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Original/*Otros*

Hospital nutritional care: propositions endorsed by the scientific community

Rosa Wanda Díez-García[1,5]; Edson Zangiacomi Martínez[2], Fernanda Rodrigues de Oliveira Penaforte[3,5] y Camila Cremonezi Japur[4,5]

[1]Associate Professor of Nutrition and Metabolism, Department of Internal Medicine, Ribeirão Preto Medical School, University of São Paulo. [2]Associate Professor of Department of Social Medicine, Ribeirão Preto Medical School, University of São Paulo. [3]Professor of Nutrition Department, Institute of Health Sciences, Federal Univesity of Triângulo Mineiro. [4]Professor of Nutrition, Faculty of Medicine, Federal University of Uberlândia. [5]Laboratory of Food Practices and Behavior – PrátiCA, Nutrition and Metabolism, Department of Internal Medicine, Ribeirão Preto Medical School, University of São Paulo, Brazil.

Abstract

Background/objectives: **the incidence of hospital undernutrition and its consequences for both the patient and the hospital has demanded procedures that ensure the delivery of good-quality hospital nutritional care. On the basis of literature reports, this study aimed to build a hospital nutritional care propositions that the scientific community later evaluated and endorsed.**

Methods: **forty-one propositions concerning patient clinical nutritional care and hospital food service management by the Hospital Nutrition and Food Service were designed. One hundred professionals, researchers, and professors evaluated the propositions. Agreement with the propositions was analyzed by means of a five-point Likert scale (I strongly disagree; I partially disagree; I have no opinion; I partially agree; I totally agree) associated with each proposition. Agreement was considered to occur when 70% or more of the interviewees agreed (partially or totally) with the proposition. The procedure Proc Corresp of the software SAS 10, version 8, aided descriptive statistics and correspondence analysis.**

Results: **more than 90% of the interviewees completely or partially agreed with 85% (35) of the 41 propositions; between 80 and 90% of the interviewees totally or partially agreed with 15% (6) of the 41 propositions. All the proposed criteria had over 70% agreement (total and partial). The lowest value of total agreement was 70%, attributed to the proposition that suggested patient's participation in nutritional intervention.**

Correspondence: Rosa Wanda Díez-García.
Nutrição e Metabolismo, Departamento de Clínica Médica,
Faculdade de Medicina de Ribeirão Preto,
Universidade de São Paulo.Av. Bandeirantes, 3900,
Ribeirão Preto – SP, Brasil. 14049-900.
E-mail: wanda@fmrp.usp.br

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ATENCIÓN NUTRICIONAL HOSPITALARIA: PROPOSICIONES ACEPTADAS POR LA COMUNIDAD CIENTÍFICA

Resumen

Antecedentes/objetivos: **la incidencia de desnutrición hospitalaria y sus consecuencias tanto para el paciente como para el hospital ha exigido procedimientos que aseguren un servicio de atención nutricional hospitalaria de buena calidad. Basado en los informes de la literatura, este estudio tuvo como objetivo construir proposiciones sobre los cuidados nutricionales hospitalarios, que después fueran evaluados y aprobados por la comunidad científica.**

Métodos: **fueron desarrolladas cuarenta y una proposiciones relativas a la atención nutricional clínica del paciente y a la gestión del servicio de alimentación por el Servicio de Alimentación y Nutrición Hospitalaria. Un total de cien profesionales, investigadores y profesores evaluaron las proposiciones. Para analizar si los evaluadores estaban de acuerdo con las proposiciones se utilizó una escala Likert de cinco puntos (estoy en total desacuerdo, estoy parcialmente en desacuerdo, no tengo opinión, estoy parcialmente de acuerdo, estoy totalmente de acuerdo) asociada a cada proposición. Fue considerada concordancia cuando el 70% o más de los evaluadores estaban de acuerdo (totalmente o parcialmente) con la proposición. Para el análisis estadístico fue utilizado el procedimiento Proc Corresp del software SAS 10, versión 8, estadística descriptiva y análisis de correspondencias.**

Resultados: **más del 90% de los entrevistados estaban total o parcialmente de acuerdo con el 85% (35) de las 41 proposiciones; entre el 80 y 90% de los entrevistados estaban total o parcialmente de acuerdo con el 15% (6) de las 41 proposiciones. Todos los criterios propuestos tuvieron más del 70% de concordancia (total y parcial). El menor valor de concordancia total fue del 70%, atribuido a la proposición que sugiere la participación del paciente en la intervención nutricional.**

Conclusions: **the scientific community presented high level of agreement with the hospital nutritional care propositions, which suggested an important consensus about it.**

