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# The relationship between nutritional status and exploratory laparotomy under general anesthesia postoperative treatment length in pediatric patients

**Alegra Rifani Masharto[1]*, Kohar Hari Santoso[2,3], Nancy Margarita Rehatta[3], Arie Utariani[2,3], Bambang Pujo Semedi[2,3]**

[1]*Pediatric Anesthesiology Trainee, Department of Anesthesiology and Reanimation, Faculty of Medicine Airlangga University, Dr. Soetomo Academic Hospital, Surabaya, East Java, Indonesia*

[2]*Pediatric Anesthesiologist, Department of Anesthesiology and Reanimation, Faculty of Medicine Airlangga University, Dr. Soetomo General Academic Hospital, Surabaya, East Java, Indonesia*

[3]*Department of Anesthesiology and Reanimation, Faculty of Medicine Airlangga University, Dr. Soetomo General Academic Hospital, Surabaya, East Java, Indonesia*

**Abstract**

Nutritional status is a crucial factor in postoperative recovery, but it is often overlooked in pediatric patients in Indonesia who have a high prevalence of malnutrition. Preoperative malnutrition is known to disrupt the immune response, slow wound healing, and potentially increase morbidity and mortality. However, the specific relationship between nutritional status and clinical outcomes such as length of treatment and mortality in the pediatric surgical population in Indonesia still requires further investigation. This study aimed to analyze the relationship between nutritional status and postoperative treatment duration and surgical outcomes in pediatric patients undergoing general anesthesia for abdominal surgery. This study is an observational analytical study with a cross-sectional design that is retrospective. Secondary data from electronic medical records (EMRs) were taken from 72 pediatric patients (ages 6 months to 18 years) who underwent exploratory laparotomy at Dr. Soetomo General Academic Hospital during the study period. The independent variable is nutritional status, which is assessed with Body Mass Index (BMI) then classified to the WHO growth curve and albumin serum level. The bound variables were the length of postoperative treatment. Statistical analysis was performed using Chi-Square, Mann-Whitney, and binary logistic regression. Nutritional status is a significant independent predictor of postoperative mortality in pediatric exploratory laparotomy patients. The insignificance of the relationship with length of treatment was most likely due to selection bias due to exclusion criteria that excluded patients with severe complications and intensive care need, as well as loss of statistical strength due to categorization of long-term treatment data. These findings confirm the urgency to integrate nutritional status screening, including albumin level measurement, as a standard and mandatory procedure in pre-operative risk evaluation. Proactive nutritional interventions in high-risk patients are essential to improve clinical outcomes and lower mortality.

**Keywords:** Nutritional status, Pediatrics, Postoperative period, Length of treatment, Mortality, Abdominal surgery, Malnutrition

## Introduction

Nutritional status is often overlooked compared to clinical status and other preoperative examinations. Epidemiological data from the Ministry of Health of the Republic of Indonesia show that the incidence of stunting is 21.6% of children under five. According to the Riskesdas Health Research and Development Agency, nutritional abnormalities are still found with an estimated 30.8% of children under five classified as stunted, 17.7% underweight, 10.2% wasting, and 8% obese. This reflects that the prevalence of nutritional disorders is still high in Indonesia compared to the average of other Southeast Asian countries, according to the WHO, even though the balance between nutritional status and body needs is very important in the postoperative recovery process, wound healing, organ development, and immunological response to pain and other postoperative outcomes.

The prevalence in pediatric patients who will undergo surgery will be greater. Although there is no specific data on this matter, at Dr. Cipto Mangunkusumo Hospital in Jakarta, it is found that around 30-40% of patients are malnourished. Research at Dr. Sardjito Hospital, Yogyakarta, also showed that of the 320 pediatric patients who will undergo elective surgery, 28.4% suffer from malnutrition. This often-neglected nutritional status will have an impact on postoperative recovery due to malnutrition, psychological disorders, to the high mortality rate and morbidity of postoperative

**Correspondence:** Alegra Rifani Masharto, Pediatric Anesthesiology Trainee, Department of Anesthesiology and Reanimation, Faculty of Medicine Airlangga University, Dr. Soetomo Academic Hospital, Surabaya, East Java, Indonesia, **e-mail:** alegrarifani@gmail.com, **Received:** October 11, 2025 **Accepted:** November 20, 2025

pediatric patients due to suboptimal pain management related to this nutritional disorder. In fact, these factors have a significant effect on several points of the patient's quality of life.

