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Evaluation of the Effect of Early Mobilization on Changes in Pain Levels of Patients after Cesarean Section at Royal Prima Hospital Medan

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Abstract
A cesarean section (SC) is a surgical procedure used to deliver a baby through an incision in the abdominal wall and uterus, especially when normal labor is risky for both mother and baby. Although SC can be life-saving, this procedure can cause postoperative pain that can slow recovery. This study aims to evaluate the effect of early mobilization on pain reduction in post-SC patients at Royal Prima Hospital Medan. This study uses a correlational descriptive design with the One Group Pretest-Posttest approach. The research sample consisted of 43 respondents, which were taken using the consecutive sampling method. The independent variable is early mobilization, while the dependent variable is the level of pain measured using a facial scale. The results showed that most patients experienced pain at a fairly high level before early mobilization. After early mobilization, there was a significant decrease in pain levels, with the average pain score dropping from 3.67 (before early mobilization) to 2.15 (after early mobilization). The paired t-test statistical test showed a value of p = 0.003, which showed that the decrease in postoperative SC pain had a statistically significant difference. These findings indicate that early mobilization may effectively reduce post-SC pain and accelerate patient recovery. Therefore, early mobilization should be part of standard care for post-SC patients to improve comfort and speed up recovery.

Keywords: Sectio caesarea, early mobilization, postoperative pain, recovery, hospital.

Introduction

Sectio caesarea (SC) is a surgical procedure to deliver a baby through an incision in the abdominal and uterine walls, which is performed when normal labor is risky for both mother and baby. Indications of SC include maternal conditions such as severe preeclampsia and placenta previa, as well as fetal factors such as fetal distress, abnormal position, and macrosomia. Although SC can save lives, this procedure has risks such as infection, bleeding, and recovery that take longer than normal labor. According to a World Health Organization (WHO) report, the rate of births through SC is increasing in various countries, reflecting the high need for this procedure to reduce the risk of childbirth complications. However, the use of SC needs to be adjusted to clear medical indications and avoid unnecessary risks.

Post-SC pain is a common problem that slows recovery. Research by Kainu *et al*. (2020) [7] shows that poorly managed post-SC pain can interfere with comfort, increase the risk of complications such as surgical wound infections and deep vein thrombosis, as well as prolong hospitalizations. Additionally, prolonged pain can have an impact on the psychological aspects of the mother, such as increasing the risk of postpartum stress, anxiety, and depression (Cunningham *et al*., 2022) [3]. Early mobilization, which refers to active movement immediately after surgery with medical personnel's supervision, is effective for speeding up recovery by improving blood circulation and preventing complications such as deep vein thrombosis and pneumonia (Smith *et al*., 2021; Jones & Brown, 2020) [12, 6]. Research by Rachman *et al*. (2023) [11] and Cahyawati & Wahyuni (2023) [2] shows that early mobilization is associated with decreased pain intensity in postoperative SC patients. Fadila (2022) [4] also stated that early mobilization helps reduce pain in patients undergoing major surgery, including SC.

Royal Prima Medan Hospital, as a health facility that serves SC procedures, needs to evaluate the effect of early mobilization on the pain level of post-SC patients. This study aims to assess the contribution of early mobilization to reducing pain levels in SC patients, with the hope of providing insights for healthcare workers to improve the quality of care and recovery of postoperative patients.

Research Methods

This study uses a correlational descriptive design with the One Group Pretest-Posttest approach to analyze the effect of respiratory relaxation techniques on pain changes in maternity mothers at Royal Prima Hospital Medan in January 2024. The population in this study is all maternity mothers at Royal Prima Medan Hospital, with an average of 76 mothers per month. The sample was 43 respondents using the Slovin formula with a significance level of $\alpha = 0.01$. Sampling was done using a consecutive sampling method based on the set inclusion and exclusion criteria.

The operational definition of variables in this study includes early mobilization as an independent variable measured using SOPs with an ordinal scale and pain as a dependent variable measured using a facial scale with an interval scale. Data processing is done through editing, coding, data entry, and cleansing to ensure the completeness and accuracy of the data. Data analysis used univariate analysis to describe variable outcomes and bivariate analysis with paired t-tests to test differences in pain scales before and after early mobilization. The research hypothesis was tested with the criterion that Ha was accepted if $p \leq 0.05$, indicating early mobilization's effect on pain changes. In contrast, H0 was accepted if $p > 0.05$, meaning there was no effect.

