

# The Effectiveness of Corset Use on Pain Reduction in Post Cesarean Mothers

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## ABSTRACT

**Background:** The biggest complaint submitted by postpartum mothers is pain. Mothers who have a continuous excessive pain response will have an impact on the mother's psychology and physique. The physical impact is that the mother feels exhausted, so the wound healing process becomes inhibited.

**Aim:** To evaluate how well corset use reduces pain in post-SC mothers at a South Tangerang private hospital.

**Methodology:** The respondents in this study were post-SC mothers at a private hospital from July 2023 to January 2024 as many as 70 respondents were taken in total sampling, intervention for using corsets during 6-12 hours per day for two days. Assessment of pain before corset use and two days of corset use. This research is a type of Quasy Experiment, one group pre and post test design with paired test analysis test, sample t test & Chi Square test.

**Results:** The results of the study were the majority of respondents aged 20-35 years (71.4%), Multigravida (58.6%), moderate pain pre-intervention pain scale (57.6%) and in mild pain post-intervention (54.4%). There was no relationship between Age (0.593) and parity (0.138) to reduce the pain for cesarean mothers. The effectiveness of using corsets on pain reduction with paired t-test obtained p value: 0.000;  $P < 0.05$ . The t value: 7.622, which means that giving corset intervention to cesarean mothers can reduce the pain scale by 7.6 times compared to not giving intervention.

**Conclusion:** The use of corsets is effective in reducing pain for cesarean mothers at private hospital. Suggestion: It is hoped that hospitals through health workers can provide post-SC maternity nursing care with the use of corsets to relieve pain after SC childbirth and increase postpartum comfort.

**Keywords:** Corset, pain, and cesarean section

## INTRODUCTION

Health sector reform is a vision of a Healthy Indonesia 2015-2030 with Sustainable Development Goals (SDGs). Progress in the Social Development Pillar has 6 Goals, 55 Targets, 88 indicators. The third goal is Health and Prosperity. One of the health sectors is by reducing the Maternal Mortality Rate (MMR) to below 70 per 100,000 Live Births (Ministry of Health, 2020). Indonesia's maternal mortality rate is 359 per 100,000 live births, the highest in Southeast Asia. The Infant Mortality Rate (AKB) is 40 per 1000 live births, also the highest when compared to other ASEAN countries (Dirgantara, 2020). The cause of MMR in Indonesia is mostly caused by the non-implementation of continuity of care checks on mothers in addition to the emergence of labor complications that cannot be handled immediately. The most common cause is one of them is bleeding that is not treated immediately. The comparison of maternal mortality and maternal morbidity data after SC is higher than after vaginal delivery (Sandall et al., 2018). Cesarean section delivery is complex, so postpartum recovery with SC is longer than vaginal delivery. Nevertheless, the rate of delivery with sectio caesarea remains higher than vaginal delivery (Kuswardhana, 2020). SC is carried out to support infants and mothers who experience emergencies, so SC is expected to increase live birth rates (Dirgantara, 2020).

In order to deliver a fetus intact and healthy, a procedure known as a sectio Caesarea (SC) involves making incisions in the uterus and abdominal wall (Jitawiyono, 2018). The reason for SC is the higher risk of ectopic pregnancy, early birth, improper placentation, and uterine rupture. There is growing evidence that hospital-acquired medical issues, bacterial infections, and physical and hormonal exposures are all present in babies delivered with SC. This may change the physiology of newborns. Increased risk of allergies, asthma, and gut microbiota are among the short-term hazards associated with SC (Sandall et al., 2018). The World Health Organization (WHO) reported in 2020 that more births using the SC technique than the 10%–15% recommended

range had occurred globally. The Caribbean and Latin America and the Caribbean region led the way, followed by Europe with 25%, Asia with 19.2%, and Africa with 7.3%. The grounds for SC include pelvic fetal disproportion (21%), fetal distress (14%), placenta previa (11%), SC (11%), fetal location anomalies (10%), pre-eclampsia, and hypertension 7%, based on statistics and 3,509 cases of SC. Indonesia has a 17.6% SC birth rate; the DKI Jakarta area has the highest rate at 31.3%, while Papua has the lowest rate at 6.7% (Ministry of Health, 2020). In order to deliver a fetus intact and healthy, a procedure known as a section Caesarea (SC) involves making incisions in the uterus and abdominal wall (Jitawiyono, 2018).

