

# Chapter 13

## Determinants of the degree of acceptability of the hospital diet: tools for clinical practice?

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### ABSTRACT

The purpose of the study was to investigate the degree of acceptability of the hospital diet in patients admitted to a public university hospital in the city of Rio de Janeiro. This is a cross-sectional study in which quantitative and environmental aspects related to diet, average length of hospital stay and quality of care were investigated. The results revealed that the evaluation of the

acceptance of the hospital diet was considered good to excellent in most cases and that 88.7% of the patients ingested more than half of the total content of the meal offered. In small meals, nutrient-restricted diets, including hyposodic diets, showed a higher degree of acceptance among their users than basic and salt-based diets. The inadequate temperature of the diet served was the factor that most negatively contributed to food acceptance, followed by the lack of interval between dinner and supper. The acceptance of the diet was also inversely proportional to the time of hospitalization. It is concluded that the evaluation of the hospital diet should be carried out continuously and comprehensively, so that the factors that influence user satisfaction can be detected and modified before compromising their nutritional and pathophysiological status.

**Keywords:** Diet, Malnutrition, Hospitalized patients.

## 1 INTRODUCTION

The prevalence of malnutrition in a hospital environment reaches percentages ranging from 20% to 50%, which characterize it as an important public health problem. 1,2 Its occurrence is associated with an increase in the morbidity and mortality rate, hospitalization period and hospital expenses. 3,4 In addition to the disease, some studies,5 including a multicenter study,3 cite the hospital environment, dietary restrictions and the form of care as some of the factors that may compromise the acceptance of the diet and, consequently, lead to in-hospital malnutrition,6,7 reinforcing the need for continuous and careful evaluation of these issues by part of health professionals.

Despite the perception of the value of the diet, which for the patient is strictly related to the cure of his disease, the role of feeding goes beyond supplying calories and assisting in the recovery / maintenance of his nutritional status. 8,9 It also has an affective character, because it has the purpose of mitigating the

suffering generated during hospitalization, in which the individual moves from his activities and the roles played in the family, in the community and in work relationships. 10th

Given the importance of sensory and symbolic aspects in the therapeutic function of diet, part of private or public hospitals outsourced already seeks to differentiate their care and presentation of culinary preparations, through an integration related to dietary principles and gastronomy, in order to demystify the idea of free and tasteless food from the hospital and improve the acceptance of the hospital diet. 11.12

Nevertheless, few studies evaluate the acceptance of basic oral diets or with restriction of some nutrient in their culinary preparations in the hospital context,<sup>4</sup> and the existing ones do not evaluate it by type of meal or do not consider, in their analyses, the social and environmental factors in the process of acceptance of the diet. Thus, the present study aimed to investigate the degree of acceptability of the hospital diet and possible interference factors, through the perception of patients, during the hospitalization period within the university hospital.

## 2 METHODS

The cross-sectional study included patients aged between 18 and 70 years, hospitalized at the Pedro Ernesto University Hospital (HUPE) of the State University of Rio de Janeiro, located in the city of Rio de Janeiro, from August to December 2010.

The HUPE has 525 beds distributed in clinical, specialized, surgical, pediatric and maternity units, in addition to the intensive care center. The hospital's food and nutrition unit distributes about 1,980 meals/day, 60% of which are produced at the institution and 40% transported in thermal containers (normal and soft diets, with or without salt), which serve patients, companions and authorized employees. The meal serving system is centralized, but the diets are packed in aluminum packaging and the transport carts are not thermal.

In order to meet the purposes of the study, the following inclusion criteria were accepted: lucid and oriented individuals hospitalized for more than 48 hours, without chewing, swallowing and taste alteration problems, receiving diets of normal consistency to pasty. Regarding the qualitative aspect, the diets were called basic (normal, mild and pasty) and modified (hypolipidic, diabetic, hyperprotein and hypercaloric, hypoprotein and non-residue). Patients in intensive care, with neurological and neutropenic problems, as well as those who presented severe gastrointestinal disorders or inappetite, and companions were unable to participate in the study.

