

DIFFERENCES IN THE EFFECTIVENESS OF USING A SITZ BATH AND INFRARED LIGHT THERAPY IN HEALING PERINEAL WOUNDS IN POSTPARTUM MOTHERS AT PMB MIDWIFE NOVIA DEWI IN 2024

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Abstract

Background : Perineal wounds are the most common maternal morbidity associated with normal birth. Long-term morbidity associated with repair of unrecognized external sphincter injuries or trauma can cause major physical, psychological and social problems. Perineal damage can have a major negative impact on women's health. Non-pharmacological therapies that can be given to reduce pain and speed up healing include sitz baths and infrared. Objective: To determine the difference in the effectiveness of using sitz baths and infrared light therapy in healing perineal wounds in postpartum women at PMB Midwife Novi in 2024. Method: This research is a quantitative research with a quasi-experimental design, the design used is a pretest and post test non-equivalent control group approach. The population in this study were all postpartum mothers with perineal wounds at PMB Bidan Novi in June 2024, totaling 64 postpartum mothers. The research sampling technique used total sampling. The sample in this study was 64 postpartum mothers who were at PMB Midwife Novi 2024 in June, 32 postpartum mothers with sitz bath intervention and 32 postpartum mothers with infra red intervention. Results: The research results showed that with a p value of $0.044 < 0.05$, the results of the Mann Whitney test showed that postpartum mothers who were given sitz baths and infrared lamps healed their perineal wounds differently. Sitz bath (average value 1.09) accelerates perineal wound healing compared to infrared lamps (average value 1.84). The results show that there is a significant difference between the use of sitz baths and infrared lamps in healing perineal wounds, the use of Sitz Baths is more effective for healing perineal wounds in postpartum mothers compared to the use of infrared. Conclusion: There is a significant difference between the use of sitz baths and infrared lamps in healing perineal wounds, the use of Sitz Baths is more effective for healing perineal wounds in postpartum women compared to the use of infrared (p value $0.044 < 0.05$).

Keywords: Infrared Lamp, Sitz Bath, Perineal Wound, Postpartum Mother

Introduction

Based on national data, 50% of postpartum deaths occur in the first 24 hours after giving birth (Purwanto, 2018), the incidence of infection during the postpartum period reaches 2.7% and 0.7% of them develop into acute infections. Thus, postpartum care is needed during this period because it is a critical period for both mother and baby. While 70% of women who deliver vaginally experience more or less perineal trauma, most maternal morbidity following perineal trauma remains unreported to health professionals. After suturing, 37% of women complained of problems occurring in the perineal wound, including perineal pain, uncomfortable stitches and open wounds. Perineal wounds are tears that occur when a baby is born either spontaneously or by using tools or actions (Chapman, 2016).

Perineal wounds are the most common maternal morbidity associated with vaginal birth. Long-term morbidity associated with repair of unrecognized external sphincter injuries or trauma can cause major physical, psychological and social problems. Perineal damage can have a major negative impact on women's health. Perineal wounds can occur due to episiotomy or can occur spontaneously during delivery. And it takes 6 to 7 days to heal.

Based on data from the World Health Organization (WHO), there were 2.7 million cases of perineal wounds in mothers giving birth. This figure is estimated to reach 6.3 million in 2050. In line with the increasing number of midwives who do not know midwifery care well. In America, of the 26 million mothers giving birth, 40% of them experience perineal wounds (WHO, 2021). In Asia, perineal wounds are also quite a problem in society, 50% of perineal wounds in the world occur in Asia (Lase, 2019). In Indonesia, 75% of mothers who give birth vaginally experience perineal wounds. In 2020, it was found that of a total of 1,951 spontaneous vaginal births, 57% of mothers received perineal sutures, 28% due to episiotomy and 29% due to spontaneous tears (Ministry of Health, 2020).

