



## The Effectiveness of Telang Flower Extract Sitz Bath on Healing Perineal Wounds in Postpartum Mothers

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### ABSTRACT

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**Background:** Perineal wounds are a common problem experienced by postpartum mothers. Improper treatment may delay wound healing, increase the risk of infection, and reduce maternal comfort. One non-pharmacological intervention that may accelerate wound healing is a sitz bath with telang flower extract (*Clitoria ternatea*), which contains flavonoids, anthocyanins, and tannins with anti-inflammatory, antioxidant, and astringent properties. The purpose of this study was to determine the effect of perineal wound care using sitz bath method with Telang flower extract on perineal wound healing in postpartum women at Mutiara Agma Pratama Clinic, Bengkulu Town.

**Method:** This study used a quasi-experimental design with a pre-post-test control group approach. A total of 26 respondents were selected using purposive sampling, consisting of 13 respondents in the intervention group and 13 respondents in the control group. Data were collected using the REEDA scale observation sheet. Statistical analysis included the Shapiro-Wilk normality test, Levene's Test for homogeneity, Paired Samples T-Test, and Independent Samples T-Test.

**Result:** The results showed a decrease in the average REEDA score in the intervention group from 8.46 to 1.38 (difference = 7.077;  $p = 0.000$ ), while the control group decreased from 8.62 to 4.46 (difference = 4.154;  $p = 0.000$ ). The Independent Samples T-Test revealed a significant difference in posttest REEDA scores between the intervention and control groups ( $p = 0.000$ ). The intervention group had a lower average REEDA score, indicating better perineal wound healing.

**Conclusion:** The sitz bath method with telang flower extract was proven effective in accelerating perineal wound healing in postpartum mothers. This intervention can be considered as an alternative non-pharmacological perineal wound care method in health facilities and may also be applied as self-care at home under the guidance of health workers.

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## INTRODUCTION

According to the WHO in 2019, almost 90% of normal deliveries result in perineal tears, either with or without an episiotomy. Globally, there were 4.8 million cases of perineal tears in women giving birth. This figure is estimated to reach 6.3 million by 2020, due to midwives' inability to properly administer midwifery care and mothers' lack of knowledge about self-care at home. Perineal tears are quite common, with 50% of the world's perineal tears occurring in Asia (Depkes, 2017).

According to data from the Ministry of Health in 2022, the Maternal Mortality Rate (MMR) in Indonesia continues to increase annually. In 2021, the number of maternal deaths increased by 59.69% compared to the previous year. The main cause of maternal death was hemorrhage, with 1,330 cases. The Maternal and Child Health Profile Report found that there were 6 million deliveries in 2020, of which 30% resulted in hemorrhage, and one of the causes of bleeding was perineal tears (30%) (Kesehatan, 2022).

Perineal infections occur in 25-55% of cases due to birth canal infections, lacerations, or episiotomies. Pain from episiotomy is a common complaint, primarily due to fear of stitches coming loose. Factors such as vulvar hygiene, a weakened immune system, and poor wound care can cause the wound to remain moist, supporting bacterial growth and delaying healing (Sartika, 2021) (Katijah et al., 2023). Perineal injuries can range from minor to extensive and dangerous. Episiotomies, tears, or lacerations typically heal within 6-7 days. Vulvar hygiene allows for a thorough inspection, promotes tissue formation, and supports the healing process. The postpartum period (puerperium) begins after the delivery of the placenta and lasts approximately 6 weeks to 40 days, with optimal recovery within three months (Heriani & Sulistiawati, 2025) (Fitri et al., 2024).

An episiotomy can make childbirth easier, but this procedure also has negative impacts on the mother, both physically and psychologically. Physically, an episiotomy can cause discomfort in the form of acute pain in the perineal suture area after delivery. Meanwhile, psychologically, the mother can experience increased fear and anxiety due to the pain felt from the sutures, which can disrupt the mother's comfort after childbirth (Choudhari et al., 2022) (Afni & Ristica, 2021).

Non-pharmacological therapy is the primary choice for postpartum mothers because it is scientifically proven to be safe, effective, and has a positive impact on physical and psychological recovery without the side effects of medication. This approach is often used as a complementary measure to medical treatment to reduce pain, increase comfort, and support the mother's overall health (Trisnawati et al., 2025). One non-pharmacological therapy for reducing perineal pain is a sitz bath with telang flower extract. This method is simple, inexpensive, effective, and has minimal side effects.

