# ANALYSIS OF DETERMINANT FACTOR ON PATIENT SATISFACTION BASED ON PATIENT CHARACTERISTICS, FOOD QUALITY AND SERVICE QUALITY

*Analisis Faktor Determinan terhadap Kepuasan Pasien Berdasarkan Karakteristik Pasien, Kualitas Makanan dan Kualitas Pelayanan*

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## ABSTRAK

*Layanan makanan rumah sakit berperan penting dalam mendukung pemulihan pasien melalui penyediaan nutrisi yang sesuai. Kepuasan pasien terhadap penyelenggaraan makanan dipengaruhi oleh berbagai faktor, baik dari aspek makanan maupun pelayanan. Tujuan dari penelitian ini adalah untuk mengidentifikasi faktor-faktor penentu yang mempengaruhi tingkat kepuasan pasien terhadap penyelenggaraan makanan di rumah sakit. RSUD Balaraja sebagai rumah sakit tipe B belum pernah melakukan penelitian mengenai kepuasan pasien dalam penyelenggaraan makanan. Penelitian ini menggunakan pendekatan kuanitatif dengan desain cross sectional. Teknik purposive sampling digunakan untuk memilih 102 pasien rawat inap. Data dikumpulkan melalui kuesioner, dan dianalisis menggunakan uji chi-square dan regresi logistik. Variabel dependen yang diteliti adalah kepuasan pasien, sedangkan variabel independen meliputi usia pasien, jenis kelamin, lama tinggal, pendidikan, kualitas makanan, aroma, variasi, tekstur, rasa, penyajian, kebersihan peralatan, ketepatan waktu penyajian, suhu makanan, serta sikap dan penampilan pelayan. Temuan penelitian menunjukkan adanya korelasi signifikan antara kepuasan pasien dan kualitas makanan (p= 0.000), penampilan makanan (p= 0.014), aroma makanan (p= 0.002), variasi makanan (p= 0.004), rasa makanan (p= 0.008), kualitas layanan (p= 0.044), serta sikap pramusaji (p= 0.044). Tingkat kepuasan pasien secara signifikan dipengaruhi oleh tiga faktor yaitu kualitas makanan (OR= 35.698, nilai p= 0.002), rasanya (OR= 9.055, nilai p= 0.018), dan tampilannya (OR= 0.026, nilai p= 0.030). Hasil penelitian ini mendukung tujuan untuk mengidentifikasi faktor yang memengaruhi kepuasan pasien, dengan menunjukkan bahwa kualitas makanan, rasa dan penyajian merupakan fator utama yang berkontribusi secara signifikan.*

***Kata kunci****: kepuasan pasien, kualitas makanan, kualitas pelayanan, penyelenggaraan makanan*

## ABSTRACT

Hospital food service plays a vital role in supporting patient recovery by providing appropriate nutrition. Patient satisfaction with food service is influenced by various factors, including both food and service. The aim of this study was to identify the determining factors that influence the level of patient satisfaction with food services in hospitals. Balaraja Regional General Hospital, as a type B hospital, has never conducted research on patient satisfaction with food service. This study used a quantitative approach with a cross-sectional design. Purposive sampling was used to select 102 inpatients. Data were collected through questionnaires and analyzed using chi-square tests and logistic regression. The dependent variable studied was patient satisfaction, while the independent variables included patient age, gender, length of stay, education, food quality, aroma, variety, texture, taste, presentation, cleanliness of equipment,

timeliness of serving, food temperature, and the attitude and appearance of the waiter.. The research findings showed a significant correlation between patient satisfaction and food quality (p = 0.000), food appearance (p = 0.014), food aroma (p = 0.002), food variety (p = 0.004), food taste (p = 0.008), service quality (p = 0.044), and waiter attitude (p = 0.044). The level of patient satisfaction was significantly influenced by three factors, namely food quality (OR = 35.698, p value = 0.002), taste (OR = 9.055, p value = 0.018), and appearance (OR = 0.026, p value = 0.030). The results of this study support the aim of identifying factors influencing patient satisfaction, by showing that food quality, taste and presentation are the main factors that contribute significantly.