In West Java, perineal wounds experienced by women giving birth account for 7% of women bleeding, and 5% of infections from suture wounds. Perineal wounds can have long-term impacts on the mother, namely anal incontinence (perineal injury) which can disrupt a woman's life and well-being, leading to discomfort, embarrassment and withdrawal from the social environment; while the short-term impact on the mother can result in bleeding, fistulas, hematomas, infections (West Java Health Office, 2021). Data from Karawang Regency perineal wounds experienced by women giving birth were 13% bleeding (3-4% perineal wounds), 4% infection and 5% bleeding system disorders and 15% others. Postpartum hemorrhage due to perineal rupture is the second highest contributing factor to maternal mortality in Bandung City (Karawang District Health Office, 2020).

A sitz bath is a sitting soaking bath (sitting in a tub filled with warm water) which functions to provide moist heat to the pelvic, perineal and/or perianal areas. One of the benefits of a sitz bath is reducing pain and stiffness in the perineum. This therapy is most often used after the birth of a baby or rectal/perineal surgery (Rosdahl & Kowalski, 2014).

Infrared waves can help relieve pain, heal infections, reduce inflammation, and stimulate healing. All the light waves produced are quite safe for all layers of the skin. Starting from the top epidermis layer which is strong, the dermis layer below which contains blood vessels and the ends are very sensitive, to the lowest subcutaneous fat tissue (Farrer, 1999 in Tarsikah 2018).

The results of a preliminary study at PMB Novi show that almost 75% of births involve perineal wounds. Of the 65 people who gave birth, 45 people had perineal wounds. Results of interviews with 10 postpartum mothers, 7 of them had perineal wounds, mothers said their wounds were stitched, mothers said they felt uncomfortable when doing certain activities such as pain when urinating, sitting, coughing, sneezing, 4 mothers said their wounds healed within 4- 6 days and 3 mothers said their wounds had only healed in more than 7 days. Based on preliminary results, researchers were interested in seeing the difference between using sitz baths and infrared light therapy on healing perineal wounds. This perineal wound can cause discomfort, pain, and can even result in infection in the perineal area which can reduce the mother's quality of life after giving birth.

In connection with the above phenomenon, the author is motivated to discuss further to find out "The difference in the effectiveness of using sitz baths and infrared light therapy in healing perineal wounds in postpartum mothers at PMB Midwife Novi in 2024".

Method

Study design

This research is a quantitative research with a quasi-experimental design, the design used is a pretest and post test non-equivalent control group approach. Research subjects were divided into two groups. Researchers carried out tests before intervening on all subjects in both groups (Notoatmodjo, 2018). Quasi-experimental research is a type of research that involves intervention but without a random system for selecting the sample group

Partisipant

The sample is a portion of the population that is expected to represent the population. The research sampling technique uses total sampling, that is, the researcher will recruit the entire population to be used as a sample. The sample in this study were 64 postpartum mothers who were at PMB Midwife Novi 2024 in June, 32 postpartum mothers with sitz bath intervention and 32 postpartum mothers with infra red intervention.

Instrument

The instruments in this study were the REEDA scale checklist/observation sheet, checklist/observation sheet for the use of sitz baths and infra red, SOP for the use of sitz baths and SOP for the use of infra red, respondent characteristics questionnaire, the instruments in this study were not tested for validity and reliability because the research instruments it's standard

Data analysis

According to (Notoatmodjo, 2018) data is processed and analyzed using certain techniques, namely using quantitative analysis techniques through a computerization process. This processing includes data tabulation and statistical calculations if statistical tests are required. The analysis in this research is univariate and bivariate analysis.

