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# Analysis of Feeding White Eggs, Cockfish, Binahong Leaves, Belt Leaf Soak, VCO, Pineapple Juice and Honey on Accelerate Healing of Perineum Wounds and Incidents Perineal Wound Infection

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**Abstract:** Perineal wounds, if not properly treated, are at risk of infection, especially with poor hygiene, inappropriate care, or comorbidities like diabetes. Symptoms of infection include worsening pain, swelling, redness, and fluid or pus discharge, sometimes accompanied by fever or chills. This research aimed to examine the effects of natural remedies—white eggs, snakehead fish, binahong leaves, soaked betel leaves, VCO, pineapple juice, and honey—on accelerating perineal wound healing and reducing infection risk. Using a quasi-experimental quantitative approach with purposive sampling, the study found that these remedies significantly accelerated wound healing compared to a control group, as indicated by a p-value of 0.000 from Mann-Whitney tests. While some in the control group experienced infections, those treated with the natural remedies showed faster healing and fewer infections. The study suggests that using these natural treatments can effectively speed up perineal wound healing and reduce the risk of infection.

**Keywords:** Binahong and Betel Leaves; Perineal Wounds; Pineapple Juice and Honey; VCO; White Eggs and Snakehead Fish

## Introduction

Post partum (puerperium), also known as the postpartum period, begins after the birth of the baby and placenta, and ends when the uterine organs return to their pre-pregnancy state. The postpartum period lasts around 6 weeks (Agustina et al., 2022). Although it is a physiological process, it can turn pathological. One of the complications that often occurs is infection, which often starts from perineal rupture (Fitrianti et al., 2023). According to the World Health Organization (WHO), there are 2.7 million cases of perineal rupture in mothers giving birth. This figure is projected to increase to 6.3 million in 2050, especially if midwives do not have adequate knowledge about midwifery care (WHO, 2020).

There are 26 million mothers giving birth in America, 40% of whom experience perineal rupture. Perineal rupture is also quite a problem in Asian society, 50% of perineal rupture incidents in the world occur in Asia (Anggraini et al., 2024). Perineal wounds are experienced by 75% of mothers giving birth vaginally in Indonesia. 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 (Anggraini & Ardhiyanti, 2022).

Perineal rupture can be caused by various maternal factors, such as age, parity, and menstruation technique. Factors that influence the fetus include the baby's weight at birth and presentation such as the face, forehead or buttocks. Apart from that, vaginal delivery techniques such as vacuum extraction, forceps extraction, or partus

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precipitatus also play a role (Asmirah, 2020). Another influencing factor is a history of childbirth such as an episiotomy, as well as inappropriate experience of birth attendants. Pelvic floor muscles tend to be more elastic in mothers who have given birth several times (multipara) compared to mothers who have given birth for the first time (primipara), so that perineal rupture occurs more often in primigravida (Bancin et al., 2023; Syalfina et al., 2021).

Wounds in the birth canal are an ideal place for the growth of bacteria. This condition allows pathogenic bacteria to enter and cause infection. In particular, perineal wounds in postpartum mothers that are not properly maintained are very susceptible to infection, which can affect the healing process of perineal wounds. According to Wiyani (2018), healing of perineal lacerations can vary, with some cases experiencing normal healing while others experience delays in the healing process.

The healing process for perineal wounds normally occurs within 5 to 7 days after delivery. Stitched wounds that heal normally usually appear dry on the 5th to 7th day, and in some cases can heal more quickly, within 5 days. Proper care of the perineum plays an important role in the healing process. The healing process for perineal wounds normally occurs within 5 to 7 days after delivery (Gusnimar et al., 2021). Stitched wounds that heal normally usually appear dry on the 5th to 7th day, and in some cases can heal more quickly, within 5 days. Proper care of the perineum plays an important role in the healing process. Inappropriate care can cause the perineum to become exposed to lochea and dampness, becoming a place for bacterial growth that can cause infection (Idaningsih et al., 2023). According to Yulansari (2018), in the world around 26% of mothers with perineal tears experience a slow wound healing process, more than 7 days after delivery. Treating perineal wounds in postpartum mothers is an important step to speed up the healing process. This action aims to reduce the mother's pain and discomfort, as well as prevent infection in the perineum. Apart from maintaining personal hygiene, postpartum mothers can also look for other alternatives to improve the healing process (Himawati & Febrinasari, 2021).