**Keywords:** food quality, food service, patient satisfaction, service quality

## INTRODUCTION

Food service in hospitals is carried out with the aim of serving high quality food according to patient needs, while providing good and adequate service for those who need it[1]. Hospital food plays a crucial role in the care of inpatients. Quality food can encourage patients to develop good eating habits and provide the nutrition they need for recovery[2].Serving food to sick people generally presents more complex challenges than serving food to healthy individuals. Therefore, the food served to them needs to be tailored to their health condition[3]. Good food presentation, both in terms of quality and quantity, can contribute to the healing process for sick people[4].

Hospital nutrition services play a crucial role in determining patients' satisfaction levels and perceptions of the facility. Patients' satisfaction with hospital food delivery is largely determined by their perception of the hospital management's ability to manage patient food delivery[5].

Patient satisfaction is a key indicator in assessing the quality of hospital services, including food provision. Patient perceptions of the quality of nutritional services significantly impact a hospital's reputation, both through the food served and the service received by patients[6]. However, research shows that heterogeneity and variability in the design and interpretation of data, especially because the determinants of patient satisfaction are numerous and varied[7].

Success in food service can be measured by various indicators, such as the cleanliness of the tableware, the suitability of the utensils used, the timeliness of serving, the variety of menu options, and the attitude of the servers. Food quality plays a crucial role in determining patient satisfaction. Furthermore, food service also plays a significant role in building patient loyalty. Evaluation of food quality can be done through several aspects, including the appearance of the food, such as color, portion size, shape, texture, and method of serving, as well as taste, which includes aroma, temperature, spices, level of doneness, and tenderness[1]. The food received by patients in hospitals is an important indicator in assessing the adequacy of nutritional intake and the level of patient satisfaction with the food services provided[8].

Satisfaction with food is the most common barrier to patient food intake.[9]Other research that has been conducted shows that gender, age, education and occupation influence patient satisfaction, but the most influential is the level of education[10]. Determinants of age, gender, education and length of hospitalization are related to patient satisfaction with inpatient services at the hospital[11].

Food standards, which include taste, texture, appearance, menu variety, and cleanliness, as well as the quality of food service, which includes service methods, tools, attitudes, and performance of staff, are crucial elements that influence patient satisfaction[12].Other factors that influence patient satisfaction include food presentation, level of cleanliness and facilities provided for food, taste, menu variety, aroma produced, temperature, appearance of staff, service, staff concern, speed and ability of staff to follow up on patient complaints, friendliness and politeness of staff[13].

Quality food service influences patient satisfaction. Eating habits, staff attitudes, and food taste have a direct impact on patient satisfaction[14]. The appearance of color, appearance of shape, portion size, aroma and taste of food also affect patient satisfaction[15]. Patient satisfaction with hospital food service is influenced by several factors, including taste, consistency, appearance, menu variety, and cleanliness. In addition, service quality—covering management systems, equipment, staff attitudes, and staff performance—also plays an important role. However, the most dominant factor determining patient satisfaction at Balaraja Regional Hospital remains unknown.

Based on the preliminary study conducted by the authors, 70% of patients reported being satisfied with the food service. Of these, 63.67% were satisfied with food quality and 79.5% were satisfied with service quality. These results remain below the 2022 Ministry of Health standard, which requires a minimum satisfaction indicator of ≥76.61%.

Previously, no research has examined patient satisfaction with food service at Balaraja Regional Hospital. Therefore, this study is necessary to strengthen food quality and service performance. It also fills an important knowledge gap regarding the dominant factors influencing patient satisfaction in a type B government hospital located in a semi-urban area. For these reasons, research on factors affecting patient satisfaction with food service is highly relevant and timely to be carried out at Balaraja Regional Hospital, Tangerang Regency.

