

Original Research

Nursing Diagnoses in Pediatric Surgical Inpatients: A Cross-Sectional Study

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ARTICLE INFO

Keywords:

Acute Pain,
Nursing
Diagnosis,
Pediatric
Nursing,
Pediatric
Surgical Unit

ABSTRACT

Introduction: Children hospitalized in pediatric surgical units are vulnerable to physiological and psychological responses related to surgical procedures and underlying health conditions. Identification of nursing diagnoses is essential to guide clinical decision-making and provide appropriate nursing care. This study aimed to describe the profile of nursing diagnoses based on the Indonesian Nursing Diagnosis Standards (SDKI) among pediatric patients hospitalized in a pediatric surgical unit. **Methods:** A descriptive cross-sectional study with a retrospective design was conducted using medical records of pediatric patients treated in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, Indonesia, between December 2024 and March 2025. A total sampling technique was applied, including 107 pediatric patients aged 0–18 years with complete nursing assessment and diagnosis documentation. Data were analyzed and presented using frequencies and percentages based on the Indonesian Nursing Diagnosis Standards (SDKI). **Results:** Twelve actual nursing diagnoses were identified. Acute pain (D.0077) was the most prevalent diagnosis, occurring in 83 patients (77.6%). Nursing diagnoses were more frequently documented in the postoperative phase (56.1%) than in the preoperative phase (43.9%). The identified diagnoses were classified into psychological, physiological, and environmental domains, with physiological and psychological diagnoses predominating. **Conclusion:** Acute pain was the most common nursing diagnosis, particularly in the postoperative period. Comprehensive SDKI-based assessment and individualized nursing interventions are needed to address physical, psychological, and environmental needs and improve recovery outcomes.

Received 18 March 2026;
Received in revised form 5 June 2026;
Accepted 15 June 2026

<https://doi.org/10.19166/ncjk.v14i1.10554>

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INTRODUCTION

Children undergoing surgical procedures often experience a wide range of physiological and psychological responses that require timely identification and management by healthcare professionals, particularly nurses. These responses may include physiological alterations, pain, anxiety, and functional disturbances occurring before and after surgery (Mathias & Pai, 2022). Such responses indicate that the nursing care needs of pediatric surgical patients are multidimensional and require systematic identification through accurate nursing diagnoses. Therefore, comprehensive assessment and precise identification of patient responses are essential components of high-quality nursing care for pediatric surgical patients.

Globally, the demand for pediatric surgical services continues to increase alongside advances in healthcare technology and improved access to medical services. In the United States alone, more than 3.9 million surgical procedures are performed annually on children and adolescents (Fletke et al., 2022). The types and causes of pediatric surgery vary across regions, reflecting geographical and socioeconomic contexts. In Africa, congenital anomalies, trauma, and infections are the leading indications for pediatric surgery (Hashish et al., 2021), whereas digestive disorders and congenital conditions are more common in India (Pathak et al., 2021). In North Korea, surgery is most frequently performed for injuries, tumors, and abdominal conditions (Hsu et al., 2024). In Indonesia, the Ministry of Health reported approximately 1,457 pediatric surgical cases between 2017 and 2021, with the most common conditions being hypospadias (14%), Hirschsprung disease (12%), inguinal hernia (7%), and phimosis/paraphimosis (7%), while trauma accounted for a smaller proportion of cases (Purnomo et al., 2024). Surgical procedures also rank as the eleventh most common medical intervention nationally, with approximately 32% classified as elective surgeries. Nevertheless, a substantial proportion of children continue to experience postoperative pain, indicating that effective pain management remains a significant challenge in pediatric care (Bustami et al., 2024).

The complexity of pediatric surgical units presents unique challenges for nursing professionals. Children's developmental characteristics influence how they understand health conditions, adapt to the hospital environment, and express their care needs. Differences in communication abilities and cognitive development across age groups require nurses to conduct comprehensive assessments and apply developmentally appropriate approaches (Hurley-wallace et al., 2019). These challenges demand heightened clinical sensitivity to ensure accurate and holistic patient assessment. In this context, nursing

diagnoses play a crucial role in supporting systematic, measurable, and patient-centered clinical decision-making (Okpara, 2018). Nursing diagnoses not only guide the formulation of appropriate interventions but also facilitate professional communication among healthcare providers through standardized clinical language (Olatubi et al., 2019).

