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THE EFFECT OF USING RED BETEL LEAF DECOCTION ON THE HEALING OF PERINEAL LACERATIONS IN POSTPARTUM WOMEN IN THE TUNGGAKJATI COMMUNITY HEALTH CENTER AREA, KARAWANG REGENCY, 2025

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ABSTRACT

The incidence of perineal lacerations in women giving birth vaginally in Indonesia reaches 75%, with an increased risk of infection if perineal lacerations are not treated properly. This study aims to determine the effect of using boiled red betel leaf water on the healing of perineal lacerations in postpartum women. This study employed a quasi-experimental design with a two-group posttest-only approach. A total of 37 postpartum women with second-degree perineal lacerations on days 1–6 postpartum were recruited using purposive sampling at the Tunggakjati Community Health Center, Karawang Regency, in 2025. Respondents were divided into an intervention group (n = 19), which received perineal care using boiled red betel leaf decoction, and a control group (n = 18), which used plain water. Perineal wound healing was assessed using the REEDA scale. Data were analyzed using univariate and bivariate analyses with the Chi-square test. The results showed that 94.7% of respondents in the intervention group experienced good perineal wound healing, with no cases of poor healing. In contrast, only 61% of respondents in the control group experienced good healing, while 27.7% had poor healing and 11.1% had bad healing outcomes. Statistical analysis demonstrated a significant relationship between the use of boiled red betel leaf decoction and perineal wound healing ($p < 0.05$). In conclusion, boiled red betel leaf decoction is effective in accelerating the healing of perineal lacerations in postpartum women. This intervention may be considered a safe and non-pharmacological complementary therapy in postpartum perineal care. Further studies with larger samples and more robust designs are recommended to strengthen the evidence.

Keywords: Perineal Laceration, Postpartum Women, Red Betel Leaf, , Wound Healing

1. INTRODUCTION

The postpartum period is the period after the delivery of the placenta and ends when the reproductive organs return to their original state, lasting approximately 6 weeks (Bahiyatun, 2009). During this period, physiological and psychological changes occur, namely physical changes, uterine involution and lochia discharge, changes in other body systems, and psychological changes in the mother. Postpartum care must be carried out comprehensively, even though women who give birth are generally healthy. However, problems are sometimes encountered, as women experience the postpartum period or recovery period, during which many things can happen, such as the discharge of postpartum blood or lochia. initially red in color with small clots, which will then fade day by day. If the blood has an odor, it should be suspected as a possible sign of infection (Bahiyatun, 2009).

According to the World Health Organization (WHO) in 2020, there were 2.7 million cases of perineal lacerations in women giving birth worldwide, and this figure is estimated to reach 6.3 million by 2050. In Asia, 50% of women in labor experience perineal lacerations. The prevalence of women in labor who experience perineal lacerations in Indonesia in the 25-30 age group is 24% and in women aged 32-39 it is 62%. It can be concluded that the incidence of perineal lacerations in Indonesia is 75% in women with vaginal deliveries. In 2017, it was shown that out of a total of 1,951 spontaneous vaginal births, 57% of women received perineal sutures, 28% due to episiotomy, and 29% due to tears (IKAPI, 2018).

In general, perineal lacerations in postpartum women or episiotomy areas take approximately 6-7 days to heal. Perineal lacerations in postpartum women that take a long time to heal will lead to perineal infections. Improper perineal care can cause the perineum to become moist due to lochia. This greatly supports bacterial growth. Infection in the perineum can damage tissue cells and hinder the healing process of lacerations. Delayed healing of lacerations is due to several problems, including changes in vital signs caused by bleeding, infections such as redness of the skin, fever and pain, discomfort when moving, and partial or complete rupture of the stitches due to trauma and protrusion of internal organs due to the laceration not healing properly.

The impact of delayed healing of lacerations is pain and fear of movement, which can cause many problems, including subinvolution of the uterus, irregular lochia discharge, and postpartum hemorrhage, which can cause maternal mortality. A total of 65% of cases of delayed healing of perineal lacerations in postpartum women are caused by several factors that can affect the healing of perineal lacerations, including external factors (environment, tradition, knowledge, socioeconomic status, treatment by health workers, maternal condition, and nutrition) and internal factors (age, tissue treatment, hemorrhage, hypovolemia, local edema, nutritional deficiencies, personal hygiene, improper laceration care, oxygen deficiency, medication, and excessive activity). Usually, the healing of perineal lacerations varies; some heal normally (6-7 days) and some experience delayed healing. Perineal care along with vulva hygiene aims to prevent contamination with the rectum, gently manage lacerated tissue, and clean blood that can be a source of infection and odor.

