GENIUS JOURNAL
general nursing science journal
e-ISSN: 2723-7729
Vol. 7 No. 1 PP. 224-230 E-ISSN 2723-7729

The Relationship Between Food Acceptability and Intake on Morning Meal Leftovers in Pediatric Patients

Yuliana Tri Handayani[1], Adhi Nurhartanto[1], Asep Jalaludin[1]
[1]Department of Nutrition, Universitas Mitra Indonesia, Indonesia

Correspondence author: Yuliana Tri Handayani
Email: srdominicatrihandayani@gmail.com
Address: Jl. Hasanudin No. 29, South Teluk Betung, Bandar Lampung, Indonesia
Phone: +62 812-7353-9868
DOI: https://doi.org/10.56359/gj.v7i1.787

Abstract

Introduction: Childhood malnutrition remains a significant public health concern, and adequate nutritional intake during hospitalization is essential to support recovery and growth in pediatric patients. Hospital food services are required to provide nutritionally adequate and acceptable meals; however, food waste among hospitalized children, particularly during breakfast, remains a persistent problem. High levels of leftover food may indicate low food acceptability and inadequate food intake, which can hinder the fulfillment of children's nutritional needs. Food acceptability, influenced by sensory characteristics and eating habits, plays an important role in determining food consumption among pediatric patients. Therefore, evaluating the relationship between food acceptability, food intake, and breakfast food waste is crucial to improve the effectiveness of hospital nutrition services for children.
Objective: Child nutrition issues, such as wasting and stunting, remain a serious challenge, especially in developing countries. Optimal nutrition in hospitals is important to support children's growth and recovery. This study aims to analyze the relationship between acceptability and food intake to morning food waste in pediatric patients at Santa Anna Hospital.
Method: This study used a descriptive quantitative method with a cross-sectional approach. A sample of 30 inpatient pediatric patients was taken purposively. Acceptability was measured using an organoleptic assessment form, while food intake was measured using the Semi Quantitative Food Frequency Questionnaire (SQ-FFQ). Data were analyzed univariately and bivariately using the chi-square test.
Result: The results showed that 86.7% of children liked the morning meal menu, 96.6% had sufficient to good intake, but 53.3% still left food in large quantities. There was a significant relationship between acceptability and food waste (p = 0.009), and between food intake and food waste (p = 0.001). Conclusion: The higher the acceptability and food intake, the less food leftovers left by pediatric patients..

Conclusion: The results of this study emphasize the importance of improving the quality of nutrition services, including menu improvement, presentation, and patient companion education to reduce food waste and support optimal recovery of pediatric patients.

Keywords: food acceptance, food intake, food waste, hospital nutrition, pediatric patients

Introduction

Childhood malnutrition remains a global challenge, particularly in developing countries, with approximately 45 million children under five experiencing wasting and 149 million experiencing stunting by 2023 (WHO, 2023). Adequate nutritional intake from an early age, particularly through the provision of adequate food in health facilities, plays a crucial role in supporting children's healing and growth (Rahim Husain, 2023). Based on Regulation of the Minister of Health of the Republic of Indonesia No. 26 of 2013, hospital food must meet nutritional quality, food safety, and be acceptable to patients. However, in reality, food waste among pediatric patients remains high, particularly at breakfast, which is a crucial meal to replenish energy after fasting overnight (Guntur et al., 2022). Food waste exceeding the maximum limit <20% (Hospital Nutrition Service Guidelines, 2013) can be an indicator of low food acceptability or poor eating habits in pediatric patients, and reflects the success or failure of hospital nutrition services (Sulistiawati et al., 2021; Fadilla et al., 2020).

Food acceptability is defined as the level of acceptance of a person's food served, encompassing organoleptic aspects such as taste, aroma, texture, and appearance, which play a crucial role in determining a patient's food consumption (Yulianti et al., 2021; Yudianti et al., 2024). In hospital food service, good acceptability will encourage patients to consume the entire meal, thus optimally meeting their nutritional needs (Guntur et al., 2022). Conversely, unattractive food presentation or inappropriate taste will reduce food consumption and hinder the fulfillment of necessary nutrients during treatment (Astuti et al., 2020; Hafiza et al., 2021).

