

Consumption of Snakehead Fish (*Channa striata*) on Postpartum Maternal Perineal Wound Healing

Citra Purwanti^{1*}, Renda Natalina², Riska Marlin³

STIKes Muhammadiyah Palembang, Indonesia

¹ citra.purwanti84@yahoo.com*; ² renda7714@gmail.com; ³ riska.oktavery@yahoo.com

* corresponding author

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ABSTRACT

This study aimed to determine the effect of Snakehead fish consumption on the healing of perineal wounds in postpartum mothers. This study was using *quasi experiment of pre-post test control group design*. The sample in this study were 30 postpartum mothers This research was conducted in the working area of midwifery private clinics located in Seberang Ulu I Subdistrict, Seberang Ilir I Subdistrict and Kemuning Subdistrict. The researchers collected data by giving raw Snakehead fish for postpartum mothers as much as 100gr per once, 3 times a day for 10 days. The result showed that there is a positive influence of Snakehead fish consumption (*Channa Striata*) and the effect of Snakehead fish consumption (*Channa Striata*) on postpartum maternal perineal wound healing i.e. Sig (2-tailed) values of 0.000 <0.05.

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1. Introduction

It is evidence that the causes of maternal death in Indonesia are classic triad, which are postpartum hemorrhage (PPH) 54.2%, infection 27.2%, and gestosis 18.6% (Kemenkes, 2018). In Indonesia, PPH is on top level as a cause maternal mortality, which is 40% - 60% (Indonesian Ministry of Health, 2013). Ruptur perineum was the second leading cause of post partum haemorrhagi after uterine atony that occurs in almost the first giving birth and not infrequently also in subsequent labor (Sharma & Parashar, 2012). Snakehead fish have compounds that are important for the body, such as proteins and some minerals (Ab Wahab et al., 2015). The protein content of Snakehead fish reaches 25.5% compared to other fish proteins, Snakehead fish albumin is quite high reaching 6.22% and Snakehead fish meat contains zinc minerals with levels of 1.74 mg / 100 grams (Fajri, Hadisaputro, & Soejoenoes, 2018). Snakehead fish itself is one type of freshwater fish from the genus *Channa* which is found in rivers and public waters (Daisa, Andrie, & Taurina, 2017). The *Channa* genus consists of 4 species, namely *Channa striata* (Snakehead fish), *Channa gachua* (bakak fish), *Channa micropeltes* (toman fish) and *Channa lucius* (bujok fish) (Hidayati, Faizah, Prasetyo, Jadid, & Abdulgani, 2018). This study aimed to determine the effect of Snakehead fish consumption on the healing of perineal wounds in postpartum mothers. According to the previous research cork type *channa striata* is very rich in albumin, an important type of protein needed by the human body every day (Rosyidi et al., 2019). The source of Snakehead fish albumin is very good for people with hypoalbumin (low albumin) and postoperative wounds and burn.

2. Methods

Permission of the study was secured and the reference number was 800/507A/SDMK/V/2017. This type of research used quasi-experimental methods (quasi experiment) of pre-posttest control group

design, namely research activities carried out by providing experiments or treatments. The population in this study were all postpartum mothers in the city of Palembang. The sample is partially taken from the entire object under study and is considered to represent the entire population (Bruce, Pope, & Stanistreet, 2008). This sampling techniques was using purposive sampling. The sample was 30 mothers. This research was conducted in the work area of private midwifery clinics located in a district within Province of Palembang. This research was conducted on June 5, 2017 until August 12, 2017. The researchers collected data by giving raw Snakehead fish for postpartum mothers as much as 100 grams per serving, 3 times a day for 10 days, and used observation sheet to evaluation perineal wound healing. Duration of wound healing variable based on the length of healing days, healing time is categorized as fast if less than 6 days, and categorized as slow if wound healing more than 6 days. In this research, the confounding variables are maternal nutritional status, personal hygiene and the cooking method of snakehead fish. In this study, confounding variables were not controlled, this is be a weakness in this research.

3. Results and Discussion

Table 1 describe about characteristics of Respondents by age. It shows that the respondents in this study were at most 20-35 years old as many as 25 respondents (83.3%). And at < 20 and >35 years old as many as 5 respondents (16,7%)

Table 1. Characteristics of Respondents by Age

Responden Age	N	%
20-35 years old	25	83,3
< 20 thn dan >35 years old	5	16,7
Total	30	100

Table 2 describe about characteristics of respondents Based on parity. It shows that all respondents have parity <4 which is as many as 30 respondents (100%).

Table 2. Characteristics of Respondents Based on Parity

Paritas	N	%
> 4	0	0
< 4	30	100
Total	30	100

Table 3 describe about characteristics of respondents based on wound healing length. It shows that the respondents in this study were have wound healing length fast as many as 15 respondents (50%), and have wound haeling length slow is 15 Respondents (50%) too.

