



# The Effect of Consuming Boiled Eggs on the Acceleration of Healing of Post Sectio Caesarea Wounds in the Working Area of the Pandanwangi Health Center, Malang City

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## ABSTRACT

Caesarean Section (CS) is a surgical procedure to give birth to a baby by making an incision in the uterine wall. Healing of CS wounds requires high protein, but many mothers avoid protein-rich foods for fear of worsening the wound. One of the nutrients that is high in protein, economical, and easy to find is eggs, because one egg contains > 90% Ca and Fe, 9 essential amino acids, and 6 grams of quality protein proven to accelerate wound healing. The purpose of this study was to determine the effect of boiled eggs on accelerating wound healing Post Sectio Caesarea in the work area of the Pandanwangi Health Center, Malang City in 2024. This research method uses a Quasi Experiment design, the sampling method uses a purposive sampling technique with a sample size of 22 people divided into treatment groups and control groups. Data analysis used is univariate analysis and bivariate analysis with the Chi Square test. The results of the study obtained 11 Post Sectio Caesarea mothers who consumed boiled chicken eggs, 9 (81.8%) experienced faster healing compared to the control group (27.3%). Consumption of boiled chicken eggs showed a significant effect on the healing time of stitches in mothers after post-Cesarean section ( $p$ -value = 0.030). It is expected that health center officers can provide education to post-Cesarean mothers about the benefits of boiled eggs in accelerating the healing of Cesarean wounds.

## KEYWORDS

Boiled Eggs, Sectio Caesarea, Wound Healing

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## 1. BACKGROUND

Sectio Caesarea (SC) operation is a way to remove the baby from the mother's stomach by making an incision in the uterine wall. The action of mothers giving birth using the Sectio Caesarea technique is carried out

to minimize the number of fetal and maternal deaths, which are feared that this incident will be dangerous or even cause complications if the mother gives birth vaginally (normally) (Juliathi et al., 2020).

Based on the 2020 WHO report, 5-15% of 1000 deliveries in the world are carried out by Sectio Caesarea (SC). In government hospitals the prevalence is 11%, while in private hospitals it is more than 30%. In Asia, SC rates increased by 110,000 births in 2007-2008. In China, the prevalence of SC is 46%, while in Asia, Latin America and Europe it is around 25% (Rangkuti et al., 2023). In Indonesia, the prevalence of SC in 2016 was 22.8%, namely 912,000 out of 4,039,000 births (Sinaga et al, 2023). The prevalence of SC in Indonesia is 17.6%, with DKI Jakarta the highest (31.3%) and Papua the lowest (6.7%) (Arda and Hartaty, 2021). In East Java Province, the prevalence of SC reached 95.3% (Zuhroh and Hambali, 2023).

The SC procedure causes incision wounds to require high protein nutrition for healing (Juliathi et al., 2020). Post-operative wounds can be at risk of infection if not cared for properly, one of which is caused by a lack of high protein consumption (Seth et al., 2024). High quality protein can be found in animal foods such as fish, meat and eggs (Setiawati and Qomari, 2023).

Wound healing involves regeneration and improvement of tissue function through three phases: inflammation, proliferation (epithelialization), and maturation (remodeling). The inflammatory phase lasts

until the 5th post-operative day and can be shortened if there is no infection. The incisional wound will heal with the edges of the skin joining together, thereby reducing the risk of infection and healing the wound quickly. Nutrition is an important factor in the wound healing process (Puspitasari et al., 2023).

