

Correlation analysis between nutrition service quality and inpatient satisfaction at Benjamin Guluh Hospital, Kolaka Regency

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International Journal of Science and Research Archive, 2025, 15(02), 036-041

Publication history: Received on 18 March 2025; revised on 29 April 2025; accepted on 01 May 2025

Article DOI: <https://doi.org/10.30574/ijrsra.2025.15.2.1240>

Abstract

Background: Patient satisfaction becomes one of the criteria for assessing hospital performance. Nutrition is also one of the key factors in supporting patient health, thus nutritional services must be considered to ensure patients remain satisfied with all hospital services. Three indicators of nutritional services regulated in the minimum service standards (MSS) of hospitals are the timeliness of complementary feeding, patient food waste, and the dietary appropriateness given to patients. This study aims to analyze the correlation between the quality of nutrition services and inpatient satisfaction at Benjamin Guluh Hospital, Kolaka Regency.

Methods: This is an analytical study with a cross sectional design involving 67 inpatients as research subjects taken by purposive sampling. Data were collected through interviews using questionnaires and observations using forms, and then analyzed using SPSS with univariate and bivariate analysis.

Results: The chi-square test results obtained values for timeliness complementary feeding $p=0.002$, accuracy of diet administration $p=0.039$, and food waste $p=0.527$.

Conclusion: This study can be concluded that the service indicators of timeliness of food delivery and dietary appropriateness delivery are significantly related to inpatient satisfaction, while food waste is not related to patient satisfaction.

Keywords: Patient Satisfaction; Dietary Appropriateness Administration; Timeliness of Complementary Feeding; Patient Food Waste

1. Introduction

Nutrition services in hospitals are an integral part of health services that aim to fulfil the nutritional needs of patients to support the healing process. The quality of nutrition services in hospitals can be measured through several key indicators, namely the timeliness of complementary feeding, the level of patient food waste, and the dietary appropriateness administration in accordance with the minimum service standards set by the Ministry of Health (1).

Timeliness of complementary feeding plays an important role in supporting the body's metabolism and the effectiveness of pharmacological therapy. Nevertheless, several studies have indicated that the timeliness of food service in hospitals still does not meet the established standards (2). In addition, the level of patient food waste is also an indicator of the success of nutrition services, where high food waste can reflect the patient's low level of nutritional intake, potentially increasing the risk of malnutrition (3).

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In addition, dietary appropriateness includes a crucial aspect of hospital nutrition services. This may result from a lack of coordination between medical personnel and dietitians, potentially hindering patient recovery (4). Another factor that influences the success of nutrition services is patient satisfaction with the food served. Several studies have revealed that flavor, menu variety, and food temperature are often the main complaints of patients regarding nutrition services (5).

Data based on the Quality Committee of Benyamin Guluh Hospital in 2024, in Quarter I and Quarter II, and Quarter III patient food waste was recorded at 20.86% and 20.63%, 21.12% which still did not meet the set standards, namely $\leq 20\%$. Meanwhile, data on the timeliness of feeding was recorded at 92.76% and 91.22%, 94.5%. The quality indicators of nutrition services still show several challenges, especially in terms of patient food waste, which is still above the set standards, despite the timeliness of complementary feeding and diet indicators have met the minimum service standards.

Based on data from the Community Satisfaction Index (IKM) at Benyamin Guluh Hospital in 2022, it was recorded at 83.05%, in 2023 at 83.47%, and in Semester I of 2024 at 85.78%. However, the measurement of patient satisfaction with nutrition services in this hospital had not been completed specifically on the satisfaction of nutrition services.

Based on this background, this study aims to analyze the correlation between nutrition service quality indicators and inpatient satisfaction at Benyamin Guluh Hospital, Kolaka Regency. The results of this study are expected to be the basis for improvement and development of the hospital nutrition service system in order to improve service quality and patient satisfaction.