Postoperative pain is still the most crucial problem in handling patients who have undergone surgery, especially in the age group under 18 years old. Nearly 5 million postoperative patients, or about 71% experience pain in treatment, and 80% experience pain both at rest and during medical procedures. Another study also shows that more than 70% of postoperative patients experience moderate to severe pain, and pain management in pediatric patients is a challenge due to limited communication and variability in pain perception. This, if not handled properly, can cause various kinds of negative impacts in the short term as well as long-term complications.

Pain incidence is related to the length of postoperative treatment due to the impact of reduced pharmacokinetic and pharmacodynamic efficacy of anesthetics, analgesics, and other pain therapies, due as a lack of nutritional factors. Low nutritional status can also increase postoperative complications such as immune system disorders and excessive pro-inflammatory responses, slowing down the patient's healing process. Another study showed that children with high BMI tended to experience more severe pain and needed additional analgesics. This is especially important in the pediatric population, considering the growth and development phases that are sensitive to nutritional imbalances and postoperative stress.

The effectiveness of pain management is considered essential because it not only reduces psychological stress but also reduces the duration of treatment and prevents long-term complications as previously described. Good pain management is not only influenced by pharmacological therapy, but also physiological status seen from the clinical and metabolic status of the patient, as assessed from nutritional status. In adult patients, the relationship between low nutritional status and pain levels is directly proportional. However, research on pediatric patients who have undergone surgical procedures is still limited, so it is necessary to collect data to analyze the relationship between nutritional status and duration of treatment, so that it can be a guideline in improving the quality of life of patients.

This study aims to analyze the relationship between nutritional status and postoperative treatment time in pediatric patients who have undergone general anesthesia at Dr. Soetomo Hospital, Surabaya. Through this study, an analysis was carried out on the nutritional status of pediatric patients, the duration of postoperative treatment, and the relationship between the two in order to obtain a comprehensive picture of the influence of nutritional status on the recovery process of postoperative pediatric patients. Theoretically, this research is expected to enrich scientific studies and add knowledge insights in the field of child health, especially regarding the role of nutritional status in determining the length of treatment after surgery. Practically, the results of this study are expected to be a reference for medical personnel and hospitals in improving the quality of services, as well as efforts to accelerate the recovery of pediatric patients undergoing general anesthesia through more attention to nutritional conditions before surgery.

## Method

### 1.Research design

This study is an observational analysis with a cross-sectional research method with secondary data sources obtained directly from EMR in pediatric patients who have undergone exploratory laparotomy under general anesthesia at Dr. Soetomo General Academic Hospital, Surabaya, throughout 2024.

### 2.Place and time of research

The research was carried out at Dr. Soetomo General Academic Hospital, Surabaya, between January 2024 to September 2025 after the ethical clearance had been approved by the ethics department of Dr. Soetomo General Academic Hospital, Surabaya.

### Population and research sample

### 1.Research population

The population of this study is all pediatric patients who have undergone exploratory laparotomy under general anesthesia at Dr. Soetomo General Academic Hospital, Surabaya, and are still recorded in the EMR.

## 2.Research sample

The sample of this study is pediatric patients who have undergone exploratory laparotomy under general anesthesia at Dr. Soetomo General Academic Hospital, Surabaya, who meet the inclusion and exclusion criteria. The research subjects were taken using by consecutive sampling technique until the number of research subjects was met. An estimated sample is a portion of the population that is expected to be able to represent the population in the study. The sample size in this study is determined by the formula, namely:

$$n = \#\frac{2}{\frac{Z\alpha + Z\beta}{\frac{1}{2}\ln\left(\frac{1+r}{1-r}\right)}}/ + 3 \qquad dn$$

### Information:

n = Number of Samples
P = (0,75 + 0,25)/2 = 0,5
Q = 1-0,5 =0,5
Zα = The level of significance (for = 0.05 is 1,96)
Zβ = 0,84
r = Expected/hypothesized correlation values

From the sample calculation formula above, the number of samples needed was 70 people.