Many patients worry that food will affect the SC wound, causing itching and inhibiting healing. They often avoid foods high in protein such as fish, meat and eggs. In fact, good nutrition is very important for successful wound healing. Indonesia as a developing country faces many public health problems, including food restrictions after childbirth. Postpartum women really need good nutrition to repair reproductive organs and heal abdominal suture wounds. This ignorance slows down the recovery of the baby's health and growth (Hazaini et al., 2022)

Eggs are an affordable, efficient and easy to obtain source of animal protein. Each egg contains more than 90% calcium and iron, nine essential amino acids, and 6 grams of high-quality protein. Nutrition from eggs supports the healing process and helps overcome nutritional disorders such as malnutrition (Setiawati and Qomari, 2023). Research by Setiawati & Qomari (2021)

entitled "The Effect of Giving Boiled Eggs on the Speed of Post-SC Wound Healing" shows that consuming boiled eggs accelerates the healing of surgical wounds. From the 42 respondents, the experimental group who consumed boiled eggs experienced Post Sectio Caesarea wounds healing within the normal time of 7 days, with wounds that were closed, dry and free of infection. High protein consumption from boiled eggs contributes significantly to the speed of wound healing.

Research entitled "The Effect of Betel Leaf Decoction and Consumption of Boiled Eggs on Perineal Wound Healing in Postpartum Mothers" showed that consumption of boiled eggs accelerated the healing of perineal wounds in postpartum mothers. Research data shows a p-value <0.05. The results of the research conclusions at Cikukur Health Center showed that postpartum mothers who consumed boiled domestic chicken eggs experienced faster healing of perineal wounds than those who did not consume them (Indayani and Juliawati, 2023). The protein in boiled eggs plays an important role in tissue formation and recovery, in accordance with the theory that protein is needed for tissue regeneration (Puglisi and Fernandez, 2022).

Based on a preliminary study on December 10 2024, data from the Pandanwangi Community Health Center shows that in 2023 there will be 242 Sectio Caesarea operations, with an estimated 30-40% for 2024 and 20-25 cases per month. Post Sectio Caesarea wound care at the Pandanwangi Community Health Center follows standard procedures, however research entitled "The Effect of Consuming Boiled Eggs on the Acceleration of Post Sectio Caesarea Wound Healing" is not yet available at the Pandanwangi Community Health Center.

Based on the results of the description above, the researcher wants to know "The Effect of Consuming Boiled Eggs on the Acceleration of Healing of Post Sectio Caesarea Wounds in the Pandanwangi Health Center working area, Malang City"

## 2. METHODS

This research method uses a Quasi Experiment design, with two-group posttest-only. The sampling method uses a purposive sampling technique with a sample size of 22 people divided into treatment groups and control groups. Data collection was carried out by observation and administering questionnaires. Observations were carried out by monitoring the

consumption of 4 boiled chicken eggs a day via WhatsApp social media using a Google form method which was then recorded on an observation sheet, as well as observing the healing of caesarean section wounds

through visits on the 1st and 7th days of Post Sectio Caesarea. The data analysis used was univariate analysis and bivariate analysis with the Chi Square test.

**3. RESULT**

**Table 1.** Frequency Distribution of Healing Time for Stitched Wounds in the Treatment Group and Control Group in the Pandanwangi Health Center Area, Malang City, 2024

Group	Slow		Fast		Total	
	f	%	f	%	f	%
Intervention	2	18,2	9	81,8	11	100%
Control	8	72,7	3	27,3	11	100%

Based on table 1, data shows that 81.8% of Post Sectio Caesarea mothers who consumed boiled eggs experienced rapid healing of suture wounds, while 18.2% experienced delayed healing. In contrast, in

the control group without consuming boiled eggs, 72.7% of mothers experienced slow healing of suture wounds, and only 27.3% experienced fast wound healing.

**Table 2.** Results of Analysis of the Effect of Consuming Boiled Chicken Eggs on the Healing Time of Stitched Wounds in Women Post Sectio Caesarea Using the Chi Square Statistical Test in the Pandanwangi Health Center Area, Malang City, 2024

Group	Acceleration of Healing				Total		OR (95% CI)	p-value
	Slow		Fast		f	%		
	f	%	f	%				
Intervention	2	18,2	9	81,8	11	100	3,000	0,030
Control	8	72,7	3	27,3	11	100	(1,099–8.191)	

In table 2, the results of the chi square statistical test are obtained in the analysis of the effect of consuming boiled chicken eggs on the length of wound healing with the result of p-value = 0.030 (< 0.05) which means that Ho is rejected and Ha is accepted, so it can be concluded that there is an influence of consumption of chicken

eggs. Boiled on the length of healing of suture wounds in post-section caesarean mothers.