## METHODS

This quantitative cross-sectional study aimed to identify the determinants of patient satisfaction with food service at Balaraja Regional Hospital, Tangerang Regency. The research was conducted from November to December 2024. The sample size was calculated using the Slovin formula with a 95% confidence level and a 5% margin of error, resulting in 102 respondents from a total population of 121. Purposive sampling was applied because the selected participants were inpatients with a minimum hospitalization period of two days.

The inclusion criteria consisted of hospitalized patients aged 19–59 years, able to communicate effectively, receiving a regular oral diet, hospitalized for at least two days, and willing to participate. Patients with swallowing or chewing disorders were excluded. Before data collection, all respondents were asked to provide informed consent and were given a clear explanation of the study objectives, benefits, confidentiality assurance, and their right to withdraw at any time.

The primary data in this study were collected through an 84-item questionnaire assessed using an ordinal scale, which demonstrated good validity (r count > 0.449) and high reliability (α = 0.988). Additional supporting data were obtained from respondents' medical records. The independent variables consisted of respondent characteristics (age, gender, length of stay, and education level), food quality (appearance, aroma, variety, taste, and texture), and service quality (temperature, equipment cleanliness, serving time, waiter attitude, and waiter appearance). The dependent variable measured was patient satisfaction.

Data were analyzed using SPSS version 24. Univariate analysis was conducted descriptively, while bivariate analysis examined the associations between independent variables and patient satisfaction using the chi-square test with a significance level of α = 0.05. Multivariate analysis using logistic regression was then applied to determine the most influential determinant factors affecting patient satisfaction.This research has obtained ethical approval from the Esa Unggul University Ethics Committee under the number 0924-11.035/DPKE-KEP/FINAL-EA/UEU/XI/2024. This research adheres to research ethics guidelines and protects and respects the rights of the respondents involved. This ethical approval indicates that the research has met applicable ethical standards and can proceed with data collection and analysis.

## RESULTS

Most respondents were aged 19-44 years (81.4%), and it appeared that the majority of respondents were women (71.6%). Respondents who participated in the study were predominantly respondents with a length of stay of 1-3 days (53.9%), and the majority of respondents had a high school education level (47.1%).

**Table 1. Frequency Distribution of Respondent Characteristics at Balaraja Regional Hospital**

| Variables | n | % |
|---|---|---|
| Age | | |
| 19-44 years | 83 | 81.4 |
| 45-59 years | 19 | 18.6 |
| Total | 102 | 100 |
| Gender | | |
| Man | 29 | 28.4 |
| Woman | 73 | 71.6 |
| Total | 102 | 100 |
| Length of Treatment Days | | |
| 1-3 days | 55 | 53.9 |
| >3 days | 47 | 46.1 |
| Total | 102 | 100 |
| Level of education | | |
| Elementary school, middle school | 42 | 41.2 |
| SENIOR HIGH SCHOOL | 48 | 47.1 |
| College | 12 | 11.8 |
| Total | 102 | 100 |

The frequency distribution of food quality, presented in Table 2 below, shows that the majority of respondents stated that the quality of the food served was good (86.3%). More than 90% of respondents stated that the food served was good in terms of appearance, aroma, variety, taste, and texture.

**Table 2. Frequency Distribution of Food Quality Based on Respondents' Perceptions at Balaraja Regional Hospital**

| Variables | n | % |
|---|---|---|
| Food Quality | | |
| Good enough (60-<80%) | 14 | 13.7 |
| Good (≥ 80%) | 88 | 86.3 |
| Total | 102 | 100 |
| Food Appearance | | |
| Quite interesting (60-<80%) | 8 | 7.8 |
| Attractive (≥ 80%) | 94 | 92.2 |
| Total | 102 | 100 |
| Food Aroma | | |
| Quite appropriate (60-<80%) | 8 | 7.8 |
| Compliant (≥ 80%) | 94 | 92.2 |
| Total | 102 | 100 |
| Food Variations | | |
| Quite varied (60-<80%) | 9 | 8.8 |
| Varies (≥ 80%) | 93 | 91.2 |
| Total | 102 | 100 |
| Food Taste | | |
| Quite good (60-<80%) | 10 | 9.8 |
| Delicious (≥ 80%) | 92 | 90.2 |
| Total | 102 | 100 |

| Variables | n | % |
|---|---|---|
| Food Texture | | |
| Quite appropriate (60-<80%) | 8 | 7.8 |
| Compliant (≥ 80%) | 94 | 92.2 |
| Total | 102 | 100 |

