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COMPARATIVE EFFECTIVENESS OF SNAKEHEAD FISH AND BINAHONG EXTRACTS ON PERINEAL WOUND HEALING IN POSTPARTUM MOTHERS

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ABSTRACT

Background: Perineal rupture is a common childbirth injury that may delay recovery, increase the risk of infection, and reduce postpartum quality of life. Complementary therapies, including snakehead fish (*Channa striata*) extract and binahong leaf (*Anredera cordifolia*) extract, have shown potential to enhance wound healing through different biological mechanisms. However, comparative evidence regarding their effectiveness in postpartum perineal wound management remains limited.**Objective:** This study aimed to compare the effectiveness of snakehead fish extract and binahong leaf extract in accelerating perineal wound healing among postpartum mothers.**Methods:** A quasi-experimental study using a two-group pretest–posttest design without a control group was conducted among postpartum mothers with second-degree perineal rupture at Roja Asyifa Clinic, Pemalang Regency. Participants received either snakehead fish extract or binahong leaf extract for four consecutive days. Wound healing was assessed using the REEDA Scale before and after intervention. Data were analyzed using appropriate comparative statistical tests with a significance level of 0.05.**Results:** Both interventions significantly improved perineal wound healing ($p < 0.05$). The reduction in REEDA scores was greater in the snakehead fish extract group than in the binahong leaf extract group, indicating superior wound healing outcomes.**Conclusion:** Both interventions effectively accelerated perineal wound healing. Snakehead fish extract showed superior effectiveness and may serve as a promising complementary therapy for postpartum perineal wound management.

Keywords: Binahong leaf extract; Perineal wound healing; Postpartum mothers; REEDA Scale; Snakehead fish extract

INTRODUCTION

The postpartum period represents a critical phase in the continuum of maternal healthcare, during which women undergo substantial physiological and psychological adaptations following childbirth. Optimal postpartum care aims not only to restore reproductive function but also to prevent complications and promote maternal well-being. One of the most common complications following vaginal birth is perineal trauma, which may occur spontaneously or as a result of episiotomy. Perineal wounds frequently cause pain, limit maternal mobility, interfere with breastfeeding, and increase the risk of local infection, ultimately affecting maternal quality of life and recovery (Purwanti et al., 2019)(Aditia et al., 2017).

Perineal wound healing is a complex biological process involving four overlapping phases: hemostasis, inflammation, proliferation, and remodeling. Successful tissue repair depends on adequate inflammatory regulation, fibroblast proliferation, collagen synthesis, angiogenesis, and epithelial regeneration. Several maternal factors, including inadequate nutritional status, hypoalbuminemia, anemia, poor personal hygiene, and infection, may delay wound healing and increase the risk of postpartum morbidity. Therefore, interventions that enhance tissue regeneration while minimizing inflammation are essential components of evidence-based postpartum care. (Purwanti et al., 2019)

In recent years, complementary and herbal therapies have attracted increasing attention because they are relatively safe, affordable, culturally acceptable, and widely available, particularly in low- and middle-income countries. Indonesia possesses abundant medicinal plants and natural resources that have traditionally been used to facilitate postpartum recovery. Among these, snakehead fish (*Channa striata*) extract and binahong leaf (*Anredera cordifolia*) extract have emerged as promising complementary interventions for wound management. (Purwanti et al., 2019)

Snakehead fish is recognized as a rich source of high-quality protein, albumin, essential amino acids, zinc, and unsaturated fatty acids, all of which contribute to tissue repair. Albumin plays an essential role in maintaining plasma oncotic pressure, transporting nutrients, regulating inflammatory responses, and supporting fibroblast proliferation and collagen deposition during wound healing. Clinical studies have demonstrated that snakehead fish supplementation accelerates postoperative and postpartum wound recovery by improving nutritional status and enhancing tissue regeneration. Purwanti et al. reported that postpartum mothers consuming *Channa striata* experienced significantly faster perineal wound healing than those receiving routine postpartum care ($p < 0.05$). Similar findings have also been reported in subsequent studies evaluating snakehead fish supplementation among postpartum women with perineal rupture. (Purwanti et al., 2019)