## Data processing and analysis

The data obtained is secondary data, then it will be analyzed and presented with statistical analysis using SPSS. The process is carried out as follows:

- Editing: checking the accuracy and completeness of the data on the observation sheet of the research subject
- Coding: coding and numbering
- Entry: Enter data into the computer
- Cleaning: checks all data that has been entered into the computer to avoid errors in data entry
- Saving: data storage

**Data analysis:** descriptive statistical analysis using the Kolmogorov-Smirnov test is used for demographic data. Chi-Square analytical statistical analysis is used for categorical data, whereas the T-test or Mann-Whitney is used for numerical data. If the data is not normally distributed, use the Wilcoxon Signed Rank Test. The normality test used was the Shapiro-Wilk. Then, among the variables, the ANOVA test was carried out. The data from the research results were statistically analyzed with the help of the SPSS computer program version 22.0. The difference is considered statistically significant if $p<0.05$.

# Research Results

## 1.Sample selection and patient characteristics

In the period from October 2024 to August 2025, there were 72 patients who met the research inclusion criteria. In this study, the patients consisted of 41 males and 31 females. Data on continuous variables such as age, weight, height, body mass index, VAS, albumin levels, and duration of hospitalization were presented in the form of an average ± standard deviation. The average age in this study was 58.15 ± 58.1 months. The average weight in this study was 15.28 ± 12.73 kg. The average height in this study was 95.92 ± 34.03 cm. The average albumin level in this study was 3.83 ± 0.65 g/dL. The average duration of hospitalization in this study was 11.63 ± 15.64 months. The results of the basic characteristics of the research sample can be seen in Table 5.1, where the average of each variable is described.

**Tabel 1**. Sample characteristics

| **Variabel** | **Sample n = 72 (%)** | ***Mean* ± SD** |
|---|---|---|
| Gender<br>- Male<br>- Female | <br>41 (56,9%)<br>31 (43,1%) | |
| Weight (kg) | | 15,28 ± 12,73 |
| Height (cm) | | 95,92 ± 34,03 |
| Body mass index (kg/m$^2$) | | 14,04 ± 3,82 |
| Age (month) | | 58,15 ± 58,1 |
| VAS (Pain) | | 1,12 ± 1,35 |
| Albumin (g/dL) | | 3,83 ± 0,65 |
| Length of stay (day) | | 11,63 ± 15,64 |

Based on research data, patients were assessed for nutritional status with weight/age criteria of < - 2 elementary school based on the assessment of WHO or CDC, there were 36 patients with malnutrition and 36 patients with good nutrition. There were 8

patients who died after surgical treatment. The patient's long operating output of more than 9 days was obtained by 23 patients.

## 2.Test of the normality of research data

The data of this study, both numerical and categorical, were tested using the Shapiro-Wilk normality test with median descriptive analysis (min-max). The results of the normality test, along with the values of each group, are presented in Table 2.

**Table 2:** Normality test results of various variables in the study

| Variable | Median (Min-Max) | p-Value |
|---|---|---|
| Weight | 12,4 (1.78 – 55.0) | <0.001** |
| Height | 98 (47 – 162) | <0.001** |
| Body mass index | 14,2 (6.3 – 21.6) | 0,413* |
| Age (months) | 41 (1.0 – 204.0) | <0.001** |
| Score VAS | 0 (0 – 4) | <0.001** |
| Up to albumin | 3,97 (2.1 – 4.93) | 0,007** |
| Duration of stay | 7 (1 – 82) | <0.001** |

*Normally distributed data is stated if the value of p>0.05 using the Shapiro-Wilk test** data is not normally distributed

## 3.Comparison test between nutritional status and postoperative treatment length

The comparison test between nutritional status and the duration of hospitalization was carried out by dividing the duration of hospitalization into 2 groups, namely < 1 week and > 1 week. Comparisons were made using the chi-square test. The comparison test between nutritional status and surgical outcomes was tested using the Mann-Whitney test due to non-normally distributed data.

## 4.Multivariate analysis test on duration of treatment and external operations

Multivariate tests on the duration of treatment and external operations were performed using multivariate logistic binary tests. Body mass index, age, pain, albumin levels, and nutritional status were assessed against the length of treatment and the external operation. The results of multivariate tests on the duration of treatment and external operation are illustrated in Tables 3 and 4.

From the results of the multivariate analysis test, albumin results were found to be significant in reducing the duration of hospitalization and improving surgical outcomes ($p<0.05$) with an Odds Ratio <1, which has an interpretation that albumin has a positive effect on hospitalization and surgical outcomes. Other parameters, such as pain score ($p=0.940$ and $p=0.244$) and body mass index ($p=0.994$ and $p=0.975$), did not have a significant relationship with length of hospitalization and surgical outcome.

