

Effectiveness of Early Mobilization and Administration of Cork Fish Extract on Wound Healing of Sectio Caesarean Surgery at Noemuti Health Center

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Abstract

This study aims to determine the effectiveness of early mobilization and administration of cork fish extract on wound healing after Sectio caesarea surgery at Puskesmas Noemuti. The problem faced is the high rate of cesarean delivery in Indonesia which can cause complications such as surgical wound infection and increase maternal and infant mortality. The method used is a type of quasi experimental research with a static group comparison design approach. The results showed that early mobilization and administration of cork fish extract were effective in improving sectio caesarean wound healing. The treatment group given the intervention of early mobilization and administration of cork fish extract had a better level of surgical wound healing compared to the control group which was only given the standard hospital intervention. This study can contribute to improving the quality of health services in Indonesia, especially in the handling of labor through cesarean section.

Keywords: Cork fish extract, Early mobilization, Surgical wound healing, Sectio caesarea, Quasi experimental method

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Introduction

The number of births via caesarean section (sectio caesarea) in Indonesia is considered high. The ratio of SC procedures in Indonesia is considered to be above the average recommendation of the World Health Organization (WHO) of 10% to 15%. Meanwhile, in European countries, the proportion of deliveries via caesarean section is generally less than 10%. For example Finland and Norway 6.6%; Netherlands 7.7%; Sweden 8.6% and England 9% (Handayani & Mintarsih, 2023; Iswari & Wiyono, 2022). According to the JKN-KIS Quality Control and Cost Control Team (KMKB) report, the number of births in Indonesia using JKN-KIS in 2014-2018 was recorded as 57% choosing to give birth via surgery.cesarean, the remaining 43% normal. Based on this report, a Cesarean section operation, if carried out according to indications, will prevent the death of the mother and baby.

However, there is no significant evidence that a Sectio Cesarea ratio above 10% can reduce maternal and infant mortality (Ashar & Kusriani, 2020; Raffensperger, 2019). In IndonesiaThe maternal mortality rate in 2021 reached 207 per 100,000 live births, which is above the Strategic Plan target of 190 per 100,000 live births.BPS NTT Province recorded an increase in the number of infant and toddler deaths from 2019-2021 as follows: infant deaths in 2019 amounted to 556 people, in 2020 it amounted to 846 people and in 2021 it amounted to 955 people, while the under-five mortality rate was as follows, in 2019 it was 689 people, in 2020

it will be 946 people and in 2021 it will be 1074 people (BPS East Nusa Tenggara Province, 2022).

The surgical procedure for caesarean section delivery can cause several complications, one of which is surgical wound infection. Surgical wound infections are the main cause of maternal deaths directly related to pregnancy and three percent of maternal deaths are associated with surgical wound infections (Zuarez-Easton et al., 2017). Surgical wound infections are part of the main problems in midwifery practice. Infection that occurs will inhibit wound healing which can increase both morbidity and mortality rates. In addition, surgical wound infections have an impact on additional treatment time and costs (Gong et al., 2015; Jenks et al., 2014; Sukmawati, 2018).

Increasing maternal independence in recovering the mother's condition after Sectio Caesarea is very good if early mobilization is carried out. Independence really needs to be done to increase the mother's adaptation to her role after Sectio Caesarea (Sumaryati et al., 2018). Mobilization after caesarean section can be done after the first 24-48 hours after surgery. Mobilization aims to accelerate wound healing, improve circulation, prevent venous stasis, support optimal respiratory function, improve digestive function, reduce post-surgical complications (Widayati et al., 2022). During the wound healing process after Sectio Caesarea requires quality, nutritious nutrition and sufficient calories.

The food consumed must contain protein, vegetables and fruit. Snakehead fish extract contains higher protein than other types of fish. Protein functions to speed up wound healing after surgery (Gupta & Nigar, 2020). Research conducted by (Fajri et al., 2020), from the results of statistical tests carried out it can be concluded that 1000 mg of snakehead fish extract for 14 days, there is a significant difference in the administration of snakehead fish extract on post-SC wound healing with p value = 0.001. Meanwhile, research conducted by (Nadiya & Mutiara, 2018) Regarding the relationship between early post-SC mobilization and surgical wound healing in the Obstetrics Room at Dr Fauziah Bireuen Regional General Hospital, the results showed a relationship between post-SC early mobilization and surgical wound healing with the Asymp value. Sig 2-side $(0.031) < \alpha (0.05)$.

