

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

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Abstract: Snakehead fish is rich in nutrients, particularly protein and albumin, which are vital for health. Albumin plays a crucial role in the body by aiding the formation of new cell tissue. Without sufficient albumin, cells struggle to regenerate, leading to rapid cell death and hindered development. A study was conducted in the Jakarta-Tangerang area in 2024 to assess the effectiveness of snakehead fish extract on the healing time of perineal wounds in postpartum women with perineal rupture. The study recruited 88 respondents, divided equally into intervention and control groups. Using G-Power Version 3.1.9.4 software, the sample size was determined, and data analysis was performed using independent sample t-tests for normally distributed data and the Mann-Whitney test for non-normally distributed data. Results showed that the intervention group had a significantly shorter average healing time (24.01 days) compared to the control group (64.99 days), with a p-value of 0.000, indicating the effectiveness of snakehead fish extract in accelerating perineal wound healing. The study suggests educating women on the benefits of consuming snakehead fish extract to promote faster recovery from perineal wounds.

Keywords: Effectiveness; Healing; Postpartum women; Snakehead fish extract

Introduction

State A perineal wound is a type of tear that occurs in the perineum during childbirth. The perineum is the area between the vagina and anus in women. Perineal tears often occur during labor, especially when the baby is born and the baby's head passes through the birth canal (Fatima, 2019).

One of the things that usually happens is cloaking of the birth canal during labor in general. More than 85% of women will experience tearing. Perineum, either spontaneously or through an episiotomy. These tears require regular postpartum cleaning. Perineal wounds that are not treated properly can cause several

complications such as persistent pain, severe wound damage, dyspareunia, urinary retention, infection, and disruption of bonding between mother and baby during the postpartum period (Sari et al., 2020). Good nutrition, including adequate protein intake, can help in the healing process of perineal wounds. Protein is an important nutrient that plays a role in the formation of new tissue and the recovery of damaged cells. One type of food that is rich in protein is snakehead fish (Intiyani et al., 2020).

Snakehead fish is a source of animal protein that is low in fat and rich in essential amino acids needed by the body. These essential amino acids are "building materials" used by the body to repair and build new

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tissue, including in the wound healing process (Asnie et al., 2021; Udayanti & Noviyani, 2023; Sangkal et al., 2020). Snakehead fish also contains other important nutrients, such as omega-3 fatty acids and vitamin D. Omega-3 fatty acids have anti-inflammatory properties which can help reduce inflammation and speed up the healing process. Vitamin D also plays a role in the formation and maintenance of healthy bone tissue (Sebayang & Ritonga, 2021).

The content of snakehead fish which can accelerate healing of perineal wounds has been proven by previous researchers by Sampara et al. (2020). Healing of perineal wounds is the start of improvement in perineal wounds with the formation of new tissue covering the perineal wounds within 3-7 days post-partum (Rahayu et al., 2016; Roy et al., 2020). The criteria for assessing injuries are good, moderate and bad. Research results Independent T-test, obtained a calculated t value of -2.357 and in the Levene's Test for Equality of Variances column obtained a p value = 0.058 > 0.05, so it was concluded that the variance of the two data groups was homogeneous. Thus, the p-value (Sig. (2-tailed)) is 0.024. Because the p value obtained = 0.024 < α 0.05, H0 is rejected and Ha is accepted. The conclusion is that there is an effect of giving snakehead fish extract on the healing of perineal wounds (Sampara et al., 2020). The title of the current research is "Effectiveness of Snakehead Fish Extract on the Healing Time of Perineal Wounds in Postpartum Women Who Experience Perineal Rupture in 2024".

