

The Relationship Between Nutritional Indicators, Food Hygiene, and Inpatient Satisfaction at Syifa Medika General Hospital

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ABSTRACT

Introduction: Nutritional indicators and food sanitation hygiene are important components in supporting the healing process and inpatient satisfaction. A preliminary study at RSU Syifa Medika Banjarbaru showed that there were still patient complaints regarding delayed food distribution, less suitable food taste, and suboptimal implementation of food sanitation hygiene. This study aims to analyze the relationship between nutritional indicators and food sanitation hygiene with inpatient satisfaction at RSU Syifa Medika Banjarbaru.

Method: This study is a quantitative research with a cross-sectional design. The study population comprised 400 inpatients, with a sample of 80 respondents selected using stratified random sampling. Data were collected using questionnaires measuring nutritional indicators, food hygiene and sanitation, and patient satisfaction. Data analysis was conducted univariately and bivariate using the Spearman Rank correlation test at a significance level of $\alpha = 0,10$.

Results: Significant positive relationships were found between nutritional service indicators and patient satisfaction ($p = 0.01$; $r = 0.363$), as well as between food hygiene and sanitation and patient satisfaction ($p = 0.06$; $r = 0.302$). Most respondents perceived nutritional service indicators as fulfilled (77.5%), food hygiene and sanitation as good (93.8%), and reported being satisfied with the services received (75.0%).

Conclusion: Nutritional indicators and food sanitation hygiene are significantly related to inpatient satisfaction. Improving the quality of nutrition services, timeliness of food distribution, and consistent implementation of food sanitation hygiene can support increased patient satisfaction and hospital service quality.

Keywords: *Nutritional Indicators; Food Hygiene Sanitation; Patient Satisfaction; Hospital Nutrition Services*

Introduction

Hospitals provide comprehensive health services including inpatient care with a primary focus on nutrition services. Nutrition service plays a vital role in supporting the healing process, maintaining patient nutritional status, preventing complications, and improving patients' quality of life during care (Kementerian Kesehatan Republik Indonesia, 2013). Proper nutrition service can help accelerate patient recovery, reduce the risk of infection, and shorten the length of stay. The quality of hospital nutrition services can be measured through several indicators, including the timeliness of meal provision, dietary appropriateness, suitability of taste, and amount of plate waste. Based on the Decree of the Minister of Health of the Republic of Indonesia Number 129/Menkes/SK/II/2008 concerning Minimum Service Standards for Hospitals, requirements for timely meal delivery is 100%, diet appropriateness is 100%, taste suitability is 100%, and patient food waste does not exceed 20% (Kementerian Kesehatan Republik Indonesia, 2008). Achievement of these indicators serves as a benchmark for the success of hospital nutrition services and influences patient satisfaction (Firdaus et al., 2023).

In addition to nutritional indicators, food sanitation hygiene is a crucial aspect of ensuring food safety for patients. Food sanitation hygiene encompasses the cleanliness of food handlers, eating utensils, food processing procedures, raw food storage, and food distribution to patients. Implementation of sanitation hygiene that does not conform to standards can increase the risk of food contamination and foodborne infections, especially in patients with vulnerable health conditions (Kementerian Kesehatan Republik Indonesia, 2011). Therefore, nutrition services and food sanitation hygiene are two interconnected components in delivering safe, high-quality, and patient-centered services (Yuniar et al., 2023).

Several previous studies have shown a relationship between food service quality and patient satisfaction. According to research by Sumiati et al. (2023), timeliness of food distribution is significantly related to inpatient satisfaction. Research by Mardianingsih et al. (2020) also demonstrated that food service quality, particularly the timeliness and consistency of food presentation, affects patient satisfaction levels. Meanwhile, Fatimah et al. (2022) found that aspects of food sanitation hygiene contribute to patient perceptions

regarding hospital service quality. Nevertheless, most of these studies focused solely on nutritional indicators or food sanitation hygiene in isolation, so studies analyzing both aspects simultaneously in relation to patient satisfaction remain limited.

Based on a preliminary study conducted at RSU Syifa Medika Banjarbaru, several issues regarding food service were still identified, such as delays in food distribution, patient dissatisfaction with food taste, inconsistent use of personal protective equipment by food handlers, and limitations in food distribution facilities. If these conditions are not continuously evaluated and improved, they could impact service quality and patient satisfaction during treatment. The novelty of this study lies in the simultaneous analysis of the relationship between nutritional indicators and food sanitation hygiene with inpatient satisfaction at RSU Syifa Medika Banjarbaru. Unlike previous studies that tended to examine each variable separately, this study examines both food service aspects within a single research model. The study findings are expected to serve as evaluation material and input for the hospital in enhancing nutrition service quality, food safety, and patient satisfaction. Patient satisfaction is widely recognized as an essential indicator of hospital performance as it reflects patient perceptions of care quality received, including nutrition services and food safety management during hospitalization (Aprilia et al., 2025). Based on this background, this study aims to analyze the relationship between nutritional indicators and food sanitation hygiene with inpatient satisfaction at RSU Syifa Medika Banjarbaru.