Results

The results of research conducted on the number of samples in this study were 64 people. Of the 64 people, they were divided into two groups, namely 32 people with the Sitz Bath intervention and 32 people with the infrared lamp intervention. This research method uses Quasy Experimental Design, with the design used being Pretest and Post Test Non Equivalent Control Group, and bivariate data analysis using the Mann Whitney test assisted by SPSS 26 for window. The results of the study will be presented in table form as below:

Univariate Analysis

1. Respondent Characteristics

Characteristics	Frecuency	Percentage
Age		
< 20 Year	23	35.9
20-35 Year	32	50.0
> 35 Year	9	14.1
Parity		
Primipara	21	32.8
Multiparous	39	60.9
Grand multiparous	4	6.3
Education		
Elementary school	13	20.3
Junior high school	31	48.4
Senior high school	16	25.0
College	4	6.3
Work		
Work	21	32.8
Doesn't work	43	67.2
Total	64	100.0

From table 5.1, it shows that in terms of age characteristics, there are more people aged 20-35 years as many as 32 people (50.0%), for parity there are more multiparas as many as 39 people (60.9%), with more education being junior high school, namely 31 people. (48.4%), for jobs more than 43 people (67.2%) did not work.

2. Healing of perineal wounds in postpartum mothers before and after being given a sitz bath at PMB Midwife Novi in 2024

No	Luka perineum	Intervention group sitz bath									
		Pre Test					Post Test				
		f	%	Mean- median	SD	Min- max	f	%	Mean- median	SD	Min- max
1	Good	0	0.0	4.75-			14	43.8	1.09-		
2	Not enough	24	75.0	5.00	1.368	2-7	17	53.1	1.00	1.118	0-3
3	Bad	8	25.0				1	3.1			
	Total	32	100				32	100			

From table 5.2 it shows that respondents in the sitz bath intervention group during the pre-test who experienced less healing of perineal wounds were 24 respondents (75.0%), the mean value was 4.75, the median value was 5.00, the standard deviation was 1.368, the minimum was 2. -7, while almost half of the respondents in the sitz bath intervention group during the post test experienced good perineal wound healing, 14 respondents (43.8%), mean value 1.09, median value 1.00, standard deviation 1.118, minimum-maximum 0-3.

3. Healing of perineal wounds in postpartum mothers before and after being given infrared lamps at PMB Midwife Novi in 2024.

No	Luka perineum	Intervention group Infra Red									
		Pre Test					Post Test				
		f	%	Mean- median	SD	Min- max	f	%	Mean- median	SD	Min- max
1	Good	0	0.0				12	37.5			
2	Not enough	15	46.9	5.47-	1.391	3-8	20	62.5	1.84-	1.629	0-5
3	Bad	17	53.1	6.00			0	0.0	2.00		
	Total	32	100				32	100			

From table 5.3 it shows that respondents in the infrared intervention group during the pre-test who experienced poor perineal wound healing were 17 respondents (53.1%), mean value 5.47, median value 6.00, standard deviation 1.391, minimum-maximum 3 -8, while almost half of the respondents in the infrared intervention group during the post test experienced good perineal wound healing, 12 respondents (37.5%), mean value 1.84, median value 2.00, standard deviation 1,629, minimum-maximum 0-5.

Bivariate Analysis

1. Normality Test

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRETEST_SITZ_BATH	.166	32	.025	.933	32	.048
POSTTEST_SITZ_BATH	.305	32	.000	.769	32	.000
PRETEST_INFRA_RED	.180	32	.010	.931	32	.041
POSTTEST_INFRA_RED	.246	32	.000	.851	32	.000

a. Lilliefors Significance Correction

From table 5.4 above, the normality test results show significance or p value < 0.05, meaning the data is not normally distributed. Based on theory, if the data is not normally distributed then bivariate analysis uses the Mann Whitney Test.

2. Differences in the effectiveness of using sitz baths and infrared light therapy in healing perineal wounds in postpartum women at PMB Midwife Novi in 2024

Intervention	Mean	P Value
Sitz Bath	1.09	0,044
Infra Red	1.84	

Table 5.5 shows that with a p value of 0.044 < 0.05, the results of the Mann Whitney test show that postpartum mothers who were given sitz baths and infrared lamps healed their perineal wounds differently. Sitz bath (average value 1.09) accelerates perineal wound healing compared to infrared lamps (average value 1.84). The results show that there is a significant difference between the use of sitz baths and infrared lamps in healing perineal wounds, the use of Sitz Baths is more effective for healing perineal wounds in postpartum women compared to the use of infrared.