**Table 3**. Results of multivariate tests on length of treatment

| Variable | Length of Stay (n = 72) % | | *P-value* |
|---|---|---|---|
| | ≤ 1 week | >1 week | |
| BMI | | | |
| - Underweight | 3 | 21 | 0.352 |
| - Normoweight | 28 | 19 | |
| VAS | | | |
| - Mild (0-3) | 37 | 32 | 0.144 |
| - Moderate (4-6) | 0 | 1 | |
| Age | | | |
| - Infant (<12 bulan) | 13 | 6 | |
| - Toddler (1-5 tahun) | 7 | 15 | 0.047* |
| - Preschool (5-12 tahun) | 13 | 9 | |
| - Teen (>12 tahun) | 4 | 3 | |
| Gender | | | |
| - Male | 24 | 15 | 0.239 |

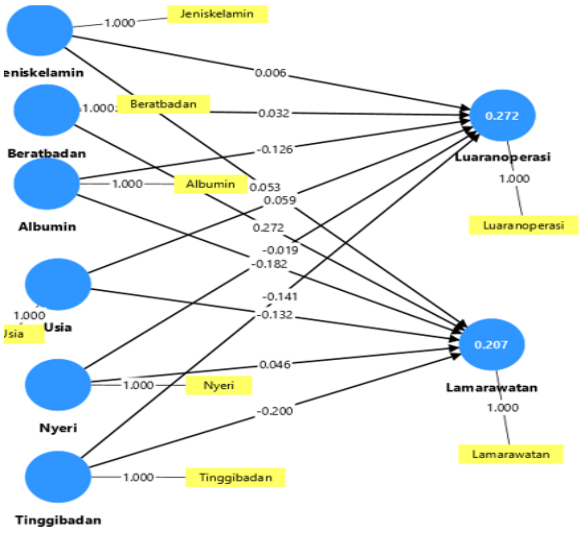
| | | | |
|---|---|---|---|
| - Female | 27 | 16 | |
| Albumin<br>- <3 mg/dL<br>- >3 mg/dL | <br>3<br>34 | <br>5<br>28 | 0.001* |
| Outcome<br>- Alive<br>- Dead | <br>36<br>28 | <br>3<br>5 | 0,001* |

**Table 4**. Multivariate test results of operating outputs

| **Variable** | **Length of stay (n = 72) % / Mean (median min – max)** | | ***P-value*** | ***Odds Ratio*** |
|---|---|---|---|---|
| | ≤ 1 week | >1 week | | |
| BMI<br>- Underweight | 3 | 21 | 0.669 | |
| - Normoweight | 28 | 19 | | 95% CI (0,831 – 1,126) |
| VAS<br>- Mild (0-3)<br>- Moderate (4-6) | 37<br>0 | 32<br>1 | 1.000 | 95% CI (0,000) |
| Age<br>- Infant (<12 bulan)<br>- Toddler (1-5 tahun)<br>- Preschool (5-12 tahun)<br>- Teen (>12 tahun) | 13<br>7<br>13<br>4 | 6<br>15<br>9<br>3 | 0.137 | 95% CI (0,325 – 1,166) |
| Gender<br>- Male<br>- Female | 24<br>27 | 15<br>16 | 0.952 | 95% CI (0,316 – 2,952) |
| Albumin<br>- <3 mg/dL<br>- >3 mg/dL | 3<br>34 | 5<br>28 | 0.119 | 95% CI (0,049 – 1,411) |
| Outcome<br>- Alive<br>- Dead | 36<br>28 | 3<br>5 | 0,285 | 95% CI (0,468 – 13,245) |

## 5. Strip analysis on the influence of research parameters on duration of treatment and external operations

In addition to using logistic regression, pathway analysis can be used to describe the relationship and prediction between the parameters studied and the outcome of the operation, and the length of treatment. Strip analysis itself is a regression extension model used to test the alignment of the correlation matrix with two or more models of comparative causal relationships.