Perineal laceration complications during the postpartum period requires treatment. Treatment options include therapy, which can be pharmacological or non-pharmacological. Pharmacological therapy involves administering antiseptic medication. Antiseptic or antibiotic treatment for perineal lacerations in postpartum women is currently avoided. Some antibiotics should be avoided during lactation because they are very significant and risky. Based on several studies, red betel leaves can also affect the healing time of perineal lacerations. Red betel leaves, known as Piper Crocatum, contain antiseptic and antibiotic properties that accelerate the healing of lacerations. The leaf extract contains eugenol, which kills candida albicans fungus and has analgesic properties that can relieve pain in lacerations. Red betel leaves affect the healing time of perineal lacerations

(Indrayani, 2021). Previous studies examining the effect of red betel leaf decoction on the healing of perineal lacerations in postpartum women with perineal lacerations stated that the average score for healing of perineal lacerations in postpartum women in the control group before intervention was 6.86 and after intervention was 1.86. Meanwhile, in the experimental group, the average healing rate before intervention was 6.95 and after intervention was 0.64. The study stated that red betel leaves significantly improved the healing process of perineal lacerations in postpartum women with an average p-value <0.05 (Indrayani, 2021).

Based on previous research findings, which show that boiled red betel leaf water significantly accelerates the healing process of perineal lacerations in postpartum women, researchers became interested in further examining the use of this traditional herbal ingredient in the context of midwifery services. Red betel leaves are widely known in the community as a medicinal plant with antiseptic, anti-inflammatory, and wound-healing properties, making them a potential safe, affordable, and easy-to-apply non-pharmacological treatment alternative for postpartum women. The researchers' interest was also based on the high incidence of perineal lacerations in postpartum women and the need for effective wound care to prevent infection, speed up recovery, and improve the comfort of postpartum women. In addition, the use of red betel leaf decoction is in line with a midwifery approach based on local wisdom and promotive-preventive measures, which can support improvements in the quality of maternal health services.

2. METHODS

This research method used a quasi-experimental research design with a two-group posttest-only design. A two-group posttest-only design is an experimental research design in which there are two groups. The first group receives treatment, and the second group does not receive treatment. In this study, the experimental group was the group that received treatment, whereby boiled red betel leaf water was administered during the healing process of perineal lacerations in postpartum women. The control group was the group that did not receive treatment, meaning that during the healing process of perineal lacerations in postpartum women, only plain water was administered.
The difference in perineal wound healing outcomes between the experimental group and the control group was used as a measure of the effectiveness of the intervention

The respondents in this study were postpartum women who met the inclusion criteria, namely postpartum women on days 1 to 6 with second-degree perineal lacerations who were willing to be respondents. The sample size in this study was 37 samples, with 19 postpartum women in the experimental group and 18 postpartum women in the control group. This study used an observation sheet with the REEDA scale to assess the healing of lacerations, which consists of five factors, namely redness "R", edema "E", ecchymosis "E", discharge 'D', and approximation "A" of the two edges of the laceration. The use of the 0-15 REEDA scale is considered the most accurate for determining laceration healing. The REEDA assessment in the author's study was based on Hill's 1990 theory with predetermined scores of 0 for good laceration healing, 1-5 for poor laceration healing, and 6-15 for very poor laceration healing (Shelvi O Lestari, 2022). Data analysis through univariate and bivariate stages with Chi Square test.

3. RESULTS

The research was conducted over a period of three months from May to August 2025 in the Tunggak Jati Community Health Center area.

Table 1. Frequency distribution of respondent characteristics

Respondent Characteristics	Frequency	Percentage (%)
Age		
< 20 years	4	10.8
20-35years	20	54.1
> 35 years	13	35.1
Education		
Low (Elementary and junior high school)	20	54
High (High School, College)	17	46
Parity		
Primipara	12	32.4
Multipara	14	37.9
Grandemultipara	11	29.7
Nutritional Status		
Underweight (IMT 17 - < 18,5)	4	10.8
Normal (IMT 18,5 - 25,0)	19	51.4
Overweight (IMT 25-27)	14	37.8
Hemoglobin Level		
Anemia (Hb<11g/dl)	14	37.8
Not Anemic	23	62.2

Table 1 presents the frequency distribution of respondents' characteristics. Based on age, the majority of respondents were aged 20–35 years, accounting for 54.1% (n = 20). Respondents aged over 35 years constituted 35.1% (n = 13), while those under 20 years represented the smallest proportion at 10.8% (n = 4).

