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The Relationship Between Anxiety Levels and Wound Pain Intensity in Post-Cesarean Section Patients

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ABSTRACT

Cesarean section is a surgical procedure that may cause postoperative pain. The intensity of pain experienced by patients is influenced by various factors, including psychological factors, particularly anxiety. High levels of anxiety can increase pain perception and consequently hinder the patient's recovery process. This study aimed to determine the relationship between anxiety levels and wound pain intensity among post-cesarean section patients in the Mother and Child Inpatient Ward of Bunda General Hospital, Padang. This study employed a correlational research design with a cross-sectional approach. The study was conducted in the Mother and Child Inpatient Ward of Bunda General Hospital, Padang, from February to May 2026. A total of 81 respondents were selected using a purposive sampling technique. Anxiety levels were measured using the Zung Self-Rating Anxiety Scale (ZSAS), while pain intensity was assessed using the Numeric Rating Scale (NRS). Data were analyzed using univariate and bivariate analyses with Somers' D correlation test. The results showed that the majority of respondents experienced panic-level anxiety (53 respondents; 65.4%), followed by severe anxiety (20 respondents; 24.7%), mild anxiety (4 respondents; 4.9%), no anxiety (3 respondents; 3.7%), and moderate anxiety (1 respondent; 1.2%). Regarding pain intensity, most respondents experienced moderate pain (48 respondents; 59.3%), followed by severe pain (24 respondents; 29.6%) and mild pain (9 respondents; 11.1%). The Somers' D test revealed a p-value of 0.000 (<0.05) with a correlation coefficient of 0.462, indicating a statistically significant positive relationship of moderate strength between anxiety levels and pain intensity. There was a significant relationship between anxiety levels and pain intensity among post-cesarean section patients at Bunda General Hospital, Padang. Higher anxiety levels were associated with higher pain intensity. Therefore, nurses are expected to improve assessments and interventions aimed at reducing patients' anxiety in order to help decrease pain perception during the postoperative recovery period.

***Keywords**: Anxiety, Pain Intensity, Cesarean Section, Postoperative, Nursing.*

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1. Introduction

Cesarean section is a major surgical procedure that may be accompanied by postoperative pain and psychological distress during maternal recovery. Postoperative incisional pain is an important clinical concern because inadequate pain control may interfere with early mobilization, rest, and maternal activities during the postpartum period. A systematic review and meta-analysis of 28 studies reported a pooled prevalence of acute postoperative pain following cesarean section of 58% (95% confidence interval [CI]: 48%–67%), although substantial heterogeneity across studies indicated considerable variation in pain experiences and associated factors (Demilew et al., 2024). These findings highlight the importance of understanding the factors associated with postoperative pain to support appropriate assessment and individualized pain management.

Postoperative pain is a multidimensional experience influenced not only by tissue injury and physiological responses but also by psychological factors. Anxiety may be particularly relevant because heightened worry, increased attention to bodily sensations, and fear of pain-related movement may influence how patients perceive and report pain. Conversely, experiencing substantial postoperative pain may intensify anxiety and concerns about wound healing and recovery. Thus, anxiety and pain may be interrelated, although the direction and magnitude of this relationship cannot be assumed to be the same across patients or clinical settings. Evidence from previous studies supports an association between anxiety and postoperative pain following cesarean delivery. Mehdiratta et al. (2020), in a retrospective study of 1,899 patients, identified pre-existing anxiety as a factor associated with greater postoperative pain severity. Similarly, Poehlmann et al. (2022), in a retrospective cohort study involving 2,228 cesarean deliveries, found that patients with documented anxiety disorders reported higher average pain scores and greater opioid consumption during the first 24 hours after delivery than patients without documented anxiety disorders. Furthermore, a systematic review and meta-analysis identified preoperative anxiety as one of the factors significantly associated with postoperative pain following cesarean section (Demilew et al., 2024).

Evidence from Indonesia has also indicated a relationship between anxiety and postoperative pain among patients undergoing cesarean delivery. Abidin et al. (2022) reported a statistically significant relationship between anxiety levels and pain intensity in a cross-sectional study of 40 postoperative cesarean patients at Pasirian Hospital. More recently, a cross-sectional study involving 81 post-cesarean patients at TMC Hospital in Pariaman, West Sumatra, reported a significant positive association between anxiety levels and postoperative pain intensity (Maidawilis et al., 2026). Although these findings support the clinical relevance of examining both variables, the available studies were conducted in individual hospital settings and used different assessment instruments and sampling approaches. Their cross-sectional designs also limit conclusions regarding the temporal direction of the relationship. Consequently, further context-specific evidence is

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useful for determining whether the observed association is also present among patients receiving postoperative care in other clinical settings.