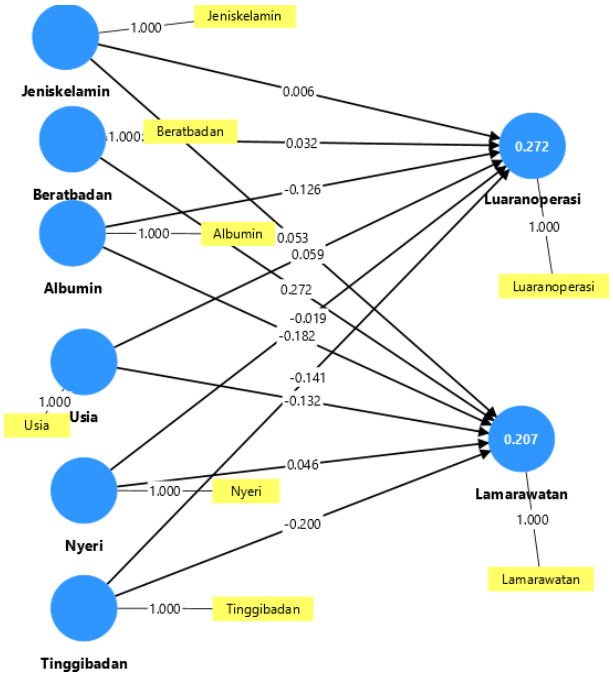



**Figure 1**. Analysis of Bands between Sex, Weight, Albumin, Age, Pain, and Height Independently of External Operations and Duration of Treatment

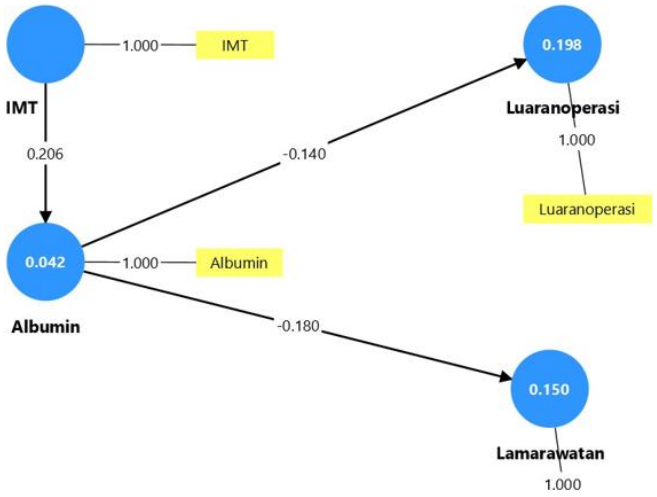



**Figure 2**. Analysis of the band between body mass index, albumin, external operation, and duration of treatment

Path analysis can use a model where each variable can influence the outcome (external) independently of the other, as shown in Figure 5.1. Then, from the significant parameters (albumin), further assessment was carried out. In a pathway analysis model like this, it was obtained that the body mass index provided a correlation coefficient of 0.206 with the result of albumin, giving a correlation of -0.140 to the surgical outcome and -0.1800 to the duration of treatment.

## Discussion

### 1.Study data and population characteristics

This study evaluated data from 72 pediatric patients who underwent abdominal surgery at Dr. Soetomo Hospital, with an average age of 58.15 months (about 4.8 years) and an average Body Mass Index (BMI) of 14.04 kg/m2. This demographic profile places the study population in an age range critical to nutritional disorders, where growth and development are taking place rapidly. This population contextualization is very important, given the high prevalence of malnutrition in Indonesia. Basic Health Research Data (Riskesdas) shows that the stunting rate reaches 30.8% and the underweight rate 17.7% in children under five nationally. This figure is in line with findings in various tertiary health care centers in Indonesia, such as at Dr. Cipto Mangunkusumo Hospital (RSCM), which reported a prevalence of malnutrition of around 30–40% in pediatric surgery patients, and at Dr. Sardjito Hospital, which found that 28.4% of pediatric elective surgery patients suffered from malnutrition.

These findings point to a fundamental clinical reality that pediatric surgical patients often do not enter the hospital environment in optimal nutritional conditions. Instead, many of them come with already depleted nutrient reserves, a condition that is often undiagnosed or considered secondary compared to primary surgical conditions. This circumstance makes the patient particularly vulnerable to physiological stress induced by surgical procedures. Surgery acts as an inflammatory stimulus in the body's already decaying immune system. Surgical stress triggers a massive neuroendocrine response that leads to hypermetabolic and hypercatabolic states, characterized by the release of stress hormones such as cortisol and pro-inflammatory cytokines. In patients with good nutritional status, the body has sufficient reserves of energy and protein to cope with this response. However, in malnourished patients, this catabolic response rapidly depletes already limited reserves, worsens nutritional status, and directly disrupts the postoperative recovery process. Therefore, the high prevalence of malnutrition in this population is not just a comorbid problem, but an underlying risk factor that can

significantly determine the clinical outcomes of patients.

