

THE EFFECT OF EARLY MOBILIZATION ON REDUCING THE RISK THROMBOSIS INMOTHERS AFTER CESAREAN SURGERY

Wirna Parida¹, Retno Wahyuni², Lilis Monica³Imarina⁴ Yuli Kartika⁵

¹²³⁴⁵ Sekolah Tinggi Ilmu Kesehatan (STIKes)Mitra Husada Medan

Email : 2310201077@gmail.ac.id¹ 2319201090@gmail.ac.id² 2419201680@gmail.ac.id³

Retnowahyini@gmail.ac.id⁴ 2519201068@gmail.ac.id⁵

ABSTRACT

Background: A cesarean section (C-section) is a surgical procedure performed to deliver a baby through an incision in the mother's abdomen and uterus. As the number of deliveries via this method increases, attention to the postoperative wound healing process has become increasingly crucial. In Indonesia, according to the 2023 Basic Health Research (Riskesmas), the rate of cesarean section (CS) deliveries has increased compared to previous years. This increase indicates the need for greater attention to aspects of postoperative care, including early mobilization. **The objective** of this study is to analyze the effect of early mobilization on reducing the risk of thrombosis in mothers following cesarean section at Citra Medika Tembung Hospital, Deli Serdang Regency, in 2025. **Research Methodology:** This study employed a qualitative-analytical *approach with a cross-sectional design*. The study population consisted of 32 participants. Data were collected through direct observation using an observation sheet and analyzed using the Chi-Square test at a 95% confidence level. **The results** indicate a significant association between early mobilization and a reduced risk of thrombosis (p-value < 0.05). Mothers who underwent early mobilization experienced faster wound healing and exhibited a reduction in clinical symptoms associated with thrombosis risk compared to those who did not undergo early mobilization. **The conclusion** of this study is that early mobilization has a significant effect on reducing the risk of thrombosis in mothers following cesarean section.

Keywords: Mobilization; Mother giving birth; post-caesarean; platelets

Introduction

Cesarean section (CS) is a surgical procedure performed to deliver a baby through an incision in the mother's abdomen and uterus (S.N Sinaga 2024). As the number of deliveries via this method increases, attention to the postoperative wound healing process has become increasingly crucial. (Sylvia *et al.*, 2023). According to data from the World Health Organization (WHO), the proportion of births by

The global cesarean section (C-section) rate reached 21% in 2021. According to data from the World Health Organization (WHO), the cesarean section rate should ideally range between 10 and 15 percent of all births (Cahyani, 2023). This increase is influenced by various factors, such as shifts in pregnant women's preferences, advances in medical technology, and safety considerations for both the mother and the fetus. This increase indicates the need for greater attention to postoperative care, including the implementation of early mobilization to support the healing process of cesarean section wounds (Dini *et al.*, 2023).

Cesarean section (CS) is one of the most frequently performed surgical procedures in obstetric practice and is indicated when vaginal delivery may endanger the health of the mother or fetus. The global rate of cesarean delivery has continued to increase over the past decade, making postoperative management an important aspect of maternal healthcare. Although cesarean section is generally safe, mothers remain at risk of several postoperative complications, including surgical site infection, delayed wound healing, pain, and venous thromboembolism (VTE). Among these complications, thrombosis is a major concern because it can lead to deep vein thrombosis (DVT) and pulmonary embolism, both of which contribute significantly to maternal morbidity and mortality (R. Susanti 2024). Therefore, effective postoperative interventions are essential to reduce these risks and promote optimal recovery. Early mobilization is recognized as a simple, safe, and evidence-based intervention that plays a crucial role in preventing postoperative complications. By encouraging mothers to move as soon as their clinical condition permits, early mobilization enhances venous blood flow, reduces venous stasis, improves circulation, and stimulates muscle activity, thereby lowering the likelihood of thrombus formation. In addition to reducing the risk of thrombosis, early mobilization contributes to faster wound healing, improved bowel function, decreased postoperative pain, increased maternal independence, and a shorter hospital stay. Current Enhanced Recovery After Surgery (ERAS) guidelines also recommend early mobilization as a key component of post-cesarean care to improve maternal outcomes (D.W Hutabarat 2020).