At Bunda General Hospital Padang, a preliminary survey conducted by the researchers on January 23, 2026, involved 10 patients recovering from cesarean section in the Mother and Child Inpatient Ward. Seven patients reported concerns about their surgical wounds, fear of performing activities because of pain, or bodily discomfort. The other three patients reported less concern about postoperative pain and described previous surgical experience. These preliminary observations provide a local clinical context for investigating the relationship between anxiety and postoperative pain. However, because the observations were exploratory and were not reported as assessments using validated anxiety and pain measurement instruments, they should not be interpreted as estimates of the prevalence of anxiety or as evidence of an association between the two variables.

Against this background, this study aimed to examine the relationship between anxiety levels and surgical wound pain intensity among patients recovering from cesarean section in the Mother and Child Inpatient Ward of Bunda General Hospital Padang, Indonesia. By examining these variables within a specific clinical setting, the study seeks to provide context-specific evidence that may inform the integrated assessment of psychological and pain-related needs in postoperative nursing care. The findings may help identify whether anxiety levels are associated with reported wound pain intensity in this patient population, while recognizing that an observed association does not, by itself, establish a causal relationship.

2. Research Methods

This study consisted of an independent variable and a dependent variable. The independent variable was the anxiety level of surgical patients, while the dependent variable was the intensity of postoperative cesarean section wound pain. The study was conducted from early February to May 2026 in the Recovery Room of Bunda General Hospital Padang. This was a correlational study using a cross-sectional approach, which aimed to determine the relationship between anxiety levels and wound pain intensity among post-cesarean section patients. The study subjects were mothers who had undergone cesarean section and were treated in the Mother and Child Inpatient Ward of Bunda General Hospital Padang, met the inclusion criteria, and did not meet the exclusion criteria. The sample size was determined using Slovin's formula because the population size was known, resulting in 74 respondents. A 10% allowance for possible dropout was added, resulting in a final sample of 81 respondents. Questionnaire distribution was planned effectively, and sampling was performed using purposive sampling, namely a technique in which respondents encountered during data collection were selected if they met the inclusion and exclusion criteria. Anxiety levels were measured using the Zung Self-Rating Anxiety Scale, while surgical wound pain intensity was measured using the Numeric Rating Scale (NRS), ranging from 0 to 10. A sample is the object being studied and is considered representative of the entire population (Notoatmodjo, 2018).

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$n = 280 / (1 + 280(0.1)^2)$
n = 74 respondents
With an additional 10% allowance for dropout:
74 + 7 = 81 respondents

3. Relevant Studies

Apriansyah (2020), in a study on the relationship between preoperative anxiety levels and pain severity among postoperative cesarean section patients at Muhammadiyah Hospital Palembang, reported that among 46 respondents, 30.4% experienced mild anxiety, 37% experienced moderate anxiety, and 32.6% experienced severe anxiety. Respondents with mild anxiety more frequently experienced mild pain (52.6%), while those with moderate to severe anxiety tended to experience moderate to severe pain (51.9% and 33.3%, respectively). Wijaya (2022), in an analysis of factors affecting pain intensity among postoperative abdominal surgery patients in the context of nursing care at Bandung Regional General Hospital, reported that pain intensity measured 30 minutes after analgesic administration was associated with 14 respondents (30.4%) experiencing mild anxiety, 17 respondents (37%) experiencing moderate anxiety, and 15 respondents (32.6%) experiencing severe anxiety. Fazdria and Harahap (2020), in a study describing anxiety levels among pregnant women preparing for childbirth in Tualang Village, Langsa District, found that the majority of respondents experienced moderate and severe anxiety, with 12 respondents (48%) affected. Among 3 respondents aged over 35 years (100%), most experienced moderate and severe anxiety symptoms (50%). The study concluded that severe anxiety symptoms were most common among primiparous and grand multiparous women, whereas multiparous women generally experienced moderate anxiety. According to the World Health Organization (WHO), the global cesarean delivery rate averages 5-15% per 1,000 births. Cesarean deliveries account for an average of 11% of births in public hospitals and more than 30% in private hospitals. In Indonesia, cesarean births generally account for 20-25% of total births in public hospitals and 30-80% in private hospitals. The provinces with the highest cesarean section rates are DKI Jakarta (27.2%), Riau Islands (24.7%), and West Sumatra (23.1%) (Ministry of Health of the Republic of Indonesia, 2024). Factors contributing to cesarean delivery include premature rupture of membranes (13.4%), preeclampsia (5.49%), hemorrhage (5.14%), fetal malpresentation (4.40%), and other factors (4.2%) (Basic Health Research, 2024).