Discussion

1. Healing of perineal wounds in postpartum mothers before and after being given a sitz bath at PMB Midwife Novia Dewi in 2024

Based on the research results, it shows that respondents in the sitz bath intervention group during the pre-test who experienced less healing of perineal wounds were 24 respondents (75.0%), the mean value was 4.75, the median value was 5.00, the standard deviation was 1.368, the minimum-maximum was 2- 7, while almost half of the respondents in the sitz bath intervention group at the post test experienced good perineal wound healing, 14 respondents (43.8%), mean value 1.09, median value 1.00, standard deviation 1.118, minimum-maximum 0-3.

A wound is a forcible tearing or tearing of tissue. Perineal wounds are tears that occur when a baby is born, either spontaneously or with an episiotomy device or procedure (Wiknjosastro, 2018). Perineal wounds often cause discomfort for post-partum mothers. The discomfort is caused by the wound and the stitches to the wound. Most mothers are afraid to touch or even clean the wound on the perineum because of the pain they feel. Pain is an unpleasant sensory and emotional experience that arises as a result of actual or potential tissue damage or is described in terms of such damage (Doenges et al., 2020).

The pain felt by post partum mothers in the perineum is caused by perineal wounds, either spontaneous lacerations or wounds made such as episiotomies, can cause discomfort such as pain and fear of moving, difficulty defecating and urinating, interfering with daily activities. The day includes taking care of the baby, doing household work, socializing with the environment and society, as well as preventing the mother from starting work. This pain can even cause insomnia.

Considering the problems that can arise as a result of perineal tears during childbirth, handling every incident of perineal tear must be carried out immediately in a quality manner to minimize the possibility of accompanying complaints, such as perineal wound pain which is often felt.

Therapy or pain management measures can be carried out pharmacologically and non-pharmacologically. Pharmacological pain management is by using analgesic drugs. However, giving analgesics still causes controversy because it causes side effects in users. Apart from that, even though analgesics can relieve pain effectively, health workers tend not to use analgesics in treating pain because of incorrect drug information, as well as concerns that clients will experience drug addiction, worry about making mistakes in using analgesics (Potter & Perry, 2018)

One of the selected non-pharmacological methods that is simple, cheap, simple, effective, and without adverse effects that can be used to treat pain and discomfort due to perineal wounds, and can increase circulation and support perineal wound healing is the use of the sitz bath technique (Saputri et al. al., 2020).

A sitz bath is a sitting soaking bath (sitting in a tub filled with warm water) which functions to provide moist heat to the pelvic, perineal and/or perianal areas. One of the benefits of a sitz bath is reducing pain and stiffness in the perineum. This therapy is most often used after the birth of a baby or rectal/perineal surgery (Rosdahl & Kowalski, 2021).

The results of this research are in accordance with the results of research conducted by Jyoti Kapoor (2018) which states that a sitz bath is where someone sits and soaks in warm water (430C) for 15-20 minutes or until the water becomes cold. The results found that sitz bath application was effective in healing perineal wounds ($p=0.001$).

Researchers assume that there is healing of perineal wounds after using the sitz bath method, this is because the use of the sitz bath method with a decoction kills germs and reduces inflammation in the perineal wound so that the pain or soreness experienced heals. It is recommended that postpartum mothers routinely apply the sitz bath method at least twice a day to speed up the healing of perineal wounds.