Based on the results of statistical tests, the OR value (Odd Ratio) = 3.000 was obtained, which means that post-caesarean section mothers who consume boiled eggs have a 3 times greater chance of

experiencing rapid wound healing compared to post-cesarean section mothers who do not consume boiled eggs.

#### 4. DISCUSSION

The results of the analysis of the effect of consuming boiled eggs on the acceleration of Post Sectio Caesarea wound healing in the working area of the Pandanwangi Health Center, Malang City using the chi square test, obtained the results of the chi square statistical test on the analysis of the effect of consuming boiled chicken eggs on the length of wound healing with the result  $p\text{-value} = 0.030 (< 0.05)$  which means  $H_0$  is rejected and  $H_a$  is accepted, so it can be concluded that there is an influence of consumption of boiled chicken eggs on the healing time of suture wounds in Post Sectio Caesarea mothers. Based on the results of statistical tests, an OR (Odd Ratio) = 3.000 was obtained, which means that post-cesarean section mothers who consume boiled eggs have a 3 times greater chance of experiencing rapid wound healing compared to post-cesarean section mothers who do not consume boiled eggs.

The results of this study show that consuming boiled chicken eggs can speed up the healing process of Post Sectio Caesarea wounds. This is in line with research

conducted by (Zuiatna et al., 2020) with the thesis title the effect of consuming a high protein diet on wound healing after post-cesarean section surgery with the results of research on giving a high protein diet in the form of 200 grams of eggs every afternoon for 24 days in 15 respondents indicated that wound healing after cesarean section (SC) was faster than those who did not consume boiled eggs with a  $p\text{-value} = 0.00$ .

The acceleration of post-SC wound healing in postpartum mothers who consume boiled eggs also proves that there is an effect of consuming boiled eggs on the acceleration of post-SC wound healing at the Banyuates East Jatra Police with a  $p\text{ value} = 0.002$ . Based on the research results, it was found that 11 mothers who consumed boiled eggs experienced normal post-cesarean section wound healing or recovered within 7 days. Meanwhile, in the control group, there were 4 mothers with normal wound healing, and 7 mothers experienced slow wound healing (Tatariandari, 2024). This problem was caused by better access to information or efforts to find references regarding post-cesarean wound care. The eggs are efficient source of animal protein, cheap and affordable, easy to obtain, and are one of the most nutrient-rich foods. One egg contains nutrients that include more than

90% Ca and Fe. Each egg also contains 6 grams of quality protein and 9 essential amino acids. Good nutrition is nutrition that supports the healing process, slowing down the possibility of nutritional imbalances such as malnutrition (Saputra, 2022). Protein is a mineral that has important benefits as a building block for body tissue, including muscles and bones. It is important to note that the body cannot store protein, so for optimal wound healing, it is important to consume adequate protein intake every day (Setiawati and Qomari, 2023).

On the first to the seventh day post caesarean section, the wound experiences an inflammatory and proliferation phase in the wound healing process. After the inflammatory phase, the proliferation phase begins, lasting from the third day where new tissue formation occurs. As shown by respondents in this study, consuming foods high in protein, namely boiled eggs, has a positive effect on accelerating wound healing in post caesarean section patients.

## **5. CONCLUSION**

Based on the research results, it can be concluded that there is an influence of consumption of boiled chicken eggs on the healing time of suture wounds in post sectio Caesarea mothers in the working area of the

Pandanwangi Health Center, Malang City. Expected for health center can provide education to post-Cesarean mothers about the benefits of boiled eggs in accelerating the healing of Cesarean wounds.

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## **AUTHOR CONTRIBUTIONS**

Substantial contributions to conception, data collection, analysis, writing and manuscript revisions: Imam Subekti.

## **CONFLICT OF INTEREST**

The authors declare no conflicts of interest.

## **DATA AVAILABILITY STATEMENT**

The datasets generated during and/or analyzed during the current study are not publicly available due to privacy protection.

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