Research Results

Table 1: Overview of Research Respondents by Age, Education, and Employment Status

Characteristics	Category	Sum	Percentage
Age	<25 Years	27	63%
	>25 years old	15	37%
Education	SMP	8	19%
	SMA	14	33%
	Higher Education	21	48%
Employment Status	PNS	10	23%
	Private	17	42%
	Entrepreneurial	15	35%

Source: Primary data, processed 2025.

Based on Table 1, the characteristics of the respondents were differentiated based on age, education, and occupation. Most respondents were under 25 (63%), with 37% over 25. In terms of education, most have higher education (48%), followed by high school (33%) and junior high school (19%). In terms of employment, the majority work in the private sector (42%), followed by entrepreneurs (35%) and civil servants (23%).

Table 2: Distribution of Frequency and Percentage of Client Pain Level Post *Sectio Caesarea* Surgery before Early Mobilization at Royal Prima Hospital Medan in 2025

No	Pain Level	Quantity (n)	Percentage
1	Severe Pain	10	23%
2	Pain Once	14	33%
3	More Pain	19	44%
TOTAL		**43**	**100%**

Based on Table 2, the distribution of frequency and percentage of pain levels of postoperative Sectio Caesarea patients before early mobilization at Royal Prima Medan Hospital showed that most patients experienced high-intensity pain. A total of 44% of patients experienced "more pain," 33% reported "very pain," and 23% experienced "severe pain". These data indicate the importance of early mobilization as a strategy to reduce pain intensity in postoperative Sectio Caesarea patients.

Table 3: Distribution of Frequency and Percentage of Early Mobilization of Clients Post *Sectio Caesarea* Surgery at Royal Prima Hospital Medan in 2025

No	Early Mobilization	Quantity (n)	Percentage
1	Can do well	30	70%
2	Unable to do well	13	30%
TOTAL		**43**	**100%**

Table 3 shows the distribution of frequency and percentage of early mobilization of postoperative Sectio Caesarea patients at Royal Prima Hospital Medan in 2025. The results showed that most patients (70%) could perform early mobilization well, while the other 30% were unable to do it well. This data indicates that most patients can perform early mobilization, which is essential for speeding up postoperative recovery. However, there are still patients who experience difficulties, possibly due to pain, physical conditions, or psychological factors. Medical support is needed to help patients undergo optimal early mobilization.

Table 4: Distribution of Frequency and Percentage of Client Pain Level Post *Sectio Caesarea* Surgery after Early Mobilization at Royal Prima Hospital Medan in 2025

No	Pain Level	Quantity (n)	Percentage
1	More Pain	13	30%
2	A little more pain	30	70%
TOTAL		**43**	**100%**

Table 4 shows the distribution of the frequency and percentage of pain levels of postoperative Sectio Caesarea patients after early mobilization at Royal Prima Hospital Medan in 2025. After early mobilization, most patients (70%) reported decreased pain, with only feeling "a little more pain." Meanwhile, 30% of patients still felt "more pain," although the pain intensity was likely reduced compared to before early mobilization. These data suggest that early mobilization reduces pain and accelerates postoperative recovery. Applying optimal early mobilization can be an effective strategy to help patients reduce pain.

Table 5: Levels of Pain Before and After Early Mobilization in Clients Post *Sectio Caesarea* Surgery at Royal Prima Hospital

No	Pain Level	Quantity (n)	Mean	SD	Min Max
1	Early Pre-Mobilization	**43**	**3.67**	**0.845**	**3-5**
2	Early Post-Mobilization	**43**	**2.15**	**0.498**	**2-3**

Table 5 compares patients' pain levels before and after early mobilization in postoperative Sectio Caesarea patients at Royal Prima Hospital Medan. Before early mobilization (pre-early mobilization), the average patient's pain level was 3.67 with a standard deviation of 0.845, with a value range between 3 and 5. After early mobilization (post-early mobilization), the average pain level drops to 2.15, which indicates a significant decrease in pain levels. These results suggest that early mobilization effectively reduces postoperative pain in Sectio Caesarea. Therefore, healthcare workers must encourage patients to mobilize early to speed up recovery and improve patient comfort.

