

The Influence of Early Mobilization on the Healing Process in Post-Section Patients in Hospitals

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Abstract: Cesarean section (Sectio Caesarea) is a medical procedure that often results in postoperative wounds requiring optimal management to support recovery. Early mobilization plays a critical role in accelerating the wound healing process by improving blood circulation and enhancing tissue regeneration. This study aimed to analyze the influence of early mobilization on the healing process in post-cesarean section patients in several hospitals. This quantitative study used a descriptive correlational design with a cross-sectional approach. Data were collected through questionnaires assessing early mobilization practices and direct observation of wound healing indicators. The study involved 40 postpartum mothers who underwent cesarean sections, selected through purposive sampling from four hospitals—Cilincing Hospital, RSIA Bunda Jakarta, RS Mekar Sari Bekasi, and RSU Ibu Pusat Jakarta—during December 2024. Data analysis included univariate (frequency distribution) and bivariate tests using the Chi-Square method. The statistical test showed a significant relationship between early mobilization and wound healing, with a p-value of 0.007 (< 0.05), indicating that early mobilization positively influences postoperative recovery. Patients who engaged in early mobilization exhibited faster wound healing compared to those who delayed movement. In conclusion, early mobilization is proven to be an effective intervention in enhancing the healing process among post-cesarean section patients. The findings highlight the importance of implementing early mobilization protocols as part of standard postoperative nursing care to improve maternal health outcomes.

Keywords: Cesarean section; Early mobilization; Nursing care; Postoperative recovery; Wound healing

Introduction

Childbirth is a physiological process in which the fetus and placenta are expelled from the uterus, either through the birth canal or by medical intervention (Ayudita, 2023). Normally, this process occurs spontaneously when the fetus is in a head-down position, without the use of instruments, and without causing harm to the mother or baby (Aristiya, 2020). However, in certain conditions, labor must be assisted using instruments or surgical procedures such as a cesarean section (CS), which is performed through an

incision in the abdominal and uterine walls (Noviyani et al., 2023; Nuryani, 2021).

According to the World Health Organization (WHO), the global rate of cesarean deliveries ranges from 5% to 15%, yet recent data indicate a steady increase in this number. WHO's 2021 Global Survey on Maternal and Perinatal Health reported that 46.1% of all births were performed via cesarean section (World Health Organization, 2021). In Indonesia, the Basic Health Research (Kementerian Kesehatan Republik Indonesia, 2021) reported that 17.6% of births were conducted through CS, with the highest rate recorded in

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DKI Jakarta at 31.1%. This growing prevalence reflects improvements in obstetric care but also raises concerns regarding post-operative recovery and maternal well-being (Kementerian Kesehatan Republik Indonesia, 2021).

A cesarean section inevitably results in a surgical wound that requires an optimal healing process involving three stages: inflammation, proliferation, and maturation. Delayed wound healing increases the risk of infection, pain, and prolonged hospitalization. To support recovery, adequate blood circulation and oxygenation to the wound area are crucial—both of which can be improved through early mobilization (Arif et al., 2021; Melani et al., 2023; Suryanti, 2024). Early mobilization refers to gradual physical movement or position changes initiated within hours after surgery, which has been proven to improve blood flow, stimulate uterine involution, reduce postoperative pain, and enhance patient independence (Fitriyani et al., 2024; Mustikarani et al., 2019; Rangkuti et al., 2023; Rottie et al., 2019).

Early mobilization is also one of the main components of the Enhanced Recovery After Surgery (ERAS) protocol, which aims to minimize postoperative stress and promote faster recovery (Fitriyani et al., 2024; Nelson et al., 2019; Singh et al., 2020; Tazreean et al., 2022). Evidence suggests that early mobilization reduces the risk of complications such as thromboembolism, pulmonary disorders, and muscle stiffness, while also shortening hospital stays and lowering healthcare costs (Li et al., 2024; Nelson et al., 2019). Despite these benefits, many post-cesarean mothers are reluctant to move early due to fear of pain, fatigue, or anxiety about wound dehiscence. Consequently, delayed mobilization can result in slower recovery, bloating, and longer hospital stays.

A study by Melani et al. (2023) showed a significant relationship between early mobilization and wound healing in post-cesarean section patients, with 92% of mothers who performed early mobilization achieving good wound healing outcomes ($p = 0.001$). However, observational data from several hospitals still indicate low compliance with early mobilization among post-cesarean patients due to limited education and inconsistent implementation by healthcare providers (Eriyani et al., 2018; Sinaga et al., 2023). Preliminary observations by the researchers at four hospitals in Jakarta and Bekasi also found that 40% of post-cesarean mothers did not perform early mobilization due to postoperative pain or fear of stitches reopening. Those who refused mobilization experienced longer recovery and required extended hospitalization, while those who performed early mobilization recovered faster within three days.

