Hospital Food and Nutrition Services and Patient Outcomes: A Scoping Review

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Abstract

Background: Food provision is an essential part of hospital treatment, yet many inpatients eat inadequately. Low intake is linked to malnutrition, longer hospital stays and higher mortality, and hospitals generate large amounts of food waste with economic and environmental costs.

Objective: To map current evidence on hospital food and nutrition services, including the service models used, the patient populations studied and the outcomes evaluated, and to identify gaps for future research.
Methods: PubMed, CINAHL and the Cochrane Library were searched for English-language articles published from 2021 to 2026 using the PCC framework (Population: adult hospitalised patients; Concept: food and nutrition service delivery and its effects; Context: acute and subacute hospitals). Studies limited to enteral or parenteral nutrition, nursing homes or community settings were excluded. Two reviewers screened titles and abstracts independently and extracted data in Microsoft Excel.
Results: Twenty publications met the inclusion criteria: six scoping reviews, five systematic reviews, five observational studies, two secondary analyses of randomised controlled trials, one pre/post evaluation and one clinical guideline. Service models included traditional plated meals, cook-fresh and thaw-retherm production, room service, bedside ordering, menu modification, protected mealtimes and interprofessional nutrition care, with menu modification studied most often. Malnutrition affected about 40% of inpatients in Latin America and 10% to 65% of patients during admission; median plate waste in Indonesian hospitals was 27.6%. Patients were more satisfied with staff than with meal taste and variety. Patient-centred models such as room service, adjustable portions and selective menus were associated with higher intake and less waste.
Conclusion: Patient-centred food service models may improve intake, satisfaction and waste, but most of the evidence comes from reviews (55%). Controlled trials comparing service models are needed, together with studies that measure safety, economic and environmental outcomes.

Keywords: hospital food service, malnutrition, food intake, plate waste, patient satisfaction, scoping review

Hospital Food and Nutrition Services and Patient Outcomes: A Scoping Review

Food provision in the hospital setting plays an essential part in the treatment process. However, many patients eat inadequately while hospitalized. Inadequate consumption is prevalent among several medical specialties and has been associated with malnutrition, prolonged stay in hospitals and increased mortality (Böhne et al., 2022; Cardenas et al., 2022). Moreover, hospitals produce vast amounts of wasted food, with economic and environmental implications (Torrejón-Ramos et al., 2025). To this end, the European Society for Clinical Nutrition and Metabolism proposed organizing food preparation and serving based on the individual patient's needs (Thibault et al., 2021). Despite such recognition, there lacks adequate data on food provision practices in hospitals in health care literature.

This review seeks to map the current literature regarding hospital food services in order to discover where there may be gaps for further study. The review is framed around the following research question: "What evidence is there on hospital food and nutrition services including the model used, patient population studied, and outcome measures evaluated."

Methods

The databases searched were PubMed, CINAHL and Cochrane Library. The keywords used were: "hospital food service," "room service," "plate waste," "food intake," "malnutrition," and "patient satisfaction. For this review, the PCC question approach was used, that is, Population: adult hospitalized patients, Concept: food and nutrition services delivery and its

effects, Context: acute/subacute hospital. The aim of this study was to review articles published from 2021-2026 and written in English language. No articles were included in this systematic review that were limited to enteral/parenteral nutrition, nursing homes, or community settings. The titles and abstracts were first reviewed by two reviewers independently. The articles that met the inclusion criteria were included in the further analysis and data was extracted by the use of MS Excel.