Another potential complementary therapy is binahong (*Anredera cordifolia*), a medicinal plant widely used in traditional Indonesian medicine. Binahong leaves contain several bioactive compounds, including flavonoids, saponins, tannins, polyphenols, alkaloids, and vitamin C. These phytochemicals exhibit antioxidant, antibacterial, anti-inflammatory, and collagen-stimulating properties that facilitate tissue repair. Flavonoids reduce oxidative stress and inflammatory mediators, saponins stimulate fibroblast activity and collagen synthesis, while tannins promote tissue contraction and inhibit bacterial growth. Collectively, these mechanisms accelerate epithelialization and shorten wound healing time. Several quasi-experimental studies have demonstrated that binahong preparations significantly improve perineal wound healing compared with conventional wound care. (Saidah et al., 2022)

Despite growing evidence supporting both interventions, important knowledge gaps remain. Most previous studies have investigated snakehead fish extract or binahong leaf extract independently rather than directly comparing their effectiveness. Furthermore, many studies used different wound assessment methods, intervention protocols, or observational designs, making direct comparisons difficult. Evidence comparing these two complementary therapies using a standardized wound assessment instrument among postpartum mothers with second-degree perineal rupture is still limited. Consequently, healthcare providers have insufficient evidence to determine which intervention offers greater clinical benefits for routine postpartum practice. (Purwanti et al., 2019)

The present study addresses this research gap by directly comparing the effectiveness of snakehead fish extract and binahong leaf extract using the REEDA (Redness, Edema, Ecchymosis, Discharge, Approximation) Scale, one of the most widely accepted instruments for assessing perineal wound healing. Unlike previous studies that focused on a single intervention, this study evaluates two complementary therapies with distinct biological mechanisms—nutritional supplementation through albumin-rich snakehead fish extract and phytotherapeutic intervention through bioactive compounds in binahong leaves. This comparative approach provides stronger evidence regarding complementary postpartum wound management and supports the implementation of evidence-based midwifery practice.

The findings are expected to contribute to the growing body of evidence on complementary postpartum care and provide practical recommendations for integrating safe, affordable, and locally available natural therapies into routine maternal health services, particularly in primary healthcare settings. Furthermore, the study may assist midwives and other healthcare professionals

in selecting evidence-based complementary interventions to optimize perineal wound healing and improve postpartum recovery outcomes.

Objective

This study aimed to compare the effectiveness of *Channa striata* extract and *Anredera cordifolia* extract in promoting perineal wound healing among postpartum mothers with second-degree perineal rupture.

METHOD

This study employed a **quasi-experimental design** using a **two-group pretest–posttest without control group** approach to compare the effectiveness of snakehead fish (*Channa striata*) extract and binahong leaf (*Anredera cordifolia*) extract on perineal wound healing among postpartum mothers. The study was conducted at Roja Asyifa Clinic, Moga District, Pemalang Regency, Indonesia, from April to May 2024. Ethical approval was obtained from the Health Research Ethics Committee prior to the commencement of data collection, under Ethics Approval Letter No. 114/KEP/UNKAHA/LPPM/IV/2026 from Karya Husada University Semarang, dated April 7, 2026.

The study population consisted of postpartum mothers who experienced second-degree perineal rupture following spontaneous vaginal delivery. Participants were recruited using **purposive sampling** based on predetermined inclusion and exclusion criteria. Inclusion criteria included postpartum mothers aged 20–35 years, within the first 24 hours after delivery, diagnosed with second-degree perineal rupture, willing to participate, and having no history of systemic diseases that could interfere with wound healing. Mothers with postpartum complications, severe infections, known allergies to the intervention products, or incomplete follow-up data were excluded. A total of **40 respondents** met the eligibility criteria and were equally allocated into two intervention groups, with **20 mothers receiving snakehead fish extract and 20 mothers receiving binahong leaf extract**.

Participants in the first group received commercially available snakehead fish extract according to the manufacturer's recommended dosage for four consecutive days, while those in the second group received binahong leaf extract for the same duration. All participants received standard postpartum care, including routine perineal hygiene education. No additional complementary therapies specifically targeting wound healing were administered during the intervention period.