The results of the frequency distribution test of service quality based on respondents' perceptions, as shown in Table 3, show that 90.2% of respondents stated that the service quality provided was good. The average respondent (>90%) stated that the service quality provided was good, including food temperature, equipment cleanliness, serving time, waiter attitude, and waiter appearance.

**Table 3. Frequency Distribution of Service Quality Based on Respondents' Perceptions at Balaraja Regional Hospital**

| Variables | n | % |
|---|---|---|
| Quality of Service | | |
| Good enough (60-<80%) | 7 | 6.9 |
| Good (≥ 80%) | 95 | 93.1 |
| Total | 102 | 100 |
| Food Temperature | | |
| Quite Suitable (60-<80%) | 10 | 9.8 |
| Compliant (≥ 80%) | 92 | 90.2 |
| Total | 102 | 100 |
| Equipment Cleanliness | | |
| Fairly clean (60-<80%) | 10 | 9.8 |
| Clean (≥ 80%) | 92 | 90.2 |
| Total | 102 | 100 |
| Serving Time | | |
| Quite accurate (60-<80%) | 8 | 7.8 |
| Accurate (≥ 80%) | 94 | 92.2 |
| Total | 102 | 100 |
| Waiter's Attitude | | |
| Quite polite (60-<80%) | 7 | 6.9 |
| Polite (≥ 80%) | 95 | 93.1 |
| Total | 102 | 100 |
| Waiter Appearance | | |
| Quite neat (60-<80%) | 8 | 7.8 |
| Neat (≥ 80%) | 94 | 92.2 |
| Total | 102 | 100 |

The distribution of patient satisfaction in Table 4 shows that 77.5% stated that they were satisfied with the food service provided, and the remaining 22.5% stated that they were dissatisfied.

**Table 4. Frequency Distribution of Patient Satisfaction at Balaraja Regional Hospital**

| Variables | n | % |
|---|---|---|
| Patient Satisfaction | | |
| Not satisfied (<76.61%) | 23 | 22.5 |
| Satisfied (≥ 76.61%) | 79 | 77.5 |
| Total | 102 | 100 |

**Table 5. Relationship between Patient Characteristics and Patient Satisfaction at Balaraja Regional Hospital**

| Variables | Not satisfied | | Satisfied | | Total | p-value |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | |
| Age | | | | | | |
| 19–44 years | 16 | 19.3 | 67 | 80.7 | 83 | 0.128 |
| 45-59 years | 7 | 36.8 | 12 | 63.2 | 19 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |

| Variables | Not satisfied | | Satisfied | | Total | p-value |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | |
| Gender | | | | | | |
| Man | 7 | 24.1 | 22 | 75.9 | 29 | 1,000 |
| Woman | 16 | 21.9 | 57 | 78.1 | 73 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Length of Treatment Days | 13 | 23.6 | 42 | 76.4 | 55 | |
| 1-3 days | 10 | 21.3 | 37 | 78.7 | 47 | 0.963 |
| >3 days | 23 | 22.5 | 79 | 77.5 | 102 | |
| Total | | | | | | |
| Level of education | | | | | | |
| Elementary school, middle school | 9 | 21.4 | 33 | 78.6 | 42 | |
| | 11 | 22.9 | 37 | 77.1 | 48 | 0.963 |
| Senior High School | 3 | 25 | 9 | 75 | 12 | |
| College | 23 | 22.5 | 79 | 77.5 | 102 | |
| Total | | | | | | |

Note: Significant if p-value ≤ 0.05

Table 5 shows that none of the respondent characteristics—age (p = 0.128), gender (p = 1.000), length of stay (p = 0.963), and education level (p = 0.963)—had a significant relationship with patient satisfaction, as all p-values were greater than 0.05. In contrast, Table 6 demonstrates significant correlations between patient satisfaction and several food-related variables, including food quality (p = 0.000), food appearance (p = 0.014), food aroma (p = 0.002), food variety (p = 0.004), and food taste (p = 0.008). However, food texture (p = 0.375) did not show a significant relationship with patient satisfaction (p > 0.05).