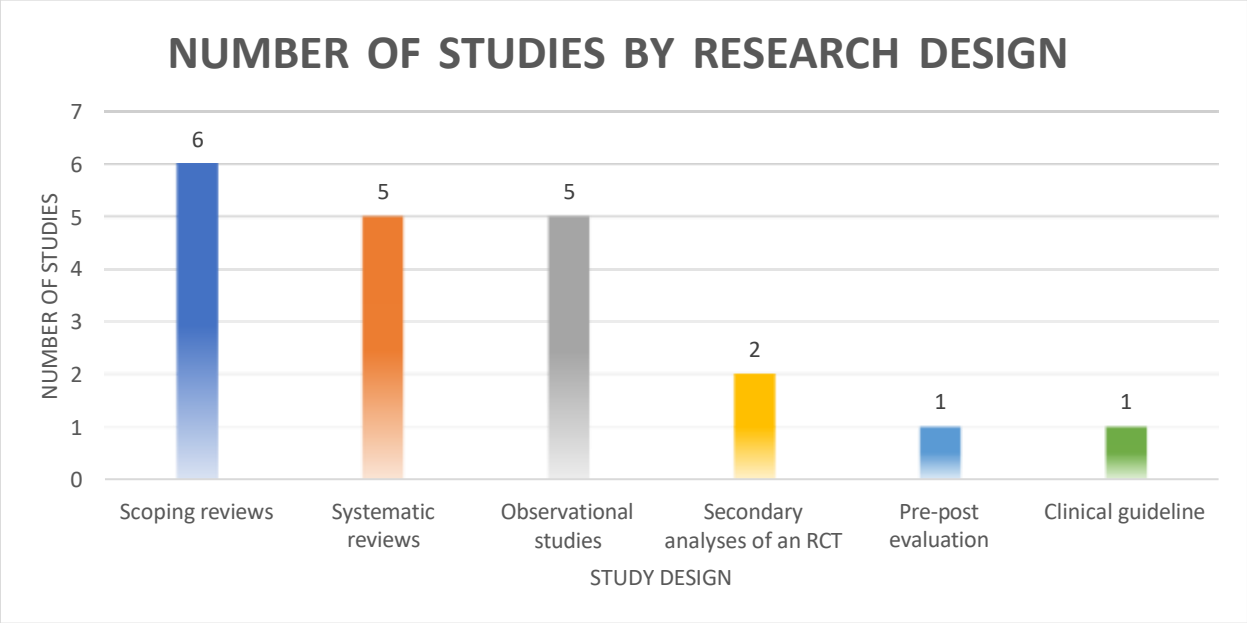
RESULTS

The inclusion criteria were met by 20 papers. Of these, four studies appeared in 2021 (20%), six in 2022 (30%), five in 2023 (25%), two in 2024 (10%), and three in 2025 (15%). Scoping and systematic reviews were well represented in the literature base with six scoping reviews and five systematic reviews. Primary research included five observational studies, two secondary analyses of randomized controlled trials, and one pre/post-test evaluation. Lastly, there was one guideline document (Table 1 & Figure 1).

Table 1. Study Designs of Included Studies

Study design	**n**	**Studies**
Scoping review	6	Austria et al. (2024); Chatzipavlou et al. (2024); Cheung & Wan (2025); Manimaran et al. (2023); Torrejón-Ramos et al. (2025); Yinusa et al. (2021)
Systematic review	5	Antasouras et al. (2023); Cass & Charlton (2022); Diana et al. (2023); Osman et al. (2021); Rinninella et al. (2023)
Observational study	5	Böhne et al. (2022); Cardenas et al. (2022); Correia et al. (2021); Furness et al. (2023); Hadjimbei et al. (2025)
Secondary analysis of an RCT	2	Bretscher et al. (2022); Schuetz et al. (2022)
Pre-post evaluation	1	Neaves et al. (2022)
Clinical guideline	1	Thibault et al. (2021)
Total	20	

Figure 1. Number of Studies by Research Design



Service Models

Various approaches were outlined in the literature including conventional plating services, cook-fresh versus thaw-retherm food preparation methods, room service delivery system, bed-side ordering, menu modification, protected mealtimes, and interprofessional nutritional care (Osman et al., 2021; Rinninella et al., 2023; Yinusa et al., 2021). Out of these different options, the method that has been researched the most times is menu modification (Osman et al., 2021). An example of a study done in a public hospital showed how cook-fresh room services positively impacted patient meals and lowered cost expenses when compared to the thaw-retherm delivery approach (Neaves et al., 2022).

Outcomes Measured

Malnutrition was identified as a problem in almost 40% of inpatients in hospitals in Latin America (Cardenas et al., 2022; Correia et al., 2021), where poor nutrition intake was a predictor of death and increased duration of stay in the hospital. In Cass & Charlton (2022), it is reported that there is an occurrence of malnutrition ranging from 10% to 65% in patients within the period of hospitalisation. Plate waste is another issue, with a median level of 27.6% among the Indonesian hospitals (Diana et al., 2023). Regarding the satisfaction aspect, there seems to be higher satisfaction among patients regarding the staff, while they are less satisfied with the meals provided to them in terms of taste and variety (Furness et al., 2023; Hadjimbei et al., 2025).

Patient Groups

Most literature used adults in the medical and surgical fields. Studies focused on older individuals in medical specialties as well as multimorbid populations were based on trials conducted by (Bretscher et al., 2022). Economic evaluations considered individuals who had been diagnosed with heart failure in their analysis, whereas pediatric populations were studied in terms of plate waste (Diana et al., 2023).

DISCUSSION

This literature review illustrates that there is much current research on the subject. Despite this, the majority of articles found were reviews (55%). This trend indicates that further research is required, especially comparative controlled trials of various methods. Among others, patient-centered services including room service approach, adjustable serving size, and select menu were linked to higher consumption rates and less waste (Antasouras et al., 2023; Manimaran et al., 2023; Rinninella et al., 2023). Personalized nutritional intervention led to increased life span without significant costs (Schuetz et al., 2022). Admission albumin did not help determine whether personalized intervention could lead to better health outcomes (Bretscher et al., 2022).

There were gaps identified in the literature reviewed. The modifiable barriers including interruptions during meals, procedures leading to fasting and dissatisfaction with meals have received significant attention in research. Nonetheless, interventions addressing these factors have not been tested in many studies (Cass & Charlton, 2022; Cheung & Wan, 2025). There were no studies evaluating food services' impact on safety outcomes except Austria et al.'s study published in 2024. Also, there are very few studies that assess the carbon footprint of hospital food production processes (Chatzipavlou et al., 2024).

Limitations exist within this review. It used secondary sources such as systematic reviews because the evidence level of these is lower than evidence from primary research trials. The criterion for inclusion was that the article had to be in English. However, there were some elements of the review which were strong; independent screening and data extraction by two reviewers, which reduces the bias and helps to determine patterns.

CONCLUSION

This literature review has sought out current evidence about food services in hospitals. Patient-centered food service models may positively influence consumption rates, levels of customer satisfaction, and wastage. There is also a strong relationship between inadequate consumption and malnutrition and mortality among patients (author, year). It is recommended to focus more on randomized control trials in relation to food service models and consider measuring economic and environmental factors.

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