Perineal wound healing was evaluated using the **REEDA Scale (Redness, Edema, Ecchymosis, Discharge, and Approximation)**, a standardized instrument widely used to assess the healing status of perineal wounds. Each component was scored to obtain a total REEDA score, with lower scores indicating better wound healing. Wound assessments were performed before the intervention (pretest) and on the fourth day after treatment (posttest) by trained healthcare personnel following standardized assessment procedures.

Data analysis was performed using IBM SPSS Statistics. Descriptive statistics were used to summarize participant characteristics and REEDA scores. Data normality was assessed using the **Shapiro–Wilk test**. Because one intervention group did not meet the assumption of normality, differences in pretest and posttest REEDA scores within the snakehead fish extract group were analyzed using the **Wilcoxon Signed-Rank Test**, whereas the **Paired Samples t-test** was applied to the binahong leaf extract group. Differences in treatment effectiveness between the two intervention groups were analyzed using the **Mann–Whitney U Test**. Statistical significance was determined at a **p-value < 0.05**.

RESULTS

Characteristics of Participant

Table 1 Distribution of Respondent Characteristics by Age and Parity (n-40)

Variable		The Snakehead Fish Extract Group		The Leaf Group	Binahong Extract
		F	%	F	%
Age	<20 year	0	0	0	0
	20 – 35 year	18	90	16	80
	> 35 year	2	10	4	20
	Amount	20	100	20	100
Paritas	Primiparous	11	55	11	55
	Multiparous	9	45	9	45
	Amount	20	100	20	100

A total of **40 postpartum mothers** participated in the study, with 20 respondents assigned to each intervention group. Most participants were between **20 and 35 years of age**, representing the optimal reproductive age. The majority were multiparous and had experienced second-degree perineal rupture following spontaneous vaginal delivery. Baseline demographic characteristics between the two intervention groups were generally comparable, indicating that both groups had similar initial characteristics before receiving the intervention.

Perineal Wound Healing in the Snakehead Fish Extract Group

Table 2 Data on Perineal Rupture Healing Trends in Postpartum Mothers Before and After Snakehead Fish Extract Intervention.

	Mean	Standar Deviasi (SD)	Z	Sig (2-tailed)
Pretest	7,1	1,410	-3,959	0,001
Posttest	0,8	0,768		

Before the intervention, the mean REEDA score in the snakehead fish extract group was **7.10 ± 1.41**, indicating moderate perineal tissue damage. Following four days of supplementation, the mean REEDA score significantly decreased to **0.80 ± 0.76**, reflecting substantial improvement in wound healing. Statistical analysis using the **Wilcoxon Signed-Rank Test** demonstrated a highly significant reduction in REEDA scores (**Z = −3.959; p < 0.001**), confirming the effectiveness of snakehead fish extract in accelerating perineal wound healing.

Perineal Wound Healing in the Binahong Leaf Extract Group

Table 3 Data on Perineal Rupture Healing Trends in Postpartum Mothers Before and After the Binahong Leaf Extract Intervention.

	Mean	Standar Deviasi (SD)	Z	Sig (2-tailed)
Pretest	7,30	1,625	20,379	0,001
Posttest	2,20	1,240		

Similarly, postpartum mothers receiving binahong leaf extract showed significant improvement in wound healing. The mean REEDA score decreased from **7.30 before intervention to 2.20 after four days of treatment**. Analysis using the **Paired Samples t-test** revealed a statistically significant reduction in wound healing scores (**p < 0.001**), indicating that binahong leaf extract also promoted perineal tissue recovery during the postpartum period.

Comparison of Treatment Effectiveness Between Groups

Table 4 Effectiveness of Administering Snakehead Fish (*Channa striata*) Extract and Binahong Leaf (*Anredera cordifolia*) Extract on Perineal Rupture Healing in Postpartum Mothers

	N	Mean Rank	Sum of Ranks	U	p-value
Snakehead Fish Extract	20	26,05	521,00	89,00	0,002*
Comparison Binahong Leaf Extract	20	14,95	299,00		
Difference					

Comparative analysis using the **Mann–Whitney U Test** demonstrated a statistically significant difference in perineal wound healing outcomes between the two intervention groups (**p = 0.002**). Postpartum mothers receiving snakehead fish

extract exhibited a greater reduction in REEDA scores than those receiving binahong leaf extract, indicating superior effectiveness in accelerating perineal wound healing. These findings suggest that the higher albumin and essential amino acid content of snakehead fish extract may provide greater biological support for tissue regeneration than the phytochemical compounds contained in binahong leaf extract.