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Key words: *Hospital nutritional care. Hospital nutrition and food service. Clinical nutrition.*

Conclusiones: **la comunidad científica presentó alto nivel de concordancia con las proposiciones para la atención nutricional hospitalaria, lo que sugiere un importante consenso al respecto.**

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Palabra clave: *Atención nutricional hospitalaria. Nutrición hospitalaria. Sector de alimentación hospitalaria. Nutrición clínica.*

Introduction

Hospital nutritional care involves clinical actions in two fields: patients' nutritional approach and food production management[1]. Because these actions positively correlate with hospital undernutrition, they can affect treatment outcomes as well as hospital stay length and costs[2].

Authors have proposed different protocols for nutritional care delivery to hospitalized patients, aiming to (a) improve the hospital accreditation assessment system[3], (b) increase nutritional care quality[4], (c) standardize hospital nutrition and food service practices[5], and (d) ensure that human rights are taken into account during hospitalization[6], among other objectives. Various studies have described the initiatives of hospitals that implemented and enhanced their nutritional status monitoring system[7] as well as the procedures and products of their nutrition and food service[8]. Such improvements impacted hospital stay quality, patient's satisfaction[9], and patient's nutritional status[8].

Donini et al.[10] evaluated the quality of a nutrition service in a rehabilitation hospital. Improved meal distribution, menu, meal temperature, and food waste control resulted in greater patient satisfaction and better food quality. O'Flynn et al.[8] verified lower prevalence of undernutrition when they implemented nutritional screening and education as well as improved hospital nutrition.

A previous work by our research group[1] has assessed the quality of hospital nutritional care in 37 public and private institutions. Surprisingly, half of the evaluated hospitals did not follow the indicators of nutritional care quality. Therefore, establishing and implementing recommendations and standards that improve nutritional care delivered to hospitalized patients is mandatory.

It is true that hospital service quality depends on standardized procedures (standards) and guidelines, improved management, and continuous assessment of quality indicators for periodic comparisons[11]. Clinical guidelines comprise a set of systematically developed recommendations that aid professionals in decision-making regarding the delivery of adequate health care during specific clinical circumstances. The construction of quality criteria and indicators is crucial—it helps to evaluate and increase hospital nutritional care quality[12].

The process of building a consensus implies investigating whether specialists in the subject areas agree with the hospital nutritional care propositions (HNCP). The agreed should be based on professional experience, primary literature sources, and/or previous guidelines and recommendations. Consensual positions are essential because they help to ensure efficient and good-quality actions[13].

The construction of a body of actions that can better typify hospital nutritional care, meet the hospitalized patient's requirements, and guide the establishment of future protocols justifies the present work, which aimed to build a literature-based of nutritional care that the scientific community working in the area of hospital nutrition later evaluated and endorsed.

Materials and Methods

Hospital nutritional care propositions (HNCP)

The designed hospital nutritional care propositions comprised 41 propositions subdivided into 12 topics: hospitalized patient's diagnosis and nutritional assessment, diet prescriptions, nutritional education, nutritional support team, relationship with multiprofessional team, protocols, user's satisfaction, continued education and updating, hospital diets, meal production and budget management, staff assessment and training, and service plans and goals. (Table I).

Propositions were based on the scientific literature[3,5,14], on the Brazilian legislation that rules the activity of nutritionists in hospitals[15], and on the hospital accreditation manual published by the Brazilian Federal Government[16].

HNCP assessment by the scientific community

To evaluate and obtain a consensus from the clinical nutrition scientific community on the HNCP, we invited researchers, professors, and professionals listed in the Lattes Platform (http://lattes.cnpq.br/), a database managed by the Brazilian Ministry of Science and Technology, to participate in the investigation and analyze the propositions

Table I
Interviewees' Professional Profile

Characteristics	*(n = 100)*	*%*
Profession		
Biologist	1	1.0
Physician	25	25.0
Nutritionist	74	74.0
Qualifications		
Specialization	7	7.0
MSc degree	26	26.0
PhD degree	67	67.0
Graduation		
Less than 10 years previously	13	13.0
Between 10 and 20 years previusly	24	24.0
Over 20 years previously	63	63.0
Institution		
University	84	84.0
Government	62	73.8
Private	22	26.2
Health Institution	16	16.0
Government	12	75.0
Private	4	25.0
Location/Region		
North	2	2.0
North-East	10	10.0
Centre	5	5.0
South-East	59	59.0
South	24	24.0

The participants were emailed and invited to participate. They received an identification code that granted them online access to the questionnaire. This questionnaire was interconnected with a database (MySQL) hosted in the site of the University. MySQL is a database management system that employs the language SQL (Structured Query Language) as interface.

