



The Implementation of Wound Care Education on Post-Cesarean Anxiety in Mothers at Ir. Soekarno Hospital Sukoharjo

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ABSTRACT

Background: Caesarean Section (CS) is an action to cut the continuity or connection of tissue with an incision to remove the baby and leave a scar from the incision. Anxiety experienced by post-cesarean mothers is usually related to new surgical wounds obtained in the patient's abdomen, what to do, and limited body movements due to the surgical wounds felt by the patient; these things can cause anxiety in caesarean patients. The proper management to reduce post-CS maternal anxiety is through education. Health education can increase maternal knowledge so mothers are more confident and ready to heal wounds. **Objective:** To determine the results of the implementation of wound care education on anxiety in post-cesarean mothers at Ir. Soekarno Hospital, Sukoharjo Regency. **Method:** An observational descriptive study with a case study method conducted on two post-cesarean maternal respondents who underwent wound care education to reduce anxiety, which was carried out in the first 12-24 hours post-cesarean until the 2nd day, with 10-15 minutes of assistance. **Results:** The anxiety scores of both respondents on the first day were at moderate anxiety, and on the second day, after the implementation of education, the anxiety score became mild anxiety. **Conclusion:** There was a decrease in anxiety after the implementation of wound care education.

Keywords: Anxiety, Cesarean, Education, Wound Care

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I. INTRODUCTION

Cesarean section (CS) is a surgical procedure involving incisions through the abdominal wall and uterus to deliver a baby, typically performed when vaginal

delivery poses significant risks to the mother or infant. Common indications include placenta previa, preeclampsia, fetal distress, abnormal fetal presentation, and macrosomia. While life-saving in many

cases, CS is associated with a more extended recovery period, increased risk of complications, and distinct psychological challenges compared to spontaneous vaginal delivery (Ayu, 2025). One of the most prevalent postoperative concerns among mothers is anxiety, often linked to pain, limited mobility, and uncertainty about wound care and newborn management.

Globally, the rate of cesarean deliveries has risen steadily over the past decades. According to the World Health Organization (WHO, 2023), the recommended cesarean rate ranges between 10% and 15% of all births. However, rates in many countries exceed this benchmark. The cesarean section rate in Indonesia has increased annually, reaching 17.6% in 2018 (Risksedas, 2018). By 2021, over 1.2 million cesarean procedures were performed nationwide (Hastutik et al., 2022) at Ir. Soekarno Regional Public Hospital, Sukoharjo Regency's cesarean rate was 56% in 2023 (123 out of 228 births) and 64% in 2024 (204 out of 309 births). This upward trend is attributed to factors such as prolonged labor, fetal distress, preeclampsia, and prior cesarean history.

Post-cesarean anxiety is a significant yet often underrecognized issue. The surgical nature of CS, including abdominal

incisions and post-anesthesia effects, leads to unique physiological and psychological stressors that differ from those of natural childbirth. Anxiety may manifest as excessive worry, restlessness, impaired concentration, irritability, and physical symptoms such as increased heart rate and muscle tension (Helena, 2023). Left unmanaged, it can interfere with maternal-infant bonding, breastfeeding initiation, and overall postpartum recovery (Meo, 2021).

Studies indicate that a substantial proportion of post-cesarean mothers experience moderate to severe anxiety. For instance, Simanjuntak (2020) reported that 54.5% (6 out of 11) of post-cesarean mothers exhibited moderate anxiety, while only 9.1% had mild anxiety. A primary source of this anxiety is uncertainty about surgical wound care—particularly signs of infection, activity restrictions, and dietary needs during recovery. Limited knowledge in these areas can heighten fear and reduce maternal confidence in self-care (Marlinda, 2023).

Health education is a vital nursing intervention to address this gap. As an independent nursing action, it empowers patients by enhancing their understanding of postoperative care, reducing fear, and promoting active participation in recovery. Wound care education typically includes

information on the purpose of wound care, signs of infection, recommended nutrition, and safe mobility practices (Marlinda & Yussa, 2023). Evidence supports its effectiveness: Faidiban (2024) found that structured health education significantly reduced anxiety levels among post-cesarean mothers in Medan. Similarly, Jama (2022) observed a reduction in anxiety severity following a 30-minute educational session, while Helena (2023) documented a decline from severe to mild anxiety in two cases after targeted education.