A sitz bath containing telang flower extract can be used to not only reduce the pain and discomfort caused by perineal wounds, but also increase blood flow and promote healing of perineal wounds (Zahara et al., 2024). Sitz baths can conduct heat through the area treated with hot water. Heat can dilate blood vessels to increase blood flow, affect the transmission of pain impulses, and increase the elasticity of collagen.

Immersing the perineum in warm water can boost oxygen and nutrient delivery to tissues, decrease swelling, and speed up the healing process. It also helps relax muscles, lessens pain caused by spasms or tightness, improves blood circulation, provides localized warmth, and supports the removal of waste products while delivering nutrients.

Additionally, sitz baths can help relieve pain or itching in the genital region. The benefits of sitz baths include relieving perineal irritation, pain, and swelling, and preventing pain and burning sensations around the perineum. Sitz baths are indicated for women with hemorrhoids, anorectal infections, surgical procedures, and who have given birth vaginally during the postnatal period (Olivia et al., 2026) (Chandrleka et al., 2019).

Telang flowers, or *Clitoria ternatea* (*C. ternatea*), are used in traditional medicine worldwide, and their parts offer several benefits to humans. The petals of this plant contain antioxidants and have antidiabetic properties that can help treat hyperglycemic conditions. Telang flowers are rich in antioxidants such as flavonoids and anthocyanins, which help repair body cells, including nerve cells. Furthermore, these flowers can increase the production of acetylcholine, a brain chemical that plays a role in memory, learning, and concentration (Sukmawati & Farlikhatun, 2024).

The results of a study conducted by (Oktafiani et al., 2022) showed that the use of telang flowers is highly effective in reducing the healing time of perineal wounds. In addition, there are supporting results that using telang flower extract can also provide a pleasant psychological experience during the wound treatment process by observing the beautiful colors of telang flowers. Based on this, this study aims to determine the effect of telang flower bath on the healing time of perineal tears in postpartum women at Mutiara Agma Pratama Clinic. The findings from this study are anticipated to enhance understanding in the area of obstetrics, particularly in relation to perineal wound care for women after childbirth.

## METHOD

### Research Design

This study is a quantitative research, and using a Quasi-Experiment design with a Two Group Pretest-Posttest Design approach. The population in this study were all postpartum mothers with 1-2 degree perineal ruptures carried out at the Mutiara Agma Pratama Clinic in June-July 2025. The research has received ethical approval with the Number: No.003064/KEPK STIKES TMS BENGKULU/2026 from STIKES Tri Mandiri Sakti Bengkulu.

The sample in this study consisted of 26 respondents consisting of the intervention group and the control group. The sampling technique used was purposive sampling, which is a sampling technique based on certain criteria determined by the researcher. The sample was determined by identifying all postpartum mothers who experienced perineal wounds during the study period, then selecting them based on inclusion and exclusion criteria. Respondents who met the criteria and were willing to participate in the study were designated as the sample. The obtained sample was then divided into two groups, namely the intervention group and the control group, each with 13 respondents. Inclusion criteria for this study included mothers from 1 to 7 days postpartum, mothers with grade I-II perineal wounds, and mothers who were conscious, cooperative, and willing to participate in the study. Exclusion criteria for this study included postpartum mothers with severe perineal wound infections, mothers with postpartum complications such as bleeding, and respondents who did not complete the intervention during the study period. Research respondents were given perineal wound care intervention using boiled butterfly telang flower water. In this study, researchers measured the effect of an intervention on an experimental group by comparing it to a control group. Data collection was performed using a questionnaire and dependent pairs T-test was used for data analysis.

The variable for administering telang flower extract defines a mixture of 25 grams of telang flower extract with 800 ml of boiled water before soaking the perineum. The intervention was carried out for 7 days postpartum in the morning and evening. The variable for perineal wound healing defines the treatment carried out on the perineal wound and the observation of the day of wound healing with the administration of telang flower extract which was observed for 7 days. The measuring instrument used the REEDA scale which is categorized into 3 data, namely the number 0 with good wound healing, numbers 1-5 with insufficient wound healing and numbers >5 with poor wound healing (Oktafiani et al., 2022).

