# The Correlation Between Patient Satisfaction Regarding Nutrition Service And Hospital Length Of Stay With Food Waste In Covid–19 Patients

*Budhi Setianto [1], Agus Aan Adriansyah [2], Umi Hanik [3], Difran Nobel Bistara [4]*

[1, 2, 3, 4] *Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia*

## ABSTRACT

Patient satisfaction is one indicator of success in the hospital nutrition service. In Covid-19 patients, several symptoms affect the hospital length of stay so that the patient's nutrition dramatically affects the patient's improvement. This study aims to determine the correlation between patient satisfaction regarding nutrition service and length of stay with food waste in Covid-19 patients. This study used quantitative research with an observational approach and cross-sectional method at the isolation room of Surabaya Islamic Hospital during July-September 2020. The method to evaluate food waste was Comstock scale visual estimation. The questionnaire consisted of patient satisfaction regarding nutrition service and the length of stay. The data analysis utilised the chi-square test. The 116 sample was all patients who were hospitalised at the isolation room during July-September 2020. The results showed a correlation between patient satisfaction regarding nutrition service and plate waste (p=0.000), while hospital length of stay did not correlate with food waste (p=0.517). In conclusion, there is a correlation between patient satisfaction regarding nutrition service with plate waste. The better the food presentation, the more the food eaten. The hospital length of stay does not affect food waste. Food consumption should be more varied to improve the patient's appetite and patient satisfaction. As a result, it can faster the healing process.

## INTRODUCTION

The development of society is increasingly critical, causing the quality of service, both medical and other services, in the hospital to become the spotlight. There is patients' demand toward qualified service in patient's recovery and patient's satisfaction toward the quality of the entire service process, including nutrition service for the patient in the hospital. The better the nutrition service quality in the hospital, the higher the patient's cure rate (RI, 2007).

Nutrition service in a hospital is a service given and customised to the patient's state based on clinical condition, nutritional status, and body metabolism status. The patient's nutritional status is influential to the disease recovery process; (Nurhasanah M, Fasty A, 2020) otherwise, the course of the disease can affect the patients' nutritional status. Good intake use to heal organs. The impaired organ function will be worse because of illness and lack of dietary needs (Kementerian Kesehatan Republik Indonesia, 2013). The 2013 Indonesian Ministry of Health Guidelines explain the factors that can affect patient satisfaction, namely the food presentation, punctuality in food serving, food menu variety, food taste, cleanliness of tools, and professional appearance of officers (Kementerian Kesehatan Republik Indonesia, 2013).

Covid-19 patients experience many symptoms; one is olfactory dysfunction, which includes hyposmia and anosmia: the anosmia influences the patient's appetite and food waste (Meng et al., 2020). The length

of stay of a covid-19 patient is influenced by the course of the disease experienced by the patient. The disease begins with an incubation period of about 3-14 days (median five days). In this period, leukocyte and lymphocytes are still normal or decrease slightly, and the patient is asymptomatic. In the next phase (early symptoms), the virus spreads through blood flow, especially in tissue expressing ACE2 like lungs, gastrointestinal tract, and heart (Susilo, 2020). Symptoms of this phase are commonly light. The second attack occurs after four to seven days of the first symptoms. In this period, the patient still begins to spasm, the lesions in the lung lesions worsen, and lymphocytes decrease. Inflammation sign begins to increase, and hypercoagulation occurs. When it is not handled, the following inflammation will be more uncontrollable. Cytokine storms will occur which cause Acute Respiratory Distress Syndrome (ARDS), sepsis, and other complications. Covid-19 patients desperately need an immunity role so that they can recover faster (Lipoeto, 2006). Therefore, nutrition is essential in covid-19 patients. Nutrition support is part of therapy that has a vital role in patients' recovery. Optimal nutrition support will increase the patient's immunity, increasing the body's ability to strive against the disease (Nurhasanah M, Fasty A, 2020; Men et al., 2020) Food waste is one of the optimal indicators in hospital food administration. It reflects the patient's inadequate nutrition intake and economically represents a lot of wasted costs. Insufficient energy intake for an extended period increases a 2.4 times risk of malnutrition (Nurqisthy et al., 2017). Assessment of plate waste is necessary to evaluate the patient's intake in handling malnutrition risk. Plate waste can be affected by taste, food variation, and environmental factors such as meal schedules, food from outside hospitals, meal tools, and food distribution officers (Nurhasanah M, Fasty A, 2020).