Table 3. Characteristics of Respondents Based on Wound Healing Length

Duration of healing	N	%
Fast	15	50
Slow	15	50
Total	30	100

Table 4 describe about the result of statistical test using Independent T test. Based on the SPSS analysis with the Independent Sample T-Test, the Sig (2-tailed) value of 0,000 <0,05 was obtained, according to the decision in the Sample T-Test Independent Test, it can be concluded that there are differences in the length of perineal wound healing between groups who consume Snakehead fish and groups that do not consume Snakehead fish.

Table 4. The Result of Statistical tests using *Independent T Test*

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	T	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Duration of Healing	Equal variances assumed	2,640	,115	-5,027	28	,000	-1,267	,252	-1,783	-,751
	Equal variances not assumed			-5,027	21,315	,000	-1,267	,252	-1,790	-,743

The results of the study stated, of the 30 most respondents who were aged 20-35 years, namely 25 respondents (83.3%) and most had parity <4 as many as 25 respondents (100%). At the time of labor there will be injury to the perineum either due to spontaneous tears or episiotomy. Spontaneous labor with a perineal tear which is a wound with irregular edges can inhibit healing after the wound is sewn (O'Kelly, 2016). The results of this study also showed that respondents who had long healing of fast wounds were the same as those who recovered from their slow injuries, 15 respondents (50%). The purpose of perineal wound care is to prevent infection in connection with tissue healing, to prevent infection in the area of the vulva, perineum, or inside the uterus, for healing perineal wounds (perineal sutures), for perineal and vulva hygiene (Karaçam, Ekmen, Çalışır, & Şeker, 2013). Perineal wound healing is beginning to improve perineal wounds with the formation of new tissue that covers the perineal wound within 6 days postpartum. In this study the healing time was on average 6 days and 7 days with a balanced proportion of 50%. Based on the SPSS analysis with the Independent Sample T-Test, the Sig (2-tailed) value of 0,000 <0,05 was obtained. From the results of statistical tests showed that the treatment and control groups had significant differences. This was due to the presence of compound compounds in Snakehead fish extract so that more nutrients are needed during the wound healing period. Snakehead fish extract contains compounds that are important for the process of tissue synthesis and wound healing, such as albumin, minerals Zn, Cu, and Fe (Ab Wahab et al., 2015).

Albumin is needed by the human body every day, especially in the process of wound healing (Sugino et al., 2014). Albumin is a type of protein; protein plays a role to increase the proliferation of fibroblasts that increase synthesis, accumulation and remodeling of collagen (Marín, Salido, López, & Silva, 2002). If zinc plays a role in cell growth and replication and plays a role in the cell's immune response. The copper minerals contained in the extract increase the function of vascular endothelial growth factor (VEGF) so that the action of angiogenesis increases (Bates, 2010). Another research showed that of the 20 post partum mothers who consumed Snakehead fish extract, 17 of them were perineal wound healing included in the fast category because on day 3 the wound began to dry up and close later on the 7th day of the wound closes well and there are no signs of infection. Another study shows that consumption of Snakehead fish accelerates healing of post SC sutures because the main content of Snakehead fish is high protein or albumin (Fajri et al., 2018). The weakness of this study is the lack of the role of enumerators in controlling other foods, other than the determine of cooking methode is still diverse.

Research result by Ab Wahab, et al. (2015) showed that in six-week supplementation of 500 mg of Chana striatus extract showed marked differences in wound cosmetic appearance and patient's satisfaction and is safe for human consumption. Additionally, there is significant wound related complications were noted in hypoalbuminemic patients as compared to the patients with normal albumin levels (Mustafa, Widodo, & Kristianto, 2012). Serum albumin levels can be considered to be one of best predictors for the wound related complications.

Meanwhile, other research result showed that snakehead fish (*Channa striata*) extract has been introduced and significantly proven to increase levels of albumin in hypoalbuminemia and to accelerate the process of wound healing in postoperative patients (Hidayati et al., 2018). This paper aims to describe the nutrients profile of *Channa striata* extract and their role in health. Snakehead is one of native freshwater fish that is widely available in many tropical regions such as Asia and Africa, and has been shown to have high nutrition and health benefits. Snakehead extract contains abundant of albumin ($2.17 \pm 0.14\text{g}/100\text{mL}$) which is the largest fraction (64.61%) of protein. So far, the research of Snakehead fish in wound healing, has had a significant effect.

4. Conclusion

The duration of perineal wound healing by consuming Snakehead fish (*Channa Striata*) is mostly fast (≤ 6 days). The healing time of perineal wounds by not consuming Snakehead fish (*Channa Striata*) is mostly slow (> 6 days). There is an influence of Snakehead fish consumption (*Channa Striata*) where the results of statistical tests show that the Sig (2-tailed) value is $0,000 < 0,05$. It can be concluded that there are differences in the length of perineal wound healing between groups who consume Snakehead fish and groups that do not consume Snakehead fish. Recommendation for further studies is determine the best cooking method and controlling confounding variables.

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