Given these findings, this study is crucial for strengthening empirical evidence regarding the role of early mobilization in accelerating wound healing among post-cesarean patients. Understanding this relationship can support the development of standardized nursing protocols to improve maternal postoperative outcomes and reduce hospitalization time.

Method

Research Design

This study employed a descriptive correlational quantitative design using a cross-sectional approach. The purpose of this design was to determine the correlation between early mobilization and postoperative wound healing among post-cesarean section mothers. Data collection was conducted at a single point in time to capture the relationship between the two variables without any intervention from the researcher.

Population and Sample

The population in this study consisted of postpartum women who underwent cesarean section at RSUD Cilincing, RSIA Bunda Jakarta, RS Mekar Sari Bekasi, and RSU Bunda Jakarta Pusat in December 2024. The sample size was determined using the G-Power version 3.1.9 formula, resulting in a total of 40 respondents—10 participants from each hospital. The sampling technique used was purposive sampling, with inclusion criteria of: (1) Mothers aged 20–40 years who underwent cesarean section, (2) Willing to participate and sign informed consent, and (3) Within the first 3–5 days of postoperative recovery.

Research Instrument

The research instrument used was a structured questionnaire on early mobilization and an observation sheet for postoperative wound healing. The questionnaire had previously undergone validity and reliability testing, with a Cronbach's Alpha value > 0.7 , indicating good reliability. Therefore, the instrument was considered suitable for use in this study without revalidation.

Data Collection Procedure

Data collection was carried out through three main stages: (1) Preparation Stage – The researcher obtained ethical clearance, coordination with hospital management, and informed consent from respondents. (2) Data Collection Stage – Respondents filled out questionnaires regarding early mobilization activities, and the researcher conducted direct observations of wound healing indicators (e.g., redness, exudate, wound

closure). (3) Data Processing Stage - Data were compiled, coded, and analyzed statistically.

Data Analysis

Data analysis was conducted in two stages: (1) Univariate analysis, to describe respondent characteristics and frequency distribution of early mobilization and wound healing. (2) Bivariate analysis, using the Chi-Square test, to determine the relationship between early mobilization and postoperative wound healing. The level of significance was set at $p < 0.05$.

Ethical Consideration

This research was approved by the Research Ethics Committee of Sekolah Tinggi Kesehatan Bunda Suryani, with the ethical clearance number EC.012/KEPK/STKBS/I/2025. Participation was voluntary, and confidentiality of respondents was ensured.

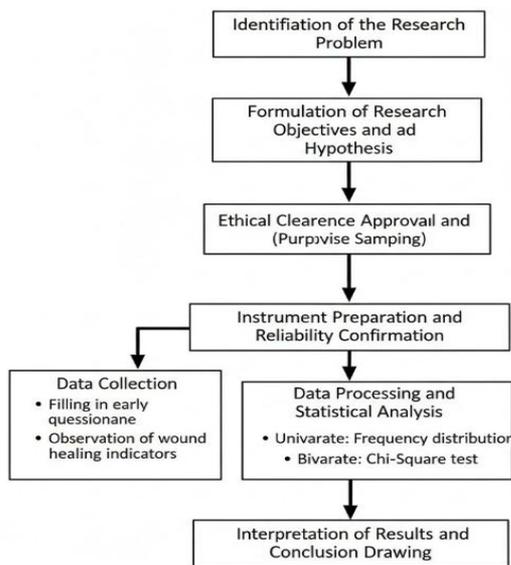


Figure 1. Flowchart

Result and Discussion

Based on table 1, it can be interpreted that early mobilization of post section mothers in 4 hospitals with

a total of 40 respondents was obtained from the results of Cilincing Hospital, the most early mobilization of post section mothers with a good category of 8 respondents (80%), from RSIA Bunda Jakarta with the most good categories as many as 7 respondents (70%), from hospitals. Mekar Sari had the most with a good category of 8 respondents (80%) and from Bunda Hospital with the most good categories as many as 7 respondents (70%).

