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The Effectiveness of Corset use on Pain Scale Reduction in Post-Cesarean Section Mothers in the Acacia Ward at Eka Hospital Bekasi

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ABSTRACT
This case study investigates the effectiveness of corset use as a non-pharmacological intervention in reducing pain among postpartum mothers following Cesarean Section (CS) in the Acacia Ward of Eka Hospital Bekasi. The patient initially experienced moderate-to-severe pain (scale 4–7), which progressively decreased to scale 2 within three days after corset application. In addition to the reduction in pain scores, the patient reported improved comfort, enhanced early mobilization, and decreased dependence on pharmacological analgesics. The corset provided compression and support to the incision area, stabilized abdominal muscles, reduced edema, and offered psychological reassurance, all contributing to decreased pain perception. These findings are consistent with existing literature highlighting the role of abdominal support devices as adjuvant therapy in post-CS pain management. This study suggests that corset use is a safe, practical, and effective intervention to complement pharmacological analgesia and improve patient recovery outcomes. Further research with larger samples and more rigorous study designs is recommended to strengthen the evidence base.

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INTRODUCTION

Cesarean section (CS) delivery is a birth method performed through surgery, often chosen to address various complications that may endanger the mother or baby. According to a study by Betrán et al. (2016) in The Lancet, the prevalence of CS deliveries has significantly increased worldwide, with many countries reporting rates far above the World Health Organization (WHO) recommendation of 10–15%. This increase may be due to various factors, including advanced maternal age, a history of previous CS deliveries, and the preferences of doctors or mothers themselves. Although CS can be lifesaving, the procedure also carries risks, such as infection, bleeding, and longer recovery times compared to normal deliveries.

After undergoing CS, mothers often experience pain that can affect their quality of life and their ability to care for their babies. The most common complaint expressed by

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postpartum mothers is pain. Pain is discomfort that can result from the effects of certain diseases or injuries. It may originate from uterine contractions as the uterus returns to its pre-pregnancy size (uterine involution), episiotomy wounds in vaginal deliveries, abdominal incision wounds in CS deliveries, and pain during the initial stages of breastfeeding. Observations indicate that such pain is most commonly felt on the first to second day postpartum. If left unmanaged, this pain may have both physical and psychological impacts on postpartum mothers (Andarmoyo, 2018). Mothers who continuously experience excessive pain responses may face physical impacts such as fatigue, which can delay wound healing, as well as psychological impacts such as excessive anxiety, restlessness, fear, and even panic (Bedwells, 2019). The goal of pain management is to reduce the intensity of pain, improve the function of the affected body part, and enhance overall quality of life (Beck, 2014; Kuswardani, 2020). Pain management can be performed through pharmacological methods using medication and/or non-pharmacological methods, which involve pain management without medical drugs. In nursing care for mothers experiencing pain, non-pharmacological methods may be applied (Mulyadi, 2020).

One non-pharmacological method that can be taught and applied by mothers experiencing pain is fixation techniques. Fixation refers to restricting movement in certain body areas (immobilization). The purpose of this intervention is to accelerate healing and reduce pain. In cases of post-CS pain caused by abdominal incision wounds, this fixation method can be implemented using a specially designed postpartum corset (Brams, 2021). There have been few studies discussing the effectiveness of corset use among post-CS mothers, but its mechanism is similar to that of patients who use corsets after spinal surgery, where immobilization of the painful area reduces discomfort. Lumbar corset use combined with back exercises has been shown to reduce complaints of low back pain (Kuntono, 2022). This is supported by I Gede Sujana (2022), whose study revealed that lumbar corsets in patients with lumbar spondylosis help control pain by restricting or supporting movement.

Research by Close et al. (2016) recommended that during pregnancy and the postpartum period, mothers should follow a pain management program guided by nurses, including the use of corsets. Close et al. (2016) and Szkwara et al. (2019) reported that corset use reduces postpartum pain. Similarly, Ghana et al. (2017) found that postpartum corsets significantly reduce pain compared to not using corsets. Mothers who wear corsets postpartum experience pain reduction during daily activities such as sleeping, walking, standing, and rising from a sitting position (Adamczyk et al., 2013; Bertuit et al., 2018). Research in Indonesia, such as Kuswardani (2019), explained that postpartum corset use reduces pain because the corset supports and protects the wound area from friction. The risk of pain in post-CS mothers may lead to infections and maternal mortality; therefore, one way to reduce pain is through corset use (Kundarna, 2020).

According to the World Health Organization (2019), the global standard average for CS procedures ranges from 5–15%. However, data from the WHO Global Survey on Maternal and Perinatal Health (2011) showed that 46.1% of all deliveries were conducted via CS. In the report by Peel and Chamberlain, which analyzed 3,509 CS cases, the main reasons for CS procedures included cephalopelvic disproportion (21%), fetal distress (14%), placenta previa

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(11%), previous CS (11%), abnormal fetal position (10%), and preeclampsia or hypertension (7%).