Furthermore, eating habits formed since childhood, including food preferences, snack consumption patterns, and environmental and family influences, also influence pediatric patients' acceptance of healthy foods served in hospitals (Yuli Hartati et al., 2022; Widiya Astuti et al., 2024). Breakfast, as one of the most important mealtimes, serves as the primary source of energy to support children's learning and physical activities throughout the day. A healthy breakfast should contain balanced nutrition to prepare the body for daily activities (Nilawarni, 2024). The phenomenon of food waste is a significant issue both nationally and locally. According to a report from the Ministry of Environment and Forestry (2023), Indonesia produces 20.9 million tons of food waste per year, most of which originates from households and institutions, including hospitals.

According to research by Sudarto, et al. (2022), inpatients at the Dr. H. Marzoek Mahdi Bogor found that in pediatric patients, staple food, animal and vegetable side dishes were leftover, with 17 patients (65%) having more than 20% of the food leftover and 9 patients (35%) having less than 20%. Vegetable side dishes were found to be more than 20% in 13 patients (50%), and 13 patients (50%) had less than 20%. Fruit was found to be more than 20% in 1 patient (4%), and 24 patients (96%) had less than 20%. A previous study by Lestari et al. (2020) showed that food waste levels in pediatric patients in hospitals can reach 30–50% of the portion served, especially in the morning. The selection of Santa Anna Maternity and Child Hospital (RSIA) as the research location was based on local findings obtained through interviews with Nutrition Installation waiters in March 2025. The interview results showed

that the level of food waste for children at breakfast reached 21% for rice/porridge, 23% for vegetables, 11% for animal side dishes and 8% for vegetable side dishes.

Based on the Comstock method, where the remaining porridge/rice and vegetable figures exceed the maximum limit of 20% allowed (Ministry of Health of the Republic of Indonesia, 2013) while the remaining rice/porridge lunch 17%, animal side dishes 16%, vegetable side dishes 9%, vegetables 18%, and afternoon rice/porridge 18%, animal side dishes 7%, vegetable side dishes 9%, vegetables 13% do not exceed the limits of the Ministry of Health standards. The study focused solely on breakfast because breakfast is the most crucial meal for restoring energy after an overnight fast, and previous research has also shown that food waste tends to be higher in the morning compared to other meal times (Sudarto et al., 2022; Lestari et al., 2020). Therefore, this study aims to analyze the relationship between acceptability and food intake and food waste from breakfast menus in pediatric patients at Santa Anna Hospital. This study hopes to contribute to improving the quality of hospital nutrition services and supporting optimal nutritional needs to accelerate the child's overall healing process.

Objective

This study aims to analyze the relationship between acceptability and food intake to morning food waste in pediatric patients at Santa Anna Hospital.

Method

This study employed a quantitative analytical design with a cross-sectional approach to examine the relationship between food acceptability and food intake with breakfast food waste among pediatric patients. The study was conducted at a mother and child hospital during the study period. The study population consisted of pediatric inpatients who received a standard breakfast menu provided by the hospital nutrition service. Samples were selected using a purposive sampling technique based on the following inclusion criteria: pediatric patients who received oral diets, were hospitalized for at least 24 hours, and were accompanied by parents or guardians willing to participate. Patients with special therapeutic diets, feeding difficulties, or critical conditions were excluded. The total sample included [number] pediatric patients.

Food acceptability was assessed using a structured acceptability questionnaire completed by parents or guardians. The assessment covered organoleptic aspects, including taste, aroma, texture, appearance, and portion size. Acceptability was categorized into good and poor based on the total score obtained. Food intake and food waste were measured using the Comstock visual estimation method, which evaluates the percentage of food remaining after consumption. Breakfast food waste was classified as ≤20% (acceptable) and >20% (unacceptable) in accordance with national hospital nutrition service guidelines.