The universe to be investigated was determined by surveying the average number of patients hospitalized per active bed registered in the hospital's Hospital Admission Center system and the number of diets computed in the nutrition division statistics that met the criteria of this research. Thus, the sample size was chosen taking into account the universe of 198 patients, a confidence level of 95% and a sampling error of 5%, totaling a minimum of 125 patients to be studied.

Social, clinical and dietary data were obtained from the patients' medical records. To facilitate the analysis, the pathologies presented by the patients were grouped into four subgroups: chronic diseases; infectious diseases, external causes and other diseases.

To evaluate the intake of the hospital diet during hospitalization, the researcher applied an adapted form of Proença et al.,<sup>13</sup> containing pre-coded questions to investigate the degree of acceptance of the patient by type of meal (small: breakfast, *colação*, snack and supper; and large: lunch and dinner) during hospitalization time. The indicators used to evaluate the influence on the acceptance of the diet according to this instrument were: presentation, flavor, temperature and amount of meal served. For the convenience of the researcher and for presenting a higher percentage of distribution in the HUPE, lunch was the meal chosen to measure the amount of food ingested by the patient, using the technique of direct observation. The visual estimate of what was left in the individual aluminium packaging was recorded as follows: nada (0), menos da metade ( $<1/2$ ), igual ou mais da metade ( $\geq 1/2$ ) ou tudo (1). A valiação da aceitação da dieta foi considerada favorável quando a opinião da refeição pelo paciente passou de "boa" para "ótima" e a ingestão da dieta servida foi superior à metade da quantidade servida.

The socioeconomic class of the participants was evaluated according to the Brazil Economic Classification Criterion. For statistical analysis purposes, family income was regrouped into classes: very low (D and E), low (C1 and C2), medium (B1 and B2) and high (A1 and A2).

Data regarding the degree of acceptance in relation to diet were tabulated in the statistical program Epiinfo 6.04 and analyzed by the software SPSS 16.0 (Statistical Package for the Social Sciences, Chicago). A risk to (alpha) less than or equal to 5% was considered a risk. The study was approved by the Research Ethics Committee of the Pedro Ernesto University Hospital (protocol no. 2,712, approved on August 5, 2010). Each interviewee was informed about the need to sign a Free and Informed Consent Form and the guarantee of confidentiality about the information obtained.

### 3 FINDINGS

A total of 145 patients were selected for the study, three of which were excluded (due to withdrawal) and ten lost (no response or inconsistency of information), totaling 132 patients actually studied. In general, the hospital diet was evaluated as good to optimal in 59.8% of the cases. When analyzing by type of meal, it was found that the small meals were better accepted than lunch and dinner ( $p < 0.001$ ), according to table 1.

As for the population investigated, it was found that more than half of the patients were adults over 45 years (63.7%), male (56.1%), with chronic diseases (65.9%) and belonged to low and very low economic class (78.9%). Initially, it was verified that the sociodemographic variables did not influence the acceptance of the diet (Table 1). However, when analyzing by type of meal, it was found that at lunch the patients of the lower class reported better acceptance of the diet, compared to the patients of the middle class ( $p = 0.02$ ).

Table 1. Evaluation of diet acceptability according to sociodemographic characteristics and type of meal. Rio de Janeiro-RJ, 2010.

		Number (%) of subjects:		<i>p</i> <sup>1</sup>
		Regulate The Bad	Good to Great	
Sex	Male	32 (43.2)	21 (36.2)	0,41
	Female	42 (56.8)	37 (63.8)	
Acts Group	18-29	5 (62.5)	3 (37.5)	0,25
	30-45	19 (47.5)	21 (52.5)	
	46-60	17 (37.8)	28 (62.2)	
	+60	12 (30.8)	27 (69.2)	
Type of duck	gia			0,46
	Infectious diseases	5 (33.3)	10 (66.7)	
	Chronic diseases	37 (42.5)	50 (57.5)	
	Other Causes	7 (50.0)	7 (50.0)	
	External Causes	4 (25.0)	12 (75.0)	
	Average	14 (50.0)	14 (50.0)	
Economy				0,21
	Low	24 (33,3)	48 (66,7)	
	Too low	15 (46,9)	17 (53,1)	
Type of meals	Small	87 (61.9)	45 (34.1)	<0,001
	Great	71 (53.8)	61 (46.2)	

<sup>1</sup>Test Chi-square

Regarding the type of diet, most patients (66.7%) received a diet with some type of nutrient restriction (modified) and, among these, 61 (68.9%) were represented by the hyposodic diet. It was found that although there was a tendency to increase acceptance of the modified diet than the basic diet by the patients, this difference was only statistically significant in small meals (table 2).