Based on table 2, it can be interpreted that the wound healing process in post-section cesarean section mothers in 4 hospitals with a total of 40 respondents obtained the most results of Cilincing Hospital with a good category of 8 respondents (80%), from RSIA Bunda Jakarta with the most good category as many as 7 respondents (70%), from the hospital. Mekar Sari had the most good categories with 6 respondents (60%) and from Bunda Hospital with the most good categories as many as 7 respondents (70%).

Based on table 3, from the parametric test, the results of sig (2-tailed) in the relationship between Pre Test and Post Test using the Chi Square Test (Cross Sectional) in 4 Hospitals are 0.007 (< 0.05) or smaller than alpha 0.05, then it can be decided that the test result is H0 rejected and Ha accepted. So it was concluded that there was a significant influence on early mobilization on the healing process in post sectio patients in 4 different hospitals, namely Cilincing Hospital, Bunda Jakarta Hospital, RSIA. Mekar Sari Bekasi and RSU. Mother in 2024.

Early mobilization in post-sectio caesarea (SC) mothers is an activity that mothers do a few hours after SC surgery. Early mobilization aims to help the healing process and prevent complications. In this study, early mobilization of post sectio mothers in 4 hospitals with a total of 40 respondents was obtained from Cilincing Hospital, the most early mobilization of post sectio mothers with a good category of 8 respondents (80%), from RSIA Bunda Jakarta with the most good categories as many as 7 respondents (70%), from hospitals. Mekar Sari had the most with a good category of 8 respondents (80%) and from Bunda Hospital with the most good categories as many as 7 respondents (70%).

Table 1. Frequency Distribution of Respondent Characteristics Based on Early Mobilization in Post Sectio Cesarea Mothers (n=40)

Early Mobilization	Good		Bad		Total	
	N	%	N	%	N	%
Cilincing Hospital	8	80	2	20	10	100
RSIA Bunda Jakarta	7	70	3	30	10	100
RS. Mekar Sari	8	80	2	20	10	100
RSU. Mother	7	70	3	30	10	100

Table 2. Frequency Distribution of Wound Healing Respondent Characteristics Post Sectio Cesarea (n=40)

Wound Healing Before Early Mobilization	Good		Keep		Light		Heavy		Total	
	N	%	N	%	N	%	N	%	N	%
Cilincing Hospital	8	80	1	10	1	10	0	0	10	100
RSIA Bunda Jakarta	7	70	2	20	1	10	0	0	10	100
RS. Mekar Sari	6	60	2	20	2	20	0	0	10	100
RSU. Mother	7	70	1	10	2	20	0	0	10	100

Table 3. Effect of Early Mobilization on the Healing Process in Post Sectio Patients with Chi Square (Cross Sectional) Test

Research Area	Early Mobilization	Wound Healing Process			P-value
		Good	Keep	Light	
Cilincing Hospital	Good	8	0	0	0.007
	Bad	0	1	1	
RSIA Bunda Jakarta	Good	7	0	0	0.007
	Bad	0	2	1	
RS. Mekar Sari	Good	6	2	0	0.007
	Bad	0	0	2	
Bunda Hospital	Good	7	0	0	0.007
	Bad	0	1	2	

From the results of the research conducted in 4 hospitals, the average respondent was able to mobilize with 3 to 5 movements in less than 6 to 8 hours. The mobilization can be categorized as rapid mobilization. The success in early mobilization of respondents can be achieved to the maximum because in this study it has been supported by professionals and has implemented the applicable standard operating procedures (SOP). The purpose of early mobilization in post-SC mothers is to facilitate blood circulation, help wound healing, reawaken spingter muscle control so that patients can resume their usual activities.

In this study, it was found that wound healing after cesarean section can be categorized as good wound healing because the dominant respondent did not experience redress, edema, echymosis, discharge, and approximation. This good wound healing can be achieved by treatment in the postpartum room in 4 hospitals that have been done very well, nutritionists who can meet the nutritional needs of patients, and early mobilization given to post-SC respondents.

This is in line with research conducted by Armayanti et al. (2024), where the results of the study showed that most of the respondents, namely 18 people (81.8%) mobilized quickly and as many as 4 people (18.2%) mobilized slowly. A total of 17 people (77.3%) experienced good wound healing and 5 people (22.7%) experienced poor wound healing. The p value was obtained as 0.000 (<0.05) which stated that early mobilization was effective in accelerating the healing of post-sectio caesarea wounds in the Postpartum Room of Klungkung Hospital.