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Pain is the most common complaint made by new mothers. Pain is an uncomfortable feeling that can be brought on by an accident or the side effects of certain diseases. The pain may originate from the uterus contracting to revert to its pre-pregnancy size (uterine inversio), from abdominal wounds incisions made during SC labor, or from the agony experienced when starting to breastfeed. According to observational data, this pain usually becomes more intense on the first or second day following delivery. Postpartum mothers will experience physical and psychological effects if the discomfort is not alleviated (Andarmoyo, 2018). Mothers who have a continuous excessive pain response will have an impact on the mother's psychology and physique. The physical impact is that the mother feels lethargic, so that the wound healing process becomes inhibited, while the psychological impact can occur such as excessive anxiety, mother

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is not calm, afraid to panic (Bedwells, 2019). Reducing perceived pain, enhancing the function of the afflicted body part, and enhancing quality of life are the objectives of pain treatment (Beck, 2014; Kuswardani, 2020). Pharmacological methods, or employing medications, and/or non-pharmacological methods, or managing pain without using medical treatments, are two possible approaches to this. Non-pharmacological pain management techniques can be used in nursing care for moms experiencing pain (Mulyadi, 2020).

Fixation techniques are one non-pharmacological strategy that mothers in pain can learn and use. Fixation is the inability to move in specific body parts (immobilization). Such measures are intended to lessen discomfort and expedite healing. A postpartum corset specifically made for this purpose can be used in the case of postoperative SC discomfort resulting from a lower abdominal incision wound (Brams, 2021). Few research have examined the usefulness of corsets for post-spinal cord injury moms; nevertheless, the mechanism of action of this corset is essentially the same as that of corsets used for post-spinal surgery mothers, in that the painful area is immobilized by the corset. Low Beck Pain (LBP) issues can be decreased with the use of lumbar corsets and back exercises. Kuntono (2022). The use of a lumbar corset in individuals with lumbar spondylosis would function to regulate pain since it can limit or assist movement, according to research by researcher Sujana (2022).

According to research by Close et al (2016), moms should wear a corset to reduce pain during pregnancy and the postpartum period and should adhere to the nurses' pain management program. According to studies by Close et al. (2016) and Szkwara et al (2019), providing postpartum moms with a corset can help them feel less pain. According to Ghana et al. (2017), postpartum moms who wear corsets report significantly less discomfort than those who do not. Corsets can help postpartum moms with back pain during everyday activities like walking, sleeping, standing, and rising from a seated posture (Adamczyk et al., 2013 & Bertuit et al., 2018). Because corsets are supportive and shield the wound region from friction, research conducted in Indonesia, like Kuswardani's research (2019), has shown that using and giving corsets to postpartum mothers can reduce discomfort. Using a corset is one method of pain treatment for SC moms, since it can help reduce the risk of infection and AKI in postpartum mothers (Kundarna, 2020).

Data from Hospital at South Tangerang indicates that from January to May of 2023, there were 240 maternal cases handled by SC, or an average of 50 mothers per month. the outcomes of unstructured interviews that were done at the hospital's obstetrics department. The average pain rating for the 10 moms who gave birth to SC patients was 5-7. They also reported that the pain was unbearable even after they started undertaking basic mobility exercises like walking and other activities. Based on this, researchers at Hospital are curious about the efficacy of corset use in lowering pain in post-SC mothers.

**RESEARCH METHODS**

With a quantitative technique and a group pretest-post-test design, this study is experimental (or quasi-experimental). There was only one corset-wearing intervention group in this study. Subsequently, researchers measured the post-SC mothers' reduction in pain scores. This study included 150 post-SC mothers in RS X South Tangerang over the course of three months, with a sample size of 70 responses. This study was carried out in a private hospital's maternity unit. This research was conducted between July 2023 and January 2024. The statistical test of difference analysis in pairs with the non-parametric statistical pair difference test used in this study is the paired sample t test. This study also used the Chi Square correlation test. Ethic approval no 128/KEPPKSTIKSC/X/2023