Observation of food consumption and plate waste is a crucial and straightforward evaluation. Weighing the food left on the plate directly is the accurate method, but this method has weaknesses –much time, special equipment, and trained staff – so it is not easy to do. One way that developed to assess a patient's food consumption is the Comstock scale visual estimation method. This method is more profitable because it is easy to do, inexpensive, and does not take a lot of time (Susyani et al., 2005).

A study in the patients who got nutrition service at Bhayangkara Hospital showed dissatisfaction, seen from over 25% of patients' leftover food. According to the Indonesian Ministry of Health (2008), the minimum nutrition service standard in the hospital is ≤ 20%. Previous research by Ariefuddin (2009) in Gunung Jati Hospital, Cirebon showed that leftover snacks did not correlate with patient satisfaction about the food quality. However, all subjects had a leftover snack in the small category (≤25%) and expressed their satisfaction with food quality (Kartini, 2018). This paper investigates the correlation between hospital length of stay and patient satisfaction in nutrition service with plate waste in Covid-19 patients hospitalised at the Surabaya Islamic Hospital.

## METHOD

This research was a quantitative study with an observational approach and a cross-sectional research method. The study took place at the Covid-19 isolation room at Surabaya Islamic Hospital during July-September 2020. The sample was all patients who were hospitalised during July - September 2020. Primary data collection was carried out by distributing questionnaires to subjects. The independent variables were patient satisfaction in food service and hospital length of stay, while the dependent variable was plate waste. The questionnaire consisted of patient satisfaction in nutrition service and the length of stay. The method to evaluate food waste was Comstock scale visual estimation. The data analysis used the Chi-square test with a significant level of 95%.

## RESULT

Table 1 Respondents characteristic by gender, age, house distance, and length of stay (N= 116)

| Characteristic | n | % |
|---|---|---|
| Gender | | |
| Woman | 64 | 55 |
| Man | 52 | 45 |
| Age (Years old) | | |
| <25 | 12 | 10 |
| 25-35 | 32 | 28 |
| 36-45 | 15 | 13 |
| 46-55 | 34 | 29 |
| >55 | 23 | 20 |
| House Distance (kilometres) | | |
| <5 | 36 | 31 |
| 5 -10 | 33 | 28 |
| 10 -20 | 29 | 25 |
| >20 | 18 | 16 |
| Length of Stay | | |
| ≤ 9 days | 33 | 28 |
| > 9 days | 83 | 72 |

Table 1 shows that most respondents are women (64%), 46-55 years old (29%), house distance less than five kilometres (31%), and length of stay at covid-19 isolation room more than nine days.

Table 2. Patient Satisfaction regarding nutrition service, length of stay, and plate waste in Covid-19 patients

| | n | % |
|---|---|---|
| Hospital Length Of Stay | | |
| Long Enough Hospitalisation | 40 | 34 |
| Long Hospitalisation | 76 | 66 |

| | | |
|---|---|---|
| Total | 116 | 100 |
| Patient Satisfaction regarding Nutrition Service | | |
| Satisfied | 63 | 54 |
| Not satisfaied | 53 | 46 |
| Total | 116 | 100 |
| Plate waste | | |
| Yes | 72 | 62 |
| No | 44 | 38 |
| Total | 116 | 100 |

Table 2 describes that most respondents have a long hospitalisation (66%), are satisfied with food service (54%), and have plate waste (72%).