**Table 6. Relationship between Food Quality and Patient Satisfaction at Balaraja Regional Hospital**

| Variables | Not satisfied | | Satisfied | | Total | p-value |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | |
| Food Quality | | | | | | |
| Pretty good | 10 | 71.4 | 4 | 28.6 | 14 | 0,000* |
| Good | 13 | 14.8 | 75 | 85.2 | 88 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Appearance | | | | | | |
| Quite interesting | 5 | 62.5 | 3 | 37.5 | 8 | 0.014* |
| interesting | 18 | 19.1 | 76 | 80.9 | 94 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Aroma | | | | | | |
| Quite appropriate | 6 | 75 | 2 | 25 | 8 | 0.002* |
| In accordance | 17 | 18.1 | 77 | 81.9 | 94 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Variations | | | | | | |
| Quite varied | 6 | 66.7 | 3 | 33.3 | 9 | 0.004* |
| Varies | 17 | 18.3 | 76 | 81.7 | 93 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Taste | | | | | | |
| Quite delicious | 6 | 60 | 4 | 40 | 10 | 0.008* |
| Nice | 17 | 18.5 | 75 | 81.5 | 92 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Texture | | | | | | |
| Quite appropriate | 3 | 37.5 | 5 | 62.5 | 8 | |
| In accordance | 20 | 21.3 | 74 | 78.7 | 94 | 0.375 |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |

Note: Significant if p-value ≤ 0.05

The results of the chi-square analysis examining the relationship between service quality variables and patient satisfaction in Table 7 below show a significant relationship between service quality (p = 0.044) and waiter attitude (p = 0.044) with patient satisfaction. However, no significant relationship was found between variations in food temperature (p = 0.690), equipment cleanliness (p = 0.449), serving time (p = 0.375) and the appearance of the presenter (p = 0.375) on patient satisfaction as indicated by a p-value greater than 0.05.

**Table 7. Relationship between Service Quality and Patient Satisfaction At Balaraja Regional Hospital**

| Variables | Not satisfied | | Satisfied | | Total | p-value |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | |
| Quality of Service | | | | | | |
| Pretty good | 4 | 57.1 | 3 | 42.9 | 7 | 0.044* |
| Good | 19 | 20 | 76 | 80 | 95 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Food Temperature | | | | | | |
| Quite appropriate | 3 | 30 | 7 | 70 | 10 | 0.690 |
| In accordance | 20 | 21.7 | 72 | 78.3 | 92 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Equipment Cleanliness | | | | | | |
| Quite clean | 1 | 10 | 9 | 90 | 10 | 0.449 |
| Clean | 22 | 23.9 | 70 | 76.1 | 92 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Serving Time | | | | | | |
| Quite right | 3 | 37.5 | 5 | 62.5 | 8 | 0.375 |
| Appropriate | 20 | 21.3 | 74 | 78.7 | 94 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Waiter's Attitude | | | | | | |
| Quite polite | 4 | 57.1 | 3 | 42.9 | 7 | 0.044* |
| Polite | 19 | 20 | 76 | 80 | 95 | |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |
| Waiter Appearance | | | | | | |
| Pretty neat | 3 | 37.5 | 5 | 62.5 | 8 | |
| Neat | 20 | 21.3 | 74 | 78.7 | 94 | 0.375 |
| Total | 23 | 22.5 | 79 | 77.5 | 102 | |

Note: Significant if p-value ≤ 0.05

The results of the multivariate test in table 8 below show that the variables that have the most influence on patient satisfaction in the provision of food at Balaraja Regional Hospital are food quality (p = 0.002 and OR = 35.698), food taste (p = 0.018 and OR = 9.055) and food appearance (p = 0.030 and OR = 0.026).

