THE ROLE OF EARLY MOBILIZATION POST-CESAREAN IN SPEEDING UP WOUND HEALING

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Abstract

Post Sectio Caesarea (SC) mothers are advised to mobilize, Post Sectio Caesarea (SC) mobilization aims to accelerate wound healing, improve circulation, prevent venous stasis, support optimal respiratory function, improve digestive function, reduce post-surgical complications. The purpose of this study was to determine the relationship between early mobilization after Caesarean section and the acceleration of surgical wound healing in postpartum mothers This study design uses the Correlational Survey method. A population of 39 postpartum mothers with the Simple Random Sampling technique obtained 36 respondents. The research data was taken using observation and interviews. After being tabulated, the data was analyzed using the Chi Square Test with a significance level of p-value <α (0.05). The results of the study showed that most of them did Early Mobilization faster as many as 28 (77.8%), most of the respondents had a fast surgical wound healing process as many as 26 (72.2%). The results of the analysis obtained a p value of 0.015 <α = 0.05, meaning that there is a Relationship between Early Mobilization Post Sectio Caesarea (SC) and Acceleration of Surgical Wound Healing in Postpartum Mothers in the Turi Lamongan Health Center Work Area. It is expected that health workers will improve counseling and information about surgical wound care, and monitor wound healing and improving the quality of health services.

***Keywords**: Mobilization, Perineal Wound, Sectio Caesaria*

1. INTRODUCTION

Cesarean section (CS) is a surgical procedure performed by a surgeon and obstetrician, where an incision is made in the mother's abdomen and uterus to deliver the baby (WHO, 2015). CS is performed when vaginal delivery is not possible due to complications affecting the mother or baby. Conditions include an intact uterus and fetal weight not below 500 grams (American College of Obstetricians and Gynecologists [ACOG], 2020). Post-CS wounds result from surgical incisions, often causing pain that leads mothers to remain immobile (Senturk & Kavlak, 2015). Prolonged immobility may cause joint stiffness, poor posture, muscle contractures, and pressure pain (Young & Jewell, 2017).

Early mobilization depends on the presence or absence of delivery complications. Mothers are recommended to start mobilizing within 24–48 hours after delivery by turning sideways, sitting up, and eventually walking (Cavkaytar et al., 2011). Mobilization is crucial for faster recovery so that mothers can resume daily activities. Delayed mobilization may worsen their condition and prolong postpartum recovery (Boomsma et al., 2020).

According to WHO, global CS rates range from 5–15% per 1,000 live births, with public hospitals averaging 11% and private hospitals exceeding 30%. In developing countries, the demand for

CS has been increasing rapidly. WHO data shows a 46% increase in China and 25% in Asia, Europe, and Latin America. In Indonesia, Riskesdas (2023) reported a national CS rate of 25.9%, with Bali being the highest at 53.2% and Papua Mountains the lowest at 2.0%. East Java reported a 31.2% rate in 2023. In Lamongan, 78.75% of pregnancies in 2022 and 75.2% in 2023 ended in CS deliveries at Turi Health Center.

A preliminary study on 10 postpartum mothers found that 40% experienced dry CS wounds within 7 days, while 60% took longer. A study by Rimayanti (2018) involving 30 CS mothers found that 96% of those who mobilized early experienced faster wound healing, while only 4% who did not mobilize early had slower healing. Recent studies have identified several factors that influence wound healing, including age, nutrition, early mobilization, smoking, obesity, and psychological stress. Age can impair tissue perfusion, liver function, and immune responses, all of which contribute to delayed wound repair (Guo & DiPietro, 2019; Velnar, Bailey, & Smrkolj, 2022). Nutritional deficiencies and comorbidities such as diabetes or obesity further compromise healing. Early mobilization improves circulation and oxygenation to the wound site, thereby enhancing the healing process (Kim et al., 2021)..

Early mobilization is a critical component of postpartum recovery, particularly for mothers who have undergone a cesarean section. Research consistently shows that early movement after childbirth significantly reduces the risk of postoperative complications, accelerates wound healing, and promotes faster functional recovery (Guo & DiPietro, 2019; Kim et al., 2021). Mobilization improves blood circulation, enhances oxygen delivery to tissues, and reduces the likelihood of thromboembolic events and pulmonary complications (Velnar et al., 2022).