To process butterfly telang flowers as an alternative for healing perineal wounds using the sitz bath method, first prepare the tools and ingredients: 25 grams of fresh butterfly telang flowers, sufficient water, a basin or sitz bath container, a clean towel, and a hand towel. The first step is to

wash your hands using running water and a hand towel. Then, wash the butterfly telang flowers thoroughly and boil them in water for 10–15 minutes until the water turns purplish blue. After that, the boiled water is filtered and allowed to stand until the temperature becomes warm (37–40°C), then poured into a clean basin. The mother is then asked to sit with the perineum area submerged in the boiled water for 15–20 minutes in a relaxed state. After finishing, the mother remains seated for five minutes without wiping the perineum area, so that the herbal liquid is completely absorbed. After five minutes, the perineum area is dried by gently patting it with a clean towel. This procedure was performed twice daily, in the morning and evening, from the second to the seventh day of the postpartum period, with the soaking water used for single-use only (Ramadhanty et al., 2024).

The control group in this study received standard care according to established procedures at the health facility, including perineal wound care, maintaining perineal hygiene, regular dressing changes, and personal hygiene education, without the use of a sitz bath with butterfly telang flower extract.

The sitz bath with butterfly telang flower extract in this study was carried out under the direct supervision of the researcher, assisted by health workers (midwives) at the Mutiara Agra Pratama Clinic. To maintain consistency in intervention implementation, the researchers used the same standard operating procedure (SOP) for each respondent. Respondent compliance with the intervention was monitored through daily observation sheets, ensuring that all respondents in the intervention group received uniform treatment according to the study protocol.

The research data from the questionnaire were then analyzed using univariate and bivariate methods. Univariate analysis describes the characteristics of each variable in this study, univariate includes demographic characteristics of postpartum mothers such as age, wound degree, wound type, REEDA scale score. In addition, the main variables analyzed were perineal care actions using sitz baths with butterfly telang flower extract (as an independent variable) and the level of perineal wound healing (as a dependent variable). Bivariate analysis was used to compare or see the differences between two variables, namely between the sitz bath intervention with butterfly telang flower extract and perineal wound healing. This analysis was conducted to determine whether there was a change in wound healing scores before and after the intervention in the same group, and whether there were differences in outcomes between the intervention and control groups after the intervention.

**Table 1. REEDA Scale Assessment**

No	Reeda	Oedema	Ecchymosis	Discharge	Approximation
0	None	None	None	None	Close
1	Within 0.25 cm of the incision bilaterally	Perineal, less than 1 cm from incision	Within 0.25 cm bilaterally or 0.5 cm unilaterally	Serum	Skin separation 3 mm or less
2	Within 0.5 cm of the incision bilaterally	Perineal and or between 1 to 2 cm from the incision	Between 0.25 cm to 1 cm bilaterally or between 0.5 to 2 cm unilaterally	Serosanguinous	Skin and subcutaneous fat and fascial layer separation
3	Beyond 0.5 cm of the incision bilaterally	Perineal and or vulvar, greater than 2 cm from the incision	Greater than 1 cm bilaterally or 2 cm unilaterally	Bloody, purulent	Skin, subcutaneous fat, and fascial layer separation

(Source: Alvarenga et al., 2015)

## RESULTS AND DISCUSSION

### Results

**Table 2. Characteristics of Postpartum Mothers Based on Age, Wound Degree and Wound Type Variables**

No	Variable	f	%
1.	<b>Age (year)</b>		
	20–25	8	30.8
	26–30	10	38.4
	>30	8	30.8
2.	<b>Degree of Wound</b>		
	Grade I	12	46.2
	Grade II	14	53.8
3.	<b>Types of Wounds</b>		
	Spontaneous Ruptur	21	80.8
	Episiotomy	5	19.2

Table 2 summarizes data from 26 respondents regarding age, degree of injury, and type of injury. Based on the table above, it is known that the majority of respondents were in the 26–30 age group (10 people) (38.4%), respondents experienced second-degree perineal injuries (14 people) (53.8%), and respondents experienced spontaneous perineal injuries (80.8%).

**Table 3. Average Perineal Wound Healing Score Based on REEDA scale in the Intervention and Control Groups (Pretest and Posttest)**

Group	Measurement	N	Mean	Standard Deviation	Min	Max
Intervention	Pretest	13	8.46	1.506	6	11
	Posttest	13	1.38	1.044	0	3
Control	Pretest	13	8.62	1.325	7	11
	Posttest	13	4.46	1.050	3	6

Based on table 3, it shows that in the intervention group, the average REEDA score before was 8.46 and decreased to 1.38 after the sitz bath intervention with telang flower extract. In the control group, the average REEDA score before the intervention was 8.62 and decreased to 4.46 after standard care. The decrease in scores in the intervention group was greater than the control group, which indicates a faster wound healing process in the intervention group. According to research by Rita Zahara, et al. (2024), sitz bath therapy can reduce pain scales with non-pharmacological methods so it is safe for postpartum mothers in reducing pain scales and effective postpartum recovery.