Nursing diagnosis is a fundamental component of the nursing process because it describes human responses to health problems and related conditions identified through nursing assessment (Bertocchi, et al., 2023). Accurate diagnoses provide the foundation for developing nursing care plans and selecting appropriate interventions to improve patient outcomes (D'Agostino et al., 2024). To enhance accuracy and consistency in nursing diagnosis, the use of standardized nursing terminology (SNT) is essential. SNT ensures consistency between nursing assessment data and documented care plans. Furthermore, standardized terminology is important for demonstrating the contribution and impact of nursing care on patient outcomes across diverse healthcare settings (Zhang et al., 2021).

Several studies have demonstrated that the use of standardized nursing terminology not only improves documentation quality but also supports clinical decision-making, enhances continuity of care, and facilitates objective evaluation of patient outcomes (Bertocchi, et al., 2023; Zhang et al., 2021). Moreover, standardized documentation enables epidemiological analysis of nursing diagnoses, measurement of healthcare quality indicators, and the development of more effective evidence-based nursing practices (Bertocchi, et al., 2023; D'Agostino et al., 2024).

Previous studies have identified various nursing diagnoses commonly observed among pediatric and surgical patients, including acute pain, risk for infection, impaired skin integrity, nutritional deficit, elimination disorders, and anxiety associated with surgical procedures and hospitalization (D'Agostino et al., 2024; Martinez et al., 2021). Studies involving postoperative pediatric surgical patients have also shown that nursing care needs extend beyond physical recovery to include psychological, developmental, and adaptive aspects that may influence the healing process (Marques et al., 2022; Mathias & Pai, 2022)

In Indonesia, national standards for nursing practice have been established through the Indonesian Nursing Diagnosis Standards (Standar Diagnosis Keperawatan Indonesia, SDKI), developed by the Indonesian National Nurses Association (Tim Pokja SDKI DPP PPN, 2016). SDKI serves as a guideline for nurses in identifying nursing diagnoses based on subjective data, objective findings, and

potential patient problems. The implementation of SDKI is expected to promote a more systematic, accurate, and consistent diagnostic process, thereby improving documentation quality and overall nursing care quality (Tim Pokja SDKI DPP PPN, 2016). However, its implementation in healthcare facilities continues to face several challenges, including limited training opportunities, incomplete documentation, and inconsistent application of nursing diagnoses in daily clinical practice (Widodo et al., 2020).

Although several international studies have reported nursing diagnosis profiles among pediatric and surgical patients using NANDA International and other standardized terminologies, evidence regarding the distribution of nursing diagnoses among pediatric surgical patients in developing countries remains limited. To date, studies specifically describing nursing diagnosis profiles based on SDKI among pediatric surgical patients are still scarce. This gap limits understanding of the most prevalent nursing problems, the characteristics of diagnoses identified during hospitalization, and their relevance to patients' clinical conditions in real-world practice. Therefore, evaluating nursing diagnosis profiles based on SDKI among pediatric surgical patients is essential to provide a contemporary overview of nursing practice and support the development of standardized nursing care.

Arifin Achmad General Hospital, Riau Province, as a teaching hospital and regional referral center, plays a vital role in providing high-quality pediatric nursing services, including care for children undergoing surgical procedures. As a teaching institution, the quality of nursing diagnosis documentation also contributes to clinical education, evidence-based practice development, and continuous quality improvement in nursing services. However, the extent to which nursing diagnoses documented in the Pediatric Surgical Unit accurately reflect patients' clinical conditions and align with SDKI standards remains unclear. Therefore, this study aimed to identify and describe nursing diagnoses among pediatric patients hospitalized in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, based on the Indonesian Nursing Diagnosis Standards (SDKI). The findings are expected to provide empirical evidence to support standardized nursing practice, improve nursing documentation quality, and optimize nursing care planning for pediatric surgical patients.

METHOD

This study employed a descriptive cross-sectional design using retrospective medical records. The design was considered appropriate for describing the distribution and profile of nursing diagnoses among pediatric surgical inpatients during a specified period (Figueiredo et al., 2025). The study was conducted in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, Indonesia, a provincial referral and teaching hospital that serves as the main center for pediatric surgical services in the region. Data were obtained from medical records of pediatric patients hospitalized between December 2024 and March 2025. The records reviewed included structured nursing documentation, particularly nursing assessments and nursing diagnosis records.