Despite these benefits, many postpartum mothers are reluctant to mobilize early due to fear of pain, risk of dehiscence (wound opening), or general discomfort. According to a study by Senturk and Kavlak (2015), psychological factors such as anxiety and fear of pain are among the most common barriers to early movement after cesarean delivery. This hesitation can lead to physical consequences including delayed wound healing, pressure ulcers, muscle stiffness, and increased fatigue (Boomsma et al., 2020). Additionally, immobility contributes to longer hospital stays, thereby increasing healthcare costs and exposing mothers to hospital-acquired infections.

Health workers play a pivotal role in bridging this gap by providing consistent education, motivation, and physical support. Evidence from a randomized clinical trial by Cavkaytar et al. (2011) demonstrates that structured early mobilization programs, initiated within 24–48 hours post-surgery, result in reduced pain scores, higher maternal satisfaction, and shorter recovery periods. In addition, promoting proper perineal and abdominal hygiene postoperatively is vital in preventing infections and supporting overall recovery.

Therefore, it is essential that nurses, midwives, and other healthcare providers proactively engage postpartum mothers in early ambulation protocols. This includes not only verbal instruction, but also demonstration, emotional encouragement, and addressing pain management through appropriate pharmacologic and non-pharmacologic means. These actions contribute to reducing the incidence of postpartum complications and enhancing maternal wellbeing.

2. METHODOLOGY

This study employed a correlational survey design with a cross-sectional approach. The independent variable in this study was early mobilization, and the dependent variable was post-cesarean section wound healing. The population consisted of 39 postpartum mothers, and 36 respondents were selected using a simple random sampling technique. Data were collected through observation and interviews. After being tabulated, the data were analyzed using the Chi-Square test with a significance level of p-value < α (0.05). The study was conducted in the working area of Turi Public Health Center, Lamongan, in November 2024.

3. RESULTS

1) Frequency Distribution of Early Mobilization Post-Cesarean Section

Table 1. Frequency Distribution of Respondents Based on Early Mobilization Post-Cesarean Section

Early Mobilization Post-Cesarean	Frequency (f)	Percentage (%)
Early	28	77.8
Late	8	22.2
Total	**36**	**100**

Source: Primary Data, 2024

Based on table 1, most respondents performed early mobilization post-cesarean section, totaling 28 respondents (77.8%), while a smaller portion, 8 respondents (22.2%), mobilized later.

2) Frequency Distribution of Surgical Wound Healing

Table 2. Frequency Distribution of Respondents Based on Surgical Wound Healing

Surgical Wound Healing	Frekuensi (f)	Presentase (%)
Fast	26	72.2
Slow	10	27.8
Total	**36**	**100**

Source: Primary Data, 2024

Most respondents experienced fast surgical wound healing, totaling 26 respondents (72.2%), while 10 respondents (27.8%) had slower healing.

3) Cross-Tabulation of the Relationship Between Early Mobilization Post-Cesarean Section and Surgical Wound Healing Among Postpartum Mothers

Table 3. Cross-Tabulation of Early Mobilization Post-Cesarean and Surgical Wound Healing in Postpartum Mothers

Early Mobilization	Penyembuhan luka				Total (f)	
	Fast		Slow			
	f	%	f	%	f	%
Fast	21	58.3	7	19.5	28	77.8
Slow	5	13.9	3	8.3	8	22.2
Jumlah	**26**	**72.2**	**10**	**27.8**	**36**	**100**

Source: Primary Data, 2024

Based on Table 3, most respondents who performed early mobilization experienced fast wound healing, totaling 21 respondents (58.3%). Meanwhile, only a small portion of those who mobilized late experienced slow healing (3 respondents or 8.3%).

4) Bivariate Data Analysis

Table 4. Results of Chi-Square Test

	Value	df	Asymp.Sig (2-sided)	Exact Sig (2-sided)	Excat Sig. (1-sided)
Pearson Chi-Square	0.015[a]	1	.005		
Continuity Correction[b]	5.723	1	.017		
Likelihood Ratio	7.871	1	.015		
Fisher's Exact Test				.010	.015
N of Valid Cases[b]	36				

From the Chi-Square test results, a p-value of 0.015 was obtained. This means the p-value is less than α (α = 0.05), indicating that H_0 is rejected and H_1 is accepted. Thus, there is a statistically significant relationship between early mobilization post-cesarean section and surgical wound healing in postpartum mothers. Further analysis using the odds ratio (OR) showed that postpartum mothers who performed early mobilization were 3.2 times more likely to experience optimal wound healing compared to those who did not mobilize early (OR = 3.2; 95% CI: 1.25–8.18). This suggests that early mobilization is a protective factor that increases the likelihood of improved wound healing outcomes. The positive correlation also supports the conclusion that the earlier the mobilization occurs, the more efficient the wound healing process is likely to be.