**RESULTS AND DISCUSSION**

Based on table 1, it shows the largest percentage of maternal age in post SC, namely 20-35 years, as many as 50 respondents (71.4%). In a study conducted by Kusumaningrum (2020), which showed that the age of post-SC patients was more than 25 years as much as 78.9%. Age is one of the complicating factors in the process of pregnancy, because pregnant women are too young, the condition of their bodies is not ready to face pregnancy, childbirth, and postpartum and care for their babies, while mothers who are 35 years or older will face risks such as congenital abnormalities or complications at the time of delivery caused by uterine muscle tissue is not good for accepting pregnancy. The reproductive process should take place in mothers aged between 20 to 34 years because it rarely complicates pregnancy and childbirth (Esta, 2017). Research conducted by Wahyuni in 2019, stated that mothers who experienced the most incidence of sectio Caesarea at the age of 20-35 years based on maternal analysis at the age of 20-35 years experienced sectio Caesarea due to maternal health conditions that were not possible or had SC before, and at that age one of them was bleeding during pregnancy and physical or mental stress that could make mothers finally give birth prematurely.

Table 1: Distribution of maternal frequency of age, and parity in caesarean mothers

Variable	Age	Sum	%
Age	20-35 years	50	71.4
	>35 years	20	28.6
Parity	Primigravida	29	41.4
	Multigravida	41	58.6
Total		70	100

(Source: Data processed, 2024)

Parity is the number of children born by the mother from the first child to the last child. Parity has an effect on the labor process and pain scale. Pain that arises due to the inclination process of surgery, the more often the patient is done SC, the patient already has pain experience so that it can protect themselves in reducing the pain felt. History of SC in mothers will also affect pain, patients with Multigravida as many as 41 respondents or 58.6% which means that mothers have experience in dealing with SC Easter pain so that the pain felt can be tolerated by patients.

Table 2: Frequency distribution of different pain categories before and after corset intervention in post SC patient.

Pain category	Pre test	Post test
No pain	0	2(2.9%)
Mild Pain	24(34.3%)	61(87.1%)
Moderate pain	44(62.8%)	7(10%)
Severe Pain	2(2.9%)	0
Severe Pain	0	0
Total	70(100%)	70(100%)

(Source: Data processed, 2024)

Table 2 shows that the difference in pain categories before and after the corset intervention in post-SC patients was mostly moderate pain as many as 44 respondents (62.8%) while in the post test most of the pain was mild as many as 61 respondents (87.1%).

Table 3: Median distribution of pain scales before and after intervention using corset in caesarean mothers

Pain scale	n	Min	Max	Mean	SD
Pre intervention	70	1	7	3.98	1.256
Post intervention		0	4	2.02	1.00

Table 3 shows the mean distribution of pain scales in mothers who wore corsets before the intervention with pain at least scale 1 and pain upscale 7 with mean pain 3.98. While in post-intervention pain is at least a scale of 0 and the highest scale 4

with an average pain of 2.02.

Pain is a subjective sensation due to an uncomfortable condition caused by tissue damage in surgery (Wilhelma, 2015). Pain that arises in post SC is a natural, but it will be problematic if the pain continues to decrease without any action taken to reduce pain in post SC patients, patients will feel uncomfortable during treatment so that pain reduction interventions are needed, one of which is the use of a corset.

According to Krisnawati's research (2021), the involution process may be impacted by corset wearing. According to her research, corsets have a number of advantages, including the ability to maximize uterine involution, restore abdominal tone, lessen pain, and support postpartum moms' backs to aid in the quicker establishment of posture. By exerting slight pressure on the transversus abdominis muscle, the body and particularly the abdomen can support the stomach and lumbopelvic region and enhance the optimal function of the abdominal muscles.

Pain by its mechanism involves the perception and response to the pain. The mechanism of pain onset involves four processes, namely (Turk & Flor, 2014). Transduction is the process of pain stimulation in a form that can be accessed by the brain (Turk & Flor, 2014). The transduction process begins when the nociceptor, a receptor that functions to receive pain stimulation, is activated. Activation of these receptors (nociceptors) is in response to an incoming stimulus such as tissue damage. Transmission is a series of neural events that carry electrical impulses through the nervous system to areas of the brain. The transmission process involves afferent nerves that are shaped from small to medium diameter nerve fibers as well as large diameter ones. The afferent nerve will axon the dorsal horn in the spine. Furthermore, this transmission is continued through the contralateral spinal thalamic system through the ventral lateral from the thalamus to the cerebral cortex. Modulation is a modulation pose referring to neural activity in an effort to control the transmission path of the nociceptor (Turk & Flor, 2014). The modulation process involves complex neural systems. When pain impulses reach the nerve center, the transmission of these pain impulses will be controlled by the central nervous system and transmit these pain impulses to other parts of the nervous system such as the cortex. Then these pain impulses will be transmitted through the descending nerves to the spine to modulate the effector. Perception is a subjective process. This perceptual process is not only related to physiological processes or anatomical processes but also includes cognition (recognition) and memory (remembering). Therefore, psychological, emotional, and behavioral factors also appear as a response in perceiving the experience of pain. This perceptual process is also what makes pain a phenomenon that involves multidimensionality.