2. Methods

The method used an analytical study with a cross sectional design involving 67 inpatients as research subjects taken by purposive sampling. Data were collected through interviews using questionnaires and observations using forms. The research data were processed with the SPSS program using univariate and bivariate analysis.

3. Results

This study involved 67 inpatients at Benyamin Guluh Hospital, Kolaka Regency as respondents. Table 1 presents the results of univariate analysis, including the accuracy of diet administration with the appropriate category (91%), the timeliness of feeding in the appropriate category (95.5%), the remaining food in the food waste category is small (70.1%), and patient satisfaction is in the satisfied category (97%).

Table 1 Univariate Analysis Results

No	Variable	N	%
1	Dietary Appropriateness		
	Appropriate	61	91
	Inappropriate	6	9
	Total	67	100
2	Timeliness		
	Appropriate	64	95.5
	Inappropriate	3	4.5
	Total	67	100
3	Patient Satisfaction		
	A little bit food waste	47	70.1
	Much food waste	20	29.9
	Total	67	100
4	Patient Satisfaction		

	Satisfied	65	97
	Unsatisfied	2	3
	Total	67	100

Table 2 Correlation between Dietary Appropriateness and Patient Satisfaction

Dietary Appropriateness	Patient Satisfaction				Total		P Value
	Unsatisfied		Satisfied				
	n	%	N	%	n	%	
Inappropriate	1	16.7	5	83.3	6	9.0	0.039
Appropriate	1	1.8	60	98.4	61	91.0	
Total	2	3.0	65	97.0	67	100	

Table 2 indicates that the dietary appropriateness administration is correlated with patient satisfaction at Benyamin Guluh Hospital, Kolaka Regency with a value of $p=0.039$.

Table 3 Correlation between Dietary Appropriateness and Patient Satisfaction

Timeliness of Complementary Feeding	Patient Satisfaction				Total		P Value
	Unsatisfied		Satisfied				
	n	%	n	%	N	%	
Unsatisfied	1	33.3	2	66.7	3	4.5	0.002
Satisfied	1	1.6	63	98.4	64	95.5	
Total	2	3.0	65	97.0	67	100	

Table 3 shows that the timeliness of complementary feeding is correlated with patient satisfaction at Benyamin Guluh Hospital, Kolaka Regency with a value of $p=0.002$.

Table 4 Correlation between Food Waste and Patient Satisfaction

Food Waste	Patient Satisfaction				Total		P Value
	Unsatisfied		Satisfied				
	n	%	N	%	n	%	
Much food waste	1	5.0	19	95.0	3	29.9	0.527
A little bit food waste	1	2.1	46	97.9	47	70.1	
Total	2	3.0	65	97.0	67	100	

Table 4 shows that food waste is not correlated with patient satisfaction at Benyamin Guluh Hospital, Kolaka Regency with a value of $p=0.527$.

4. Discussion

Hospital services aim to help optimize and meet nutritional needs in the body's metabolic system, healing diseases both inpatient and outpatient. Therefore, every patient must receive good and quality nutrition services in accordance with the quality indicators set by the hospital to achieve maximum service quality. In this study, the quality indicators of nutrition services included the timeliness of complementary feeding, the dietary appropriateness, and food waste (6). In order to support quality nutrition services, the results of nutrition services must be close to the expected results and carried out according to applicable standards and procedures. The quality indicators of nutrition services reflect the

quality of performance of the nutrition installation within the scope of nutrition service activities, including timeliness of feeding 100%, dietary appropriateness 100%, and food waste $\leq 20\%$.

Optimal nutrition services become an integral part of health care in hospitals, especially in patient recovery efforts. The accuracy of the diet given to patients includes three main aspects, namely the accuracy of diet, its type, and nutritional value. This study revealed that most of patients (95.5%) received the right form of diet. However, there were some inaccuracies in the presentation of soft food, where side dishes processed by frying were found, which should be avoided. This is in line with the research findings of Oktaviani *et al.*, who stated that the fulfilment of food processing standards affects the accuracy of the patient's diet.