Method

This study is a quantitative research with a cross-sectional design aimed at analyzing the relationship between nutritional indicators and food hygiene/sanitation with inpatient satisfaction at RSU Syifa Medika Banjarbaru. The population in this study consisted of 400 inpatients at RSU Syifa Medika Banjarbaru in February 2026. The sample size was calculated using Slovin's formula with a margin of error of 10%, resulting in 80 respondents. Samples were selected using a stratified random sampling technique based on the care class.

The inclusion criteria comprised inpatients who had undergone treatment for a minimum of two days, were aged 18–64 years, were conscious, were able to communicate

well, and were willing to participate as respondents. Patients admitted to intensive care units and those with impaired consciousness or conditions that hindered completing the questionnaire were excluded from the study.

The research instrument was a questionnaire consisting of a nutritional indicators questionnaire, a food hygiene and sanitation questionnaire, and a patient satisfaction questionnaire. Nutritional indicators included the timeliness of food distribution, dietary accuracy, food taste suitability, and patient food waste. Food hygiene and sanitation encompassed the cleanliness of food handlers, eating utensils, food processing procedures, and food distribution. Patient satisfaction was measured using the SERVQUAL method based on respondents' perceptions of the services received during their hospitalization.

Data analysis was conducted univariately to describe the frequency distribution of respondent characteristics and research variables. Bivariate analysis was performed using Spearman's Rank correlation test with a significance level of $\alpha = 0.10$ to determine the relationship between nutritional indicators and food hygiene/sanitation with inpatient satisfaction.

This study received ethical approval from the Health Research Ethics Committee of STIKes Intan Martapura under Number 025/KE/YBIP-SI/III/2026, dated March 31, 2026.

Results

Based on the research results, a total of 80 inpatients participated in this study. Most respondents were female, aged 26–45 years, had a high school education, and received inpatient care for more than three days. The distribution of the main study variables is presented in Tables 1–3.

Table 1. Frequency Distribution of Nutritional Indicators, Food Hygiene, and Inpatient Satisfaction at Syifa Medika General Hospital

No	Variable Name	Category	Frequency	Percentage
1	Nutrition Indicator	Fulfilled	62	77,5
		Not Fulfilled	18	22,5
2	Food Hygiene and Sanitation	Good	75	93,8
		Fair	5	6,2

		Poor	0	0
3	Patient Satisfaction	Satisfied	60	75,5
		Dissatisfied	20	25,5

Source: Primary Data, 2026

Based on the statistical data presented in Table 1, the general trend found in the field indicates that the nutritional quality indicators for most inpatients are in the met category. This positive trend is supported by the food hygiene and sanitation variable, where almost all respondents gave a good rating to the cleanliness of food and food handlers in the hospital. In line with the performance of these two variables, the majority of respondents expressed a high level of satisfaction (satisfaction) during their treatment period.

Table 2. Relationship Between Nutrition Service Indicators and Patient Satisfaction

Variable		p-value	Correlation Coefficient (r)
Nutrition Service Indicators and Patient Satisfaction		0,01	0,363

Source: Primary Data, 2026

A statistically significant positive relationship was identified between nutrition service indicators and inpatient satisfaction.

Table 3. Relationship Between Food Hygiene and Sanitation and Patient Satisfaction

Variable		p-value	Correlation Coefficient (r)
Food Hygiene and Sanitation and Patient Satisfaction		0,06	0,302

Source: Primary Data, 2026

Food hygiene and sanitation were also significantly associated with inpatient satisfaction.

Discussion

The quality of hospital food service assessed through the fulfillment of nutritional indicators and the implementation of food hygiene and sanitation—is scientifically proven to have a significant positive relationship with inpatient satisfaction at Syifa Medika General Hospital (RSU) Banjarbaru. The integration of these findings confirms that hospital food service does not merely serve to fulfill biological needs and nutrient

metabolism during patient recovery, but also acts as a key service quality attribute directly perceived by patients. Theoretically, the interconnectedness among these variables reinforces the concept of Service Quality proposed by Parasuraman (1988), which asserts that customer or patient satisfaction is achieved when the actual services received match or exceed initial expectations. In the landscape of healthcare institution management, the performance of physical evidence (tangibles) inherent in food presentation, delivery timeliness, taste quality, as well as the hygiene of food and food handlers act as visible indicators that simultaneously construct patient perception toward total healthcare service quality.