DISCUSSION

The present study demonstrated that both **snakehead fish (*Channa striata*) extract** and **binahong leaf (*Anredera cordifolia*) extract** significantly accelerated perineal wound healing among postpartum mothers. Nevertheless, postpartum mothers who received snakehead fish extract experienced a significantly greater reduction in REEDA scores than those receiving binahong leaf extract. These findings indicate that although both complementary therapies promote tissue repair, snakehead fish extract provides superior clinical benefits for the healing of second-degree perineal wounds.

The superior effectiveness of snakehead fish extract is biologically plausible because wound healing requires adequate nutritional substrates in addition to local tissue repair mechanisms. *Channa striata* is rich in albumin, essential amino acids (particularly arginine, glycine, glutamic acid, and lysine), polyunsaturated fatty acids, zinc, and copper, all of which are essential for fibroblast proliferation, collagen synthesis, angiogenesis, epithelialization, and extracellular matrix remodeling. Recent systematic evidence further indicates that these nutrients act synergistically by modulating inflammatory cytokines, increasing vascular endothelial growth factor (VEGF), enhancing collagen deposition, and promoting re-epithelialization, thereby shortening wound healing time. (Hapsari & Tjandrawinata, 2025)

Albumin appears to be one of the principal contributors to the accelerated wound healing observed in the snakehead fish extract group. Beyond maintaining plasma oncotic pressure, albumin facilitates amino acid transport to injured tissues, reduces excessive inflammatory responses, and provides substrates required for cellular proliferation during the proliferative phase of wound healing. Adequate albumin availability also supports fibroblast migration and collagen maturation, resulting in stronger tissue regeneration and faster wound closure. Consequently, postpartum mothers receiving albumin-rich nutritional supplementation may experience more rapid recovery than those relying solely on phytotherapeutic interventions. (Hapsari & Tjandrawinata, 2025)

The findings of this study are consistent with previous clinical studies reporting that supplementation with *Channa striata* accelerates postoperative and postpartum wound healing. Earlier Indonesian studies demonstrated that postpartum mothers receiving snakehead fish extract exhibited significantly faster perineal wound recovery than mothers receiving standard postpartum care. Similar benefits have also been observed among postoperative patients, supporting the role of snakehead fish extract as a nutritional adjunct that enhances tissue repair through improved protein metabolism and collagen formation. (Afriani et al., 2020)

Although snakehead fish extract demonstrated greater effectiveness, binahong leaf extract also significantly improved perineal wound healing. This finding supports the growing evidence that medicinal plants containing bioactive phytochemicals may serve as valuable complementary therapies in postpartum care. The therapeutic effects of *Anredera cordifolia* are primarily attributed to flavonoids, saponins, tannins, polyphenols, alkaloids, and vitamin C, which collectively regulate different phases of wound healing.

Flavonoids represent one of the most extensively studied phytochemicals in wound management. A recent systematic review concluded that flavonoids accelerate wound healing by reducing oxidative stress, suppressing excessive inflammatory responses, stimulating angiogenesis, promoting

fibroblast proliferation, and enhancing collagen deposition. Flavonoids also modulate several molecular pathways involved in tissue repair, including transforming growth factor-β (TGF-β), vascular endothelial growth factor (VEGF), and antioxidant defense systems, thereby facilitating faster epithelialization. (Hapsari & Tjandrawinata, 2025)

Saponins further contribute to tissue regeneration by stimulating fibroblast activity and increasing collagen production during the proliferative phase. Experimental studies have shown that saponins promote granulation tissue formation and accelerate extracellular matrix remodeling, leading to stronger wound tensile strength. Meanwhile, tannins exhibit astringent and antimicrobial properties that reduce bacterial colonization, minimize wound exudate, and facilitate tissue contraction.(Rodrigues et al., 2018)(Stefanacci, 2023)

Polyphenols provide additional antioxidant protection by scavenging reactive oxygen species, thereby preventing oxidative damage that may delay tissue repair. Collectively, these bioactive compounds create a favorable microenvironment for wound healing, explaining the significant improvement observed in the binahong leaf extract group. (Yazarlu et al., 2021)