Table 3. The Correlation between patient satisfaction in nutrition service and plate waste in covid-19 patients

| Satisfaction | Plate waste | | | | p-value |
|---|---|---|---|---|---|
| | Yes | % | No | % | |
| Satisfied | 22 | 19 | 36 | 31 | 0.000 |
| Not Satisfied | 50 | 43 | 8 | 7 | |

Table 3 shows that respondents with no food waste state that they were satisfied with nutrition service (31%). Meanwhile, respondents who have plate waste express dissatisfaction with nutrition service (43%). The chi-square test result is p=0.000 ($\alpha$<0.05). Thus, there is a correlation between patient satisfaction in nutrition service and plate waste in covid-19 patients.

Table 4. The correlation between hospital length of stay and plate waste in Covid-19 patients

| Length of Stay | Plate Waste | | | | p-value |
|---|---|---|---|---|---|
| | Yes | | No | | |
| | n | % | n | % | 0.517 |
| Long Enough | 26 | 22 | 14 | 12 | |
| Long | 46 | 40 | 30 | 26 | |

Based on table 4, respondents with long enough hospitalisation do not have plate waste (12%), while respondents with long hospitalisation have plate waste (40%). The chi-square test result is p=0.516 ($\alpha$>0.05). Thus, there is no correlation between hospital length of stay and plate waste in covid-19 patients.

## DISCUSSION

The correlation between patient satisfaction in nutrition service and plate waste

Patient satisfaction is the hospital's priority as an organisation. Patient satisfaction, in this term, is nutrition service. There were several indicators of patient satisfaction in the questionnaire that we distributed. The questionnaire consisted of the food portions, food presentation, the taste of the vegetable/ animal side dishes, cutlery cleanliness, punctuality in serving food, food served to support recovery, and diet adherence. Meanwhile, The plate waste in this study was categorised into 2 – there is and no plate waste. Plate waste is one indicator to determine patient satisfaction with food service in the hospital.

The statistical test showed the value p = 0.000. Thus, there was a significant correlation between patient satisfaction regarding nutrition service with plate waste in Covid-19 patients at the isolation room of Surabaya Islamic Hospital. Satisfaction describes someone who has experienced an outcome following his expectations. So satisfaction is a function of the level of expectation and activity results. When an activity results exceed one's expectations, someone is satisfied. Meanwhile, someone will feel dissatisfied when the results are far below expectations (Farida, 2018).

According to Istianto (2011), five dimensions that affect patient satisfaction are food quality, punctuality in food serving, service reliability, food temperature, and the attitude of the food serving staff. Satisfaction with the food served is good when the food has a high taste, appearance, and attractive presentation. It encourages patients to finish the served food so that there is no food waste. As a result, it can accelerate the healing process (Farida, 2018).

The correlation between hospital length of stay and food waste Hospital length of stay dramatically affects the patient's cure rate. It is one of the elements or aspects of care and service in the hospital that can be assessed or measured. Someone in hospitalisation expects a change in the health degree. Most respondents in this paper had a long hospitalisation. There was no correlation between hospital length of stay and plate waste in covid-19 patients.

This result is in line with research conducted by Iswanto et al., (2016) It reported that there was no significant relationship between staple leftover food and vegetable side dishes with hospital length of stay (p>0.05). Still, there was a significant relationship between leftover animal side dishes and fruit with hospital length of stay (p<0.05). However, it is different from research conducted by Kandiah (2006). The study showed a relationship between leftover food and hospital length of stay in patients (Iswanto et al., 2016). This study indicated that patient satisfaction regarding nutrition service would provide overall satisfaction in inpatient services. Furthermore, it can shorten the treatment period in the patient.

**CONCLUSION**

There is a correlation between patient satisfaction regarding nutrition service with plate waste. The better the food presentation, the less food waste in the patient. The hospital length of stay does not affect food waste. Food consumption should be more varied to improve the patient's appetite and patient satisfaction. As a result, it can faster the healing process.

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