A total sampling approach was employed, whereby all medical records meeting the eligibility criteria during the study period were included. A total of 107 pediatric patients were identified and analyzed. Inclusion criteria were: (1) pediatric patients aged 0–18 years, (2) admission to the Pediatric Surgical Unit during the study period, and (3) complete medical records containing nursing assessment and nursing diagnosis documentation. Exclusion criteria included incomplete medical records, particularly those lacking nursing diagnosis documentation, and patients admitted solely for observation or transferred to another unit before a complete nursing assessment was conducted.

Data were extracted using a structured data collection form and analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize the data. Categorical variables were presented as frequencies and percentages to describe the distribution of nursing diagnoses based on the Indonesian Nursing Diagnosis Standards (Standar Diagnosis Keperawatan Indonesia [SDKI])

Ethical approval was obtained from the Health Research Ethics Committee of Institut Kesehatan Payung Negeri, Pekanbaru (Approval No. 019/IKES PN/KEPK/IX/2024). Patient confidentiality and anonymity were maintained throughout the study using de-identified data, with access restricted to authorized research personnel only.

RESULT

A total of 107 pediatric patients admitted to the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, were included in this study. The demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic Characteristics of Participants in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province (n = 107).

Variable	Category	n	%
Age (years)	0–1 (Infant)	21	19,6
	1–5 (Toddler)	24	22.4
	5–12 (School-age child)	34	31.8
	12–19 (Adolescent)	28	26.2
Sex	Male	88	82.2
	Female	19	17.8
Admission route	Emergency Room (ER)	77	72
	Outpatient Clinic	30	28
Perioperative Phase	Pre-operative	47	44
	Post-operative	60	56
Total		107	100

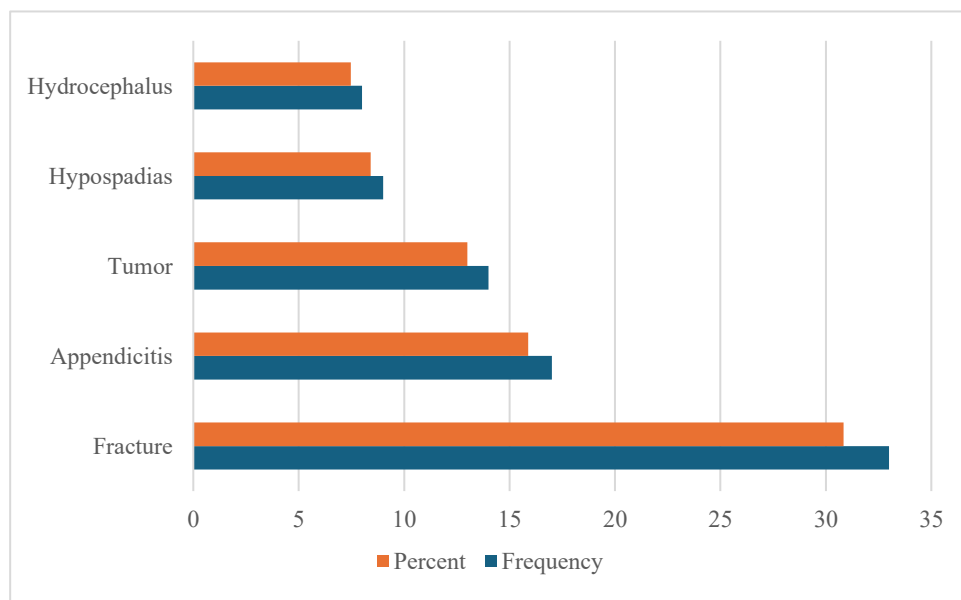


Fig. 1. Distribution of the Five Most Common Medical Diagnoses Among Pediatric Patients Hospitalized in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, Indonesia, During December 2024–March 2025

The analysis identified a diverse range of nursing diagnoses among pediatric surgical patients. A total of 12 actual nursing diagnoses were documented, with acute pain emerging as the most prevalent diagnosis. Detailed frequencies and percentages of each diagnosis are presented in Table 2.