Perineal wounds, which occur in the area between the vagina and anus due to vaginal delivery, can cause pain, discomfort and a high risk of infection. Accelerating wound healing is very important to improve the mother's quality of life, prevent infection, and increase maternal satisfaction. This study aims to analyze the effectiveness of giving white eggs, snakehead fish, binahong leaves, soaked betel leaves, VCO, pineapple juice and honey in accelerating perineal wound healing and the incidence of perineal wound infections. These natural ingredients have the potential to accelerate wound healing due to their anti-inflammatory, antibacterial properties and ability to regenerate tissue (Nugraheni & Kurniarum, 2016). It is hoped that the results of this research will provide useful information for health workers and postpartum mothers in choosing effective methods to accelerate perineal wound healing and prevent infection.

## Method

Research This research focuses on analyzing various nutritional and therapeutic interventions to accelerate perineal wound healing and the incidence of perineal wound infections in postpartum mothers. The interventions analyzed included giving white eggs, snakehead fish, binahong leaves, soaked betel leaves, Virgin Coconut Oil (VCO), pineapple juice and honey. The research population consisted of postpartum mothers who experienced perineal wounds, with a quantitative approach and quasi-experiment methods to evaluate the effectiveness of each intervention. In this research, the sampling technique uses non-probability sampling, specifically purposive sampling, to select participants who meet certain criteria. The purposive sampling method was chosen to ensure that the samples taken had characteristics relevant to the research objectives.

Data processing and analysis was carried out using the t-test statistical test via the SPSS program. This test aims to evaluate significant differences in perineal wound healing time between the group given the intervention and the control group (Intiyani et al., 2019). With this statistical analysis, the study sought to identify whether there was a significant effect of each intervention on accelerating healing and reducing the incidence of perineal wound infections. It is hoped that the results of this study will provide insight into the effectiveness of various natural and nutritional therapies in accelerating perineal wound healing and preventing infection, thereby providing useful recommendations for clinical practice and postnatal care.

## Result and Discussion

*Results*

*Univariate Data*

Analysis of univariate data on acceleration of wound healing by giving white eggs, snakehead fish, binahong leaves, pineapple juice + honey, betel leaf soak and VCO. The results found were that in the intervention group the results were obtained by giving white eggs, snakehead fish, pineapple juice + honey, soaking. The majority of betel leaves and VCO

experienced 100% accelerated healing of perineal wounds. However, when giving binahong leaves, it was found that 13 respondents (86.70%) accelerated perineal wound healing and 2 respondents (13.3%) experienced normal healing. Reviewing the control group (without treatment) it was found that the majority experienced normal wound healing (7-14 days) found in the preparation of white eggs, snakehead fish, binahong, and betel leaves. However, when giving pineapple juice + honey, the majority found fast healing, 8 respondents (53.30%) and 7 respondents (46.70%) normal. Meanwhile, when administering VCO, the same results were found, namely the majority of fast healing was 8 respondents (53.30%) and normal was 7 respondents (46.70%).

**Table 1.** Overview of Research on Accelerating Perineal Wound Healing

| Accelerating Wound Healing by Giving White Eggs | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 15 | 100 |
| Normal (7-14 days) | 0 | 0 |
| Control Group | | |
| Fast (< 7 days) | 0 | 0 |
| Normal (7-14 days) | 15 | 100 |

**Table 2.** Overview of Research on Accelerating Perineal Wound Healing

| Acceleration of Wound Healing by Feeding Snakehead Fish | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 15 | 100 |
| Normal (7-14 days) | 0 | 0 |
| Control Group | | |
| Fast (< 7 days) | 0 | 0 |
| Normal (7-14 days) | 15 | 100 |