A preliminary survey conducted at the Noemuti Community Health Center, of the 10 post partum mothers with Caesarean sections who were interviewed, 4 people had not carried out early mobilization and did not know that snakehead fish extract could speed up the wound healing process, 3 people had carried out early mobilization but did not know about snakehead fish extract. Only 3 mothers had carried out early mobilization and knew about snakehead fish extract. Based on the survey results, there are research objectives, namely to determine the effectiveness of early mobilization and administration of snakehead fish extract on wound healing after Sectio caesarea surgery at the Noemuti Health Center in 2022.

Methods

This research uses a quasi-experimental type of research with a static group comparison design approach, namely research by conducting experiments, where in this design there is another group as an external standard (Rukajat, 2018). This design is also called post test only control group design which is a pre-experimental design by adding a control group, by means of after treatment observations are made in the treatment group and in the control group observations are made only (Ibrahim et al., 2023; Ospina-Pinillos et al., 2018).

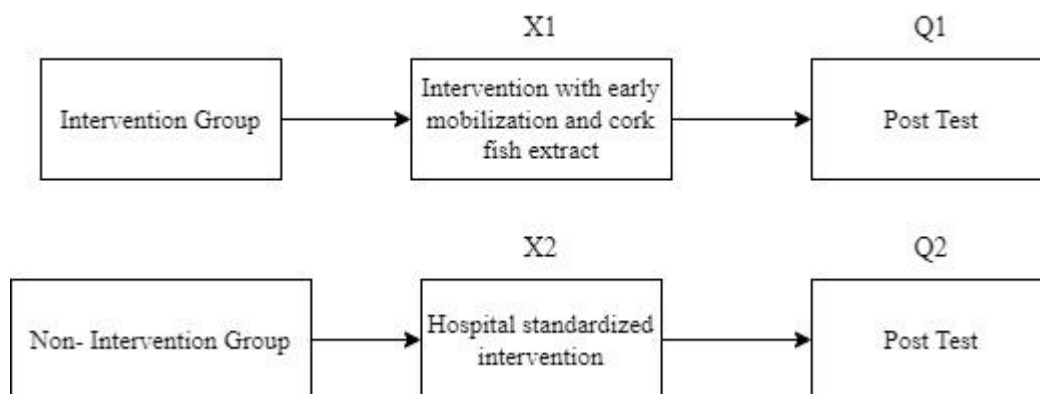


Figure 1. Research design with a quasi-experimental design with posttest control group

Information :

X1: Healing of surgical wounds with early mobilization and snakehead fish extract

X2 : Healing of surgical wounds is carried out by health workers at the hospital

O1 : Effectiveness of SC surgery wound healing in the intervention group

O2 : Effectiveness of SC surgery wound healing in the non-intervention group

Population and Sample

Population

The population is all research subjects or objects to be studied and have the same characteristics (Notoatmodjo, 2018). The population of this study was all post partum mothers with Sectio Caesarea at Asshobirin Islamic Hospital for the period May-June 2022, totaling 88 people.

Sample

A sample is a portion taken from the entire object under study which is considered representative (Anjani et al., 2022; Kurniawan et al., 2023). The sampling used in this research is non-probability sampling with accidental sampling technique. In determining the sample size the author uses the Lemeshow formula as follows:

$$n = \frac{Z^2 (1 - a) p (1 - p) N}{d^2 (N - 1) + Z^2 (1 - a) p (1 - p)}$$

Information :

n : Number of Samples

N : Population Number

$Z^2(1 - \underline{a})$: Degree of significance 95% ($a=0.05$) so that the value $Z=1.962$ is obtained

d : Absolute precision (0.1)

P : Proportion of Population (0.5)

So :

$$n = \frac{1,962 \cdot 0.5 (1 - 0.5) \cdot 88}{0.12 (88 - 1) + 1.962 \cdot 0.5 (1 - 0.5)}$$

$$n = \frac{3.8416 \cdot 0.25 \cdot 88}{0.01 \cdot (87) + 3.8416 \cdot 0.25}$$

$$n = \frac{84.5152}{0.87 + 0.9604}$$

$$n = \frac{84.5152}{1.8304}$$

$$n = 59.89 \text{ rounded to } 60$$

Based on the results of the sample size formula calculation, the sample size was 60 respondents from post partum mothers with caesarean section operations. 30 people became the intervention group and 30 people became the control group.

Data collection technique

The data used in this research are primary data and secondary data. Primary data was collected through interviews and observations using observation sheets and the REEDA Scale. Secondary data was obtained from daily reports of inpatients in the combined midwifery ward at the Noemuti Community Health Center in 2022. Observation sheets were used to measure the healing of caesarean section wounds using the REEDA Scale measuring instrument. For mobilization and administration of snakehead fish extract, data collection was directly obtained from the patient.