Preliminary observations at the Bougenville Ward of Ir. Soekarno Regional Public Hospital revealed that many first-time mothers undergoing cesarean delivery expressed anxiety related to wound management and postoperative self-care. In contrast, those with prior CS experience or strong family support reported lower anxiety levels. These findings highlight the potential role of education and psychosocial support in mitigating post-cesarean anxiety.

Given the high cesarean rate and the psychological burden faced by postoperative mothers, this study aims to explore the impact of structured wound care education on anxiety levels among post-cesarean mothers at Ir. Soekarno Regional Public Hospital, Sukoharjo

Regency. The findings may inform clinical practices to enhance maternal well-being and recovery in similar healthcare settings.

2. METHODS

This study employed a descriptive case study design to explore the impact of wound care education on anxiety levels in post-cesarean mothers. Data were collected through direct observation, structured interviews, and pre- and post-intervention assessments of anxiety using a standardized tool. The study was conducted in the Bougenville Ward of Ir. Soekarno Regional Public Hospital, Sukoharjo Regency, from February 11 to February 13, 2025. The participants were two post-cesarean mothers who met the following inclusion criteria: (1) primiparous women who had undergone elective or emergency cesarean section, (2) no postoperative complications (e.g., infection, hemorrhage, or severe pain), and (3) willingness to participate and provide informed consent. Women with significant medical or psychiatric comorbidities were excluded.

The first participant, Mrs. N, was a 27-year-old primigravida (G1P0A0) admitted on February 11, 2025, following a cesarean delivery due to breech presentation. Upon assessment at 14:30 WIB, she expressed anxiety about wound

care and postoperative mobility, citing a lack of prior knowledge and experience. Her vital signs were stable: blood pressure 98/60 mmHg, pulse rate 72 bpm, SpO₂ 97%, and body temperature 36.5°C. The second participant, Mrs. S, was a 28-year-old primigravida (G1P0A0) admitted on February 12, 2025, after a cesarean section due to oblique fetal head position. Assessed at 15:30 WIB, she also reported being a first-time mother with limited understanding of wound care and postoperative nutrition, and she expressed willingness to receive educational support.

Wound care education was delivered as a structured, nurse-led intervention within the first 12–24 hours post-cesarean and repeated on the second postoperative day. Each session lasted approximately 10–15 minutes and was conducted at the bedside. The education covered essential topics, including the purpose of wound care, signs of infection (e.g., redness, swelling, discharge), recommended postoperative diet to support healing, activity restrictions, and hygiene practices. Educational materials included a standardized leaflet and verbal explanation, with opportunities for questions and clarification. The primary researcher, a trained nurse, delivered the intervention, ensuring consistency in content and delivery.

Anxiety levels were assessed before and after the intervention using the Hamilton Anxiety Rating Scale (HARS), a validated clinician-administered tool that evaluates both psychological and somatic symptoms of anxiety. The HARS consists of 14 items scored on a 5-point scale (0–4), with total scores interpreted as: 0–13 (minimal anxiety), 14–17 (mild anxiety), 18–24 (moderate anxiety), and 25–30 (severe anxiety). Assessments were conducted immediately before the first education session and after the second session to evaluate changes in anxiety levels. Data collection also included semi-structured interviews to capture subjective experiences and observations of patient engagement during the education sessions.

Data analysis was performed through comparative case analysis, focusing on changes in HARS scores and qualitative feedback from participants. A within-case and cross-case comparison was used to identify patterns and differences in anxiety reduction. Ethical considerations were strictly observed in accordance with deontological principles. Informed consent was obtained from both participants after fully explaining the study's purpose and procedures. Autonomy, confidentiality, and anonymity were maintained throughout the study. The research adhered to the principles of beneficence

and non-maleficence by ensuring that the intervention posed no physical or psychological risk and had the potential to provide direct benefits through improved knowledge and reduced anxiety. This study was conducted with consent and permission from the Ir. Soekarno Regional Public Hospital, Sukoharjo.

3. RESULTS

The case study involved two respondents in the Bougenville Ward of RSUD Ir. Soekarno Sukoharjo Regency who had received information about wound care education following cesarean section and had signed the informed

consent form. The wound care education was implemented within 12–24 hours post-cesarean. The researcher accompanied each patient, explained the educational material again, and reassessed their anxiety levels after the session using the Hamilton Anxiety Rating Scale (HARS) to evaluate any reduction in anxiety symptoms.

The following table presents the outcomes of the intervention conducted on both respondents who received wound care education aimed at reducing anxiety following cesarean delivery in the Bougenville Ward of RSUD Ir. Soekarno Sukoharjo Regency.