2. Healing of perineal wounds in postpartum mothers before and after being given infrared lamps at PMB Midwife Novia Dewi in 2024

Based on the research results, it shows that respondents in the infrared intervention group during the pre-test who experienced poor perineal wound healing were 17 respondents (53.1%), mean value 5.47, median value 6.00, standard deviation 1.391, minimum-maximum 3- 8, while almost half of the respondents in the infrared intervention group during the post test experienced good perineal wound healing, namely 12 respondents (37.5%), mean value 1.84, median value 2.00, standard deviation 1.629, minimum-maximum 0-5.

Perineal wounds are tears that occur in the perineum during delivery and occur in almost all first deliveries and not infrequently also in subsequent deliveries. Perineal care fulfills the need to nourish the area between the thighs bordered by the vulva and anus in the mother during the birth of the placenta until the genetic organs return to their pre-pregnancy state. Most perineal tears occur during childbirth and treatment is a matter of obstetrics. Perineal tears can occur spontaneously or also due to an episiotomy. Some supporting tissue injuries, both acute and non-acute, whether repaired or not, can become gynecological problems in the future. Damage to the pelvic support is usually visible and repaired immediately after delivery. Birth canal laceration wounds usually have a small amount of tissue lost because this wound is the result of an episiotomy or laceration. In reality, the healing phases will depend on several factors including the size and location of the wound, the general physiological condition of the patient, the appropriate treatment for perineal wound healing, as well as external assistance or intervention aimed at supporting healing (Wulandari, 2018).

One of the factors causing postpartum infections comes from injuries to the birth canal which is a good medium for the growth of germs. Postpartum mothers' perineal wounds that are not properly maintained are very susceptible to disease, and this greatly affects the healing process of perineal wounds. This is caused by the mother's low immune system after giving birth, poor care and poor hygiene (Asih, 2017).

One treatment to avoid infection in healing perineal wounds is infrared therapy. Infrared waves can help relieve pain, heal infections, reduce inflammation, and stimulate healing. All the light waves produced are quite safe for all layers of the skin. Starting from the top epidermis layer which is strong, the dermis layer below which contains blood vessels and the ends are very sensitive, to the lowest subcutaneous fat tissue (Tarsikah, 2018).

Research conducted at Rajavithi Hospital, Thailand in 2019, the method used to treat perineal wound healing in postpartum mothers was to use an infrared lamp, with the mother in the lithotomy position, a 60 watt lamp beam, with the lamp brought closer to a distance of ± 20 cm from the perineum of postpartum mothers, and is done twice a day for 15 minutes. Luminous generators are produced by one or more incandescent lamps, which emit red light, light light and a small amount of ultraviolet light. These lamps have various strengths ranging from infrared – 1,000 watts, with a resulting wavelength ranging from 350 – 4000 nm. One of the physiological effects of infrared light (infrared light) can increase blood supply (Increased Blood Supply), with an increase in temperature it will cause vasodilation, which will cause an increase in blood to the local tissue, this especially occurs in superficial tissue and this effect Very useful for healing wounds and treating superficial tissue infections.

In therapeutic matters, infrared therapy means remediation/improvement of health problems, after a diagnosis has been made. Infrared Therapy is a type of low-energy therapy that uses light in the far infrared spectrum for the treatment of health problems. Infrared light is different from ultraviolet light which causes sunburn and damage to the patient's skin. Infrared does not cause skin burns or skin damage, so it is an effective tool for treating pain such as arthritis pain, Raynaud's phenomenon and tendinitis or tendon inflammation (Suci, 2017).

The use of infrared therapy is believed to increase skin temperature, improve blood flow and increase core body temperature. Increased blood temperature will stimulate warm neurons from the heat-regulating center in the hypothalamus and inhibit cold neurons. In addition, these warm neurons will project to central sympathetic/parasympathetic neurons in the hypothalamus, which influence the autonomic nervous system (Subhas, 2018)

Infrared Therapy is a type of therapy in the field of Physical Medicine and Rehabilitation that uses infrared electromagnetic waves with wave characteristics of a wavelength of 770nm - 106nm, which is between the spectrum of visible light waves and microwave waves, with the aim of heating musculoskeletal structures. located superficially with a penetration power of 0.8-1 mm (Fitri, 2018).