**Table 4. Test of Differences in Perineal Wound Healing Scores in the Intervention Group and the Control Group**

Group	Mean Different	t	df	p-value
Intervention	7.077	24.588	12	0.000
Control	4.154	11.691	12	0.000

The table above shows that in the intervention group, there was a difference in the average REEDA score of 7.077 between the pretest and posttest, with a p-value of 0.000, meaning this difference was statistically significant. This indicates that the telang flower extract sitz bath intervention had a significant impact on accelerating perineal wound healing. In the control group, the difference in the average score was 4.154 with a p-value of 0.000, which was also significant, but the magnitude of the difference was not as large as in the intervention group. Thus, although standard care also improved wound conditions, its effectiveness was lower than the telang flower extract sitz bath method.

**Table 5. Test of Differences in Perineal Wound Healing Scores Between Groups (Independent Samples T-Test)**

Group	N	Mean	Std. Deviasi	Mean Difference	t	df	p-value
Intervention	13	1.38	1.044	-3.077	-7.493	24	0.000
Control	13	4.46	1.050				

Table 5 above shows that there was a difference in the average REEDA score in the posttest measurement between the intervention group (1.38) and the control group (4.46). A p-value of 0.000 ( $<0.05$ ) indicates that this difference is statistically significant. The mean difference value of -3.077 indicates that the intervention group's REEDA score was lower, meaning the perineal wound healing rate was better than the control group. This difference strengthens the finding that a sitz bath with telang flower extract is more effective in accelerating perineal wound healing than standard care.

## Discussion

### Differences in Perineal Wound Healing Between Groups (Independent Samples T-Test)

The results showed that the intervention group given a sitz bath with butterfly pea flower extract had lower post-test REEDA scores than the control group. This finding indicates that the intervention not only produced a statistical difference but also had clinical significance, accelerating perineal wound healing, indicated by reduced redness, edema, and wound discharge, as well as improved wound edge healing. This faster wound improvement can help improve postpartum maternal comfort, accelerate mobilization, and reduce the risk of infection during the postpartum period (Widyawati et al., 2024).

The effectiveness of the sitz bath with butterfly pea flower extract stems from the combined effects of warm water hydrotherapy and the bioactive components of butterfly pea flowers. Warm water helps increase vasodilation and blood circulation in the perineal area, thus optimizing oxygen and nutrient supply to wound tissue. Furthermore, the flavonoids, anthocyanins, and tannins in butterfly pea flowers act as anti-inflammatory, antioxidant, and antibacterial agents, supporting tissue regeneration and accelerating wound healing (Singh et al., 2022).

These results align with those of Ramadhanty et al. (2024) reported that a sitz bath with butterfly pea flower extract effectively accelerated perineal wound healing in postpartum mothers. Research by Chandraleka et al. (2019) also found that sitz bath therapy can enhance wound healing and reduce perineal pain by increasing local blood circulation. Therefore, these results strengthen the evidence that the sitz bath method can be an effective non-pharmacological intervention in perineal wound care.

However, this study has several limitations, including the relatively small sample size and short observation period, which makes the results difficult to generalize widely. Furthermore, other factors such as nutritional status, maternal activity, personal hygiene, and respondent compliance

during the intervention may also potentially influence the wound healing process. Therefore, future research is recommended using a larger sample size, a longer observation period, and stricter control for confounding variables.

### **Effectiveness of a Sitz Bath with Butterfly pea Flower Extract**

Based on the results of research analysis, it has been proven that the use of a sitz bath containing butterfly pea flower extract effectively promotes the healing of wounds in the perineal area of mothers after childbirth. This is substantiated by the results of an independent samples T-test, which showed a significant difference between the intervention and control groups with respect to the REEDA post-test scores with a p-value of 0.000 (<0.05). The average posttest REEDA score in the intervention group was 1.38, significantly lower than the 4.46 in the control group. A low REEDA score indicates improved wound condition, including reduced redness, swelling, bruising, and discharge, as well as improved wound edge approximation.