From the aspect of dietary appropriateness, the results showed that the accuracy rate reached 100%, indicating that the nutrition staff at Benyamin Guluh Hospital, Kolaka Regency, had performed their duties well. This is supported by the existence of a multi-layered checking system, starting from diet recording to food distribution to patients (8).

The accuracy of nutrient values in patient diets also plays an important role in patient satisfaction. This study found that the presentation of the diet met hospital standards with a tolerance of $\pm 10\%$, as described by Rochani (9). In addition, the competence of nutrition personnel and the cooperation between doctors, nurses, and nutritionists in the preparation of the diet become the main factors in the success of this diet accuracy.

Based on the chi-square test, a significant correlation between dietary accuracy and patient satisfaction were found. This finding is in line with the research conducted by Sumiati *et al.* that dietary accuracy contributes to the level of patient satisfaction with nutrition services in hospitals (10).

Timeliness of complementary feeding is one of the important aspects of nutrition services that can affect the level of patient satisfaction. In this study, it reached an average of 95.5%. The main factors supporting this timeliness are efficiency in the food distribution system and the availability of adequate labor. Based on the chi-square test, there is a correlation between the timeliness of feeding and patient satisfaction. Another study conducted by Sumiati *et al.*, at Prof. Dr. R. D. Manado Hospital also showed a similar correlation (10). In addition, Samsudi *et al.* also found that timely food distribution was positively correlated with increased patient satisfaction (11). However, not all studies show a significant relationship. Aury *et al.*'s study at Dr M. Djamil Hospital in Padang found that the timeliness of complementary food serving was not always related to patients' food intake. Other factors, such as menu variety and food flavor, also have a role in determining patient satisfaction (5).

Although the results of this study support that the timeliness of complementary food has a correlation with patient satisfaction, it is necessary to further evaluate other factors, such as food quality, the attitude of serving personnel, and the use of technology in the food distribution system, as found by Ferryana *et al.*, who stated that the implementation of a digital food ordering system is able to improve the timeliness of serving (12).

Patient food waste is one indicator of the quality of hospital nutrition services. The results of this study showed that the average daily food waste of patients reached 29.9%, which is still higher than the Minimum Service Standard (MSS) of $\leq 20\%$. High food waste can be caused by various factors, including food quality, the patient's clinical condition, as well as the patient's eating habits before being hospitalized (13). Internal factors, such as changes in appetite due to the patient's health condition, as well as external factors such as flavor, menu variety, and cleanliness of cutlery, contribute to increased food waste (14). Moreover, psychological factors, such as stress and anxiety can also affect patients' food intake (15).

Based on the chi-square test, the results of this study indicate that there is no significant correlation between food waste and patient satisfaction. This is supported by the research of Rochmah *et al.*, who found that menu variations, flavors, cleanliness of cutlery, and the attitude of food serving staff had no direct correlation with patient food waste (16). Khitan's research at Mataram City Hospital also concluded the similar findings, where no significant correlation was found between food waste and patient satisfaction ($p=0.130$, $r=-0.265$) (17).

Nonetheless, high food waste remains a concern in hospital nutrition services. Other factors, such as a comfortable dining atmosphere, patient social interaction, and nutrition education can contribute to reducing food waste. A study conducted by Lestari *et al.* showed that increasing menu variety and serving food with better flavors can help reduce the amount of food waste (18).

Overall, although this study did not find a significant correlation between food waste and patient satisfaction, it is still necessary to improve the quality of nutrition services to reduce the amount of food waste. This can be done by

improving menu variations and the taste of food, as well as ensuring the cleanliness of cutlery, so that patients are more interested to consume food that has been provided by the hospital.

5. Conclusion

The accuracy of diet administration and the timeliness of complementary feeding demonstrate a correlation with patient satisfaction within the inpatient setting of Benyamin Guluh Hospital in Kolaka Regency. Conversely, patient food waste does not appear to be related to patient satisfaction levels.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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