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Description of Early Mobilization in Post-Caesarean Section Patients with The Enhanced Recovery After Caesarean Surgery Program in The Recovery Room

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ABSTRACT

Background: Early mobilization is an essential component of postoperative care in patients undergoing caesarean section, particularly within the Enhanced Recovery After Caesarean Surgery (ERACS) program, to accelerate recovery and reduce complications. This study aimed to describe the implementation of early mobilization in post-caesarean section patients within the ERACS program in the recovery room.

Methods: This study employed a quantitative descriptive design with a cross-sectional approach. A total of 100 respondents were selected using a total sampling technique. Data were collected using observation sheets to assess respondents' characteristics, lower extremity muscle strength, and the time required to achieve early mobilization. Data analysis was conducted using univariate analysis and presented as frequency distributions and percentages.

Result: The results showed that most respondents were aged 20–30 years (51%), had a high school education (32%), were working (59%), and were multiparous (69%) with no previous history of caesarean section (54%). All respondents (100%) demonstrated normal lower extremity muscle strength (score 5). Early mobilization was initiated as early as the 5th minute, starting with toe movement (72%), followed by sole movement at the 10th minute (60%), ankle movement at the 15th minute (57%), knee movement at the 20th minute (56%), and thigh and hip movement at the 30th minute (55%). Position changes were generally achieved after more than 30 minutes (46%).

Conclusion: In conclusion, early mobilization in post-caesarean section patients within the ERACS program can be implemented early and progressively according to patients' physical readiness. The ERACS program supports optimal recovery and helps prevent complications associated with prolonged immobilization.

Keywords: Early Mobilization, Caesarean Section, ERACS, Postoperative Recovery, Muscle Strength, Recovery Room.

INTRODUCTION

Early mobilization is the most important aspect of physiological function because it has essential properties for maintaining independence. Early mobilization is important for mothers entering the postpartum period, especially sectio cérea (SC) deliveries. Currently, perioperative management has shifted from conventional methods to the Enhanced Recovery After Caesarean Surgery (ERACS) method. ERACS is a perioperative care method resulting from innovation, improving the quality of outcomes, and developing the Enhanced Recovery After Surgery (ERAS) concept aimed at postpartum mothers via CS. The ERACS method is considered to be able to reduce post-operative pain better, mobilize faster, shorten recovery time, minimize post-operative complications, and provide a feeling of comfort for mothers when breastfeeding their babies (Tika, 2022).

The ERACS method allows a mother to carry out early mobilization immediately after giving birth. Even though the ERACS method is of interest to various groups, both health practitioners and laypeople, there is still a problem in the form of a mother's fear of carrying out early mobilization due to a lack of information about the benefits of early mobilization using the ERACS method, thus hampering early mobilization programs. A study states that the average time a patient first undergoes early mobilization is 8.55 hours after surgery (Dwiatmojo, Maulana & Putradana, 2025; Kulsum, & Shifa, 2025). Other research states that the small number of respondents who carried out early mobilization in the good category was 3 people (13.6%), while the majority of respondents did not carry out early mobilization well, so they were categorized as not good with 28 people (90.3%). The conclusion of this research states that early mobilization has not been carried out well (Rahma, 2018). In the results of research at Petala Bumi Regional Hospital, there were 14 postpartum mothers using the SC method who carried out early mobilization and 16 mothers who did not carry out early mobilization (Ratmiwasi, 2017). The implementation of early mobilization for postpartum mothers using the SC method at Soreang District Hospital is also still not good (90.3%) (Taek, Batubara, & Gatum, 2018).

The positive impact of early mobilization is that it can improve the body's metabolic regulation, restore physical work function, increase stomach mobility, and improve abdominal muscle tolerance (Hartati, 2017). The ERACS method is also useful in reducing the length of hospital stay (LOS) and reducing the risk of thromboembolism (Liu, 2020), so that healing can be achieved more quickly. If, generally, after undergoing a CS delivery using the conventional method, the patient is prohibited from moving for 12 hours, then with the ERACS method, the patient is able to sit comfortably for 2 hours after surgery. Even in less than 24 hours, patients can do light activities, such as urinating and walking independently, without having to worry about pain (Warmiyati, & Ratnasari, 2022). Delayed early mobilization in postpartum patients using the SC method can cause psychological and physiological disorders. The assessment criteria used to assess motor response and mobility are the Bromage Score. Based on the description above, implementing early mobilization through the use of the ERACS method has been proven to have a positive impact on postpartum patients using the SC method. This could be an early warning for anesthesia practitioners to carry out early mobilization of these patients. Therefore, this study aims to describe the implementation of early mobilization in post-caesarean section patients within the Enhanced Recovery After Caesarean Surgery (ERACS) program in the recovery room.