Table 1. Anxiety Level Before Education

Name	Date	Score	Anxiety Intensity
Mrs. N	11/02/2025	25	Moderate Anxiety
Mrs. S	12/02/2025	27	Moderate Anxiety

Based on the table 1, the results of the anxiety assessment in post-cesarean section mothers before the implementation

of wound care education were at a moderate anxiety score on a scale of 21-27.

Table 2. Anxiety Level After Education

Name	Date	Score	Anxiety Intensity
Mrs. N	12/02/2025	18	Mild Anxiety
Mrs. S	13/02/2025	18	Mild Anxiety

Based on the table above, the results of the post-cesarean section anxiety assessment were obtained after the implementation of wound care education

in the first 12-24 hours until the 2nd day where the patient had experienced a decrease in anxiety levels to a scale of 18 mild anxiety.

Table 3. Progress of Anxiety Level

Name	Date	Before	After
Mrs. N	11/02/2025	25 (moderate)	23 (Moderate)
	12/02/2025	24 (moderate)	18 (Mild)
Mrs. S	12/02/2025	27 (moderate)	22 (Moderate)
	13/02/2025	25(moderate)	18 (Mild)

Based on table 3, the average of both respondents experienced a significant decrease in anxiety scores to mild anxiety, influenced by the conditions of each

respondent, the anxiety scale decreased to 24 and 25 (moderate) on the second day after anxiety education decreased to 18 (mild).

Table 4. Comparison of Final Results Anxiety Level

Name	Date	Results	Score	Anxiety Intensity
Ny.N	11/02/2025	Before	25	Moderate
	12/02/2025	After	18	Mild
Ny.S	12/02/2025	Before	27	Moderate
	13/02/2025	After	18	Mild

Table 4 shows the final results of the level of anxiety of post-cesarean section mothers on days 1 and 2, which were different from before and after the implementation of post-cesarean section wound care education, the level of anxiety felt by both respondents decreased.

post-CS, during which time patients expressed concern about their surgical wounds, specifically whether they would heal properly. This aligns with the statement by Faidiban & Suriani (2024), who suggest that anxiety assessments should ideally be carried out within the first 12–24 hours after CS.

4. DISCUSSION

Level of Anxiety in Post-Cesarean Mothers Before the Implementation of Wound Care Education

Based on interviews and anxiety assessments of both respondents, it was revealed that both were experiencing moderate levels of anxiety before receiving wound care education following cesarean section (CS). The anxiety assessment was conducted within the first 12–24 hours

Mrs. N and Mrs. S both exhibited moderate anxiety levels. The researcher assumes that this anxiety may stem from the fact that this was their first childbirth experience, and they had no prior knowledge or experience regarding postoperative wound care. This finding is consistent with previous research indicating that fear of childbirth is common among pregnant women (Tristani & Nurwati, 2022).

This is also supported by research conducted by Faidiban & Suriani (2022) at the Regional Public Hospital (BLUD) in Manokwari, West Papua, demonstrating that health education on postoperative wound care effectively reduces anxiety in post-CS mothers. Wound care education can serve as an effective intervention to reduce anxiety, especially for primigravid mothers who lack prior experience with childbirth and postoperative care. By enhancing maternal knowledge and understanding of postoperative wound management, such education can help alleviate anxiety and boost confidence in self-care.

Level of Anxiety in Post-Cesarean Mothers After the Implementation of Wound Care Education

After receiving wound care education within the first 12–24 hours post-CS, the intensity of anxiety decreased to mild levels. Mrs. N reported a HARS score of 18 (mild anxiety), while Mrs. S also showed a reduction to mild anxiety. Following the implementation of wound care education, both patients stated that their anxiety related to post-CS wound care had lessened. They explained what foods aid wound healing and described signs of infection.

This is consistent with findings from Jama (2022), which showed that among 15 post-CS mothers, wound care education improved maternal knowledge and significantly reduced anxiety levels, with most participants reporting only mild anxiety afterward.

The researcher hypothesizes that this decrease in anxiety occurred because the mothers received accurate and comprehensive information on wound care, enabling them to feel more confident and capable in managing their recovery. According to Diana & Budi (2023), as the number of cesarean deliveries increases, so does maternal anxiety. However, when healthcare professionals provide health education, it enhances maternal knowledge, skills, and independence in post-CS wound care. With the motivation to recover, mothers actively seek information and understanding about the healing process, leading to greater confidence and reduced anxiety.