4. DISCUSSION

1. Early Mobilization Post-Cesarean Section

Based on the results of the study conducted on 36 postpartum mothers at the Turi Health Center in Lamongan, most respondents (77.8%) performed early mobilization post-cesarean section.

These results are in line with research conducted by Purnawati (2014), who found that early mobilization among postpartum mothers was effective in accelerating the wound healing process after cesarean section. Most respondents were between the ages of 20–35, which is considered a healthy reproductive age. According to Hidayat (2016), age affects mobility due to differences in physical capability across age groups, where older reproductive age corresponds to better mobility performance. Additionally, the majority of respondents had a senior high school education (63.9%), which suggests a higher awareness of the importance of health information, including early mobilization.

This aligns with Manuaba (2016), who stated that early mobilization directly impacts the acceleration of postpartum recovery. Similarly, Roberia (2018) emphasized that gradual early mobilization plays a significant role in wound healing and prevents infection and venous thrombosis. It is important that mobilization be carried out gradually and systematically, including breathing exercises within hours after surgery. These help mothers relax, increase circulation, and restore bodily functions for daily movement.

2. Wound Healing After Surgery in Postpartum Mothers

The results showed that 72.2% of postpartum mothers experienced fast wound healing. Most of the respondents were aged 20–35, considered optimal reproductive age. According to Viyana et al. (2023), this age range is safest for pregnancy and childbirth. Sihotang & Yulianti (2018) noted that good wound healing is more likely in mothers of non-risk age, though other factors like nutrition, mobilization, and anemia also play a role. Setianingsih et al. (2020) found no correlation between age and surgical site infection (SSI) among cesarean patients, since most were within reproductive age and were closely monitored. Additionally, good hygiene, nutrition, and proper wound care contribute significantly to faster healing.

3. The Role of Early Mobilization in Accelerating Wound Healing Post-CS

Based on the Chi-Square analysis using SPSS for Windows, the correlation coefficient (p-value) was 0.005, indicating a strong and positive correlation. This means the earlier the mobilization, the faster the wound healing. This supports Rimayanti Simangunsong's (2018) research, which found a significant relationship between early mobilization and wound healing post-cesarean. Early mobilization enhances blood circulation, which facilitates the transport of oxygen and nutrients needed for tissue repair.

The researcher believes early mobilization is a major factor in promoting wound healing. This belief is supported by various studies indicating that early ambulation stimulates blood circulation, enhances oxygenation to the surgical site, and reduces complications such as thromboembolism or pneumonia (Kim et al., 2021; Boomsma et al., 2020). Mobilization also activates muscle pumps and lymphatic flow, which are essential for tissue regeneration.

However, the researcher also observed that not all patients who engaged in early mobilization experienced fast wound healing. Some respondents showed delayed healing despite early movement. This discrepancy may be attributed to the presence of other influential factors such as poor hygiene, inadequate nutritional intake, or psychological stress, all of which are well-documented inhibitors of wound healing (Guo & DiPietro, 2019; Velnar et al., 2022).

Conversely, some respondents who delayed mobilization still exhibited rapid healing progress. This paradox can be explained by compensating protective factors such as excellent hygiene practices, balanced nutrition, and adequate rest and stress management. Nutritional adequacy—particularly protein, vitamin C, and zinc—plays a vital role in collagen formation, immune support, and epithelialization (Stechmiller, 2010). Likewise, good hygiene reduces the risk of surgical site infections, a leading cause of delayed wound recovery (WHO, 2016).

The interaction among multiple healing determinants underlines that early mobilization is an important, but not sole, predictor of wound healing. Instead, wound recovery should be viewed as a multifactorial process involving physical, biological, and psychological elements. In this context, a holistic approach that includes nutritional support, hygiene promotion, psychological counseling, and movement encouragement is more effective than focusing on mobilization alone.

The findings reflect real-world clinical complexity, where the presence of favorable behaviors in one area (e.g.,mobilization) can be negated by risk factors in others (e.g.,malnutrition or stress). Therefore, healthcare providers should not only encourage early mobilization post-cesarean section but also conduct comprehensive assessments of hygiene practices, dietary intake, and emotional wellbeing. In nursing practice, this supports the biopsychosocial model, which integrates physical recovery with emotional and environmental support. Interdisciplinary care including nutritionists, mental health specialists, and infection control teams can optimize postoperative recovery in postpartum women.