Postoperative care is a treatment that is carried out to improve the wound healing process and reduce pain by treating wounds as well as improving the intake of

foods high in protein, vitamins and early mobilization. In this study, the healing process of post-SC wounds in mothers after early mobilization in 4 hospitals with a total of 40 respondents obtained the most results from Cilincing Hospital with a good category of 8 respondents (80%), from RSIA Bunda Jakarta with the most good categories as many as 7 respondents (70%), from hospitals. Mekar Sari had the most good categories with 6 respondents (60%) and from Bunda Hospital with the most good categories as many as 7 respondents (70%).

Wound healing after sectio caesarea in this study found that most of the respondents had good wound healing. In the process of wound healing after SC, things that really need to be considered are postoperative wound care, good nutritional availability, adequate rest, and early mobilization. Early mobilization is one of the efforts made to accelerate the healing process of wounds after cesarean section. Mobilization is carried out by doing several light movements within a certain period of time. In this study, early mobilization which is categorized as rapid early mobilization is respondents who are able to perform 3 to 5 types of movements in less than 6-8 hours. In this study, most of the respondents were able to do early mobilization quickly. The participation of health workers in providing information and providing demonstrations plays a big role in this result.

In the study conducted in these 4 hospitals, it was found that the effectiveness of early mobilization was very good for wound healing after SC, as evidenced by patients who did early mobilization quickly, all of whom experienced good wound healing. The study is consistent with previous findings that show 75% of the parameters affecting wound healing in patients after a

cesarean section are related to mobilization, 75% are related to personal hygiene, and 47% are related to diet. Therefore, mobilization has a direct effect on accelerating the postpartum healing process.

This is because patients who are mobilized earlier after a cesarean section can improve blood circulation, which helps in the healing of injured tissue. The speed of wound healing depends on how quickly the postoperative mother moves. Wounds are affected by good vascularization because healthy circulation is necessary for cell development or wound repair. Wound healing takes a long time if this vascular system is disrupted because the body's ability to repair cells is inhibited. On the other hand, if the vascular system is functioning properly, wound healing occurs faster and more perfectly.

Based on the results of the parametric test, the results of sig (2-tailed) in the relationship between Pre Test and Post Test using the Chi Square Test (Cross Sectional) in 4 Hospitals were 0.007 (< 0.05) or smaller than alpha 0.05, then it can be decided that the test result is H_0 rejected and H_a accepted. So it was concluded that there was a significant influence on early mobilization on the healing process in post sectio patients in 4 different hospitals, namely Cilincing Hospital, Bunda Jakarta Hospital, RSIA. Mekar Sari Bekasi and RSU. Mother in 2024.

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Postoperative patients who are mobilized earlier feel stronger and healthier when they can walk faster. By moving, the pelvic and abdominal muscles will regain their physiological function, which allows the abdominal muscles to become strong again and to reduce pain. This will help patients feel better, feel healthier, and help speed up the healing of surgical wounds and improve bowel and bladder function. Moving will promote the restoration of regular digestive peristalsis. In addition, this activity helps the body's organ function return faster. Early mobilization allows us to start teaching patients how to mobilize independently as soon as possible.

This is in line with research conducted by Armayanti et al. (2024), where the results of his research stated that there was a correlation between early mobilization and healing of Sectio Caesarea wounds,

which can be proven by the existence of a p value of 0.000, the value < 0.05 which indicates that H_0 is rejected and H_a is accepted. The correlation coefficient value was +0.869 which means that there was a very close correlation between early mobilization and the healing process of post-Sectio Caesarean wounds.

So it can be concluded that the sooner you mobilize early, the faster the wound healing process. So early mobilization is effective against the healing of post-sectio caesarean wounds.

Conclusion

The findings of this study indicate that early mobilization plays a significant role in accelerating postoperative wound healing among post-cesarean section patients. Based on data from 40 respondents across four hospitals—RSUD Cilincing, RSIA Bunda Jakarta, RS Mekar Sari Bekasi, and RSU Bunda Jakarta Pusat—most mothers demonstrated good levels of early mobilization and satisfactory wound healing outcomes, ranging from 60% to 80% in each facility. The Chi-Square test result showed a significant correlation between early mobilization and wound healing ($p = 0.007, < 0.05$), confirming that mothers who performed early mobilization experienced faster and more optimal recovery compared to those who were less active. These results emphasize that implementing early mobilization as part of standard postoperative nursing care is effective in enhancing healing, reducing hospitalization time, and improving maternal health outcomes following cesarean delivery.

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Author Contributions

N.A., D.V., R.S., S.H., R. Contributed to the conceptualization, data collection process, data processing, and article writing

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Conflicts of Interest

The authors declare no conflict of interest.

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