Data analysis consisted of univariate analysis to describe respondent characteristics, food acceptability, food intake, and food waste. Bivariate analysis was conducted using the Chi-square test to determine the relationship between food acceptability, food intake, and breakfast food waste. A p-value < 0.05 was considered statistically significant. All participants' parents or guardians provided informed consent prior to data collection, and ethical principles of research involving human subjects were strictly observed.This study employed a quantitative analytical design with a cross-sectional approach to examine the relationship between food acceptability and food intake with breakfast food waste among pediatric patients. The study was conducted at a mother and child hospital during the study period.

Result

Table 1. The Relationship Between Food Acceptability and the Amount of Leftovers

Food Acceptability	Food Leftovers						Total		*p-value*
	Poor		Moderate		Good				
	n	%	n	%	n	%	N	%	
Dislike	2	50.0	2	50.0	0	0.0	4	100	0.009
Somewhat like	1	7.1	8	57.1	5	35.7	14	100	
Very like	0	0	3	25.0	9	75.0	12	100	
Total	**3**	**10**	**13**	**43.3**	**14**	**46.7**	**30**	**100**	

Table 1 shows the relationship between pediatric patients' food acceptability and the amount of leftovers on the breakfast menu at Santa Anna Hospital. Of the 30 respondents, all children who disliked the food (2 children or 50%) left food in the poor category. Of the children who liked the food moderately, 1 child (7.1%) had little food leftovers, 2 children (50%) had average food leftovers, and 0 children (0%) had good food leftovers. Meanwhile, the majority of children who liked the food very much (75% or 9 children) had good food leftovers, 3 children (25.0%) had average food leftovers, and only 0 children (0%) had little food leftovers.

The statistical test showed a p-value of 0.009, which is less than the 0.05 significance level. This indicates a statistically significant relationship between food acceptability and the amount of food leftovers. In other words, the higher a child's level of liking a food, the less likely they are to leave food. This finding demonstrates the importance of improving food quality and appeal to increase consumption and minimize food waste.

Table 2. The Relationship Between Food Intake and the Amount of Food Waste

Food Intake	Food Waste						Total		*p-value*
	Poor		Moderate		Good				
	n	%	n	%	n	%	N	%	
Poor	1	25.0	3	1.7	0	0.0	4	100	0.048
Good	2	9.5	10	47.6	9	42.9	21	100	
Excessive	0	0.0	0	0.0	5	100.0	5	100	
Total	**3**	**10.0**	**13**	**43.3**	**14**	**46.7**	**30**	**100**	

Table 2 presents the relationship between pediatric patients' food intake and the amount of food waste during hospitalization at Santa Anna Hospital. Based on the data: All patients with insufficient food intake (1 child) (25.0%) had food waste in the insufficient category. Of the five children with excessive food intake, the majority (47.6% or 10 children) had moderate food waste, one child (25.0%) had insufficient food, and 14 children (46.7%) had good food waste.

The statistical test results showed a p-value of 0.048, which is less than the 0.05 significance level. This indicates a statistically significant relationship between food intake and food waste. This means that the better a child's food intake, the less likely they are to have large amounts of food left over. Conversely, low food intake tends to correlate with high food waste. These findings emphasize the importance of monitoring food intake to improve patient food consumption efficiency and minimize food waste in hospitals.

Discussion

The statistical test yielded a p-value of 0.009, which is lower than the 0.05 significance level. Therefore, it can be concluded that there is a statistically significant relationship between food acceptability and food waste. The higher a child's preference for food, the less likely they are to leave food. This finding indicates that good food acceptability plays a crucial role in reducing food waste and is an indicator of successful nutrition services, which address not only nutritional aspects but also the taste and comfort of pediatric patients while eating. Therefore, improving the quality of food taste, appearance, and presentation should be a priority to optimize children's consumption and minimize food waste.

This study aligns with research conducted by Qodriatika & Nafies (2024), which stated that the chi-square test results showed a significant result of 0.001, or a p-value (<0.05), thus concluding a relationship between acceptability and food waste. Food acceptability, influenced by quality aspects such as color, texture, taste, and aroma, significantly influences the likelihood of food waste.When food is served of good quality and meets respondents' preferences, they tend to be more motivated to finish it (Qodriatika & Nafies, 2024).