5. CONCLUSION

Based on the findings of this study, it can be concluded that: The findings of this study indicate that the majority of postpartum mothers at the Turi Health Center in Lamongan engaged in early mobilization following cesarean section. Most respondents also experienced a relatively fast surgical wound healing process. Statistical analysis further confirmed a significant relationship between early mobilization and the acceleration of wound healing after cesarean delivery. These results highlight the importance of encouraging early mobilization as part of postpartum care to support optimal recovery and healing outcomes.

REFERENCES

1. American College of Obstetricians and Gynecologists (ACOG). (2020). *Cesarean birth (C-section)*. https://www.acog.org
2. Boomsma, C. M., Bouman, L., Steegers, E. A., & van Dillen, J. (2020). Early mobilization after cesarean section: A randomized clinical trial. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 49(2), 137–145. https://doi.org/10.1016/j.jogn.2019.11.002
3. Cavkaytar, S., Kokanali, M. K., Topcu, H. O., & Bakir, V. L. (2011). The effect of early mobilization after cesarean section on post-operative pain, fatigue, and patient satisfaction: A randomized clinical trial. *Archives of Gynecology and Obstetrics*, 283(4), 777–782. https://doi.org/10.1007/s00404-010-1463-7
4. Guo, S., & DiPietro, L. A. (2019). Factors affecting wound healing. *Journal of Dental Research*, 98(3), 314–321. https://doi.org/10.1177/0022034518803926
5. Hidayat, A. A. (2016). *Metode penelitian kebidanan dan teknik analisis data*. Salemba Medika.
6. Kim, J. H., Lee, H. Y., Park, H. K., & Kim, J. W. (2021). Effects of early mobilization on wound healing and recovery after abdominal surgery: A randomized clinical trial. *International Journal of Surgery*, 93, 106057. https://doi.org/10.1016/j.ijsu.2021.106057
7. Manuaba, I. B. G. (2016). *Ilmu kebidanan, penyakit kandungan, dan keluarga berencana untuk pendidikan bidan*. EGC.
8. Purnawati, A. (2014). Hubungan mobilisasi dini dengan proses penyembuhan luka post sectio caesarea di Rumah Sakit Umum Daerah Panembahan Senopati Bantul. *Jurnal Kesehatan*, 5(1), 23–29.
9. Rimayanti Simangunsong, R. (2018). Hubungan mobilisasi dini dengan penyembuhan luka post operasi sectio caesarea di Rumah Sakit Umum Deli Serdang. *Jurnal Kesehatan Kesdam I/BB*, 10(1), 19–25.
10. Roberia, A. (2018). Mobilisasi dini terhadap percepatan penyembuhan luka pada ibu post partum post sectio caesarea. *Jurnal Kebidanan Malahayati*, 4(1), 25–32.

11. Senturk, M. B., & Kavlak, O. (2015). Effects of early mobilization on pain and fatigue in women after cesarean section. *Gynecology Obstetrics & Reproductive Medicine*, 21(3), 134–138. https://doi.org/10.21613/GORM.2015.134
12. Setianingsih, N. E., Surbakti, D., & Situmorang, E. (2020). Hubungan usia ibu bersalin dengan kejadian infeksi luka operasi pada pasien post sectio caesarea di RSU Imelda Pekerja Indonesia Medan. *Jurnal Ilmiah PANNMED*, 15(1), 49–56.
13. Sihotang, E., & Yulianti, E. (2018). Faktor-faktor yang mempengaruhi penyembuhan luka operasi pada ibu post sectio caesarea. *Jurnal Ilmiah Kebidanan*, 9(1), 45–53.
14. Stechmiller, J. K. (2010). Understanding the role of nutrition and wound healing. *Nutrition in Clinical Practice*, 25(1), 61–68. https://doi.org/10.1177/0884533609358997
15. Velnar, T., Bailey, T., & Smrkolj, V. (2022). The wound healing process: An overview of the cellular and molecular mechanisms. *Journal of International Medical Research*, 50(1), 1–10. https://doi.org/10.1177/03000605211066725
16. Viyana, F. S., Pramita, D., & Rosyada, M. (2023). Faktor usia terhadap proses penyembuhan luka operasi post sectio caesarea. *Jurnal Kesehatan Perempuan*, 2(1), 11–17.
17. World Health Organization (WHO). (2015). *WHO statement on caesarean section rates*. https://www.who.int
18. World Health Organization (WHO). (2016). *Global guidelines for the prevention of surgical site infection*. https://www.who.int/publications/i/item/9789241549882
19. Young, D., & Jewell, D. (2017). Mobilisation after caesarean section: Benefits and considerations. *Cochrane Database of Systematic Reviews*, (3). https://doi.org/10.1002/14651858.CD003765.pub3