Table 2. Most Common Actual Nursing Problems in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province (n = 107)

No	Nursing Problems	SDKI Code	n	%
1	Acute Pain	(D.0077)	83	77.6
2	Decreased Intracranial Adaptive Capacity	(D.0066)	6	5.6
3	Constipation	(D.0049)	6	5.6
4	Impaired Urinary Elimination	(D. 0040)	2	1.9
5	Anxiety	(D.0080)	2	1.9
6	Nutritional Deficit	(D.0019)	2	1.9
7	Ineffective Airway Clearance	(D.0001)	1	0.9
8	Impaired Comfort	(D.0074)	1	0.9
9	Chronic Pain	(D.0078)	1	0.9
10	Impaired Skin Integrity	(D.0129)	1	0.9
11	Risk for Ineffective Peripheral Tissue Perfusion	(D.0015)	1	0.9
12	Disturbed Sleep Pattern	(D.0055)	1	0.9
Total			107	100

Table 3 shows the distribution of nursing diagnoses across the perioperative phases. Overall, nursing diagnoses were more frequently documented during the postoperative phase (56.1%) than during the preoperative phase (43.9%). Acute pain (D.0077) was the predominant diagnosis, accounting for 77.6% of all identified nursing problems, and was more common among postoperative patients (65.1%). Decreased intracranial adaptive capacity (D.0066) and constipation (D.0049) were primarily identified during the preoperative phase, whereas anxiety, nutritional deficit, and impaired urinary elimination were equally distributed between the two phases. These findings indicate that although a variety of nursing problems were observed throughout the perioperative period, acute pain remained the most prominent issue, particularly following surgery.

Table 3. Distribution of Nursing Diagnoses According to Perioperative Phase in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province (n = 107)

Nursing Diagnosis	SDKI Code	Pre-operative	Post-operative	Total
		n (%)	n (%)	n (%)
Acute Pain	D.0077	29 (34.9)	54 (65.1)	83 (77.6)
Decreased Intracranial Adaptive Capacity	D.0066	5 (83.3)	1 (16.7)	6 (5.6)
Constipation	D.0049	5 (83.3)	1 (16.7)	6 (5.6)
Anxiety	D.0080	1 (50.0)	1 (50.0)	2 (1.9)
Nutritional Deficit	D.0019	1 (50.0)	1 (50.0)	2 (1.9)
Impaired Urinary Elimination	D.0040	1 (50.0)	1 (50.0)	2 (1.9)
Ineffective Airway Clearance	D.0001	1 (100.0)	0 (0.0)	1 (0.9)
Impaired Comfort	D.0074	1 (100.0)	0 (0.0)	1 (0.9)
Impaired Skin Integrity	D.0129	1 (100.0)	0 (0.0)	1 (0.9)
Risk for Ineffective Peripheral Tissue Perfusion	D.0015	1 (100.0)	0 (0.0)	1 (0.9)
Chronic Pain	D.0078	1 (100.0)	0 (0.0)	1 (0.9)
Disturbed Sleep Pattern	D.0055	0 (0.0)	1 (100.0)	1 (0.9)
Total		47 (43.9)	60 (56.1)	107 (100)

Table 4. Classification of Nursing Problems by Domain Based on SDKI in the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province

No	Category	Nursing Problems	Defining Characteristics
1	Psychological	Acute Pain (D.0077)	A sensory or emotional experience associated with actual or potential tissue damage, with a sudden or gradual onset and mild to severe intensity, lasting less than 3 months
2	Psychological	Anxiety (D.0080)	An emotional condition and subjective experience toward an unclear and unspecified object resulting from the anticipation of danger, which enables the individual to take action in response to the threat
3	Psychological	Impaired Comfort	A perceived lack of ease, relief, and transcendence in physical, psychospiritual, environmental, and social dimensions
4	Psychological	Chronic Pain	A sensory or emotional experience associated with actual or potential tissue damage, with a sudden or gradual onset, ranging from mild to severe intensity, persistent or recurrent in nature, and lasting longer than three months
5	Physiological	Decreased Intracranial Adaptive Capacity (D.0066)	A disturbance in the intracranial dynamic mechanism to compensate for stimuli that may reduce intracranial capacity.
6	Physiological	Constipation (D.0049)	Infrequent or difficult evacuation of dry, hard stools
7	Physiological	Impaired Urinary Elimination (D. 0040)	Dysfunction in urine elimination processes
8	Physiological	Nutritional Deficit (D.0019)	An intake of nutrients that is insufficient to meet the body's metabolic requirements.
9	Physiological	Ineffective Airway Clearance (D.0001)	The inability to clear secretions or obstructions from the airway to maintain a patent airway
10	Physiological	Risk for Ineffective Peripheral Tissue Perfusion (D.0015)	Being at risk for a decrease in blood circulation at the capillary level, which may impair tissue oxygenation, nutrient delivery, and cellular metabolism
11	Physiological	Disturbed Sleep Pattern (D.0055)	Disturbances in the quality and quantity of sleep due to external factors
12	Environment	Impaired Skin Integrity (D.0129)	Damage to the skin (dermis and/or epidermis) or tissue (mucous membranes, cornea, fascia, muscles, tendons, bones, cartilage, joint capsules, and/or ligaments).