4. Results and Discussion

Univariate Analysis

Distribution of Anxiety Levels

Table 1. Frequency Distribution of Anxiety Levels Among Post-Cesarean Section Patients

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Anxiety Level	Frequency (f)	Percentage (%)
No anxiety	3	3.7
Mild anxiety	4	4.9
Moderate anxiety	1	1.2
Severe anxiety	20	24.7
Panic	53	65.4
Total	81	100

Based on Table 1, of the 81 respondents, the majority experienced panic-level anxiety, totaling 53 respondents (65.4%). Severe anxiety was experienced by 20 respondents (24.7%), mild anxiety by 4 respondents (4.9%), no anxiety by 3 respondents (3.7%), and moderate anxiety by 1 respondent (1.2%).

Distribution of Pain Intensity

Table 2. Frequency Distribution of Pain Intensity Among Post-Cesarean Section Patients

Pain Intensity	Frequency (f)	Percentage (%)
Mild pain	9	11.1
Moderate pain	48	59.3
Severe pain	24	29.6
Total	81	100

Based on Table 2, 9 respondents (11.1%) experienced mild pain, 48 respondents (59.3%) experienced moderate pain, and 24 respondents (29.6%) experienced severe pain.

Bivariate Analysis

Relationship Between Anxiety Levels and Pain Intensity

Table 3. Cross-Tabulation of Anxiety Levels and Pain Intensity

Pain Intensity	No Anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety	Panic	Total
Mild pain	1	0	1	4	3	9
Moderate pain	2	4	0	16	26	48
Severe pain	0	0	0	0	24	24
Total	3	4	1	20	53	81

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Based on Table 3, among the 48 respondents who experienced moderate pain, most were in the panic category, totaling 26 respondents (54.2%), followed by 16 respondents (33.3%) with severe anxiety, 4 respondents (8.3%) with mild anxiety, and 2 respondents (4.2%) with no anxiety. Meanwhile, all 24 respondents (100%) who experienced severe pain were in the panic category. These findings indicate a tendency for higher pain intensity to be accompanied by higher anxiety levels. This is evident from the fact that all respondents with severe pain were classified as experiencing panic-level anxiety.

Table 4. Somers' D Test Results for the Relationship Between Anxiety Levels and Pain Intensity

Variables	Somers' D Value	p-value
Anxiety level and pain intensity	0.462	0.000

Based on Table 4, the Somers' D analysis produced a p-value of 0.000 (<0.05); therefore, H0 was rejected and Ha was accepted. It can thus be concluded that there was a significant relationship between anxiety levels and pain intensity among post-cesarean section patients at Bunda General Hospital Padang. The Somers' D coefficient of 0.462 indicates a moderate relationship with a positive direction. This means that the higher the patient's anxiety level, the higher the pain intensity experienced after cesarean section surgery.

5. Conclusion

Most post-cesarean section patients experienced panic-level anxiety, totaling 53 respondents (65.4%), followed by severe anxiety in 20 respondents (24.7%), mild anxiety in 4 respondents (4.9%), no anxiety in 3 respondents (3.7%), and moderate anxiety in 1 respondent (1.2%). Most post-cesarean section patients experienced moderate pain, totaling 48 respondents (59.3%), followed by severe pain in 24 respondents (29.6%) and mild pain in 9 respondents (11.1%). There was a significant relationship between anxiety levels and pain intensity among post-cesarean section patients at Bunda General Hospital Padang, with a p-value of 0.000 ($p < 0.05$). The Somers' D coefficient of 0.462 indicated a moderate positive relationship, meaning that higher anxiety levels were associated with greater pain intensity.

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