Method

This research was conducted to determine the effectiveness of snakehead fish on the length of healing of perineal wounds at Karnaeny Clinic, North Jakarta, Bhakti Asih Clinic, Tangerang City, Pinang Sari Clinic, Tangerang City, Ardhifa Clinic Pasar Kemis, Tangerang in 2024, carried out for 3 months from April to June 2024. This research is study Quasy experiment with the group providing snakehead fish. The independent variable in this study was the administration of snakehead fish, the dependent variable was the healing time for perineal wounds. The sample size is determined using a software application G-Power Version 3.1.9.4 with statistical Difference between two independent means (Two Group), input parameters Effect Size d which is 0.5, α err prob which is 0.05, power (1- β err prob) which is 0.75 Estimated total sample 88 respondents will be recruited divided into 2 groups, namely 44 intervention groups and 44 control groups. The administration of snakehead fish is carried out using a capsule dosage form containing snakehead fish which will be consumed by postpartum mothers who have perineal wounds for 8 days with a dose of 2x2 capsules.

Administration of snakehead fish extract which has been registered by BPOM with registration number TR1993324131. measurement of wound healing using the REEDA instrument (Redness, Edema, Ecchymosis, Discharge, Approximation) with categories faster than normal < 6 days, normal 6 -7 days, longer than normal > 7 days. Data analysis was carried out univariately and bivariately, to determine the effectiveness of snakehead fish on the healing time of perineal wounds using different tests. Independent sample t-test if the distribution is normal and if it is not distributed normally use the Mann-Whitney statistical test SPSS version 25. See Figure 1.

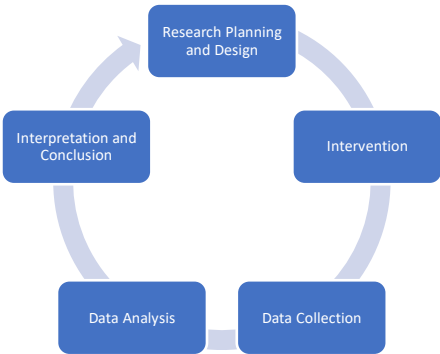


Figure 1. Research flowchart

Result and Discussion

Result
Univariate Analysis

Table 1. Average length of time in days for perineal wound healing in intervention and control groups in postpartum women who experienced perineal rupture in 2024

Time of Day for Perineal Wound Healing	N	Mean	Standard deviation	Min	Max
Intervention Group	44	4.56	0.852	3 days	7 days
Control Group	44	7.02	0.698	6 days	8 days

Based on Table 1 above, it can be seen that the average time perineal wound healing time in the intervention group was 4.56, and the standard deviation was 0.852 with a minimum perineal wound healing time of 3 days and a maximum of 7 days. Meanwhile, the average healing time for perineal wounds in the control group was 7.02, and the standard deviation was 0.698, with a minimum perineal wound healing time of 6 days and a maximum of 8 days.

Table 2. Average length of time in days for perineal wound healing in intervention and control groups in postpartum women who experienced perineal rupture in 2024

Time of Day for Perineal Wound Healing	Group		Difference
	Intervention	Control	
Drop Time in Seconds	4.56	7.02	2.46

Based on Table 2 above, it can be seen that the difference in time in days for perineal wound healing in the intervention and control groups was 2.46 days. This means that the time in days for perineal wound healing was faster in the intervention group \pm 2-3 days faster in the intervention group compared to the control group.

Bivariate Analysis Results

Table 3. Effectiveness of snakehead fish extract on the healing time of perineal wounds in postpartum women who experience perineal rupture in 2024

Group	N	Mean	Sum of Ranks	Asymp. Sig (2 - Tailed)
Intervention group	44	24.01	1056.50	0.000
Control Group	44	64.99	2859.50	

Table 3 of the difference between the intervention and control groups from the average can be seen in the intervention group, the average is small, namely 24.01 compared to the control group, 64.99, so the length of time in the day is shorter if the number of days is smaller. So there is the effectiveness of fish extract. cork on the length of healing of perineal wounds in postpartum mothers who experience perineal rupture in 2024, with a p-value of 0.00.