The present findings are also consistent with previous quasi-experimental studies demonstrating that binahong-based interventions significantly accelerate perineal wound healing compared with conventional postpartum care. Earlier studies reported greater reductions in REEDA scores among postpartum mothers treated with binahong preparations, suggesting that *Anredera cordifolia* possesses clinically relevant wound-healing activity. (Zulmi et al., 2019)

An important contribution of the present study lies in its comparative design. Previous investigations generally evaluated either snakehead fish extract or binahong leaf extract independently.(Asmaidar et al., 2025) Consequently, clinicians had limited evidence regarding which complementary intervention should be prioritized in postpartum practice. By directly comparing these two commonly used therapies using the standardized REEDA Scale, this study provides stronger comparative evidence for evidence-based decision-making in postpartum wound management.(Zulmi et al., 2019) The findings suggest that nutritional supplementation with albumin-rich snakehead fish extract may produce greater clinical benefits than phytotherapeutic intervention alone, although both approaches remain effective.

From a clinical perspective, these findings have important implications for evidence-based midwifery practice. Midwives play a central role in promoting postpartum recovery, particularly in primary healthcare settings where affordable and culturally acceptable complementary therapies are highly desirable.(Adinata & Mayangsari, 2023) Snakehead fish extract may be recommended as an adjunctive nutritional intervention for postpartum mothers with second-degree perineal rupture, while binahong leaf extract may serve as an alternative complementary therapy, especially for women who prefer herbal-based treatment or have limited access to nutritional supplements.(Rahmadhena et al., 2024) Integrating these evidence-based complementary therapies into routine postpartum care may accelerate maternal recovery, reduce discomfort, improve mobility, support breastfeeding, and potentially decrease the risk of postpartum wound infection.(Guo & DiPietro, 2010)

Despite these promising findings, several limitations should be acknowledged. First, the study employed a quasi-experimental design without random allocation, introducing the possibility of selection bias. Second, the sample size was relatively small and recruited from a single maternity clinic, which may limit the generalizability of the findings. Third, the intervention period was limited to four days, whereas complete tissue remodeling extends for several weeks after childbirth. Finally, nutritional intake, body mass index, hemoglobin concentration, and adherence to perineal hygiene

practices were not fully controlled and may have influenced wound healing outcomes.(Martin & Nunan, 2015) Future multicenter randomized controlled trials with larger sample sizes, longer follow-up periods, and comprehensive assessment of nutritional and clinical confounders are warranted to confirm these findings and strengthen the evidence supporting complementary postpartum wound management.(Chen et al., 2021)

CONCLUSION

This study demonstrated that both **snakehead fish (*Channa striata*) extract** and **binahong leaf (*Anredera cordifolia*) extract** significantly accelerated perineal wound healing among postpartum mothers with second-degree perineal rupture. Both interventions effectively reduced REEDA scores after four consecutive days of treatment, indicating their potential as complementary therapies to support postpartum recovery.

However, snakehead fish extract exhibited significantly greater effectiveness than binahong leaf extract in promoting perineal wound healing. The superior healing outcomes are likely attributable to its high albumin content, essential amino acids, and micronutrients, which play crucial roles in fibroblast proliferation, collagen synthesis, angiogenesis, and tissue regeneration throughout the wound-healing process.

The findings provide new comparative evidence supporting the integration of nutritional and herbal complementary therapies into evidence-based postpartum care. In particular, snakehead fish extract may be considered a preferred complementary intervention for accelerating perineal wound healing in postpartum mothers, while binahong leaf extract remains a beneficial alternative when nutritional supplementation is unavailable or contraindicated.

Further multicenter randomized controlled trials with larger sample sizes, longer follow-up periods, and comprehensive evaluation of nutritional status and other potential confounding factors are recommended to validate these findings and strengthen the evidence for complementary interventions in postpartum wound management.

Clinical Implication

The findings of this study have important implications for **evidence-based midwifery practice**. Midwives can consider incorporating **snakehead fish extract** as a complementary nutritional intervention to accelerate perineal wound healing, reduce postpartum discomfort, and support early maternal recovery. In settings where access to nutritional supplements is limited, **binahong leaf extract** may serve as a safe, affordable, and culturally acceptable complementary alternative. Integrating these evidence-based interventions into routine postpartum care may improve maternal outcomes and enhance the quality of postpartum services, particularly in primary healthcare settings.

