.

Conclusions

The intensity of perineal laceration pain before the intervention of warm compress therapy was the majority experiencing moderate pain as many as 30 respondents (81.1%), severe pain as many as 7 respondents (18.9%), while after the intervention of warm compress therapy a difference was found with the results, the majority had no pain as many as 29 respondents (78.4%), mild pain as many as 8 respondents (21.6%), and moderate and severe pain no longer existed. It can be concluded "Warm Compress Therapy is significantly effective in reducing the intensity of parineal laceration pain in post partum mothers at the Niar Maternity Clinic, Deli Serdang Regency in 2024 with a p-value of $0.000 < 0.05$.

It is recommended to apply warm compress therapy as a complementary therapy at the Maternity Clinic to reduce the intensity of perineal laceration pain in post-partum mothers.

It is recommended to apply warm compress therapy

as a complementary therapy at the Maternity Clinic to reduce the intensity of perineal laceration pain in Post Partum Mothers

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Conflict of Interest: The authors have no conflicts of interest regarding this study

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