Table 2. Evaluation of meals according to the qualitative characteristics of the diet. Rio de Janeiro-RJ, 2010.

Refeição(%)				<i>p</i> <sup>1</sup>
Type of diet	Regular to Bad	Good to Great		
Breakfast	Basic14 (31.8)	30 (68.2)		0,33
	Modified	21 (23.9)	67 (76.1)	
Lunch	Basic21 (47.7)	23 (52.3)		0,00
	Modified	19 (21.6)	69 (78.4)	
Snack	Basic19 (43.2)	25 (56.8)		0,61
	Modified	34 (33.6)	54 (65.4)	
Dinner	Basic18 (40.9)	26 (59.1)		0,00
	Modified	14 (15.9)	74 (84.1)	
Supper	Basic17 (38.6)	27 (61.4)		1,00
	Modified	34 (38.6)	54 (61.4)	
	Basic27 (61.4)	17 (38.6)		0,01
	Modified	32 (36.4)	56 (63.4)	

<sup>1</sup>Chi-square test

Regarding the salt content in the diet, there was no statistical difference between the acceptance of the normosodic diet and the hyposodic in large meals, differently from that observed in relation to small meals (gluing:  $p=0.02$ ; snack:  $p=0.001$ ; and supper:  $p=0.03$ ).

Through the direct observation technique, the acceptance of lunch was evaluated and confronted with the answers of the questionnaires. The results revealed that 88.7% of the patients had intake equal to or more than half of the total meal (Table 3). There was a correlation between the two methods used, because those who evaluated lunch as good to excellent were those who consumed more than half of the meal ( $r=0.38$ ;  $p<0.001$ ).

Table 3. Percentage of the degree of acceptance of lunch according to the patient satisfaction survey. Rio de Janeiro-RJ, 2010.

Consumption of diet	Total consumption n (%)	Acceptance n (%)		$p^1$
		Regulate The Bad	Good to Great	
<1/2	15 (11.4)	13 (86.7)	2 (13.3)	
>1/2	36 (27.3)	16 (44.4)	20 (56.6)	<0,001
Everything	81 (61.4)	24 (29.6)	57 (70.4)	

<sup>1</sup> Chi-square test

Among the predetermined indicators that could influence the acceptance of the hospital diet, the perceived inadequate temperature was the one that most contributed to the low intake of the meals served. To a lesser extent, the lack of seasoning (flavor) of dietary preparations was also considered as a responsible factor for low acceptance in large meals, while the distribution time was considered for supper. In this institution, the distribution of the supper is made together with the dinner, due to the insufficient number of employees to cover the night shift. At breakfast, 22 patients (16.7%); 33 (25%) at the pasting; 13 (9.8%) at lunch; five (3.8%) at lunch; 29 (22%) at dinner and 21 (15.9%) at supper reported that none of the above indicators interfered in the acceptance of the meal (table 4).