METHODS

This study employed a quantitative research design with a descriptive cross-sectional approach. The study was conducted in the recovery room of Tk II Udayana Hospital, Denpasar, focusing on post-caesarean section patients undergoing the Enhanced Recovery After Caesarean Surgery (ERACS) program. The population in this study consisted of all postpartum patients who underwent caesarean section (SC) using the ERACS program during the study period. The sample size in this study was 100 respondents, determined based on the total number of eligible patients available during the data collection period. The sampling technique used was non-probability sampling with a total sampling method, in which all patients who met the inclusion criteria were included as respondents.

The inclusion criteria were: (1) post-caesarean section patients enrolled in the ERACS program, (2) patients in the recovery room phase, (3) patients who were fully conscious and hemodynamically stable, and (4) patients who agreed to participate in the study. The exclusion criteria were: (1) patients with postoperative complications that contraindicated early mobilization, (2) patients with decreased level of consciousness, and (3) patients with incomplete observation data. Data were collected using an observation sheet completed directly by the researcher. The instrument was used to assess early mobilization practices, including the timing of mobilization, types of mobilization activities (such as limb movement, sitting, and early ambulation), and patient responses during mobilization.

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). Univariate analysis was performed to describe respondents' characteristics and early mobilization practices, which were presented in the form of frequency distributions and percentages.

RESULTS

Table 1. General Characteristics of Respondents.

Characteristics	Frequency (n)	Percentage (%)
Age		
20-30 years	51	51.0
31-40 years	27	27.0
>41 years	22	22.0
Education		
No school	12	12.0
Elementary school	20	20.0
Junior high school	11	11.0
Senior high school	32	32.0
College	25	25.0
Work		
Work	59	59.0
Doesn't work	41	41.0
Parity		
Primipara	31	31.0
Multiparous	69	69.0
SC history		
Once	46	46.0
Never	54	54.0

Based on Table 1 above, based on age, the majority of respondents were 20–30 years old, namely 51 respondents (51%), who were dominated by high school graduates with a percentage of 32%. Based on workers, 59 respondents (59%) were mothers who had jobs. Meanwhile, in terms of parity characteristics, the majority of respondents were multiparous mothers, namely 69 respondents (69%) who had predominantly never undergone SC surgery, namely 54 respondents (54%), and 46 respondents (46%) had a history of SC.

Table 2. Motor strength of lower extremity muscles after caesarean section carried out by the ERACS program.

Scale	Lower Extremities	Frequency (n)	Percentage (%)
0	There is no muscle contraction	0	0
1	Subtle contractions that are palpable when attempting to contract the muscle	0	0
2	Capable of active movement when not fighting gravity	0	0
3	Able to resist gravity, but not able to withstand light resistance from the examiner	0	0
4	Able to resist light resistance from the examiner	0	0
5	Able to resist heavier resistance than the examiner (normal)	100	100

Based on Table 2, it shows that, after SC, some 100 respondents (100%) were able to resist a heavier load than the examiner (normal) with a score of 5.

Table 3. Time to achieve early mobilization after ERACS.

Achievement Time	Early Mobilization	Frequency (n)	Percentage (%)
5th minute	Toes	72	72.0
10th minute	Sole	60	60.0
15th minute	Ankle	57	57.0
20th minute	Knee	56	56.0
30th minute	Thighs and hips	55	55.0
More than 30 minutes	Reverse position	46	46.0

Based on Table 3, most of the time for achieving early mobilization on the toes of respondents was in the 5th minute, namely 72 respondents (72%), achieving early mobilization

on the soles of the feet as many as 60 respondents (60%) in the 10th minute. Early mobilization of the ankle was 57 (57%) in the 15th minute; in knee mobilization, 56 respondents (56%) achieved mobilization in the 20th minute; the time to achieve mobilization was 30 minutes; in the thigh and hip, as many as 55 (55%); and in turning around, 46 respondents (46%) took more than 30 minutes to achieve early mobilization.