The sample was selected according to the following inclusion criteria: access to email (because assessment was applied by virtual means), affiliation with a hospital institution and/or university, development of research or teaching activity in disciplines in the area of clinical nutrition, graduate degree, and agreement to participate in the research. Researchers in the area of clinical nutrition that only worked with animals were excluded.

The questionnaire included the 41 propositions of the HNCP (to enable analysis of agreement), identification of the interviewee (affiliation, profession, graduation year, academic title, activities developed in hospital institutions, and activity type—research, teaching, extension, professional activity), and four open-ended questions that asked the participants to propose priorities (questions 8, 12, 41 and 45).

To evaluate agreement with the propositions, the interviewees had to fill in a five-point Likert scale (I strongly disagree; I partially disagree; I have no opinion; I partially agree; I totally agree) associated with each proposition. In addition, the interviewees had room to add any points or justify their opinion; e.g., if they partially agreed about the proposition, they could mention what they agreed with; if they partially disagreed about the proposition, they could note down what they agreed with; if they strongly disagreed with the proposition, they could suggest an alternative approach.

The acceptance criterion for each topic to become part of the HNCP was to obtain 70% agreement (partial or complete) from the interviewees, which represented over twice the percentage of the interviewees that disagreed with a given proposition[5]. The comments relative to agreement (complete and partial) and disagreement (complete and partial), mentioned in the open-ended part of the questionnaire, were analyzed. This analysis helped to improve some propositions and to clarify the interviewees' opinion.

The procedure Proc Corresp of the software SAS 10 version 8 aided statistical description and correspondence analysis. This work was approved by the Research Ethics Committee.

Results

One hundred Brazilian postgraduate (*latu* and *stricto sensu*) researchers and professionals working in the area of clinical nutrition, listed in the Lattes Platform, participated in the study (Table I). Of the 284 e-mailed questionnaires, 100 were answered; this amounted to 35% adherence to the survey. The professionals that did not answer the questionnaire (168) had the same profile as the participants, the majority of which consisted of nutritionists and holders of a PhD degree. Sixty-one percent of the participants were affiliated to government institutions; 67% had over fifteen years of professional experience. Most of the interviewees conducted teaching activities (72%); 68% developed research; 33% took part in extension activities; and 88% participated in hospital activities, 36% of which were hospital employees.

Of the 41 propositions, 85% (35) received total and partial agreement from over 90% of the interviewees; 15% (6) of the propositions obtained total and partial agreement from 80 to 90% of the interwiewees (Table II). All the proposed criteria achieved over 70% adhe-

Table II
Analysis of interviewees' agreement with the propositions of the HNCPl.

n.	*Proposition*	*Total (partial) agreement in %*
	Hospitalized patient's diagnosis and nutritional assessment	
1	All hospitalized patients must undergo nutritional screening to define the complexity of the nutritional care they should receive.	100 (90)
2	Nutritional assessment and diet prescription must be promptly established in the case of undernourished patients or patients at risk of undernutrition; the nutritional status of these patients should be monitored along hospitalization and properly entered in the patient's medical record.	98 (90)
3	The Hospital Nutritional Care Service should rely on exclusive equipment (portable scale, stadiometer, paquimeters, bioimpendance devices, and others if need be) and protocol to evaluate the nutritional status of hospitalized patients.	98 (87)
4	Laboratory examinations for nutritional assessment (at least serum albumin) must be conducted to evaluate and monitor undernourished patients and patients at risk of undernutrition.	94 (75)
5	All the hospitalized patients must undergo nutritional monitoring (food intake assessment and/or body weight alterations) to detect the need for nutritional intervention.	96 (76)
	Diet prescription	
6	Nutritionists must establish the priority criteria among patients; on a daily basis, the nutritionist should prescribe diets to patients at nutritional risk, undernourished patients, and patients that are likely to benefit from diet therapy.	89 (79)
7	Nutritionists must enter interventions in the patient's medical record and justify diet prescription on the basis of objective (diagnosis, laboratory examinations, food intake, drug therapy and interaction with nutrients, and nutritional status, signs, and symptoms) and subjective data (complaints, preferences, disposition, and conditions to abide by the diet, etc) as well as nutritional status diagnosis.	96 (89)
	Intrahospital nutritional education	
8	In your opinion, which five types of patients and diseases should be given priority in terms of diet guidance at hospital discharge?	Open-ended question
9	The Hospital Nutrition and Food Service must establish the priority criteria regarding the delivery of diet guidance at hospital discharge.	94 (82)
10	Nutritional Education programs should be conducted during hospital stay and involve patients considered to be a priority for this kind of intervention.	94 (82)
11	Outpatient care must be organized to include Nutritional Education programs directed to different specialties and pathologies.	97 (88)
12	In your opinion, which five illnesses/specialties take priority during outpatient nutritional care?	Open-ended question
	Nutritional support staff	
13	Nutritionists must actively participate in the nutritional support team and take part in operational activities as well as case discussions.	99 (97)
	Relation with the multiprofessional team	
14	The clinical nutritionist's routine should include daily monitoring of meal distribution in wards, monitoring of food acceptance, and visits to patients. Nutritionist's participation in visits to patients together with other team members should occur at the frequency agreed by the other professionals.	95 (84)
15	On a daily basis, the nutritionist should be in contact with the nursing staff and physicians during routine visits, to obtain updated information on any events.	96 (90)
16	Nutritionists must propose or regularly participate in activities such as lessons, seminars, and campaigns, among others, that involve professionals outside the Hospital Nutrition and Food Service.	94 (89)
17	The Hospital Nutrition and Food Service should develop formal mechanisms through which other Services could request interconsultations with Nutrition professionals. Nutritionists should then evaluate patients and enter any opinion into the patient's medical record.	94 (90)