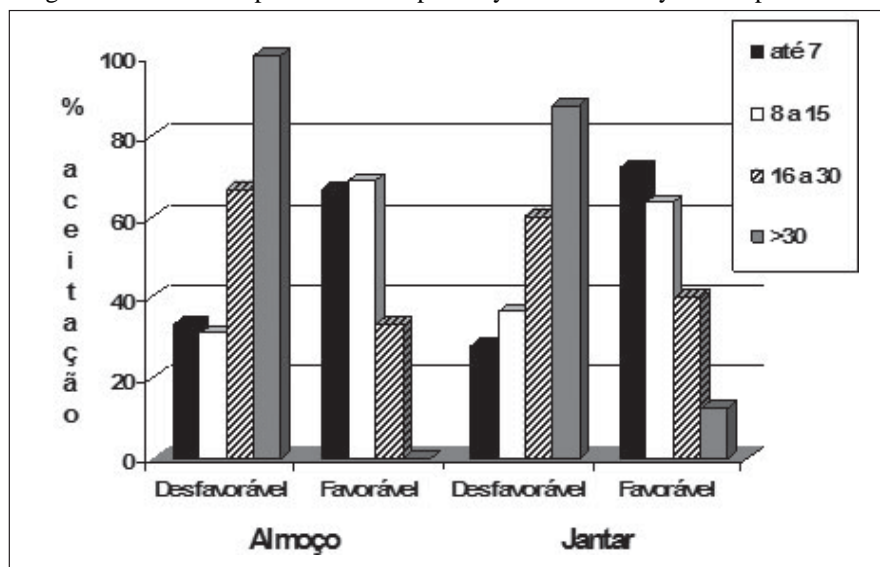
Table 4. Percentage of environmental factors that negatively affected the acceptance of the diet by type of meal. Rio de Janeiro-RJ, 2010.

	Small Meals Large Meals					
	Breakfast	Gluing	Snack	Supper	Lunch	Dinner
Presentation	3 (2,3)	2 (1,5)	3 (2,3)	0 (0,0)	4 (3,0)	1 (0,8)
Timetable	1 (0,8)	5 (3,8)	19 (14,4)	64 (48,5)	6 (4,5)	49 (37,1)
Flavor	12 (9,1)	12 (9,1)	11 (8,3)	5 (3,2)	30 (22,7)	28 (21,2)
Temperature	71 (53,8)	54 (40,9)	59 (44,7)	33 (25,8)	63 (47,7)	32 (24,2)
Quantity	23 (17,4)	26 (19,7)	11 (8,3)	9 (6,8)	16 (12,1)	17 (12,9)

<sup>1</sup> The table contains only the participants who recorded some environmental factor that influenced acceptance of the diet.

Of the total respondents, 82.6% had been hospitalized for at least two weeks. The hospitalization time negatively influenced the acceptability of the diet, since it decreased as the hospitalization time increased, especially in relation to lunch ( $p < 0.001$ ) and dinner ( $p = 0.02$ ), as shown in Figure 1. There was no statistical difference in relation to small meals.

Figure 1. Relationship between acceptability of diet and days of hospitalization.



Regarding the information collected about the care in the ward, 93% of the interviewees considered important the personal presentation of the butlers and added that they represent a source of support, safety and solidarity at the time of feeding.

Through the observation technique, the researcher may notice that the health team collaborated so that the medical and routine procedures were not performed during meal times, although sometimes they were inevitable. Of the total respondents, 98 (74.2%) praised the attention, affection and all clarifications provided by the nutrition team.

#### 4 DISCUSSION

This study differs from the other ones by evaluating the acceptance of the hospital diet not in isolation, but stratified by type of meal (from breakfast to supper). The authors understand that the achievement of the patient's nutritional needs depends on the acceptance of all meals served and not only on large meals, as explored in some studies. 14,15 Another important point was to investigate the relationship between the profile of the users attended, in the context in which the patients are inserted, with the process of acceptance of the hospital diet.

Regarding the degree of acceptance of the diet, it was observed that the evaluation was good to excellent in most cases. The results revealed that most patients had more than half of the total meal and that there was a correlation between the two methods used. Part of the success is due to the integration of the

nursing team, either by respecting procedures outside meal times, or by nutritional care provided by the clinical and dietary nutrition service, as observed during distribution.

In this study, it was also observed that small meals had better acceptance in relation to large meals, except for supper. This fact is considered important for the nutrition team, since protein-caloric supplementation is usually performed in snacks for nutritional recovery of critically ill patients. Moreover, it is observed that the snacks of the modified diets have less restriction of flavor, compared to large meals, since they have the variety of dietary foods existing in the market. In the HUPE, in the menu of small meals are allowed options of liquids (porridge, milk, vitamin and mate) and fillings are offered in individual servings (jam, margarine, melted cheese), which favor the presentation and acceptance of the hospital meal.