Nutritional service is a vital component of healthcare aimed at maintaining and improving patient nutritional status during hospitalization. The Ministry of Health of the Republic of Indonesia (2013) highlights that hospital nutrition service encompasses food service, nutritional care, and nutrition service monitoring and evaluation oriented toward patient needs. Timeliness of food distribution, diet accuracy, food taste quality, and low patient plate waste serve as indicators reflecting successful nutrition service. When patient needs and expectations regarding food service are met, patients tend to provide positive evaluations of total hospital service. The results of this study are aligned with research by Sumiati et al. (2023), stating that nutritional indicators are closely linked to inpatient satisfaction. Similar findings were reported by Mardianingsih et al. (2020), demonstrating that food presentation accuracy and dietary suitability contribute significantly to enhancing patient satisfaction.

Beyond service accuracy, food sensory attributes directly perceived by patients also influence satisfaction levels. Moehyi (2017) asserts that consumer food acceptance is highly determined by sensory factors, including taste, aroma, color, texture, and visual appearance. Optimal food taste stimulates patient appetite while optimizing dietary intake during treatment. Conversely, food unaligned with patient preferences or dietary habits can increase plate waste volume and decrease satisfaction levels. Therefore, periodic evaluation of food sensory quality is essential as part of continuous hospital nutrition service quality improvement.

Food hygiene and sanitation play an equally crucial role in shaping patient perceptions of hospital service quality. Pursuant to Regulation of the Minister of Health

of the Republic of Indonesia No. 1096/MENKES/PER/VI/2011, food hygiene and sanitation involve risk control against food contamination from raw material selection, processing, storage, distribution, to presentation to the patient. Optimal implementation of hygiene and sanitation guarantees food safety and reduces foodborne disease risks. As a vital component of patient safety, food safety serves as an essential indicator in healthcare provision. Consequently, hygienic food service processes boost patient trust in the hospital's commitment to service quality.

The findings of this study accord with Fatimah et al. (2022), who stated that food hygiene and sanitation contribute to patient perceptions regarding hospital service quality. Research by Yuniar et al. (2023) also demonstrates that the cleanliness of food handlers, eating utensils, and food processing environments is closely linked to patient satisfaction. This indicates that food safety serves not only as a service operational standard, but also acts as a psychological factor affecting patient comfort and sense of security during hospitalization.

Although physical aspects (tangibles) were rated favorably, this study uncovered managerial evaluation areas regarding dissatisfaction expressed by a small subset of patients. This dissatisfaction stems from suboptimal non-physical service dimensions, namely reliability, responsiveness, and empathy among nutrition staff. On the reliability dimension, personnel were perceived as insufficiently attentive to individual patient conditions, and hospital feedback collection systems post-meal remained weak. Regarding responsiveness, patient complaints were handled slowly, particularly when requesting rapid menu modifications or food texture adjustments. Meanwhile, on the empathy dimension, staff interpersonal communication remained limited, with rare evaluations of leftover food or inquiries into patient feedback on food taste. This gap underscores the necessity for standardizing therapeutic communication among nutrition personnel in the field.

Conversely, positive strengths of RSU Syifa Medika Banjarbaru in nutrition service include successfully meeting physical food quality standards, consistent meal delivery schedules, strong adherence to hygiene and sanitation principles, strict staff discipline regarding complete personal protective equipment (PPE), and high utensil cleanliness. These positive factors collectively provide tangible safety and comfort for patients.

Overall, inpatient satisfaction represents a multidimensional end-product emerging from the integration of nutrient-dense, optimally tasting, timely, safe food served with empathetic and prompt care (patient-centered care). As a practical implication for future quality improvement, hospital management and nutrition departments should consider several strategic, sustainable steps. These include strengthening Hazard Analysis Critical Control Point (HACCP)-based monitoring systems and fostering active collaboration between dietitians and medical personnel to develop adaptive patient menus. Additionally, managing organic food waste offers sustainable potential for eco-friendly allocation into compost or eco-enzymes, demonstrating collective participation toward a green hospital framework.

Conclusion

This study demonstrates statistically significant positive relationships between both nutritional indicators and food hygiene/sanitation with inpatient satisfaction at Syifa Medika General Hospital Banjarbaru. While physical evidence (tangibles) serves as the primary driver of patient satisfaction, ongoing attention to food sensory quality, preparation techniques, and sustainable waste management-such as composting or Black Soldier Fly cultivation-remains essential for improving overall nutrition service quality and supporting green hospital practices.

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