**Table 3.** Wound Healing by Giving Binahong Leaves

| Acceleration of Wound Healing by Giving Binahong Leaves | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 13 | 86.70 |
| Normal (7-14 days) | 2 | 13.30 |
| Control Group | | |
| Fast (< 7 days) | 0 | 0 |
| Normal (7-14 days) | 15 | 100 |

Analysis The univariate analysis of infection incidence in the intervention and control groups offers insights into the effectiveness of various treatments for preventing infection. In the intervention group, where participants received white eggs, snakehead fish, binahong leaves, pineapple juice with honey, betel leaf soaking, and virgin coconut oil (VCO), 100% of the participants did not experience infections. This suggests the combined intervention was highly effective, possibly due to its multifaceted approach. In the control group, where individual treatments were administered, the results varied. Notably, 100% of participants who received only VCO remained infection-free, highlighting its strong potential as an antimicrobial agent. VCO contains lauric acid, known for its antimicrobial properties, which may explain its effectiveness in preventing infections in this group. The control group showed different results when given white eggs: 7 out of 15 respondents (46.70%) experienced infections, while 8 (53.30%) did not. White eggs, though a good source of protein that supports overall health, may lack specific antimicrobial properties needed to prevent infections on their own.

**Table 4.** Wound Healing by Pineapple Juice and Honey

| Accelerating Wound Healing by Giving Pineapple Juice + Honey | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 15 | 100 |
| Normal (7-14 days) | 0 | 0 |
| Control Group | | |
| Fast (< 7 days) | 8 | 53.30 |
| Normal (7-14 days) | 7 | 46.70 |

**Table 5.** Wound Healing by Betel Leaf Soaking

| Accelerating Wound Healing with Betel Leaf Soaking | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 15 | 100 |
| Normal (7-14 days) | 0 | 0 |
| Control Group | | |
| Fast (< 7 days) | 0 | 0 |
| Normal (7-14 days) | 15 | 100 |

**Table 6.** Wound Healing by Giving VCO

| Acceleration of Wound Healing by Giving VCO | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Fast (< 7 days) | 15 | 100 |
| Normal (7-14 days) | 0 | 0 |
| Control Group | | |
| Fast (< 7 days) | 8 | 53.30 |
| Normal (7-14 days) | 7 | 46.70 |

When snakehead fish was given, only 3 out of 18 respondents (10%) experienced infections, while 15 (90%) remained infection-free. Snakehead fish, rich in essential amino acids, may promote tissue regeneration and strengthen the immune system, which could account for the lower infection rates. The results for

binahong leaves were mixed, with 4 respondents (26.70%) experiencing infections and 11 (73.30%) remaining infection-free. While binahong leaves are known for their anti-inflammatory and antioxidant properties, their effectiveness in preventing infections seems to vary, suggesting they may not be as consistently reliable as other treatments like VCO.

**Table 7.** Overview of research on the incidence of Infection by Giving Egg

| Incidence of Infection by Giving Egg Whites | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |

**Table 8.** Overview of research on the incidence of Infection by Giving Feeding Snakehead Fish

| Incidents of Infection from Feeding Snakehead Fish | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |
| Experiencing an infection | 3 | 10 |
| There was no incidence of infection | 15 | 90 |

**Table 9.** Overview of research on the incidence of Infection by Giving Binahong Leaf

| Binahong Leaf Infection Incident | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |
| Experiencing an infection | 4 | 2.70 |
| There was no incidence of infection | 11 | 73.30 |

Pineapple juice with honey, known for its anti-inflammatory and antimicrobial properties, also demonstrated relatively low infection rates, although detailed data on this specific treatment were not provided. The combination of bromelain in pineapple and the antimicrobial properties of honey may have contributed to its effectiveness. Betel leaf soaking also showed positive results, with 3 out of 15 respondents experiencing infections, while 12 (80%) did not. Betel leaves have been used in traditional medicine for their antimicrobial effects, likely contributing to the high percentage of participants remaining infection-free. However, the 20% infection rate suggests it is not entirely foolproof.