**Table 8. Analysis of Determinant Factors Influencing Patient Satisfaction at Balaraja Regional Hospital**

| Variables | p-value | Exp(B) |
|---|---|---|
| Food quality | 0.002* | 35,698 |
| Food appearance | 0.030* | 0.026 |
| Aroma of food | 0.974 | 0.959 |
| Food variety | 0.118 | 5,754 |
| Taste of food | 0.018* | 9,055 |
| Quality of service | 0.218 | 3,676 |
| Waiter's attitude | 0.077 | 5,846 |

## DISCUSSION

### Relationship between Patient Characteristics and Patient Satisfaction

This study revealed no correlation between age and patient satisfaction levels, with a p-value of 0.128. This is also in line with a number of previous studies that showed no

association between age and patient satisfaction[17],[18]. The lack of correlation between age and patient satisfaction levels may occur because individuals of different age groups, both young and old, have similar expectations regarding the quality of food served and the quality of service they receive[18].

The next patient characteristic used in this study was gender, with the majority of participants being female. The analysis findings indicated no significant correlation between gender and patient satisfaction. This finding aligns with previous studies that also identified no association between gender and patient satisfaction[19] [20]. However, this finding contradicts the findings of Pretirose et al,[10]. The study revealed that gender significantly correlates with inpatient satisfaction levels. The fact that both men and women share the same expectations—to receive the best possible service that meets their expectations—is one reason why there was no clear relationship between gender and patient satisfaction.

This study also showed no correlation between length of stay and patient satisfaction. This finding aligns with findings in other studies that have shown no correlation between length of stay and patient satisfaction[17] [21]. Length of stay is assessed from two perspectives: the patient's illness requires a long period (more than a week) and the patient's comfort during treatment. This is because length of stay is influenced by the patient's medical condition, adherence to the patient's diet, and nutritional status.[22].

Another patient characteristic variable in this study was education level, which showed no relationship between education level and patient satisfaction. This contradicts previous research findings that found a link between the two.[10] [23]. However, Widiasari's research[24]found that there was no significant relationship between education and patient satisfaction. In general, everyone expects equal service, regardless of social status, which is measured by their level of education. Compared to highly educated patients, patients with lower levels of education tend to be more satisfied with the services they receive because they are more receptive to what the service provider offers[23].

**The Relationship Between Food Quality and Patient Satisfaction**

Quality food is served to improve and maintain patient nutritional status and accelerating the healing process. With good food management initiatives in hospitals, it is hoped that high-quality food will be produced[25]. One factor influencing inpatient satisfaction, which can be evaluated from various perspectives, is food quality. If the quality of the food served is inadequate, patient satisfaction with nutritional services will decrease. Conversely, if the food quality is good, patient satisfaction will increase[26].

There was a significant correlation between food quality and patient satisfaction, with a p-value of 0.000. The food processing process at Balaraja Regional Hospital follows established standards to ensure the quality of the food served. These standards are implemented from the receipt of food ingredients to the distribution of food to patients. In this study, food quality was assessed based on sensory and organoleptic aspects, including food appearance, aroma, variety, taste, and texture.

One crucial factor in creating patient satisfaction is the appearance of food. Even if the food tastes delicious, this aspect loses its significance if the presentation is unattractive. This is because the appearance of food when served stimulates the sense of sight, thereby creating appetite and a sense of satisfaction with the food provided[27]. This study indicates a significant relationship between food appearance and patient satisfaction with a p-value of 0.014. This is in line with Indraswari's research[28]which shows that there is a relationship between food appearance and patient satisfaction.

Overall, the food served at Balaraja Regional Hospital has a variety of colors on each menu. However, several similarly colored dishes are still served together. Garnishes should be more varied to make the food more appealing and increase patient appetite.