Description of Snakehead Fish Extract on the Healing Time of Perineal Wounds in Postpartum Women Who Experienced Perineal Rupture in the Jakarta - Tangerang Area Year 2024

The results of the study found that the difference in time in days for perineal wound healing in the intervention and control groups was 2.46 days. This means that the time in days for perineal wound healing was faster in the intervention group \pm 2-3 days faster in the intervention group compared to the control group.

Wound healing is a complex process involving many cells. The same basic biochemical and cellular processes occur in the healing of all soft tissue injuries, whether chronic ulcerative wounds (decubitus and leg ulcers), traumatic wounds (lacerations, abrasions, burns or surgical wounds. Many factors influence the healing of perineal ruptures, including mobilization early, vulva hygiene, size of the wound, age, vascularization, stressors and also nutrition. The wound is said to have healed if within 1 week the wound is dry, closed and

there are no signs of infection (Sari et al., 2020; Kurniawati, 2018; Fitrianti et al., 2023).

Cork extract is a processed product of snakehead fish which is rich in protein and albumin. This content is believed to have many health benefits, such as helping the wound healing process, improving the immune system, lowering cholesterol, preventing anemia, maintaining heart and bone health, and improving brain function (Intiyani et al., 2020). Snakehead fish extract is rich in protein, albumin, amino acids, vitamins and minerals. This main ingredient has many health benefits, such as helping the wound healing process, improving the immune system, lowering cholesterol, preventing anemia, maintaining heart and bone health, and improving brain function (Mutmainnah, & Wintarsih, 2022). This extract also contains omega-3 fatty acids which are useful for reducing inflammation, lowering cholesterol, and improving heart health. Apart from that, snakehead fish extract contains peptides which can improve the immune system, help heal wounds, and fight infections (Fitrahminarsih et al., 2022).

Snakehead fish extract is believed to be able to accelerate the healing of perineal wounds, especially episiotomy wounds in mothers after giving birth. This is thanks to the high protein and albumin content, which helps form new tissue, transport nutrients and oxygen, prevent infection, increase collagen synthesis, increase vascularization, and improve the immune system (Sampara et al., 2020). The effectiveness of snakehead fish extract in accelerating the healing of perineal wounds and reducing pain (Berlian et al., 2023; Hutapea et al., 2023). The mechanism of action involves various factors, such as increasing the formation of new tissue, transporting nutrients and oxygen, preventing infection, increasing collagen synthesis, and increasing vascularization (Erviany et al., 2024).

The duration and dosage of snakehead fish extract for healing perineal wounds varies, depending on several factors such as the severity of the wound, the mother's health condition, and the dosage form of the extract. In general, the recommendation for capsules is 500-1000 mg, 2-3 times a day for 7 -14 days. For syrup, 10-20 ml, 2-3 times a day for 7-14 days. Meanwhile for powder, 1-2 grams mixed with water or juice, 2-3 times a day for 7-14 days (Erviany et al., 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 Year 2024

This research can be concluded that there is effectiveness of snakehead fish extract on the length of healing of perineal wounds in postpartum mothers who experience perineal rupture in the Jakarta Tangerang area in 2024, with a p-value of 0.000.

The research is in line with Asnie et al. (2021). explaining this research, it can be concluded that there is an effect of consumption of snakehead fish extract on perineal wound healing in post partum mothers, with a significance $p\text{-value} < 0.05$. The opinion is that snakehead fish extract is rich in amino acids. The amino acids in snakehead fish trigger collagen production which can increase skin strength and elasticity, and also contain glycine, arachidonic acid and fatty acids so they can speed up the wound healing process.

The research is in line with Erviany et al. (2024). With the results of the unpaired T test, it was found that the $p\text{ value} = 0.000$, which means there is a significant effect from administering snakehead fish extract to primiparous postpartum mothers with grade II perineal rupture. In other words, administration of snakehead fish extract has a positive and significant effect on albumin levels and healing time for perineal rupture (Nugraheni & Kurniarum, 2016; Mutiara et al., 2023; Susilawati et al., 2020; Wijayanti & Rahayu, 2016). The research is in line with Sampara et al. (2020) statistical tests using the independent simple T-Test obtained a $p\text{ value} = 0.012 < 0.05$, so it can be concluded that snakehead fish extract has an effect on healing perineal wounds in postpartum mothers. Healing of perineal wounds is starting to improve with the formation of new tissue covering the perineal wound within 3-7 days post partum.