**Table 10.** Overview of research on the incidence of Infection by Juice + Honey

| Incidence of Infection by Giving Pineapple Juice + Honey | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |
| Experiencing an infection | 7 | 46.70 |
| There was no incidence of infection | 8 | 53.30 |

**Table 11.** Overview of research on the incidence of Infection by Betel Leaf Soaking

| Incidents of Infection from Betel Leaf Soaking | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |
| Experiencing an infection | 3 | 20 |
| There was no incidence of infection | 12 | 80 |

**Table 12.** Overview of research on the incidence of Infection by VCO

| Incidence of Infection from VCO Administration | Number (n) | Percentage (%) |
|---|---|---|
| Treatment Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |
| Control Group | | |
| Experiencing an infection | 0 | 0 |
| There was no incidence of infection | 15 | 100 |

*Bivariate Data*

The results of bivariate data on the effect of giving white eggs, snakehead fish, binahong leaves, soaked betel leaves, VCO, pineapple juice and honey on accelerating perineal wound healing and the incidence of perineal wound infections were obtained as follows: Based on the research results, it is known that in accelerating fast wound healing (< 7 days) it was found that all respondents did not experience incidents of infection, while in accelerating healing of normal

perineal wounds (7-14 days) it was found that 5 respondents (29.4%) experienced incidents of infection and 12 respondents (70.6%) did not experience any infection. This means that the treatment group (given egg whites) had a difference, namely that they experienced accelerated healing of perineal wounds with a mean rank of 8.80 (in the treatment group) and 22.20 (control group), the minimum value for accelerated wound healing was 5 days and a maximum of 7 days. Statistical test results based on tests Mann-whitney We got a p-value < 0.05, namely 0.000, meaning that there is an effect of egg white on accelerating perineal wound healing and the incidence of perineal wound infection (Kasanah et al., 2023; Sebayang & Ritonga, 2021).

Based on the research results, it is known that in accelerating fast wound healing (< 7 days) it was found that all respondents did not experience incidents of infection, while in accelerating healing of normal perineal wounds (7-14 days) it was found that 3 respondents (20%) experienced infections and 12 respondents (80%) did not experience any incidence of infection. This means that the treatment group (given snakehead fish) had a difference, namely that they experienced accelerated healing of perineal wounds with a mean rank of 8.00 (in the treatment group) and 23.00 (control group), the minimum value for accelerated wound healing was 4 days and a maximum of 6 days. . Statistical test results based on tests Mann-whitney The p-value <0.05 was obtained, namely 0.000, meaning that there was an effect of giving snakehead fish on the acceleration of perineal wound healing and the incidence of perineal wound infection (Kuntoro, 2018).

Based on the research results, it is known that in accelerating fast wound healing (< 7 days) it was found that all respondents did not experience incidents of infection, while in accelerating healing of normal perineal wounds (7-14 days) it was found that 13 respondents (76.5%) experienced incidents of infection and 4 respondents (23.5%) did not experience any infection. This means that the treatment group (given binahong) had a difference, namely that they experienced accelerated healing of perineal wounds with a mean rank of 9.13 (in the treatment group) and 21.87 (control group), the minimum value for accelerated wound healing was 6 days and a maximum of 8 days. Statistical test results based on tests Mann-whitney We got a p-value < 0.05, namely 0.000, meaning that there was an effect of giving binahong leaves on the acceleration of perineal wound healing and the incidence of perineal wound infections (Lisandari, 2022; Sa'adah, 2022; Setiawan & Nisa, 2016).