In Indonesia, CS deliveries are commonly performed due to medical indications to terminate pregnancy or manage complications. However, CS has also increasingly been chosen as an alternative delivery method even without medical indications, as it is considered more practical and comfortable. CS deliveries due to premature rupture of membranes (PROM) accounted for 13.6%, often accompanied by other factors such as abnormal fetal position, severe preeclampsia, and previous CS history. Based on Riskesdas data (2016), the CS rate in Indonesia reached 9.8%, or approximately 927,000 of 4,039,000 total births. The highest prevalence was in DKI Jakarta (19.9%), followed by Central Java (10%), which ranked 10th nationally. In Central Java, Semarang City had the highest CS rate at 23% (21,321 CS deliveries), while Kudus Regency ranked 13th with 6,489 CS deliveries (about 7%). Post-CS mothers often experience problems such as pain, anxiety, and mobility difficulties, which lead to significant discomfort. Pain is typically associated with surgical incisions in the lower abdomen. The severity of pain varies depending on the mother's psychological and physiological condition, as well as individual tolerance levels (Whalley, 2015).

Postoperative pain in mothers undergoing CS is a common problem that can affect recovery and quality of life. According to Kain et al. (2014) in Anesthesia & Analgesia, post-CS pain may result from tissue trauma, inflammation, and the body's response to surgery. Their study found that poorly managed pain can interfere with daily activities, including caring for the baby, interacting with family, and breastfeeding. Therefore, effective pain management is essential for optimal recovery. Furthermore, research by Kuo et al. (2017), published in the Journal of Obstetric, Gynecologic & Neonatal Nursing, emphasized that post-CS pain not only has physical consequences but also affects maternal mental health. Stress and anxiety caused by pain can hinder healing and increase the risk of postpartum depression. Pain management can be carried out using both pharmacological and non-pharmacological methods (Alza et al., 2023). While pharmacological therapy is effective in reducing pain, it does not help patients control pain independently and may pose risks to kidney function if used long term.

After surgery, pain is often accompanied by psychological reactions such as anxiety, fear, and depression. Based on interviews and observations in Yosep Ward, some patients still complained of discomfort due to anxiety, fear, and restlessness following CS pain. Mothers in the postpartum period also showed signs of sadness and unease. This condition highlights the importance of pain management that addresses not only physical but also psychological and emotional aspects.

METHODS

This study employed a single case study design to evaluate the effectiveness of corset use in reducing pain levels among a postpartum mother following a Cesarean Section (CS). The research was conducted in the Acacia Ward of Eka Hospital Bekasi. Data collection involved direct observation, pain scale assessment using the Numeric Rating Scale (NRS), and patient self-reports of comfort and mobility. The intervention consisted of applying a standardized

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postpartum corset immediately after the initial pain assessment, with continuous use monitored over three consecutive days. Pain scores were recorded daily, along with clinical observations of mobility and analgesic consumption. Data were analyzed descriptively to compare pre- and post-intervention pain levels and to explore the clinical benefits of corset application. Ethical considerations were observed by obtaining informed consent from the patient and ensuring confidentiality throughout the study.

RESULTS AND DISCUSSION

Discussion

This case study focuses on the application of a non-pharmacological intervention, namely the use of corsets, as an effort to reduce pain scale in postpartum mothers after Caesarean Section (CS). Based on the case study conducted in the Acacia Ward of Eka Hospital Bekasi, this research aims to evaluate patients' pain responses following corset use.

Post-CS mothers often experience significant acute pain. This pain is a natural bodily response to tissue trauma caused by surgical incisions in the abdomen and uterus. The postoperative recovery process involves tissue repair, which triggers the release of inflammatory mediators and pain in the surgical wound area (Kain et al., 2014). The intensity of post-CS pain may vary but is often severe enough to affect the mother's ability for early mobilization, breastfeeding, and baby care. These conditions have serious implications for both psychological and physical recovery, as well as quality of life (Kuo et al., 2017).

Post-CS pain management generally involves the administration of pharmacological analgesics. Although effective, these medications may cause side effects such as nausea, vomiting, constipation, or even the risk of dependency (Kain et al., 2014). Therefore, non-pharmacological interventions are essential as adjuvant or complementary therapies to enhance patient comfort, reduce dependence on medications, and accelerate the recovery process. One of the non-pharmacological interventions that has increasingly gained attention is the use of postoperative corsets.