Food acceptability in children refers to the child's level of liking or disliking of a particular type of food. Factors influencing acceptability include taste, aroma, texture, appearance, and temperature. Even if food has good nutritional content, if it is not liked or accepted by the child, it will not provide optimal nutritional benefits (Munifa, M., & Dhini, D. 2022). Food acceptability refers to the ability of an individual, in this case a child, to accept and consume food according to the type, taste, and portion size served. Furthermore, psychological and emotional factors, such as the desire to choose food or discomfort due to illness, also influence children's eating patterns (Saufani, I. A., Aiman, U., & Natalina, S. L. 2021).

Based on the research, it can be concluded that the results of the study at Santa Anna Hospital (RSIA Santa Anna) demonstrate the importance of developing hospital food menus that suit children's tastes. Children are more attracted to modified foods, such as tempeh modified into nuggets or croquettes. If hospitals pay attention to pediatric patients' food preferences from the beginning of treatment, this can help increase appetite, improve nutritional status, and make children more enthusiastic about eating. Ultimately, this can support the healing process.

The better a child's food intake, the less food is leftover. Conversely, the lower the food intake, the more food is leftover. These findings indicate that the effectiveness of hospital food provision is measured not only by its availability but also by the extent to which the food is actually consumed by pediatric patients. Therefore, regular monitoring of food intake is crucial to ensure that nutrition services are not only administratively fulfilled but also functionally achieved through optimal actual consumption.

These research results reinforce the importance of a daily evaluation-based nutrition approach, which monitors how much food is consumed and leftover by patients each day. This can be done by recording food leftovers on plates or pallets (for example, using the Comstock method). This method allows nutritionists to determine whether the food provided meets the child's needs, both through recording food leftovers and assessing consumption, to ensure that nutritional interventions are truly effective. This step will help hospitals minimize food waste, improve operational efficiency, and most importantly, ensure that children's nutritional needs are met to support their overall recovery process.

Conclusion

There was a relationship between food acceptability and the amount of food waste, with a p-value of 0.009 (p-value < α = 0.05). There was a relationship between food intake and the amount of food waste, with a p-value of 0.048 (p-value < α = 0.05).

Conflict of Interest

No declare.

Acknowledgement

The researcher would like to express his gratitude to God, his parents, lecturers and supervisors, friends, and all parties involved in the process of compiling this research

References

1. Alwi, S., & Rudianto, A. (2019). Peran Makan Pagi dalam Menunjang Kesehatan dan Kinerja. Jurnal Kesehatan Masyarakat, 10(2), 89-94.
2. Amali, N. S. (2024). Studi kualitatif faktor penentu sisa makanan pasien anak di RSUD Dr. Saiful Anwar Malang [Skripsi, Universitas Brawijaya].
3. Anggraini, F. (2020). Hubungan antara sisa makanan dengan lama rawat dan biaya sisa makan pasien yang mendapatkan diet makanan lunak di ruang rawat inap kelas III RSUD KRMT Wongsonegoro Semarang.
4. Astuti, D., Hardinsyah, H., & Briawan, D. (2020). Hubungan frekuensi dan kualitas sarapan dengan status gizi dan prestasi belajar siswa sekolah dasar. Jurnal Gizi dan Pangan, 15(2), 85–92.
5. Fadilla, C., Rachmah, Q., & Juwariyah, J. (2020). Gambaran sisa makanan pasien rawat inap RSUD Kabupaten Sidoarjo. Amerta Nutrition, 4(3), 198–204.
6. Guntur, H., et al. (2022). Daya terima makanan pada pasien anak di rumah sakit. Jurnal Gizi Indonesia, 10(2), 115–123.
7. Handayani, M., & Surono, I. (2021). Pola makan dan daya terima makanan anak rawat inap di RSUD X. Jurnal Gizi Kesehatan Indonesia, 13(2), 95–101.
8. Habiba, R. A., & Adriani, M. (2017). Hubungan Depresi, Asupan, dan Penampilan Makanan dengan Sisa Makan Pagi Pasien Rawat Inap (Studi di Rumah Sakit Islam Jemursari Surabaya). Amerta Nutrition, 1(3), 198. https://doi.org/10.20473/amnt.v1i3.2017.198-208
9. Haerani, R. S., & Ronitawati, P. (2023). Hubungan Jenis Diet, Daya Terima, Sisa Makanan Dan Kepuasan Pasien Rawat Inap Di RS X Jakarta. ARGIPA (Arsip Gizi Dan Pangan), 8(2), 169–182. https://doi.org/10.22236/argipa.v8i2.11292
10. Hidayat, A., & Suryani, F. (2021). Asupan Makanan Anak: Pentingnya Menjaga Keseimbangan Energi dan Zat Gizi untuk Pertumbuhan Optimal. Jurnal Gizi Anak, 14(1), 45-53.
11. Hidayati, F., & Kurniawan, E. (2020). Dampak Makan Pagi terhadap Kesehatan dan Metabolisme Tubuh. Jurnal Nutrisi Indonesia, 6(1), 23-30.
12. Izzah, N., & Nurulfuadi. (2021). Faktor-Faktor yang berhubungan dengan Sisa Makanan Pasien Rawat Inap di RSUD Sultan Suriyah Kota Banjarmasin. Jurnal Kesehatan Masyarakat, 13(4), 676–692.
13. Kementerian Kesehatan Republik Indonesia. (2013). Pedoman pelayanan gizi rumah sakit. Kemenkes RI.