**Tabel 13.** Bivariate Data Table

| Accelerated wound healing | | Infection Incidents | | | | | | Mean Rank | Min-Max | P Value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Yes | | Not | | Total | | | | |
| | | f | % | f | % | f | % | | | |
| Egg White | Fast ( < 7 days ) | 0 | 0 | 13 | 100 | 13 | 100 | 8.80 (treatment) 22.20 (control) | 5-7 days | 0.000 |
| | Normal (7-14 days) | 5 | 29.4 | 12 | 70.6 | 17 | 100 | | | |
| Snakehead Fish | Fast (< 7 days) | 0 | 0 | 15 | 100 | 15 | 100 | 8.00 (treatment) 23.00 (control) | 4-6 days | 0.000 |
| | Normal (7-14 days) | 3 | 20 | 12 | 80 | 15 | 100 | | | |
| Binahong | Fast (< 7 days) | 0 | 0 | 13 | 100 | 13 | 100 | 9.13 (treatment) 21.87 (control) | 6-8 days | 0.000 |
| | Normal (7-14 days) | 13 | 76.5 | 4 | 23.5 | 17 | 100 | | | |
| Pineapple Juice + Honey | Fast (< 7 days) | 1 | 4.3 | 22 | 95.7 | 23 | 100 | 11.20 (treatment) 19.80 (control) | 6-7 days | 0.007 |
| | Normal (7-14 days) | 3 | 42.9 | 4 | 57.1 | 7 | 100 | | | |
| Betel Leaf | Fast (< 7 days) | 0 | 0 | 15 | 100 | 15 | 100 | 9.30 (treatment) 21.20 (control) | 6-7 days | 0.000 |
| | Normal (7-14 days) | 3 | 20 | 12 | 80 | 15 | 100 | | | |
| VCO | Fast (< 7 days) | 0 | 0 | 15 | 100 | 15 | 100 | 8.80 (treatment) 22.20 (control) | 4-7 days | 0.000 |
| | Normal (7-14 days) | 0 | 0 | 15 | 100 | 15 | 100 | | | |

Based on the results of the research, it is known that with accelerated fast wound healing (< 7 days), the majority did not experience infection, 22 respondents (95.70%) and normal perineal wound healing was found to experience infection, 3 respondents (42.90%) and 4 respondents (57.10%) did not experience infection. The intervention and control groups had differences in that they experienced accelerated healing of perineal wounds with a mean rank of 11.20 (in the treatment group) and 19.80 (control group), the minimum value for accelerated wound healing was 6 days and a maximum of 7 days. Statistical test results based on tests Mann-whitney the p-value <0.05 was obtained, namely 0.007, meaning that there was an effect of giving pineapple juice and honey on the acceleration of perineal wound healing and the incidence of perineal wound infection.

Based on the research results, it is known that in accelerating fast wound healing (< 7 days) it was found that all respondents did not experience incidents of infection, while in accelerating healing of normal perineal wounds (7-14 days) it was found that 3 respondents (20%) experienced infections and 12 respondents (80%) did not experience any incidence of infection. This means that the treatment group (given betel leaves) had a difference, namely that they experienced accelerated healing of perineal wounds with a mean rank of 9.30 (in the treatment group) and 21.20 (control group), the minimum value for accelerated wound healing was 6 days and a maximum of 7 days. . Statistical test results based on tests Mann-whitney We got a p-value < 0.05, namely 0.000, which means that there is an effect of giving betel leaf water soaks on the acceleration of perineal wound healing and the incidence of perineal wound infections.

Based on the results of the research, it is known that in accelerating fast wound healing (< 7 days) it was found that all respondents did not experience any incidence of infection, while the acceleration of healing of normal perineal wounds (7-14 days) found the same thing without experiencing any incidence of infection. This means that the treatment group (given VCO) did not have a difference in experiencing the incidence of infection. However, in terms of accelerated wound healing, namely experiencing accelerated healing of perineal wounds with a mean rank of 8.80 (in the treatment group) and 22.20 (control group), the minimum value accelerated wound healing, namely 4 days and a maximum of 7 days. Statistical test results based on tests Mann-whitney the p-value <0.05 is obtained, namely 0.000, meaning there is an effect of giving Virgin Coconut Oil (VCO) to accelerate the healing of perineal wounds in the Cirinten Community Health Center Work Area in 2024

*Discussion*

*The Effect of Giving Egg Whites on the Acceleration of Perineal Wound Healing and the Incidence of Perineal Wound Infections*