REFERENCE

Adinata, N. N. M., & Mayangsari, D. (2023). EFEKTIFITAS PEMBERIAN BINAHONG DAN DAUN SIRIH TERHADAP PENYEMBUHAN LUKA PERINEUM PADA IBU POSTPARTUM. *Journal of Biomedical Sciences and Health*, *1*(2), 62–67.

Aditia, D. S., Hidayat, S. T., Khafidhoh, N., Suhartono, S., & Suwondo, A. (2017). Binahong leaves (Anredera cordifolia Tenore Steen) extract as an alternative treatment for perineal wound healing of postpartum mothers. *Belitung Nursing Journal*, *3*(6), 778–783.

Afriani, N., Indrayani, T., & Carolin, B. T. (2020). The Effect of Cork Fish (Channa Striata) Extract on Perineal Wound in the Work Area of Walantaka Community Health Center in 2020. *Journal of Global Research in Public Health*, *5*(2), 103–107.

Asmaidar, A., Runjati, R., Santjaka, A., & Cicilia, F. (2025). Accelerating perineal wound healing using binahong leaf extract sanitary pads. *MEDISAINS: Jurnal Ilmiah Ilmu-Ilmu Kesehatan*, *23*(1), 34–37.

Chen, G., Xu, H., Wu, Y., Han, X., Xie, L., Zhang, G., Liu, B., & Zhou, Y. (2021). Myricetin suppresses the proliferation and migration of vascular smooth muscle cells and inhibits neointimal hyperplasia via suppressing TGFBR1 signaling pathways. *Phytomedicine*, *92*, 153719.

Guo, S. al, & DiPietro, L. A. (2010). Factors affecting wound healing. *Journal of Dental Research*, *89*(3), 219–229.

Hapsari, R., & Tjandrawinata, R. R. (2025). Nutritional composition and action mechanism of Channa striata meat in wound healing: A systematic review. *Narra J*, *5*(3), e2903. https://doi.org/10.52225/narra.v5i3.2903

Martin, P., & Nunan, R. (2015). Cellular and molecular mechanisms of repair in acute and chronic wound healing. *British Journal of Dermatology*, *173*(2), 370–378.

Purwanti, C., Natalina, R., & Marlin, R. (2019). Consumption of snakehead fish (Channa striata) on postpartum maternal perineal wound healing. *J Heal Technol Assess Midwifery*, *2*(2), 75–79.

Rahmadhena, M. P., Amazona, G. J., Mutmainah, N., & Niladitya, R. (2024). Effectiveness of Snakehead Fish Extract on the Healing Time of Perineal Wounds in Postpartum Women Who Experience Perineal Rupture in the Jakarta-Tangerang Region in 2024. *Jurnal Penelitian Pendidikan IPA*, *10*(11), 8552–8557.

Rodrigues, M., Kosaric, N., Bonham, C. A., & Gurtner, G. C. (2018). Wound healing: a cellular perspective. *Physiological Reviews*.

Saidah, H., Sari, D. K., Healthyni, C. S., & Zoraya, M. (2022). The effectiveness of infusa leaf of Binahong (Anredera codifolia) in healing perineal wound. *Journal for Quality in Public Health*, *5*(2), 537–544.

Stefanacci, R. G. (2023). Wound Assessment and Management. In *Post-Acute and Long-Term Care Medicine: A Guide for Practitioners* (pp. 243–262). Springer.

Yazarlu, O., Iranshahi, M., Kashani, H. R. K., Reshadat, S., Habtemariam, S., Iranshahy, M., & Hasanpour, M. (2021). Perspective on the application of medicinal plants and natural products in wound healing: A mechanistic review. *Pharmacological Research*, *174*, 105841. https://doi.org/https://doi.org/10.1016/j.phrs.2021.105841

Zulmi, D., Septiani, L., & Soepardan, S. (2019). The effect of sitting and soaking therapy with binahong leaf (Anredera cordifolia) decoction on perineal wound healing. *Maj Obs Gin*, *27*(1), 28–33.