14. Lestari, I., & Setyawati, D. (2020). Evaluasi daya terima dan sisa makanan menu makan siang pada pasien anak di RSUD Dr. Moewardi Surakarta. Jurnal Gizi Klinik Indonesia, 16(2), 95–101.
15. Qodriatika, N. A., & Nafies, D. A. A. (2024). Hubungan Antara Daya Terima Makanan Dengan Sisa Makanan Biasa Pada Pasien Rawat Inap Di RSUD Dr. R Koesma Tuban. NousistNet (Jurnal Jejaring Ilmu Gizi), 1(1), 6–11. https://nutritionjournal.my.id/index.php/NNet/
16. Raharjo, W. (2020). Pengaruh Sikap Petugas Penyaji Makanan terhadap Nafsu Makan Pasien di Rumah Sakit. Jurnal Kesehatan Masyarakat, 14(2), 123- 130.
17. Samsudi. (2023). Kepuasan pasien dalam pelayanan makanan di Rumah Sakit Umum Daerah Buton Utara. Jurnal Penelitian Sains dan Kesehatan Avicenna, 2(2), 57–66.
18. Sari, R. & Iskandar, S. (2020). Faktor yang Mempengaruhi Asupan Makanan pada Individu. Jurnal Gizi Sehat, 8(1), 45-53.
19. Septidiantari, L. P. Y., Padmiari, I. A. E., & Ariati, N. N. (2022). Faktor-faktor yang mempengaruhi terjadinya sisa makanan pada pasien rawat inap di RSUD Bangli. Jurnal Ilmu Gizi, 11(1).
20. Sulistiowati, U., et al. (2022). Evaluasi sisa makanan pasien anak di Rumah Sakit Jiwa Dr. H. Marzoeki Mahdi Bogor. Jurnal Gizi dan Dietetik Indonesia, 10(1), 34–42.
21. Sumardilah, D. S. (2024). Analisis sisa makanan pasien rawat inap rumah sakit. Jurnal Kesehatan, 13(1).
22. Tambun, Marwati, & Rahayu. (2020). Faktor eksternal dan faktor internal yang mempengaruhi konsumsi pangan pada mahasiswa perantau di Universitas Sebelas Maret Surakarta. Jurnal Kesehatan, 21(1), 1–9.
23. Ulfah, U. (2021). Hubungan daya terima makanan dan kandungan zat gizi pada menu terhadap kecukupan zat gizi makro serta serat santri di Pondok Pesantren Daar El Mansur Depok Jawa Barat. Journal of Nutrition and Food Security.
24. Yudianti, E., et al. (2024). Daya terima makanan biasa pada pasien rawat inap RSUD Sulawesi Barat. Jurnal Kesehatan Masyarakat Nusantara, 12(1), 55–63.
25. Yulianti, D., et al. (2021). Pengaruh faktor klinis terhadap daya terima makanan pasien rawat inap. *Jurnal Gizi Klinik Indonesia*, *7*(1), 21–27.