The results of statistical tests using the Mann-Whitney method show a p-value of 0.000 (<0.05), which confirms the influence of egg whites on accelerating perineal wound healing and preventing infection. Consuming egg whites helps prevent infection in perineal wounds through the antibacterial protein content such as lysozyme and ovotransferrin which can inhibit the growth of pathogenic bacteria. Lysozyme damages bacterial cell walls, while ovotransferrin binds iron ions that bacteria need to grow (Milah, 2021). In addition, egg whites also contain anti-inflammatory compounds such as ovoalbumin and ovomucoid which reduce swelling, redness and pain in perineal wounds, helping prevent further tissue damage and speeding healing. The albumin content in egg whites accelerates cell regeneration and the formation of new tissue, accelerating wound healing. Albumin plays a role in the migration and proliferation of healing cells such as fibroblasts and endothelial cells. In addition, the electrolytes and minerals in egg whites such as sodium, potassium and calcium help maintain fluid and electrolyte balance in the wound area, creating an optimal environment for healing (Mutmainnah & Wintarsih, 2023).

Similar research by Narsih et al. (2019) shows that additional protein intake from boiled egg whites accelerates the healing of perineal wounds in postpartum mothers. Another study by Nova (2023) confirmed the benefits of free-range chicken eggs in repairing damaged tissue thanks to their high protein and choline content. Overall, egg whites have great potential in accelerating perineal wound healing through antibacterial, anti-inflammatory mechanisms, as well as cell regeneration and new tissue formation, while preventing the risk of infection and supporting more effective recovery.

*The Effect of Giving Snakehead Fish on the Acceleration of Perineal Wound Healing and the Incidence of Perineal Wound Infections*

This research shows that administration of snakehead fish significantly accelerates perineal wound healing and prevents infection, with the Mann-Whitney test producing a p-value <0.05 (0.000). This finding is supported by various studies showing that administration of snakehead fish accelerates wound healing in postpartum women, with most wounds healing in ≤7 days. The average healing time in the group given snakehead fish was 4.73 days, faster than the control group which needed 7.13 days. Snakehead fish is rich in protein (20-25%) which accelerates tissue regeneration and the formation of new cells. The content of essential amino acids such as arginine, glutamine and proline stimulate collagen synthesis and supports the immune system. Vitamins A and C in snakehead fish are also important for wound healing, where vitamin A helps the growth of new cells and vitamin C strengthens the immune system and collagen synthesis (Nurlaila et al., 2022; Siagian et al., 2020).

In addition, bioactives such as omega-3 and polyunsaturated fatty acids in snakehead fish have anti-inflammatory effects that reduce swelling and speed up wound healing. This effect supports a faster recovery process. However, the effectiveness of snakehead fish in preventing infection has not been fully proven, so wound hygiene and medical treatment are still necessary (Hanifa et al., 2023; Samura & Azrianti, 2021).

Overall, snakehead fish has potential as a nutritional intervention in accelerating perineal wound healing. The combination of protein, amino acids, vitamins and anti-inflammatory compounds works synergistically to accelerate tissue regeneration and reduce the risk of infection, supporting the conclusion that snakehead fish is effective in accelerating perineal wound healing.

*The Effect of Giving Binahong Leaves on the Acceleration of Perineal Wound Healing and the Incidence of Perineal Wound Infection*

This research shows that giving binahong leaves has a significant effect on accelerating perineal wound healing and reducing the incidence of infection. The results of the Mann-Whitney test produced a p-value of 0.000 (<0.05), confirming that there was a significant difference in perineal wound healing between the intervention and control groups. This research is in line with the study of Sampara et al. (2020) who found a positive effect of giving binahong leaves on perineal wound healing (p = 0.001) and Sangkal et al. (2020) who confirmed the effectiveness of binahong cream with a p-value of 0.044. The average wound healing in the intervention group was faster with an average value of 10.70 compared to the control group of 20.30, indicating the effectiveness of binahong leaves in accelerating wound healing. Apart from that, the wound infection score (Rubor, Kalor, Tumor, Dolor) in the intervention group was also lower, with an average of 12.00, compared to the control which reached 19.00. This shows that binahong leaves can reduce the risk of perineal wound infections (Santika et al., 2020).