Hiesmayr et al.<sup>16</sup> proved in their results that low food intake is the greatest independent risk factor for hospital mortality and that snacks served and consumed would be protective factors for it (risk ratio=0.81 for each snack). In the study by Coloço et al.,<sup>17</sup> no significant difference was found between the acceptance of small and large meals.

In the present work, nutrient-restricted (modified) diets, including hyposodic diets, provided during gluing, snacking and supper, showed a higher degree of acceptance among their users than basic and salted diets. It is suggested that patients who receive the modified diet are more aware and interested in following the recommended diet for their restoration and, therefore, are less critical in their evaluation. The addition of herbs to the preparations produced in this hospital and the delivery of a sachet of 1 g of salt to patients on a hyposodic diet were also considered possible contributing factors for such results. It is important to add that although the modified diets were better evaluated by patients, the literature points out that patients who receive modified diets usually reach nutritional recommendations, because they are more restrictive and less palatable diets. 6th

When analyzing the profile of our clientele, it was found that economic class was the only sociodemographic variable that proved to interfere in the degree of diet satisfaction, even so only in large meals, contrasting with other studies, which demonstrated that gender, age and pathology are other factors that also influence the acceptance of the diet. 17,18 Although no statistical difference was observed, there was a tendency of younger patients to reject feeding in relation to older patients.

Regarding purchasing power, it was observed that patients from lower social classes (D and E) had greater acceptability compared to those from more favored classes. Studies indicate that the higher income segments tend to establish a differentiated relationship with food, in order to value the choice of certain foods over others (90.91%), either by the higher educational level or greater concern with the form of presentation. 19th

As for the time of hospitalization, Stanga et al. 20 found that patients with longer hospitalization periods had lower appetite, and consequently, lower acceptability, which was proven in this study, especially in relation to large meals. This is a relevant fact, since the hospital stay is directly proportional

to the health expenditure and the degree of morbidity. 3 Therefore, one of the goals of the Unified Health System (SUS) and this hospital is to reduce the average length of hospital stay and human suffering.

Among the sensory and environmental aspects, it was found that temperature was the one that most negatively influenced the acceptance of the diet. A reasonable explanation refers to the fact that distribution cars are not thermal, as are the utensils that pack meals. The long distance and the large number of beds per maid are other factors that may have contributed to the meal served to most patients in temperature perceived as inadequate.

Yabuta et al.<sup>14</sup> showed that more than 70% of the patients evaluated in their study considered meal temperature the most relevant aspect in the service. Temperature (41.5%) was also the most influential item in the acceptance of meals in similar studies.<sup>15,20</sup> Although the time of distribution of meals was another environmental factor of relevance that affected the acceptance of dinner and supper, it is believed that this was only mentioned due to the problem of lack of hospital staff, which causes the supper to be served along with dinner.

In view of the above, measures such as adjusting fractionation, changing the time of distribution of supper, and temperature control in food distribution become essential to improve food acceptance, better supplying the needs of patients, which may result in increased satisfaction of the same and reduction of hospitalization time.

The reform and modernization of the infrastructure of the nutrition and dietetic service, such as the total outsourcing of food services, are some of the strategies that the nutrition and dietary service of this hospital has outlined to solve the problems with temperature and the time of distribution of meals, which also became more apparent after the application of the acceptance survey in patients hospitalized in the HUPE.

## 5 CONCLUSION

The diet offered by the hospital had good acceptance, considering that they were classified as satisfactory and very satisfactory. Economic class and pathology, as well as temperature, schedule, nutritional accompaniment and modified composition are determinant strain of the degree of satisfaction of the meals offered by the hospital.

The study concluded that the acceptability of the diet in the hospital is much more comprehensive than simply what patients may or may not eat due to their disease, but rather how this meal reaches him, and how much information about the importance of it they have, involving all environmental, socioeconomic and psychosocial factors.

It is concluded that the evaluation of the hospital diet should be carried out continuously and comprehensively, so that the factors that influence user satisfaction can be detected and modified, before compromising their nutritional and pathophysiological status.



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