In terms of educational level, more than half of the respondents had a low level of education (elementary and junior high school), comprising 54% (n = 20). Meanwhile, 46% (n = 17) of respondents had higher education, including senior high school and college. Regarding parity, the largest proportion of respondents were multiparous at 37.9% (n = 14), followed by primipara respondents at 32.4% (n = 12), and grand multipara respondents at 29.7% (n = 11). Based on nutritional status assessed using Body Mass Index (BMI), most respondents had normal nutritional status (BMI 18.5–25.0), accounting for 51.4% (n = 19). Overweight respondents (BMI 25–27) comprised 37.8% (n = 14), while underweight respondents (BMI <18.5) represented 10.8% (n = 4). Furthermore, the majority of respondents were not anemic, with 62.2% (n = 23) having hemoglobin levels ≥11 g/dL. In contrast, 37.8% (n = 14) of respondents were classified as anemic.

Table 2. Perineal lacerations healing rates in postpartum women in two groups

Group Description for treatment of perineal lacerations	Perineal lacerations healing rates						P value
	Good		Not So Good		Bad		
	f	%	f	%	f	%	
Use boiled red betel leaf water	18	94.7	1	5.27	0	0	0.015
Use only water	11	61	5	27.7	2	11.1	0.025

Table 2 presents the healing rates of perineal lacerations among postpartum women in two treatment groups. In the group treated with boiled red betel leaf water, the majority of respondents experienced good healing outcomes, accounting for 94.7% (n = 18). Only 5.27% (n = 1) of respondents in this group showed not-so-good healing, and none experienced poor healing outcomes.

In contrast, among respondents who used water only for perineal care, 61% (n = 11) experienced good healing. However, a higher proportion of respondents in this group showed suboptimal outcomes, with 27.7% (n = 5) experiencing not-so-good healing and 11.1% (n = 2) experiencing

poor healing. Statistical analysis demonstrated a significant difference in perineal laceration healing rates between the two groups, with p-values of 0.015 and 0.025, indicating that the use of boiled red betel leaf water was associated with better healing outcomes compared to the use of only water.

4. DISCUSSION

Charateristic Respondents

The majority of respondents were in the 20–35 age group (54.1%), which is the active reproductive age. This age group generally has good physiological conditions for wound healing. Research shows that wound healing is more optimal in productive age than in adolescence or old age because the immune response and tissue regeneration are faster (Ririn Ita Purnama, 2024). Age is a significant factor affecting the wound healing process, including in postpartum perineal tears. As individuals age, structural and physiological changes occur in the skin and immune response that collectively slow the healing sequence. Overall, while healthy aged adults retain the capacity to heal wounds, advanced age can prolong the inflammatory and proliferative phases of repair and reduce the efficiency of re-epithelialization and tissue remodeling compared with younger patients. This suggests that postpartum care should consider age as a risk factor for delayed perineal wound healing and tailor monitoring and support accordingly (Sri Sukamti, 2024).

In terms of respondents' education levels, most respondents had elementary to junior high school education (54%), while the rest were high school or college graduates (45%). Educational level is an important social determinant of health that can influence a person's understanding of health information, adoption of self-care practices, and access to health resources — all of which may affect wound healing outcomes. Individuals with higher education are generally more likely to understand health education messages, adhere to clinical recommendations, and engage in appropriate wound care practices, whereas lower education may be associated with limited health literacy and reduced engagement in preventive behaviors, potentially leading to delayed healing. Education levels can influence women's knowledge and behavior in postpartum perineal lacerations' care. Women with higher education tend to better understand the importance of hygiene and wound care, Women with higher education levels may be more proactive in adhering to care recommendations and seeking help when needed, potentially resulting in better healing outcomes (Yosi Yusrotul, 2022).

A total of 37.8% of respondents were multiparous, meaning they had given birth more than once. Parity — the number of previous births a woman has had — is an important factor in postpartum recovery and perineal wound healing. Physiologically, primiparous women (first delivery) often experience higher rates of perineal trauma due to less distensible tissues, whereas multiparous women may have more compliant soft tissues, potentially reduce the severity of lacerations and facilitate faster healing. Studies have shown that first-time women are more likely to sustain perineal injury and report greater discomfort postpartum than women who have delivered before, suggesting that parity influences both the incidence and course of perineal wound repair (Mc Donald, S, 2013). Previous childbirth experiences can influence women' attitudes and skills in caring for perineal wounds. However, excessive parity (grandemultipara) can increase the risk of complications due to looser perineal tissue and longer labor, thereby affecting healing of perineal lacerations (Husnida, 2022).