Table 6: Test Results Description t-dependent (paired t-test) Changes in Pain Level Before and After Early Mobilization in Clients Post *Sectio Caesarea* Surgery at Royal Prima Hospital Medan in 2025

No	Pain Level	Quantity (n)	Mean	With	*p-value*
1	Early Pre-Mobilization	43	3.67	-3.890	0,003
2	Early Post-Mobilization	43	2.15		

Table 6 shows the results of the paired t-test statistical test to analyze changes in the patient's pain level before and after early mobilization in postoperative Sectio Caesarea patients at Royal Prima Hospital Medan in 2025. Before early mobilization, the average patient's pain level was 3.67; after early mobilization, the average pain decreased to 2.15, showing a significant difference. The paired t-test yielded a Z-value of -3.890 with a p-value = 0.003. Since the p-value < 0.05, these results show a statistically significant difference between pain levels before and after early mobilization. Thus, this study confirms that early mobilization effectively lowers pain levels in postoperative Sectio Caesarea patients, which supports its application as part of standard care to speed up recovery and improve patient comfort.

Discussion

Sectio Caesarea (SC) is a major surgical procedure performed to deliver a fetus with an incision in the uterine wall or abdomen, which is usually performed in a conscious mother's state, except in emergencies (Hartono, 2021; Norman, 2022) [5, 9]. Postoperative SC pain is generally caused by uterine contractions that are still in the process of involution, as well as pain in the surgical incision area (Abidin, Aceh, & Salawati, 2024) [1]. According to WHO (2023), the level of postoperative SC pain can vary from mild to severe, with 60% of patients experiencing severe pain, 25% moderate pain, and 15% mild pain (Mansjoer, 2022) [8]. Postoperative pain is subjective and can vary between individuals, so it requires appropriate treatment to reduce its negative impact on the patient's recovery (Pinandita, 2023) [10].

The results of this study showed that before early mobilization, 10 respondents (23%) reported experiencing severe pain, 14 respondents (33%) experienced moderate pain, and 19 respondents (44%) experienced even more severe pain. After early mobilization, there was a significant decrease in pain levels, with 30 respondents (70%) reporting slightly milder pain, while 13 respondents (30%) still felt more severe pain. Statistical analysis using the paired t-test showed that the average pain level before early mobilization was 3.67, which dropped to 2.15 after early mobilization. Further statistical tests showed a Z-value of -3.890 with a p-value = 0.003, which showed a significant difference between the level of pain before and after premature mobilization.

This decrease in pain after early mobilization is in line with the findings of Suanidar (2023) [13], which states that 58.3% of patients who performed early mobilization experienced faster wound healing, while 81.8% of patients who did not perform early mobilization experienced slower wound healing. Research by Solomon (2022) also shows that post-SC patients who perform early mobilization experience higher comfort and faster recovery compared to those who perform late mobilization (Elisa in Lina, 2023). In addition, research by Smith *et al*. (2024) found that early mobilization can reduce postoperative pain levels by up to 40% in the first 24 hours and accelerate the recovery of bowel function, as well as reduce the risk of complications such as deep vein thrombosis (DVT) and adynamic ileus.

Thus, the results of this study further strengthen the scientific evidence that early mobilization effectively lowers pain levels and accelerates patients' recovery after SC surgery. Therefore, early mobilization should be part of hospital standard postoperative care strategies to speed recovery, reduce complications, and improve patient comfort and quality of life during hospitalization.

Conclusion

The results showed that before early mobilization, the majority of postoperative Sectio Caesarea patients experienced severe pain (44%), but after early mobilization, most felt only minimal pain (70%). The Wilcoxon test yielded a Z-value = -3.890 and a p-value = 0.003, showing a significant difference between pain before and after premature mobilization. Early mobilization is effective in reducing pain and speeding up recovery. It is recommended that health workers actively provide education on early mobilization, while patients and families are expected to play a greater role in the recovery process. Hospitals need to develop SOPs related to early mobilization and improving the quality of nursing services. Further research is suggested to examine other factors influencing postoperative pain, such as psychological support and analgesia methods.

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