## 2. Nutritional status as a significant predictor of postoperative outcomes

One of the most crucial findings of this study is that there is a statistically significant relationship between nutritional status and postoperative outcomes, namely life or death, with a value of p=0.003. These results unequivocally confirm the hypothesis that nutritional status is a vital determinant for the survival of postoperative pediatric patients. These findings do not stand alone, but are strongly supported by a wide range of international literature that consistently shows that preoperative malnutrition is a strong predictor of mortality, especially in complex surgical cases such as congenital heart surgery.

This strong statistical relationship can be explained through a series of interrelated pathophysiological cascades. This process begins from the initial condition of the malnourished patient, which is characterized by depletion of protein reserves reflected from hypoalbuminemia, lack of essential micronutrients, and decreased muscle mass. When a massive stressor in the form of surgery occurs, the body responds by releasing catabolic hormones (cortisol, glucagon) and inflammatory mediators (IL-1, IL-6, and TNF-α). In this condition, two pillars of the body's defenses, namely the immune system and the tissue repair mechanism, malfunction.

Nutritional status and nutritional risk can be evaluated by various methods, for example, descriptive scales, anthropometric parameters such as body mass index, or assessment of body composition by bioelectric impedance analysis. In clinical practice, nutritional risk and body mass are mandatory parameters in the assessment of nutritional status in patients admitted to any hospital in Poland. The complex processes underlying the relationship between healing and nutrition depend on how the body responds metabolically to surgical stress. Inflammatory reactions become more severe, wound healing is delayed, and immune function is impaired due to poor nutritional conditions. On the other hand, individuals who have sufficient nutritional reserves are more resistant to the physiological demands of surgery, recover faster, and experience fewer problems. Nearly 40% of general surgery patients are still at risk of malnutrition despite improvements in perioperative care and surgical methods, sometimes as a result of undiagnosed nutritional deficiencies or underlying chronic conditions.

In addition to individual outcomes, these findings have public health implications that affect healthcare systems and policies. Longer length of hospitalization and readmission result in increased healthcare costs for patients with nutritional problems, which adds to the financial burden on hospitals and the national health system. These systemic problems and improved surgical outcomes may be addressed by incorporating nutritional evaluation and optimization into the preoperative care routine.

## 3. Analysis of insignificant relationships in nutritional status and duration of postoperative treatment

The findings in this study were that there was no statistically significant relationship between nutritional status and length of stay (LOS), which was categorized into <9 days and > 9 days (p=0.156). These results appear to contradict much of the existing literature, where numerous studies have consistently shown that malnutrition status is a strong predictor for prolonged postoperative hospitalization in pediatric patients. This disparity demands a more in-depth analysis of the research methodology, population characteristics, and multifactorial nature of the outcome variables themselves.54 However, in multivariate tests, albumin results were found to affect the significance of hospitalization outcomes and duration of surgery. This can be explained pathophysiologic ally. Albumin not only reflects the status of visceral proteins but also plays an important role in maintaining plasma oncotic pressure, transporting drugs, and functioning as an antioxidant. Low albumin levels signal a depletion of heavy protein reserves, which directly interferes with the body's ability to respond to surgical stress, inhibits wound healing, and weakens the immune system, thereby increasing the risk of systemic infections and organ failure leading to death.

The most plausible explanation for these non-significant outcomes lies in the interaction between

the strength of the predictive variables and the exclusion criteria applied in the study. Studies have shown that although nutritional status is an important factor, other variables can be much stronger predictors for Length Of Stay (LOS). In particular, the occurrence of postoperative complications has been identified as the most dominant predictor. A study by Asfaw et al. found that children with postoperative complications were almost 8 times more likely to experience long LOS (Adjusted Odds Ratio: 7.8), while children with poor nutritional status were only 2.6 times more likely (AOR: 2.6). Other strong factors include trauma-related admission diagnosis (AOR: 4.1).

The second factor that contributes to the non-significant finding is the nature of the LOS variable itself and the way it is measured. LOS is a complex and multifactorial output variable, influenced not only by the patient's clinical factors but also by systemic factors such as hospital policies, bed availability, discharge administrative procedures, and even the socioeconomic factors of the patient's family. The variability caused by these non-medical factors can add to the disruption of statistical results that may be indirectly significant, thus obscuring the effects of a single biological variable such as nutritional status.