Wound care education after cesarean section has several therapeutic effects: it boosts self-confidence, reduces complications such as infections, lowers stress, and improves emotional support during the healing process. Thus, wound care education can have significant therapeutic value in reducing maternal anxiety (Santoso, 2024).

Daily Progress Notes

Based on Table 3, the anxiety scores of Mrs. N and Mrs. S decreased from 25 and 27 to 24 and 25, respectively, after receiving wound care education using a leaflet on the first day. Both patients showed a slight decrease in anxiety levels. Factors influencing the difference in decline included Mrs. N being assessed upon waking, while Mrs. S was focused and accompanied by her husband. Initial anxiety slightly increased due to the need for adaptation, involving increased concentration and attention toward the issue of post-CS wound care (Husna et al., 2022).

On the second day, anxiety levels remained in the moderate range (21–27) before re-education. Both patients experienced a notable decrease in anxiety scores. After the second session, both reported a better understanding of what to prepare and do, including dietary recommendations, signs of infection, and post-surgery diet.

Based on data from both respondents, the researcher concludes that the anxiety reduction is closely related to the patient's condition during education. When patients are focused, emotionally ready, and actively engaged, the anxiety-reducing effect of education is more pronounced. Conversely, if the patient is

tired, distracted, or passive, the effectiveness of the education is diminished.

The development observed in both respondents indicates that wound care education after cesarean delivery positively impacts anxiety reduction. However, the reduction speed depends on each individual's psychological state and readiness. Respondent S, attentive and active, showed a faster decrease than respondent N, who was initially passive and unfocused (Rachel & Yulianti, 2025).

These findings are supported by Sari (2022), who emphasized that the effectiveness of education in reducing post-CS maternal anxiety largely depends on the delivery method and patient involvement. Interactive, timely, and emotionally tailored education proved more effective in lowering anxiety scores than one-way communication.

Comparison of Maternal Anxiety Levels Before and After the Implementation of Post-Cesarean Wound Care Education

Table 4 shows that both patients experienced decreased anxiety levels, moderate to mild, after receiving wound care education. Prior to education on February 11, 2025, Mrs. N reported moderate anxiety at a score of 25, while Mrs. S, assessed on February 13, 2025, had

a score of 27, also indicating moderate anxiety.

After receiving wound care education and undergoing anxiety observation using the Hamilton Anxiety Rating Scale (HARS), both patients reported reduced anxiety. Mrs. N's score dropped from 25 (moderate) to 18 (mild), and Mrs. S's score fell from 27 (moderate) to 18 (mild). The rate of decline differed between the two: Mrs. N experienced a decrease of 2 points on the first day and 6 points on the second day, but was only accompanied by her mother-in-law, while her husband was away. Meanwhile, Mrs. S received emotional support from her husband and family, resulting in a quicker reduction in anxiety scores.

This suggests that emotional support plays a crucial role in helping mothers understand and absorb the information provided, thereby reducing anxiety related to post-CS wound care. This aligns with Permatasari et al. (2020), who found that health education aims to enhance individuals' or families' knowledge and experiences regarding childbirth, ultimately changing attitudes and reducing anxiety.

5. CONCLUSION

Based on the implementation of wound care education aimed at reducing

anxiety in post-cesarean mothers, it can be concluded that both respondents experienced moderate levels of anxiety before receiving the intervention. Following the implementation of wound care education, there was a noticeable decrease in anxiety levels, with both respondents transitioning from moderate to mild anxiety. Daily progress notes indicated that each 10–15 minutes educational session contributed to this decline. Final comparisons showed that both respondents' anxiety scores dropped from 25 and 22 to 18, indicating that wound care education effectively reduces anxiety in post-cesarean mothers. Nursing services are recommended to implement early wound care education and support post-cesarean patients within 12–24 hours post-surgery. By guiding patients through proper wound care practices, healthcare providers can help reduce anxiety, improve patient knowledge, and prevent potential complications following cesarean delivery.

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AUTHOR CONTRIBUTIONS

The author contributes in conceptualization, data collection and analysis: Ngesti Puspita Sulistyaningrum, Eska Dwi Prajayanti, Yohana Ika Prastiwi, and Ardhini Maurytani. Writing and manuscript revisions: Ngesti Puspita Sulistyaningrum.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available upon reasonable request from the corresponding author.

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