Although a cesarean section (C-section) can be life-saving in certain circumstances, it is a major surgical procedure that can potentially lead to various complications, particularly during the recovery period. Some common postoperative risks include infection at the incision site, severe pain, bleeding, impaired wound healing, and the possibility of thromboembolism (Pervez Sultan 1, 2025). Compared to vaginal delivery, recovery after a C-section generally takes longer and requires greater attention to pain management, physical activity, and nutritional intake. A mother's knowledge of wound care after a C-section plays a crucial role in accelerating recovery (Nurvinanda *et al.*, 2022). Mothers who understand the importance of maintaining wound cleanliness, recognizing signs of infection, and knowing proper care methods tend to be more diligent in caring for their wounds, thereby reducing the risk of infection. In addition, nutritional status is also a key factor in supporting wound healing. Adequate nutritional intake—particularly of protein, vitamin C, zinc, and iron—is necessary to accelerate collagen synthesis, fibroblast activation, and the formation of new tissue. Another important factor is early mobilization, which involves encouraging mothers to move around and get out of bed as soon as possible after surgery. This activity not only improves blood circulation but also reduces the risk of constipation and deep vein thrombosis, while aiding the process of uterine involution. Active mobilization has also been shown to accelerate the discharge of lochia and enhance the mother's physical and emotional well-being (Sectio, Di and Morowali, 2022).

Mobilisasi dini adalah pergerakan yang dilakukan sedini mungkin di tempat tidur dengan melatih bagian- Early mobilization involves moving as soon as possible while in bed by stretching various parts of the body. Early mobilization following surgery or a period of immobility can help reduce the risk of thrombosis, particularly deep vein thrombosis (DVT). Thrombosis can be caused by various factors that affect blood flow and the ability of blood vessels to function normally. A study by Eriyani *et al.* found

that wound healing is maximized when patients who have undergone a cesarean section are provided with early mobilization as an intervention (Amia *et al.*, 2023).

Research Method

This study employed a qualitative-analytical approach with a cross-sectional design. The population was the area of generalization, consisting of 32 participants. Total sampling was used, with the entire population included in the study because the number of respondents meeting the inclusion criteria was relatively small. The methods used for data collection were observation and document analysis. The data for this study were collected through direct observation of mothers giving birth at Citra Medika Tembung Hospital in Deli Serdang Regency in 2025. The study was conducted from April to July 2025.

Univariate analysis was conducted using descriptive statistics to examine the characteristics of each variable under study. The results of the analysis will be presented in the form of frequency distributions. Bivariate analysis was used to determine the relationship between two independent variables and the dependent variable. In this study, the Chi-Square test was performed at a confidence level of 0.05 to examine the relationship between early mobilization and symptoms of thrombosis risk. Data were analyzed univariately to describe the frequency distribution of each variable and bivariate using the Chi-Square (χ^2) test with a 95% confidence level ($\alpha = 0.05$) to determine the effect of early mobilization on reducing the risk of thrombosis in mothers after cesarean section. The results of the analysis were used to draw conclusions regarding the relationship and influence between the two study variables.

Table 4.1
Respondent Characteristics

Characteristics	Category	Frequency (n)	Percentage (%)
Mother's Age	< 20 years	3	8.1%
	20–35 years	30	81.1%
	> 35 years	4	10.8%
Highest Level of Education	Elementary–Junior High School	6	16.2%
	High School or Equivalent	23	62.2%
	College	8	21.6%
Employment	Housewives	27	73.0%
	Employed	10	27.0%
Parity	Primiparous	12	32.4%
	Multiparous	25	67.6%

Result

This study involved 32 mothers who had undergone cesarean sections at Citra Medika Tembung Hospital, Deli Serdang Regency, in 2025. Most of the respondents were aged 20–35 years (81.1%), had a high school education or equivalent (62.2%), and were multiparous (67.6%). The results of the observation showed that mothers who routinely engaged in early mobilization experienced faster wound healing and did not exhibit symptoms of thrombosis, such as pain or swelling in the legs (Dini, 2021). Analysis using the Chi-Square test showed a p -value <0.05 , indicating a significant association between early mobilization and a reduced risk of thrombosis. These findings support the results of a study (Destiana, 2020) showing that early mobilization accelerates recovery after cesarean section.

The results of this study indicate that early mobilization significantly reduces the risk of thrombosis in mothers following a cesarean section (H. Manurung 2025). Early mobilization improves blood circulation, thereby preventing stasis and thrombus formation, according to Virchow's Triad theory. (Herman, 2020) This study aligns with (Yulianti, Early Mobilization and Length of Wound Healing, 2024), which found that early mobilization accelerates wound healing and improves physiological function. Furthermore, (Herman, 2020) also reported that early mobilization reduces the incidence of deep vein thrombosis in postoperative patients. Therefore, healthcare professionals need to continue promoting the implementation of early mobilization as part of post-cesarean section obstetric care to accelerate recovery and prevent complications (Raya-benítez *et al.*, 2025).