Before the data collection process, respondents are given information regarding the procedure to be carried out, the purpose of carrying it out, the impact that may be caused during the intervention process, if the client of the prospective respondent agrees then they continue to fill out the informed consent form to become a respondent. Then an assessment was carried out using the REEDA scale before carrying out early mobilization and giving snakehead fish supplements and then early mobilization and giving snakehead fish supplements 3x1 a day was monitored every day for 7 consecutive days. Then observations were made on the third and seventh days using the REEDA scale.

Results and Discussion

The results of research conducted to determine the effectiveness of early mobilization and administration of snakehead fish extract on healing caesarean section wounds at the Noemuti Community Health Center are presented in table form as follows:

Healing Surgical Wounds

Table 1. Frequency Distribution of Healing of Surgical Wounds in the Treatment Group at Noemuti Health Center in 2022

Healing Surgical Wounds	Before		After	
	n	%	n	%
Good	0	0	24	80
Not good	20	66.7	6	20
Bad	10	33.3	0	0
Total	30	100	30	100

Based on table 1, it is known that in the treatment group (early mobilization and snakehead fish extract) before intervention was given, the majority of respondents' caesarean section wound healing was poor (20 people (66.7%) and 10 people (33.3%) poor). Meanwhile, after the intervention, the majority of surgical wound healing rates were good, 24 people (80%) and 6 people (33.3%) poor.

Table 2. Frequency Distribution of Healing of Surgical Wounds in the Control Group at Noemuti Health Center in 2022

Healing Surgical Wounds	Before		After	
	n	%	n	%
Good	0	0	14	46.7
Not good	24	80	16	53.3
Bad	6	20	0	0
Total	30	100	30	100

Based on table 2, it is known that in the control group (standard hospital intervention) before the intervention was given, the majority of respondents' surgical wound healing was poor, as many as 24 people (66.7%) and poor as many as 6 people (33.3%). Meanwhile, after the intervention, the majority of surgical wound healing rates were poor, as many as 16 people (53.3%) and good as many as 14 people (46.7%).

Normality test

Table 3. Normality Test

	Shapiro-Wilk	
	Sig.	Information
Treatment Group	0,000	Abnormal
Control Group	0,000	Abnormal

Based on table 3, it is known that the results of the normality test using Shapiro Wilk in the treatment group have a value of $p=0.000$ (<0.05) and the control group have a value of $p=0.000$ (<0.05). So it can be concluded that the data in the treatment group and control group are not normally distributed. This shows that the analysis used is the Mann Whitney U test.

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Table 4. Effectiveness of Early Mobilization and Administration of Snakehead Fish Extract on Healing Surgical Wounds at Noemuti Community Health Center in 2022

Group		Mean	P Value
Treatment	Before	22.0	0,000
	After	9.00	
Control	Before	20.33	0.001
	After	10.67	

Table 4 shows the results of analysis using the Mann Whitney U Test. In the treatment group before and after the intervention, a significance value of 0.000 was obtained ($p < 0.05$). In the control group before and after the intervention, a significance value of 0.001 ($p < 0.05$) was obtained, so the hypothesis was accepted, meaning that there was a difference in wound healing on the seventh day after caesarean section surgery in the treatment group and the control group.

Average Healing of Sectio Caesarea Wounds in the Treatment Group and Control Group at the Noemuti Community Health Center in 2022.

Table 5. Average Healing of Caesarean Section Wounds in the Treatment Group and Control Group at the Noemuti Community Health Center in 2022.

Healing Surgical Wounds		N	Mean	standard deviation	in	ax
Treatment Group	Before	30	1.33	0.488		
	After	30	0.20	0.414		
Control Group	Before	30	1.33	0.488		
	After	30	0.53	0.516		

Based on table 5 , it shows that there is a difference in the healing of surgical wounds in the intervention group (early mobilization and administration of snakehead fish extract) and the average value after the intervention is 0.20 and a standard deviation of 0.414, while the average value in the control group (hospital standard intervention) after intervention is 0.53 and the standard deviation is 0.516, so the healing of surgical wounds in the treatment group is more influential than in the control group.