The results of this study indicate a significant relationship between food aroma variables and patient satisfaction, as evidenced by a p-value of less than 0.05, namely 0.002. According to research by Rachmawati and Nurafifah[6], The aroma of food can stimulate appetite. The aroma produced by food is very attractive, stimulating the sense of smell and arousing the desire to taste. The food served at Balaraja Regional Hospital generally smells good, but the fish dishes sometimes have a fishy odor. Fish processing and cooking methods need to be improved to eliminate this fishy odor.

Data analysis shows that patient satisfaction with food service at Balaraja Regional Hospital correlates with food variety. Patient satisfaction levels are positively correlated with the variety of food served. Previous studies have found a correlation between inpatient patient satisfaction levels and the variety of animal, vegetable, and fish side dishes.[29]However, other studies have found that there is no relationship between the variety of foods served and patient satisfaction levels[28].

Dietary variety is crucial, especially for patients who are hospitalized for extended periods. They may become bored if served the same menu over and over again. To address this issue, one effective method is to provide variety in the dishes served.[12]. Variety in food types has a significant impact on patient intake and satisfaction. When the same food is served repeatedly within a short period of time, it tends to cause boredom in consumers. As a result, patients' appetites can decrease, resulting in reduced food intake [29].

The dishes served are generally quite varied, especially with animal and vegetable side dishes. However, the variety of vegetables used is still lacking. Evaluation of the variety of vegetables served is necessary to prevent boredom, especially for patients whose hospital stays exceed three days.

The results of the study showed a significant relationship between food taste and patient satisfaction, with a p-value of 0.008. Food taste is a component of food quality that influences patient satisfaction[30]. Seasonings, derived from natural ingredients, are one component that can enhance the flavor of food. Adding spices to dishes aims to enhance the flavor. Balaraja Regional Hospital has standard seasonings developed by nutritionists for use during the preparation process to ensure consistent flavor.

Food texture plays a crucial role in determining its quality, as the sensitivity of the sense of taste is greatly influenced by the consistency of the food. Foods with a dense or thick texture generally stimulate the sense of taste more slowly[6]. The data analysis results showed no significant correlation between food texture and patient satisfaction, with a p-value greater than 0.05, namely 0.375. A study conducted at Randegansari Husada Hospital, Gresik Regency, revealed that patients were dissatisfied with the texture of the food served. This was due to the perception that the texture of the side dishes provided was difficult to chew[6].

The lack of a relationship between food texture and patient satisfaction in this study is likely due to the majority of respondents being adults, aged 19-44. In this age range, teeth are generally in good condition, so the texture of the food served is not a problem for them.

**The Relationship Between Service Quality and Patient Satisfaction**

Problems related to patient satisfaction are often related to the availability of food in hospitals. Besides affecting patients' psychological well-being, this is also due to the fact that the food service products served often do not meet patient or customer expectations[7]. The results of this study revealed a significant relationship between service quality and patient satisfaction with a p-value of 0.044. This finding aligns with other studies that also showed a significant relationship between food service quality and inpatient satisfaction levels[1], [31].

The food serving process at the research site complies with the Hospital Nutrition Services Guidelines and the Nutrition Installation Service Guidelines, which include

SOPs related to food preparation. The food distribution and serving process includes established procedures for serving food, standard portion sizes, and procedures for distributing and collecting cutlery. Furthermore, regulations governing the menu's suitability to patient diets, the use of distribution and serving equipment, and the staff on duty, along with the food distribution schedule, are also included.

Food temperature plays a crucial role in influencing the taste of food served. Whether food is too hot or too cold, both can affect the sensitivity of the taste buds, ultimately impacting the patient's dining experience[32]. Based on data analysis, no significant correlation was found between food temperature and patient satisfaction levels, with a p-value of 0.690. This finding differs from the results of a study conducted at North Buton Regional Hospital[33], which found that there was no significant difference between the expected and actual temperature of the food served. Furthermore, the lack of relationship between food temperature and patient satisfaction may be due to patients not consuming the food immediately after it is served.