Most respondents had normal nutritional status (51.4%), followed by overweight status (37.8%). Good nutrition plays an important role in tissue regeneration and wound healing. Poor nutritional status can inhibit cell repair and slow down healing. Conversely, excessive nutrition or obesity can cause chronic inflammation, which also inhibits wound healing (Ririn Ita Purnama, 2024). Nutritional status plays a critical role in the process of wound healing, including perineal wounds after childbirth. Adequate nutrition provides the energy and nutrients necessary for every phase of wound repair, from inflammation and cell proliferation to collagen synthesis and tissue remodeling. Deficiencies in macronutrients (such as protein and calories) and micronutrients (such as vitamins and minerals) can impair these biological processes, leading to delayed healing, weaker tissue integrity, and increased risk of infection. This relationship has been widely documented in wound healing literature, where malnutrition is associated with prolonged healing and compromised immune response (L Russel, 2001).

Respondents with normal hemoglobin (≥11 g/dl) accounted for 62.2%, while the remaining 37.8% were anemic. Hemoglobin (Hb) plays a crucial role in the wound healing process because it is the primary molecule responsible for transporting oxygen to tissues. Oxygen is essential at every stage of healing — from the inflammatory phase to collagen synthesis and tissue regeneration — because adequate tissue oxygenation supports cellular metabolism, promotes angiogenesis (new blood vessel formation), and enhances the function of immune cells that prevent infection. When hemoglobin levels are low (anemia), the oxygen-carrying capacity of blood decreases, which can lead to reduced oxygen delivery to wound sites. This impaired oxygenation may slow fibroblast proliferation and collagen deposition, both of which are critical for effective wound closure and strength (Jonsson.K, 1991). Although specific studies directly on perineal wound healing are limited, observational data indicate that hemoglobin is a factor in healing outcomes. A nursing thesis on perineal wounds reported that adequate hemoglobin and oxygenation are among the factors associated with normal healing trajectories, emphasizing the role of nutritional and hematological status in postpartum wound recovery (Amalia Indiarti, 2024). This is consistent with the findings of the study, in which women with normal Hb tended to experience better wound healing compared to women who were anemic.

The Effect of Red Betel Leaf Decoction on Perineal Laceration Healing

The results in table 2 suggest that the use of red betel leaf decoction significantly improves perineal wound healing when compared with plain water. Respondents in the red betel leaf group demonstrated much higher rates of good healing (94.7%) and no cases of poor healing, whereas the plain water group showed only 61% good healing with 27.7% poor and 11.1% bad healing. The bivariate analysis indicated a significant association between red betel leaf use and healing outcomes ($p < 0.05$), supporting the conclusion that red betel leaf decoction may be effective in accelerating the healing of perineal wounds. This finding is consistent with clinical studies demonstrating that boiled red betel leaf (Piper crocatum) water significantly enhances perineal wound healing among postpartum women. A quasi-experimental study at the Karangpawitan Health Center found that postpartum women treated with boiled red betel leaf water had significantly improved wound healing measured by the REEDA scale compared with controls ($p = 0.000$), indicating a clear effect of the intervention on accelerating tissue repair (Triana Indrayani, 2001). The mechanism underlying this effect is supported by phytochemical evidence: betel leaf contains antiseptic, antibacterial, anti-inflammatory, and antioxidant compounds, such as phenols (e.g., chavicol and eugenol), which can reduce microbial load and inflammation at the wound site. These properties create a more favorable environment for cellular proliferation and collagen formation, key processes in wound healing. A systematic review of betel leaf extract found that it positively influences inflammatory modulation, angiogenesis, fibroblast activity, and epithelialization — all critical stages of wound repair (Awal Darmawan, 2002). Further research also supports that women using betel leaf preparations experience shorter perineal wound healing times compared with those receiving standard care; for example, wounds treated with betel leaf healed faster (approximately 5 days) than controls (approximately 8 days) in a quasi-experimental study (Siti Lely, 2015). Altogether, the observed data and external evidence suggest that red betel leaf decoction is effective as a complementary intervention for perineal wound healing. The significant association ($p < 0.05$) between its use and better healing outcomes likely reflects both the biological activity of betel leaf constituents and improved local wound conditions facilitated by its application.

5. CONCLUSION

This study concludes that the use of boiled red betel leaf decoction had a significant effect on accelerating the healing of perineal lacerations in postpartum women. Respondents who used red betel leaf decoction showed better healing outcomes compared to those who used plain water, as evidenced by a higher proportion of good healing rates and the absence of poor healing cases in the intervention group. Statistical analysis confirmed a significant relationship between the use of red betel leaf decoction and perineal wound healing ($p < 0.05$).

Based on these findings, boiled red betel leaf decoction can be considered an effective, safe, and non-pharmacological complementary

therapy for postpartum perineal care. It is recommended that health care providers incorporate this intervention into midwifery practice as part of holistic postpartum care. Further studies with larger sample sizes and more rigorous research designs are recommended to strengthen the evidence and explore its broader clinical application.

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