Binahong leaves contain flavonoids, saponins, alkaloids and vitamin C which have anti-inflammatory, antibacterial properties and support collagen synthesis. These properties play a role in reducing swelling, pain, and preventing the growth of bacteria such as Staphylococcus aureus and Escherichia coli, which often causes infections (Sitepu et al., 2020; Sumiasih, 2017). With its complete phytochemical content, binahong leaves have the potential to be an effective non-pharmacological intervention in treating perineal wounds in postpartum mothers (Susilawati et al., 2020; Sutanto, 2018). The results of this study indicate that administering binahong leaves can speed up the healing process of perineal wounds while preventing infection, thereby supporting faster recovery and reducing the risk of complications for mothers after giving birth.

*The Effect of Giving Pineapple Juice and Honey on the Acceleration of Perineal Wound Healing and the Incidence of Perineal Wound Infections*

The results of the Mann-Whitney statistical test show a p-value of 0.007 (<0.05), which means there is a significant effect of giving pineapple juice and honey on accelerating perineal wound healing and reducing the incidence of infection. This research is consistent with the study of Trianingsih et al. (2019) which found that giving pineapple juice accelerated the healing of perineal wounds, with the control group experiencing healing on day 6 and a p-value of 0.004. Another study by Turnip et al. (2022) showed that a combination of pineapple juice and honey helped speed up the healing of perineal wounds. The study noted that perineal wounds are said to heal quickly in 5-6 days, while the normal time is 7 days. The bromelain enzyme in pineapple helps clear away dead tissue and stimulates the growth of new tissue, while honey with its antibacterial and anti-inflammatory properties prevents infection and reduces inflammation. The vitamin C in pineapple also increases collagen production, which is important for tissue repair.

This research proves that accelerated perineal wound healing is strongly correlated with a reduced risk of infection. The majority of respondents (95.70%) who recovered in less than 7 days did not experience infection, while 42.90% of respondents who experienced infection had a longer healing time. In conclusion, consuming pineapple and honey can help speed up the healing process of perineal wounds and reduce the risk of infection. The bromelain in pineapple functions to clean dead tissue and accelerate the growth of new tissue, while honey protects wounds from infection. Vitamin C also plays an important role in strengthening newly formed tissue. The combination of the two creates an environment that supports faster and more effective healing.

*The Effect of Soaking in Betel Leaf Water on the Acceleration of Healing of Perineal Wounds and the Incidence of Perineal Wound Infections*

The results of the Mann-Whitney statistical test show a p-value of 0.000 (<0.05), which means there is a significant effect of giving betel leaf water soaks on accelerating perineal wound healing and reducing infection. This research is consistent with Putri et al. (2022) study, which analyzed six articles on the effect of betel leaf decoction on perineal wound healing, showing differences in healing time for postpartum mothers. Purnani (2019) also supports this finding with the Mann-Whitney test which produces a p-value of 0.000, indicating a significant difference in the acceleration of perineal wound healing in post-partum mothers. Bancin et al. (2023) stated that the average healing time for perineal wounds with boiled red betel leaf water was 5.80 days, compared to 7.80 days in the control group. This strengthens the positive influence of betel leaves in speeding up the healing process.

The active compound content in betel leaves, such as eugenol and flavonoids, is considered to play an

important role in the healing process. The antiseptic properties of betel leaves are effective in killing infection-causing bacteria, while the anti-inflammatory properties help reduce inflammation and pain. Betel leaves also have astringent and antioxidant properties that can tighten wound tissue, stimulate new cell growth, and protect cells from damage. Overall, this study confirms that the use of betel leaf water soaks is effective in accelerating perineal wound healing and reducing the risk of infection. With its active compounds, betel leaves not only speed up the healing process but also prevent complications that can arise from perineal wounds that do not heal properly.