Table 4 presents the identified nursing diagnoses grouped into three categories based on the Indonesian Nursing Diagnosis Standards (SDKI): psychological, physiological, and environmental. The psychological category comprised four nursing diagnoses, namely acute pain (D.0077), anxiety (D.0080), impaired comfort (D.0074), and chronic pain (D.0078), with acute pain being the most frequently identified. The physiological category included seven nursing diagnoses: decreased intracranial adaptive capacity (D.0066), constipation (D.0049), impaired urinary elimination (D.0040), nutritional deficit (D.0019), ineffective airway clearance (D.0001), risk for ineffective peripheral tissue perfusion (D.0015), and disturbed sleep pattern (D.0055), with decreased intracranial adaptive capacity and constipation being the most common. The environmental category consisted of one diagnosis, impaired skin integrity (D.0129), reflecting tissue damage involving the skin or underlying structures. Overall, pediatric surgical patients exhibited a broad range of psychological, physiological, and environmental responses, highlighting the need for comprehensive and holistic nursing care throughout the perioperative period.

DISCUSSION

This study described the profile of nursing diagnoses among patients admitted to the Pediatric Surgical Unit of Arifin Achmad General Hospital, Riau Province, based on the Indonesian Nursing Diagnosis Standards (SDKI). The findings indicate that pediatric surgical patients experienced a wide range of nursing problems throughout the perioperative period, with a greater number of diagnoses identified during the postoperative phase than during the preoperative phase. Furthermore, nursing diagnoses were predominantly classified into psychological and physiological categories, reflecting the complexity of children's responses to surgical procedures and recovery processes.

The most prominent finding of this study was the high prevalence of acute pain, which was identified in 77.6% of patients. This result suggests that pain remains the primary nursing problem among pediatric surgical patients. The high prevalence may be explained by tissue injury resulting from surgical procedures, postoperative inflammatory responses, and various nursing interventions performed during recovery, such as wound care, early mobilization, and the use of medical devices (Hu & Shang, 2024). In addition, developmental characteristics may limit children's ability to recognize and communicate pain effectively, highlighting the need for comprehensive and age-appropriate pain assessment strategies

These findings are consistent with previous international studies reporting pain as one of the most common problems among pediatric surgical patients. Previous studies have shown that 75–88% of children experience pain within the first 24 hours after surgery (Senger et al., 2021). Similarly, Liu et al. (2023) reported that nearly half of pediatric patients continued to experience moderate-

to-severe pain despite receiving standard analgesic therapy. (Rede et al., 2024) further found that a substantial proportion of children continued to report pain up to 36 hours after surgery. Collectively, these findings reinforce the present study's conclusion that pain remains a major focus of nursing care in pediatric surgical settings.

The predominance of acute pain during the postoperative period is also consistent with the physiological processes associated with surgery. In this study, acute pain was more frequently identified in postoperative patients than in preoperative patients. Similar findings were reported by Yücel & Kùçük (2024), who observed significantly higher pain intensity following surgical procedures. Postoperative pain typically develops within the first 24–72 hours after surgery and may persist for several days depending on the type of procedure, the extent of tissue trauma, and the effectiveness of pain management interventions (Tao et al., 2024). Factors such as major surgery, prolonged operative duration, larger incision size, preoperative pain, and preoperative anxiety have been identified as predictors of more severe postoperative pain (Rebollar et al., 2025).