3. Differences in the effectiveness of using sitz baths and infrared light therapy in healing perineal wounds in postpartum women at PMB Midwife Novia Dewi in 2024

Based on the research results, it shows that with a p value of $0.044 < 0.05$, the results of the Mann Whitney test show that postpartum mothers who were given sitz baths and infrared lamps healed their perineal wounds differently. Sitz bath (average value 1.09) accelerates perineal wound healing compared to infrared lamps (average value 1.84). The results show that there is a significant difference between the use of sitz baths and infrared lamps in healing perineal wounds, the use of Sitz Baths is more effective for healing perineal wounds in postpartum women compared to the use of infrared.

This is in accordance with the theory of Oxorn (2018) which states that heat or warm therapy can increase blood flow to the injured part of the body, increase the delivery of leukocytes and antibiotics to the injured area, increase muscle relaxation and reduce pain due to spasm or stiffness, increase blood flow, provides a local feeling of warmth, increasing the movement of waste substances and nutrients.

The research is in line with research conducted by Utami (2019), which found that after being given Sitz Bath, most postpartum mothers experienced healing of perineal wounds. Another research conducted by Syafitri (2019), found that after being given Sitz Bath, 10 respondents (50%) found that mothers with wounds healed moderately and 10 respondents (50%) had mothers with wounds that healed well.

According to researchers' assumptions, infrared lamps containing infrared rays can be used as therapy, among others, to reduce pain caused by swelling, stimulate damaged tissue, reduce pain in nerves, relax muscles, improve the quality of blood joints in the body, increase metabolism. and as an antiseptic on infected areas. The body has its own bioelectric system that can influence wound healing, repair damaged cells and change the permeability of cell membranes.

Meanwhile, using a sitz bath can help speed up the wound healing process and reduce perineal pain. Perineal immersion in warm water can increase oxygenation and nutrition in tissues, reduce edema and speed up healing, increase muscle relaxation and reduce pain due to spasm or stiffness, increase blood flow, provide a local feeling of warmth, increase the movement of waste substances and nutrients. Warm therapy provides a "crowding process" effect on the nervous system because it causes pain to be inhibited by the temperature sensation received by the nerve endings, thus providing a suppressive or reducing effect on pain, besides that the mother can feel the comfort and relaxation obtained from the reaction. Soaking the perineum in warm water is effective and very easy for mothers to practice at home as a good process for healing wounds and reducing pain. This is what makes using a Sitz Bath more effective for healing perineal wounds in postpartum mothers compared to using infrared.

Conclusion

1. Most of the respondents in the sitz bath intervention group during the pre-test who experienced less healing of perineal wounds were 24 respondents (75.0%), the mean value was 4.75, the median value was 5.00, the standard deviation was 1.368, the minimum-maximum was 2-7 while almost Half of the respondents in the sitz bath intervention group at the time of the post test experienced good perineal wound healing as many as 14 respondents (43.8%), mean value 1.09, median value 1.00, standard deviation 1.118, minimum-maximum 0-3
2. The majority of respondents in the infrared intervention group during the pre-test who experienced poor perineal wound healing were 17 respondents (53.1%), the mean value was 5.47, the median value was 6.00, the standard deviation was 1.391, the minimum-maximum was 3-8 while almost Half of the respondents in the infrared intervention group during the post test experienced good healing of perineal wounds, namely 12 respondents (37.5%), mean value 1.84, median value 2.00, standard deviation 1.629, minimum-maximum 0-5
3. There is a significant difference between the use of sitz baths and infrared lamps in healing perineal wounds, the use of Sitz Baths is more effective for healing perineal wounds in postpartum women compared to the use of infrared (p value $0.044 < 0.05$).

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