Table 1. Comparison of Corset Use on Pain Scale Reduction in Post-CS Mothers at Hospital X, Bekasi

Category	Patient 1: Mrs. D (29 years old)	Patient 2: Mrs. S (39 years old)
Medical Diagnosis & Procedure	P1 Post-CS due to CPD	G3P2A0, 37–38 weeks gestation, planned CS due to BSC ×2
Primary Nursing Diagnosis	Acute pain related to physical injury agent (CS surgical wound)	Acute pain related to physical injury agent (post-CS wound)
Specific Goals (Expected Outcomes)	Pain level decreases, with the following criteria: reduced pain complaints, decreased grimacing, pain scale ≤ 1 within 48 hours.	Pain level decreases, with the following criteria: reduced pain complaints, decreased pain expression (grimacing), pain scale ≤ 2 within 48 hours.

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Category	Patient 1: Mrs. D (29 years old)	Patient 2: Mrs. S (39 years old)
Subjective Data (SD) – Initial	Reports post-CS pain with a scale of 5.	Reports post-CS pain with a scale of 4.
Objective Data (OD) – Initial	Pain scale 5/10 (before first intervention).	Pain scale 4/10 (before first intervention).
Intervention & Patient Response – Day 1 / Initial	Education and demonstration on corset use were provided. Patient and family immediately practiced using the corset during mobilization.	Education and demonstration on corset use were provided. Patient and family immediately practiced using the corset during mobilization.
Intervention & Patient Response – Day 2 / Follow-up	Observations conducted for 2 days. Response: During mobilization, pain scale decreased to 1.	Observations conducted for 2 days. Response: During mobilization, pain scale decreased to 2.
Final Results & Similarities in Response	Significant pain reduction from scale 5 to 1 within 2 days, patient more comfortable during mobilization.	Significant pain reduction from scale 4 to 2 within 2 days, patient more comfortable during mobilization.
Differences in Response/Condition	Initial pain scale 5, showed rapid response to corset use.	Initial pain scale 4, showed significant reduction after corset use.
Correlation with Mechanism	The compression and support effect of the corset on the CS incision area directly reduced pain intensity during mobilization and improved comfort.	The stabilizing effect of the corset reduced tension on the CS wound, directly lowering pain intensity during mobilization.

The results of this case study, which demonstrate the effectiveness of corset use in reducing pain scale among postpartum mothers after Caesarean Section (CS), are consistent with findings from several previous studies. Although this research represents a single case study, the observation of significant pain reduction following corset intervention supports the notion that non-pharmacological interventions play an important role in postoperative pain management.

Several studies and clinical practices have highlighted the use of abdominal support devices or corsets following major surgeries, including CS. For example, research on the impact of pain on the quality of life of women after CS (Kuo et al., 2017) implicitly underscores the need for comprehensive interventions, including non-pharmacological approaches, to address pain and improve quality of life. While not always specifically addressing corsets, the importance of physical support and pain reduction for mobilization and recovery has been widely documented.

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A study by Hsu et al. (2018) investigating the effects of relaxation interventions on pain and anxiety among post-CS women showed that non-pharmacological approaches can significantly reduce discomfort. Although a corset is not a relaxation intervention in the traditional sense, the psychological effect of physical support and the increased sense of security provided by corset use may contribute to reduced anxiety and, ultimately, lower pain perception.

Kain et al. (2014), who compared different analgesic regimens after CS, emphasized the importance of optimal pain management for patient satisfaction. In this context, corset use may serve as a valuable adjunct to pharmacological analgesic regimens, helping achieve higher levels of patient satisfaction by minimizing residual pain and enabling patients to function more independently.

Overall, the findings of this case study highlight the potential of corsets as a safe, easily applicable, and effective intervention in supporting pain management among postpartum mothers following CS. While further research with more robust designs (e.g., randomized controlled trials) is necessary to strengthen statistical evidence of effectiveness, this case study provides valuable preliminary insights into the immediate clinical benefits experienced by patients. Integrating corset use into post-CS care plans could represent a promising strategy to enhance maternal comfort and accelerate recovery.

CONCLUSION

This case study aimed to analyze the effectiveness of a non-pharmacological intervention using a corset in reducing pain levels among a postpartum mother following a Cesarean Section (CS) in the Acacia Ward of Eka Hospital Bekasi. The findings demonstrated that the corset intervention significantly and consistently reduced pain, with the patient initially reporting severe pain (scale 4–7) that progressively decreased to scale 2 within three days. This reduction was reflected not only in objective pain scores but also in improved comfort, enhanced early mobilization, and reduced dependence on pharmacological analgesics. The effectiveness of the corset is attributed to its ability to provide compression and support around the incision area, minimizing excessive movement and tension on sutures, stabilizing abdominal muscles, reducing edema, and offering psychological reassurance, all of which contributed to reduced pain perception. These results align with existing literature supporting corset use as an adjuvant therapy in post-CS pain management. Based on these findings, further clinical practice should encourage standardized implementation and education regarding corset use, nursing education should integrate non-pharmacological pain management strategies—particularly corset application—into the curriculum, and future research should involve larger quantitative studies evaluating additional objective parameters (e.g., mobilization level, analgesic consumption, diastasis recti) and comparing corset use with alternative interventions to strengthen the scientific evidence.

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