Discussion

A cesarean section is a method of childbirth that involves making an incision in the uterine wall through the front of the abdomen. This delivery process requires more physical energy, and the recovery period tends to be longer than that of a vaginal birth. Recovery after a caesarean generally takes 4 to 6 weeks. Proper care is essential to prevent infection (Rsud and Tegal, 2025). Early mobilization following a cesarean section can accelerate uterine contractions and the expulsion of lochia. Mobilization also helps boost the mother's confidence in caring for her baby and promotes faster independence after surgery (Nuraeni, Fatmarizka and Abdullah, 2026). Early mobilization should be done gradually, starting with light movements and tailored to the patient's condition. Physiologically, postoperative movement helps improve venous return and prevents blood stasis, which can lead to blood clot formation. Thus, the sooner a mother begins mobilization, the greater her chances of recovery and the lower her risk of thrombosis (Hidayah, 2025).

The success of early mobilization is influenced by various factors, including the level of pain, the mother's understanding of the benefits of mobilization, support from healthcare providers, and the mother's physical and psychological condition (S.N Sinaga *et al.*, 2024). Severe pain after the effects of anesthesia wear off is often the main barrier preventing mothers from beginning to move (Nomo *et al.*, 2025). Nurses and midwives play a crucial role in educating and motivating mothers to engage in early mobilization. Effective counseling before and after surgery can help mothers understand the importance of early movement and reduce anxiety related to pain or discomfort (Nurul and Saleh, 2020).

Early mobilization is recommended, starting with light activities 6–12 hours after surgery, to speed up recovery and prevent risks such as blood clots (thrombosis). Thrombosis is a medical condition that occurs when blood clots inside a blood vessel, forming a blood clot known as a thrombus. These clots can form in arteries—a condition known as arterial thrombosis—or in veins, known as venous thrombosis (Umamity, Lombonaung and Fataruba, 2025). The presence of a thrombus can obstruct blood flow in certain parts of the body, potentially leading to serious complications such as stroke, heart attack, or pulmonary embolism—which occurs when a blood clot travels to the lungs (Pasien *et al.*, 2026). Effective education can reduce fear of postoperative pain and improve adherence to mobilization

procedures. Furthermore, consistent implementation of early mobilization can shorten hospital stays, accelerate recovery, and reduce hospital care costs.(Zhi-Min Zhao 1, 2025). Overall, this study confirms that early mobilization is a simple yet highly beneficial intervention for preventing complications following cesarean section. The implementation of these findings is expected to strengthen evidence-based midwifery practice by establishing early mobilization as a primary preventive measure to improve the safety and well-being of mothers after surgery(Dini, 2021).

The findings of this study indicate that early mobilization is significantly associated with a reduced risk of thrombosis in mothers after cesarean surgery. Mothers who initiated mobilization soon after surgery experienced better postoperative recovery, as evidenced by faster wound healing and fewer clinical manifestations related to venous thrombosis. Early mobilization promotes blood circulation in the lower extremities, improves venous return, and reduces venous stasis, which is one of the major factors contributing to thrombus formation. In addition, gradual movement stimulates muscle contraction, enhances tissue oxygenation, and accelerates the overall healing process, thereby reducing postoperative complications and shortening recovery time.

These findings are consistent with current evidence and Enhanced Recovery After Surgery (ERAS) recommendations, which emphasize early mobilization as an essential component of postoperative care following cesarean section. Early ambulation not only lowers the risk of venous thromboembolism but also contributes to improved maternal comfort, increased physical independence, and a shorter length of hospital stay. Therefore, healthcare professionals, including obstetricians, midwives, and nurses, should encourage and supervise early mobilization as part of standardized post-cesarean care. Comprehensive patient education and continuous monitoring are also essential to ensure that mobilization is performed safely and effectively, ultimately improving maternal outcomes and reducing postoperative morbidity.

Conclusion and Recommendations

The findings of this study demonstrate that early mobilization has a significant effect on reducing the risk of thrombosis in mothers after cesarean surgery. Mothers who performed early mobilization showed better postoperative recovery, characterized by faster wound healing and fewer clinical signs associated with thrombotic complications than those who did not mobilize early. These results highlight the importance of incorporating early mobilization into routine postoperative care following cesarean delivery to improve maternal recovery and minimize postoperative complications. Based on these findings, early mobilization should be implemented as a standard component of post-cesarean nursing and midwifery care. Healthcare providers are encouraged to educate and assist mothers in performing safe and timely mobilization after surgery while continuously monitoring their clinical condition. Future studies with larger sample sizes and prospective or experimental designs are recommended to further confirm the effectiveness of early mobilization in preventing thrombosis and improving maternal health outcomes after cesarean section.