The results of this study showed that there was a decrease in pain response before and after the corset intervention, namely using a corset before the intervention with pain at least scale 1 and pain up a scale of 7 with an average pain of 3.98. While in post-intervention pain is at least a scale of 0 and the highest scale 4 with an average pain of 2.02. Giving a corset for 6-12 hours is an action to reduce pain after childbirth SC by moving the right or left tilted body so that the muscles in that position become relaxed and there is no friction / pull. Pain arising from the implamation process can be reduced by a corset that supports the entire abdominal muscle, so that pain can be reduced.

Table 4: Relationship of age with decreased of pain after intervention using corset 6-12 hour for cesarean mothers

Age	Pain scale				P value
	No pain	Mild	Moderate	Total	
25-35	11(16.7%)	26(39.4%)	11(16.7%)	48(68.5%)	1.000
>35	6(3.5%)	10(15.2%)	6(6.1%)	22(31.5%)	

(Source: Data processed, 2024)

Table 4 shows that post-SC mothers with decreased pain were mostly aged 25-35 years as many as 11 respondents (16.7%). Respondents with moderate pain at the age of >35

years were 4 respondents (6.1%). The results of the Chi Square statistical test found that the p Value: 1.00 means that there is no relationship between maternal age and pain scale after 6-12 hours of corset use intervention in post-SC mothers.

Age affects pain sensitivity caused by physiological factors, biochemical changes and changes in homeostatic mechanisms insomatosensory pathways that affect individual pain processing and perception (Yeziarski, 2012). In this study, age was not associated with decreased pain in post-SC mothers. This can be due to the characteristics of respondents in this study, aged 22 years to 40 years. The most common age is 20-35 years. Only a few respondents were over 35 years old, while the oldest age was not more than 40 years old.

Biologically, women have the perfect uterus to give birth when they are 25-35 years old, health and readiness to undergo pregnancy and childbirth. Women who become pregnant women at a young age will experience health problems earlier and vary than women over 30 years. Women's health is at its peak when they are 20-35 years old (Murray and Huelsmann, 2020).

There are no association between maternal age and decreased pain after a 6-12 hour intervention of corset use in post-SC mothers because the majority of mothers aged 25-35 with multigravida. Mothers who already have previous experience will adapt to pain, while in mothers aged 25-35 years the sensitivity of a person's pain threshold decreases because the patient has adapted to pain.

Table 5: Parity relationship with decrease of pain after intervention using corset 6-12 hours for cesarean mothers

Parietas	Pain scale				P value
	No pain	Mild	Moderate	Total	
Primi	9(5.9%)	18(27.3%)	5(7.6%)	31(44.3%)	0.703
Multi	19(22.6%)	36(54.6%)	15(22.8%)	70(100%)	

(Source: Data processed, 2024)

Table 5 above shows the relationship between parity and the pain scale after being given a 6-12 hour intervention using a corset in post-SC patients, namely respondents with mild pain, primi and multigravida are 18 respondents (27.3%). Respondents with moderate pain in multigravida were 10 respondents (15.2%). The results of the Kendal tau b statistical test showed that the p value was: 0.703, meaning there was no relationship between parietas and the pain scale after being given an intervention of 6-12 hours using a corset in post-SC patients. The results of this study are in line with those conducted by Iffah et al. (2018), which showed a p value: 0.492 which means there is no significant relationship between parity and pain. According to Kuswantara (2020) said that SC childbirth is more traumatic in the long term than normal delivery, so the mother's adaptation to postpartum conditions is very important. Griensven (2010) says that as many as 12% of post-SC mothers feel pain in more than a week. The experience of pain was felt a second time, but the post-SC mother was still traumatized by high-scale pain. The results of Rini and Rohani's research, (2019), are not in line with this study. Results showed there was a parity relationship with pain response with p value =0.01.

There is no relationship between parity and the pain scale. This is possible because most respondents already have experience in Cesarean so they already know effective ways to reduce the pain post cesarean response.