This effectiveness can be scientifically explained by the active compounds found in butterfly pea flowers, including flavonoids, anthocyanins, and tannins. Flavonoids act as anti-inflammatories, inhibiting inflammatory mediators, reducing pain, and accelerating the transition of wounds from the inflammatory to the proliferative phase. Anthocyanins have antioxidant activity that protects cells from oxidative damage while increasing collagen formation to accelerate tissue regeneration. Tannins have an astringent effect that can shrink tissue, reduce exudate, and accelerate wound closure (Sofyan et al., 2022).

These findings align with research by (Ramadhanty et al., 2024) which demonstrated that a sitz bath with butterfly pea flower extract was more effective than centella asiatica leaf extract in accelerating perineal wound healing with a p-value of 0.043. Studies by (Oktafiani et al., 2022) and (Chandrakeka et al., 2019) support that herbal sitz bath therapy can accelerate the inflammatory and proliferative phases, reduce edema, decrease pain, and accelerate wound closure. Physiologically, the mechanism of wound healing accelerated by a butterfly pea flower sitz bath involves the pharmacological effects of the active compounds in butterfly pea flowers that act directly on the wound tissue and the thermal effects of warm water that increase vasodilation, improve oxygen supply, and accelerate cell metabolism in the wound area. Thus, a butterfly pea flower extract sitz bath can be recommended as an effective, inexpensive, safe, and easy-to-apply non-pharmacological intervention to accelerate perineal wound healing in postpartum mothers.

### **REEDA Scale Indicators that Prominently Demonstrate Wound Healing**

The REEDA Scale is a clinical assessment tool used to monitor the wound healing process, particularly perineal wounds, based on five indicators: Redness, Edema, Ecchymosis, Discharge, and Approximation. Of these five indicators, Approximation most prominently reflects the perineal wound healing process, as it directly indicates the progress of tissue regeneration through the physical healing of the wound edges. Approximation is considered the final stage of the healing process and is more stable and objective than other indicators. When the approximation score is low (meaning the wound is healing well), the wound can be considered nearly or completely healed (Alvarenga et al., 2015).

The results of this study are supported by research conducted by (Ramadhanty et al., 2024) in *Jurnal Kebidanan* Vol. 13 No. 1. 1, which stated that perineal wound care using a sitz bath using butterfly pea flower extract was more effective than pegagan leaf extract. In the study, on day 7, 53.3% of postpartum women treated with butterfly pea flowers showed good wound healing, while the rest showed fair healing, with no poor healing. The statistical significance value ( $p = 0.043$ ) indicated that the difference was statistically significant. The study explained that butterfly pea flowers contain various active compounds such as flavonoids, saponins, tannins, and anthocyanins, which have anti-inflammatory, antibacterial, and antioxidant properties. These compounds can help reduce inflammation, accelerate tissue regeneration, and improve blood circulation in the wound area. This aligns with the results of your study, which showed a significant increase in

wound healing scores in the intervention group, where the average REEDA score improved within 5 days, faster than the control group.

The results of research conducted by (Oktafiani et al., 2022) indicate that the use of butterfly pea flowers is very effective in shortening the healing time of perineal wounds. In addition, supporting results were obtained that using a butterfly pea flower extract solution can also provide a pleasant psychological experience during the wound care process by seeing the beautiful colors of the butterfly pea flowers.

## LIMITATIONS

The limitation of the study is the limited number of respondents, due to time and budget constraints.

## CONCLUSION

The results of this study show that sitz baths containing telang flower extract are highly effective in promoting perineal wound healing in postpartum women. An Independent Samples T-Test statistical analysis yielded a p-value of 0.000 ( $<0.05$ ), indicating a significant difference between the intervention and control groups. The average posttest REEDA score in the intervention group was 1.38, while in the control group it was 4.46. The mean difference of -3.077 indicates that the intervention group experienced faster and better wound improvement than the control group.

This effectiveness is attributed to the flavonoids, anthocyanins, and tannins in telang flowers, which have anti-inflammatory, antibacterial, and antioxidant properties, as well as the warm water in the sitz bath method, which increases vasodilation, improves blood flow, and accelerates cell metabolism in the wound area. Future researchers are advised to conduct studies with larger sample sizes and longer observation periods, and to compare the effectiveness of telang flowers with other herbal extracts.

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