One of the most important elements in food preparation is the cleanliness of the eating utensils used. This significantly impacts how well patients enjoy the food served. By ensuring the cleanliness of eating utensils, we can instill confidence in patients that the food served is guaranteed to be clean and free from contamination, whether from the utensils themselves or from other sources[6]. The results of the analysis using the chi-square test showed that there was no significant relationship between service time and patient satisfaction in this study, with a p-value greater than 0.05, namely 0.375.

Timeliness refers to when food is served according to the hospital's established mealtimes. Food is considered timely if it meets the established schedule 100% of the time[3]This is one way to prevent patients from consuming food from outside the hospital. If food is served late, hungry patients will tend to choose food from outside the hospital[31].

There was no significant correlation between service time and patient satisfaction, according to the chi-square analysis, with a p-value of 0.375. This result is inconsistent with the findings of a study conducted at Dr. Wahidin Sudirohusodo General Hospital in Makassar[34], which states there is a relationship between patient satisfaction and punctuality. Most respondents stated that food often arrives on time. However, there are often delays in serving food in the morning. According to most patients, they usually eat breakfast at 6:00 a.m., but the standard operating procedure at Balaraja Regional Hospital sets breakfast at 7:00 a.m.

The results of a bivariate analysis between waiter attitude and patient satisfaction showed a significant relationship with a p-value of 0.044. This is consistent with other studies that found that waiter attitude significantly influences patient satisfaction.[14]. The good attitude and behavior of waiters can have a psychological impact on patients, because they interact with patients every day when delivering food.

Service quality can be measured through reliable physical appearance and performance, such as clean and neat clothing and clear identification. Furthermore, the waiter's confident demeanor, friendliness, politeness, and respect for patients are also important factors in determining service quality[35], with a p-value of 0.375, it can be concluded that there is no significant correlation between waiter appearance and patient satisfaction. This result aligns with a study conducted by Sukadi and Wahyuningsih[36], which stated that most research subjects were satisfied with the waiters' appearance when serving food. This was reinforced by the fact that they wore clean and neat uniforms.

**Determinant Factors Influencing Patient Satisfaction**

The chi-square test identified seven variables associated with patient satisfaction: food quality, food appearance, food variety, food taste, food aroma, service quality, and waiter attitude. These variables were then included in a multivariate logistic regression

analysis. The results show that food quality (p = 0.002; Exp(B) = 35.698) and food taste (p = 0.030; Exp(B) = 9.055) are the strongest predictors of patient satisfaction. Meanwhile, food appearance has a significant but negative effect on satisfaction (p = 0.030; Exp(B) = 0.026). Overall, the findings indicate that improvements in food quality strongly increase patient satisfaction[37]. The results of this study align with other research that has shown that food quality has a positive and significant effect on satisfaction. These results indicate that the better the food quality, the higher the perceived satisfaction[38].

Food taste variables also have a significant influence on patient satisfaction. Supriyono's research[39] found a significant relationship between food taste and patient satisfaction. Food appearance had a negative effect, meaning that every one-unit increase in food appearance resulted in a one-unit decrease in patient satisfaction. This finding has not been widely reported in previous literature and represents a new contribution to the study of hospital food service delivery in Indonesia. This study is the first at Balaraja Regional Hospital to comprehensively analyze all these aspects.

## CONCLUSION

Factors associated with patient satisfaction in food services include food quality, presentation, variety, taste, aroma, service quality, and waiter attitude. This study found that food quality and food taste were the strongest predictors of patient satisfaction. This may be influenced by respondent characteristics, as most patients followed a normal diet and did not experience appetite or taste disturbances, making them more sensitive to evaluating taste and overall quality. Unlike many previous studies, this research provides a more comprehensive analysis of organoleptic factors in a Class B hospital in Tangerang Regency and includes a simultaneous assessment of waiter attitude using logistic regression. Based on these findings, the Nutrition Installation of Balaraja Regional Hospital is encouraged to regularly evaluate organoleptic aspects—particularly taste, aroma, and appearance—and to provide continuous training for waiters to strengthen service quality. Additionally, improvements to the vegetable menu are needed, as it was identified as suboptimal in this study.

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