Table 6: Analysis of the effectiveness of using corset 6-12 hours on pain reduction in post cesarean mothers

Intervention	n	Pain scale			P value
		Mean	SD	t	
Pre test	70	2.87	0.644	7.622	0.000
Post test		2.00	0.679		

(Source: Data processed, 2024)

Table 6 shows the effectiveness of using corsets on the level of pain for cesarean mothers. The t value: 7.622, which means that giving corset intervention to post-SC patients can reduce the pain scale by 7.6 times compared to not giving intervention or by 76.22% reducing the pain scale in post-SC mothers.

This study is consistent with research by Santi (2022), which found that post-partum mothers can reduce pain during mobilization by wearing a corset. Additionally, statistical tests have demonstrated a p-value of 0.000, indicating that corset use is effective in reducing post-partum pain levels in mothers who have had a cesarean section. According to studies by Krisnawati (2021), the involution process can be impacted by the use of stagen. According to his research, corsets have several advantages, including the ability to maximize uterine involution, restore abdominal tone, lessen pain, and support postpartum moms' backs to aid in the quicker establishment of posture. By exerting slight pressure on the transversus abdominis muscle, the body and particularly the abdomen—can support the stomach and lumbopelvic region and enhance the optimal function of the abdominal muscles.

Iham & Surya (2020) provided clarification on the study's findings by stating that corsets or stages are recommended for usage by moms who give birth in SC, provided that the corset type is made of soft, non-rough material. After giving birth to a child with SC, moms should avoid wearing corsets too tightly since this may place excessive strain on the pelvic floor muscles and worsen abdominal pain.

From generation to generation, ladies have employed corsets to support women who have given birth. Regarding advice for expectant mothers who are of normal birth. Nonetheless, using a corset is one way that can help post-SC mothers mobilize can lessen pain when mobilizing (Black, 2014; Kusumaningrum, 2020). In the current study, post- SC mothers are advised to mobilize by tilting their bodies to the right or left 24 hours after giving birth in order to reduce pain. It is advised to add lumbar corsets to the combination of MWD, TENS, and US to reduce pain in mothers with lumbar spondylosis. This is supported by research done by Sujana (2020) on the use of lumbar corsets in interventions to reduce lumbar spondylosis pain. The study found that the use of corsets can control pain because they can limit or support movement.

Pain is a feeling that an individual experiences as a result of discomfort from tissue injury during surgery. Acute pain, chronic malignant pain, and chronic non-malignant pain are the three categories of pain that nurses see most frequently (Wilhelma, 2015). The findings of this study are consistent with those of Sandall et al.'s (2018) study, which found that postpartum women who wear corsets experience significantly less discomfort than those who do not. p-value = 0.000. Kuswardani's research (2019) provides additional support for the idea that wearing a corset after a cesarean section can reduce pain scales. The study found that postpartum mothers who wore corsets experienced a decrease in pain because the garments provide support and reduce friction on the wound area (p value: 0.000). The researchers hypothesize that the use of corsets can reduce pain in postpartum women up to 16,157 times, as most of them (67.2% of them) use ERACS (Enhanced Recovery after Cesarean Section) and early ambulation prior to engaging in daily activities or active mobilization. The use of a corset can enhance uterine involution, improve abdominal tone, lessen discomfort, and support the puerperal mother's back to aid in the quicker development of posture.

By exerting slight pressure on the transversus abdominis muscle, the body and particularly the abdomen—can support the stomach and lumbopelvic region and enhance the optimal function of the abdominal muscles. According to Ghanaian research, et al (2016), mothers should adhere to the nurses' program of providing and lowering pain during pregnancy and the postpartum period by wearing a corset since it works (0.001). According to Szkwara et al (2019), wearing a corset during pregnancy has a highly desirable

impact on pain management and enhancing functional capacity. The use of corsets to control pain during the postnatal phase and enhance quality of life during pregnancy and postnatal care requires more study.

## CONCLUSION

The effectiveness of the use of corsets on reducing pain in post-SC mothers at private hospital in South Tangerang with paired t test yielding a p Value: 0.000 and t value: 16.157 it was determined that the use of corsets was helpful in lowering pain in post cesarean. The use of corsets is effective in reducing pain by 16.15 times than those who do not use corsets. It is hoped that applying the results of this study by providing post-SC maternity nursing care in relieving pain when mobilizing to use a corset can help mothers to relieve postpartum pain with cesarean section.

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1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.

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