According to Ummah & Ningrum 2022 in Erviany et al. (2024) explained that giving albumin therapy with snakehead fish extract of 100 ml every day to a number of patients with hypoalbuminemia for 10 days can increase the patient's albumin and total protein levels. It is hoped that providing nutritional support and providing snakehead fish capsules as a supplement can help increase albumin levels, improve nitrogen balance, improve nutritional status, which in the end is expected to speed up the healing of burn sufferers (Zhang et al., 2021).

The nutrients contained in snakehead fish extract play an important role in accelerating the healing of perineal wounds in mothers after giving birth. One of the main nutrients is amino acids. Amino acids such as glycine, arginine, and proline can increase collagen production. Collagen is an important protein that makes up the skin, so increasing collagen will strengthen and soften the skin tissue around the wound, speeding healing. Apart from that, amino acids also encourage cell regeneration and the formation of new tissue, thereby closing wounds more quickly (Asikin & Kusumaningrum, 2017; Azzamy, 2018).

Omega-3 and omega-6 in snakehead fish extract also play an important role. These essential fatty acids can reduce inflammation, increase blood flow, and encourage the formation of new blood vessels in the

wound area. This supplies the nutrients and oxygen needed for the healing process. Apart from that, snakehead fish extract also contains vitamins and minerals such as vitamin A, vitamin C, zinc and copper which support immune function and collagen formation (Pandiangan, 2022). Based on previous research theories and opinions, researchers can conclude that consumption of snakehead fish extract is effective in accelerating the healing of perineal wounds in postpartum mothers and can also reduce pain. There are several mechanisms underlying the effectiveness of snakehead fish extract in accelerating perineal wound healing (Karoud et al., 2020; Timmermans et al., 2015). First, the nutritional content in snakehead fish extract, such as amino acids, can support cell regeneration and the formation of new tissue around wounds.

Second, snakehead fish extract contains compounds that can increase the supply of nutrients and oxygen to the wound area, thereby speeding up the healing process. Third, snakehead fish extract contains antibacterial compounds which can prevent infection in wounds, thereby speeding up the healing process. Fourth, the amino acids contained in snakehead fish extract can increase collagen production, which plays an important role in the wound healing process by increasing tissue strength and elasticity (Furtado et al., 2022; Xia et al., 2024). Fifth, snakehead fish extract can stimulate the formation of new blood vessels in the wound area, thereby increasing the supply of blood and oxygen to the recovering tissue. With these various mechanisms, snakehead fish extract has been proven to be effective in accelerating the healing of perineal wounds and reducing pain in postpartum mothers. Therefore, administering snakehead fish extract can be an intervention that can help mothers recover after giving birth.

Conclusion

Based on the results and discussion of the research findings, it can be concluded that the average time for perineal wound healing in the intervention group was 4.56 days, with a standard deviation of 0.852, a minimum healing time of 3 days, and a maximum of 7 days. In contrast, the control group had an average healing time of 7.02 days, with a standard deviation of 0.698, a minimum healing time of 6 days, and a maximum of 8 days. The difference in healing time between the intervention and control groups was 2.46 days, indicating that the intervention group experienced faster healing by approximately 2-3 days. Furthermore, the average score for the intervention group was significantly lower at 24.01 compared to the control group's 64.99, demonstrating a shorter healing period in the intervention group. These findings highlight the

effectiveness of snakehead fish extract in reducing the healing time for perineal wounds in postpartum mothers who experienced perineal rupture in 2024, with a statistically significant p-value of 0.0000.

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Author Contributions

R.N., and F.K.A., assists in the data collection process, data processing and analysis, as well as writing the article.

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Conflicts of Interest

The research has no conflicts of interest.

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