Description of Healing of Section Caesarea Operation Wounds

The research results from 30 respondents in the intervention group (early mobilization and administration of snakehead fish extract) showed that the majority of surgical wounds healed well, 24 people (80%). Meanwhile, in the control group (standard hospital intervention), the majority of surgical wound healing was poor, as many as 16 people (53.3%). These results are in accordance with research conducted stating that the majority of respondents who healed surgical wounds well were respondents who carried out early mobilization, namely 14 respondents (35%) and research conducted. showed that after being given snakehead fish extract at a dose of 10 grams after eating, the mother felt comfortable and the wound had started to dry on the 5th day.

The results of research conducted in show that the factors that influence the wound healing process in post-operative Sectio Caesarea patients are 75% influenced by mobilization, 75% personal hygiene and 47% influenced by nutrition. Thus, the mobilization and administration of snakehead fish extract directly impacts the acceleration of the post-partum healing process. Fresh snakehead fish protein reaches 25.1%, while 6.244% of the protein is albumin. This amount is very high compared to other animal protein sources. Albumin is the most abundant type of protein in blood plasma, reaching 60% and synergizes with the mineral 0.001741% Zn which can accelerate wound healing (Yuliana et al., 2019). Early ambulation is an effort made as soon as possible for post-operative patients by guiding patients to be able to carry out activities after the surgical process starting from light exercises in bed (breathing exercises, effective coughing exercises and moving the legs) until the patient can get out of bed, walk to the bathroom (Brunner & Suddarth, 2017). Almost all types of surgery require mobilization or movement of the body as early as possible. Mobilization can be done 8 hours after surgery, and after the patient is conscious or the limbs can be moved again after regional anesthesia (Murliana & Tahun, 2022).

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Results The analysis showed a significance value of 0.000 ($p < 0.05$) in the treatment group and 0.001 ($p < 0.05$), meaning there was a difference in wound healing on the seventh day after caesarean section surgery in the treatment group and the control group. The mean value after intervention for the treatment group (mean=0.20; SD 0.414) was lower than the control group (mean=0.53; SD 0.516). Their research revealed that on the 5th day, post-SC injuries in the intervention group (mean = 0.27; SD = 0.46) were lower than the control group (mean = 1.07 ; SD = 0.80) and statistically significant ($p = 0.002$).

In this research conducting a comparison between early mobilization (after 10 hours post partum) and administration of snakehead fish extract compared to early mobilization (more than 24 hours) without administration of snakehead fish extract using the Reeda scale. It was found that the majority of good surgical wound healing results were found in early mobilization (after 10 hours post partum) and administration of snakehead fish extract. Mobilization is important for the wound healing process by mobilizing as early as possible to improve blood circulation, with smooth blood circulation so that it meets the nutrition and oxygenation needed through the blood circulation. Meanwhile, snakehead fish are found *Channa striata* proteins FDWE and SDWE contain bioactive proteins that are very similar to human proteins and thus may be involved in the wound healing process through specific biological pathways (Kwan et al., 2020).

Wound healing is defined by the Wound Healing Society (WHS) as complex and dynamic as a result of the restoration of anatomical continuity and function. Based on WHS, ideal wound healing is the return to normal structure, function and anatomy of the skin. The time limit for wound healing is determined by the type of wound and the intrinsic and extrinsic environment. Factors that influence the wound healing process are immunological status, blood sugar levels (impaired white cell function), hydration (slows metabolism), nutrition, blood albumin levels (building blocks for repair, colloid osmotic pressure–oedema), oxygen supply and vascularization, pain. (causes vasoconstriction), corticosteroids (depress immune function) (Wilkinson & Hardman, 2020).

Conclusion

Based on research results on the effectiveness of early mobilization and administration of snakehead fish extract Regarding the Healing of Surgical Wounds at the Noemuti Community Health Center then the following conclusions can be drawn: 1) There was a treatment group (early mobilization and snakehead fish extract) before the intervention was given, the majority of respondents' caesarean section wound healing was poor, as many as 20 people (66.7%) and poor as many as 10 people (33.3%). Meanwhile, after the intervention, the majority of surgical wound healing rates were good, 24 people (80%) and 6 people (33.3%) poor. 2) In the control group (standard hospital intervention) before the intervention was given, the majority of respondents' surgical wound healing was poor, as many as 24 people (66.7%) and poor as many as 6 people (33.3%). Meanwhile, after the intervention, the majority of surgical wound healing rates were poor, as many as 16 people (53.3%) and good as many as 14 people (46.7%). 3) There is effectiveness of early mobilization and administration of snakehead fish extract in healing caesarean section wounds at the Noemuti Community Health Center in the treatment group (p value=0.000) and the control group (p value=0.001). Suggestions for future research are that it is hoped that the findings of this research can become the basis for further complementary therapy research with a broader perspective, especially for research on caesarean section wound healing.

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