ACKNOWLEDGMENTS

The author would like to thank Sekolah Tinggi Ilmu Kesehatan (STIKes) Mitra Husada Medan for their academic support during the Field Learning Practice and the preparation of this case study. The author also extends thanks to all the faculty members of STIKes Mitra Husada Medan, as well as to the patients and their families who were willing to participate in this case study.

CONFLICT OF INTEREST AND FUNDING

All authors declare that they have no conflicts of interest in the publication of this article. This case study did not receive any specific grant funding from government, commercial, or non-profit organizations.

AUTHOR CONTRIBUTIONS

WP: conceptualization, data curation, investigation, methodology, drafting the initial manuscript, writing and final editing; ZTJ: data curation, investigation, formal analysis, validation, visualization.

References

- Anemia, H. *et al.* (2023) "Hubungan anemia, imt dan mobilisasi dini dengan penyembuhan luka sectio caesarea di rsud kayuagung," 7(April).
- Caesarea, S., Rs, D.I. and Hidayah, N.U.R. (2025) "TINGKAT PENGETAHUAN IBU NIFAS MENGENAI MOBILISASI DINI POST SECTIO CAESAREA DI RS NUR HIDAYAH BANTUL 2025," 4(3), pp. 167–174.
- Cahyani, A.N. (2023) "Penerapan Mobilisasi Dini terhadap Penurunan Intensitas Nyeri pada Ibu Post Sectio Caesarea Aisyah Nilam Cahyani," 2(2).
- Dini, M. (2021) "Artikel Penelitian □," 3, pp. 1–5.
- Dini, M. *et al.* (2023) "Jurnal Kesehatan Perintis," 10(1), pp. 44–52.
- Munthe, J. *et al.* (no date) "Design And Implementation Of Android And Gps Based Friend Application In Mitigation Efforts And Early Emergency Aid For Disaster Victims In Maternal And Neonatal Parents," pp. 76–87.
- Nomor, V. *et al.* (2025) "Jurnal Kesehatan Saintika Meditory," 54, pp. 7–21.
- Nuraeni, W.A., Fatmarizka, T. and Abdullah, A. (2026) "Efektivitas Mobilisasi Dini terhadap Percepatan Pemulihan Fungsi Fisik pada Ibu Pasca Operasi Sectio Caesarea," (April).
- Nurul, S. and Saleh, H. (2020) "PROSES," 4(1), pp. 1–5.
- Nurvinanda, R. *et al.* (2022) "PANGKALPINANG," 05.
- Pasien, P. *et al.* (2026) "Excellent Midwifery Journal," 9(1).
- Pervez Sultan 1, D.T.M. (2025) "
- Sectio, O., Di, C. and Morowali, R. (2022) "Jurnal Pendidikan dan Konseling," 4, pp. 7014–7019.
- Sikumbang, N. *et al.* (2024) "Hubungan tingkat pengetahuan ibu terhadap perawatan tali pusat di pmb nurlina sikumbang desa sampali kabupaten deli serdang provinsi sumatera utara tahun 2024."
- Sitepu, J.E. *et al.* (2024) "Analisis Mobilisasi Dini Post Sectio Caesaria dengan Proses Penyembuhan Luka Operasi di Rumah Sakit Umum Ulfuadi Kota Binjai," (2).
- Sylvia, E. *et al.* (2023) Rasa nyeri ini dapat juga menyebabkan terganggunya aktivitas ibu , seperti : antara," 15(1), pp. 74–85.
- Umamity, S., Lombonaung, E. and Fataruba, I. (2025) "Efek Mobilisasi Dini terhadap Kemandirian Pasien Post Operasi Sectio Caesaria di Rumah Sakit Umum Al-Fatah Ambon," 5(1), pp. 431–436.



Yoga, E. *et al.* (2020) “Author: Imarina Tarigan Et Al,” 11(2). Available at: <https://doi.org/10.33859/dksm.v11i2.689>.

Zhi-Min Zhao 1, J.-Q.Y. 2 (2025) “A meta-analysis of the effects of multimodal intervention measures on the recovery of postpartum women after cesarean section.”

MiHHICo-6
2026
STIKes MITRA HUSADA MEDAN