DISCUSSION

Based on the results of this study, most respondents were aged 20–30 years, had a high school education background, were working mothers, and were predominantly multiparous with no previous history of caesarean section. These findings indicate that the majority of respondents were within the productive reproductive age group. This is consistent with previous research, which revealed that mothers undergoing caesarean section were mostly aged 21–34 years, although other factors may have a stronger influence on the incidence of caesarean section. Mothers aged 20–35 years may undergo SC procedures due to maternal or fetal conditions that do not allow for spontaneous labor (Arakelyan, Vasilevska, & Rogaev, 2025; Ayuningrum et al., 2025; Bakri et al., 2026; Arumugam et al., 2026; Méndez-Vidal et al., 2026).

Educational background and occupational status also play an important role in influencing patients' knowledge and behavior, particularly in the implementation of early mobilization. Mothers with higher educational levels tend to have better understanding and awareness regarding postoperative care, including early mobilization. Working mothers are also generally associated with better access to information and health literacy compared to non-working mothers. This is supported by Kozier (2012), who stated that mothers who have experienced pregnancy and childbirth tend to have good implementation of early postpartum mobilization. In terms of motor strength, all respondents (100%) achieved a muscle strength score of 5, indicating normal muscle function after caesarean section under the ERACS program. This suggests that patients had fully recovered from the motor blockade effects of spinal anesthesia, as indicated by a Bromage score of 0. Muscle strength assessed using the Medical Research Council (MRC) scale reflects the ability of muscles to generate force and perform movements against resistance. These findings are consistent with previous research, which reported that early mobilization stimulates neuromuscular activity, increases muscle contraction, and enhances muscular strength in the lower extremities. Muscle strength is essential for performing daily activities and is influenced by neuromuscular activation and increased muscle tension as a motor response (Basuki et al., 2014).

Regarding the time required to achieve early mobilization, the findings showed a gradual progression of mobilization activities. Most respondents were able to initiate toe movement at the 5th minute, followed by sole movement at the 10th minute, ankle movement at the 15th minute, knee mobilization at the 20th minute, and thigh and hip mobilization at the 30th minute. More complex movements, such as turning position, were generally achieved after more than 30 minutes. These results indicate that early mobilization in post-caesarean section patients under the ERACS program can be initiated relatively early and progresses gradually according to the patient's physical readiness.

Early mobilization (early ambulation) is defined as the process of encouraging patients to move and get out of bed as soon as possible after delivery (Mahayati, 2021). The implementation of early mobilization has significant clinical benefits, including shortening the length of hospital stay and reducing the risks associated with prolonged bed rest, such as pressure ulcers, muscle stiffness, impaired circulation, respiratory complications, decreased intestinal peristalsis, and urinary disorders. In contrast, delayed mobilization in post-caesarean section patients may lead to complications such as increased body temperature due to suboptimal uterine contractions, resulting in retained blood and a higher risk of infection.The ERACS program plays a crucial role in facilitating early mobilization in post-caesarean section patients. This program supports faster recovery by improving lung function, enhancing oxygen delivery to tissues, increasing insulin sensitivity, reducing the risk of thromboembolism, and shortening the length of hospital stay (LOS) (Liu et al., 2020). Therefore, the findings of this study reinforce the importance of implementing ERACS protocols to optimize early mobilization and improve postoperative outcomes in caesarean section patients.

CONCLUSION

This study concludes that the implementation of early mobilization in post-caesarean section patients within the Enhanced Recovery After Caesarean Surgery (ERACS) program can be carried out effectively and progressively in the recovery room. The majority of patients demonstrated normal lower extremity muscle strength (score 5), indicating full recovery from motor blockade and readiness for mobilization. Early mobilization was initiated as early as the 5th minute after surgery, beginning with simple movements such as toe mobilization, and gradually progressing to more complex movements involving the soles, ankles, knees, thighs, hips, and position changes. However, more complex mobilization activities, such as turning positions, generally required more than 30 minutes to be achieved. Patient characteristics, including productive age, educational level, occupational status, and multiparity, may support better understanding and participation in early mobilization. Overall, the ERACS program facilitates early mobilization, which is essential in enhancing postoperative recovery and preventing complications associated with prolonged immobilization.These findings emphasize the importance of implementing structured early mobilization protocols in post-caesarean section patients to optimize recovery outcomes.

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