In addition to physiological factors, children's psychological conditions may contribute substantially to pain experiences. Several studies have demonstrated that preoperative anxiety is associated with increased postoperative pain perception and greater analgesic requirements (Gao et al., 2024; Mathias & Pai, 2022). Uncertainty regarding medical procedures, unfamiliar hospital environments, and fear of invasive interventions may trigger stress responses that amplify pain perception. Stress-induced activation of neuroendocrine pathways may increase pain sensitivity and delay recovery (Ni et al., 2023). Therefore, pain management strategies for pediatric surgical patients should address both physiological and psychological dimensions.

The findings also revealed that the identified nursing diagnoses could be grouped into three major SDKI categories: psychological, physiological, and environmental. The psychological category included acute pain, anxiety, impaired comfort, and chronic pain. Among these diagnoses, acute pain was the most prevalent, followed by anxiety. These findings suggest that surgical experiences affect not only children's physical conditions but also their emotional and psychological well-being. Hospitalization, invasive procedures, unfamiliar environments, and uncertainty related to surgery may act as significant stressors that contribute to anxiety and discomfort among pediatric patients (Stanzel & Sierau, 2022). Consequently, comprehensive psychological assessment should be integrated into perioperative nursing care to support patient adaptation and recovery.

Within the physiological category, the most frequently identified diagnoses were decreased intracranial adaptive capacity, constipation, and impaired urinary elimination, followed by nutritional deficit, ineffective airway clearance, risk for ineffective peripheral tissue perfusion, and disturbed sleep pattern. These diagnoses may be associated with the effects of anesthesia,

immobilization, altered dietary intake, analgesic use, and physiological responses to surgical trauma. These findings are consistent with previous research indicating that postoperative pediatric patients are vulnerable to elimination disturbances, nutritional problems, sleep disruptions, and other physiological complications that require continuous monitoring and nursing interventions (Okpara, 2018).

The environmental category was represented by impaired skin integrity, reflecting damage to the skin or underlying tissues. This diagnosis may be associated with surgical wounds, medical device placement, and other factors affecting tissue integrity during hospitalization. Overall, these findings emphasize that pediatric surgical patients have multidimensional care needs and require holistic, integrated, and patient-centered nursing care to optimize recovery and quality of care (Bielicki et al., 2022). Furthermore, postoperative immobilization and the use of invasive devices may increase the risk of impaired skin integrity among hospitalized children (Kalhor et al., 2025). Therefore, regular skin assessment, appropriate wound care, and preventive strategies for skin injury should be considered essential components of perioperative nursing care.

Overall, the findings of this study demonstrate that pediatric surgical patients experience multidimensional nursing care needs encompassing physical, psychological, and functional aspects. The use of SDKI facilitates systematic and standardized identification of nursing problems, enabling nurses to establish care priorities, plan appropriate interventions, and evaluate patient outcomes more objectively. These findings provide valuable evidence regarding the most common nursing diagnoses among pediatric surgical patients in Indonesia and may serve as a foundation for developing evidence-based nursing practice, improving documentation quality, and strengthening pain management and psychological support programs for children undergoing surgical treatment.

CONCLUSION

This study identified acute pain as the most prevalent nursing diagnosis among pediatric surgical inpatients, followed by anxiety as an important psychological problem. The predominance of psychological and physiological nursing diagnoses highlights the multidimensional responses of children to surgical treatment and hospitalization. The findings underscore the importance of comprehensive SDKI-based nursing assessment to support accurate diagnosis identification, individualized care planning, and holistic interventions throughout the perioperative period.

Based on these findings, the Pediatric Surgical Unit of Arifin Achmad General Hospital is encouraged to strengthen routine assessment and management of pain and anxiety, particularly during the postoperative period. Consistent implementation of SDKI in nursing documentation and clinical practice, supported by regular

training and evaluation, may improve diagnostic accuracy and the quality of nursing care. In addition, integrating family-centered approaches and psychological preparation into perioperative care may contribute to improved recovery outcomes and a more positive hospitalization experience for pediatric patients.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the nursing staff at the Pediatric Surgical Unit of Arifin Achmad Regional Hospital, Riau Province, for their assistance in data access and support during the research process. We also thank the Research Ethics Committee of Payung Negeri Health Institute for their approval and guidance. Special appreciation is extended to all medical record officers who facilitated the retrieval of patient documentation.

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