*The Effect of Giving Virgin Coconut Oil (VCO) To Accelerate Healing of Perineal Wounds*

Test results Statistical test results using Mann-Whitney showed a p-value of 0.000 (<0.05), which confirmed the significant effect of giving Virgin Coconut Oil (VCO) on accelerating perineal wound healing. In this study, mothers with perineal wounds used 1 drop of VCO (50 µl) applied 3 times a day every 8 hours. VCO plays a role in maintaining skin moisture thanks to its high lauric acid content, thus accelerating the re-epithelialization process and increasing collagen synthesis. The perineal wound healing process, according to Primadona and (Susilawati et al., 2020), includes the inflammatory phase (24-48 hours), the proliferation phase (48 hours-5 days), and the maturation phase (5 days-months). If treatment is not optimal, the healing process can be disrupted, potentially causing complications. This study looked at REEDA scores in postpartum mothers who used VCO. On the first day, the REEDA score was 7, but the wound healed completely with a REEDA score of 0 on the fifth day. This finding is in line with research by Yuliana & Fauziah (2021), where the use of VCO reduced the REEDA score from 8 to 0, indicating that a wound that was initially wet became dry.

Other research Wijaya (2021) also shows that VCO accelerates wound healing by increasing collagen production, fibroblast proliferation and neovascularization (Zakiyah & Dini, 2022). VCO has been proven to be effective in speeding up the healing process of perineal wounds in postpartum mothers compared to those who did not receive this therapy. According to researchers' assumptions, VCO is a safe natural ingredient and can support epithelial cell migration, collagen synthesis, and the re-epithelialization process when used with good hygiene practices, thereby speeding up the healing time of perineal wounds.

## Conclusion

Perineal wounds, which are injuries that occur in the area between the anus and the genitals, are particularly susceptible to infection if not managed properly. Factors such as poor hygiene, inappropriate wound care, or existing health conditions like diabetes can exacerbate the risk of infection. Infections in perineal wounds typically present with symptoms such as worsening pain, swelling, redness, and the discharge of fluid or pus from the wound. These symptoms may be accompanied by systemic signs of infection like fever or chills, which can complicate the healing process. This research sought to explore the impact of various natural remedies on the healing of perineal wounds and the reduction of infection risk. The natural remedies studied included white eggs, snakehead fish, binahong leaves, soaked betel leaves, Virgin Coconut Oil (VCO), pineapple juice, and honey. These ingredients were selected based on their known healing properties, such as anti-inflammatory effects, antimicrobial activity, and the promotion of tissue regeneration. The study employed a quasi-experimental quantitative design with purposive sampling to evaluate the effectiveness of these natural remedies. The results were statistically analyzed using the Mann-Whitney test, which revealed a significant difference in wound healing between the treatment group and the control group. The p-value of 0.000 indicated a strong statistical significance, suggesting that the natural remedies indeed accelerated the healing process of perineal wounds. The findings demonstrated that respondents who received the natural treatments experienced faster wound healing compared to those in the control group. Moreover, the incidence of infection was notably lower in the treatment group, underscoring the efficacy of these natural remedies in both accelerating wound healing and reducing the risk of infection. In contrast, some individuals in the control group experienced infections, highlighting the potential benefits of incorporating these natural treatments into wound care regimens. The study concludes that natural remedies such as white eggs, snakehead fish, binahong leaves, betel leaf soak, VCO, pineapple juice, and honey can be effectively used to enhance the healing of perineal wounds. By promoting faster wound closure and reducing the likelihood of infection, these treatments offer a valuable, natural alternative to conventional wound care methods. The use of such remedies could be particularly beneficial in settings where access to advanced medical care is limited or where patients prefer natural treatment options. Ultimately, this research contributes to the growing body of evidence supporting the use of natural substances in wound management and highlights the

importance of proper wound care in preventing complications like infections.

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The following statements should be used Conceptualization, IH, NH, IS, ETBP, N, EN, YN contributed to the data collection process, data processing, article writing.

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The authors declare no conflict of interest.

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