In addition, the methodological choice to analyze LOS as a binary categorical variable (<9 days vs. >9 days) substantially reduces the statistical strength and granularity of the data. The raw data from this study showed a very skewed distribution of LOS, with a median of 7 days, but an average of 11.63 days and a very large standard deviation of 15.64 days, and a range from 1 to 82 days. This indicates that there are a small number of patients (outliers) with very long hospitalizations. By performing dichotomization at the median (7 days), a patient who was treated for 8 days was grouped the same as a patient who was treated for 82 days. This approach removes valuable information about the length of the hospitalization. It is possible that malnutrition does not significantly affect whether a patient will go home on day 6 or day 8, but it may be a critical determining factor in whether a patient will go home on day 8 or day 30. Analysis using the regression method with LOS as a continuous variable may be more sensitive to detect more subtle trends, which are unfortunately lost due to the categorization process.

## 4. Clinical implications for the findings of this study

Patient nutritional status plays an important role in mortality (p= 0.003), while length of hospitalization does not show a meaningful relationship, so the assessment of nutritional status remains crucial in clinical practice. This study confirms the importance of nutritional assessment as an essential component that cannot be separated from pre-operative risk evaluation in all pediatric surgical patients. The focus of intervention is not solely on efforts to shorten the length of hospitalization, but more fundamentally, is the prevention of a series of pathophysiological processes that can lead to death. Therefore, clinical practice needs to shift from a reactive to a proactive approach by integrating validated pediatric nutrition screening tools into the standard flow of preoperative assessments. The application of these instruments allows for early identification of patients at risk of malnutrition so that appropriate nutritional interventions, whether in the form of oral, enteral, or parenteral supplementation, can be provided before the implementation of elective surgery. Optimization of preoperative nutritional status will increase the patient's physiological capacity in the face of surgical stress and ultimately increase the chances of achieving better postoperative outcomes.

## 5. Research limitations

In order to interpret the results of this study accurately and balanced, it is important to recognize some of the limitations inherent in its design and implementation. These limitations provide context for the reported findings and form the basis for future research recommendations. First, an observational analytical study design with cross-sectional methods and secondary (retrospective) data collection from electronic medical records (EMR) limits the ability to definitively establish cause-and-effect relationships. Its nature, which is carried out in a single health service center at Dr. Soetomo Hospital, can also limit the generalization of results to other populations or hospitals with different patient characteristics and treatment protocols.

Second, as has been discussed extensively, the exclusion criterion is the most significant limitation, especially in relation to the analysis of length of hospitalization. The exclusion of patients with

intraoperative complications and those requiring treatment at the PICU has created selection bias, resulting in data that do not fully represent the severity spectrum of pediatric surgical patients 54 Third, the measurement of long-term hospitalization outcomes as binary categorical variables (<1 week and >1 week) has reduced the statistical strength and sensitivity of the analysis. This approach may have obscured the relationship that actually existed but was more gradual.

Fourth, there is the potential for confounding factors that are not measured or not included in the analysis. Factors such as family socioeconomic status, which has been shown to be related to nutritional status, the specific level of complexity of each abdominal surgical procedure, as well as the presence of other comorbid diseases, also affect the postoperative outward and duration of postoperative treatment of abdominal surgery undergoing general anesthesia.

## Conclusion

Based on the analysis of the study results, it was found that the nutritional status of pediatric patients who had undergone general anesthesia at Dr. Soetomo Hospital had a fairly good average, which was around 58% with an average preoperative albumin of 3.87. Nutritional status is a statistically significant independent predictor of postoperative mortality in pediatric patients undergoing exploratory laparotomy at Dr. Soetomo General Academic Hospital. Patients with abnormal nutritional status have a higher risk of death.

According to a long-term analysis of postoperative treatment of pediatric patients who have undergone exploratory laparotomy under general anesthesia, the average treatment is quite long, which is 11.6 days, so short treatment is very rare in pediatric patients who have undergone exploratory laparotomy procedures under general anesthesia.

In this study population, no statistically significant relationship was found between nutritional status (BMI) and postoperative treatment length, but, there is significant relationship was found between nutritional status (albumin) and postoperative treatment length in pediatric patients who had undergone exploratory laparotomy under general anesthesia. These findings are most likely due to a combination of several factors, most notably exclusion criteria that rule out patients with severe complications and postoperative intensive care treatment.

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