Table II (cont.)
Analysis of interviewees' agreement with the propositions of the HNCPl.

n.	*Proposition*	*Total (partial) agreement in %*
	Protocols	
18	Nutritionists should establish protocols for their clinical and outpatient activities on the basis of scientific literature. Protocols must be constantly updated.	97 (94)
19	The Hospital Nutrition and Food Service must conduct first-visit procedures, nutritional status assessment, and interconsultations according to its protocols. (Reformulated *)	88 (73)
	User satisfaction	
20	Every time the patient requests diet modification, the nutritionist must attempt to meet their demands while bearing the clinical possibilities in mind	97 (81)
21	The Hospital Nutrition and Food Service must have mechanisms that increase patient participation in diet therapy.	91 (85)
22	The patient should agree with the nutritional intervention	96 (70)
23	The Hospital Nutrition and Food Service must have mechanisms to evaluate user satisfaction; this should be conducted by another hospital segment, to avoid bias.	90 (77)
	Continued education and updating	
24	Nutritionists must periodically participate in congresses and courses in their field, with support of the Hospital Nutrition and Food Service.	97 (96)
25	The Hospital Nutrition and Food Service must promote periodic group meetings with nutritionists working inside or outside the institution, to discuss protocols and cases related to nutrition on the basis of scientific literature.	98 (93)
	Hospital diets	
26	The Hospital Nutrition and Food Service must have its own printed diets manual with information about diet features (consistency, food types, indications, and number of meals) and their nutritional (macro and micronutrients) content; all the diets should meet the requirements of DRIs.	91 (78)
27	The Hospital Nutrition and Food Service must prioritize the organoleptic characteristics, variety, and good presentation of the preparations (particularly special diets) and menus.	96 (82)
28	Nutritionists should routinely conduct diet tasting, particularly in the case of special diets, to maintain control of the sensory quality of the delivered food.	92 (84)
29	The Hospital Nutrition and Food Service must offer users nutritional supplements produced by the Service itself, aiming to deliver varied and palatable preparations to patients that require such supplements.	88 (76)
30	The Hospital Nutrition and Food Service must be concerned with the aspects that surround food, such as cutlery and tray, the place where the patient will place the tray, environment conditions, and meal times, which could improve the patients' nutritional conditions.	96 (91)
31	The Hospital Nutrition and Food Service must have statistical control of the prescribed diets in order to monitor possible prescription trends and bias.	94 (93)
32	The experimental and diet kitchen must be part of the structure of the Hospital Nutrition and Food Service and function as a laboratory to improve the Service products.	92 (84)
	Meal production management	
33	The Hospital Nutrition and Food Service must have budget autonomy and be responsible for resources management. (Reformulated **)	87 (72)
34	The Hospital Nutrition and Food Service must calculate cost/meal or food cost/day.	92 (77)
35	Preparations must be standardized via a standard prescription form.	84 (81)
36	A Good Practice manual must be implemented and monitored.	97 (94)
	Staff assessment and training	
37	The Hospital Nutrition and Food Service must offer staff training programs on a periodic basis, with institutional support.	98 (94)

Table II (cont.)
Analysis of interviewees' agreement with the propositions of the HNCPl.

n.	*Proposition*	*Total (partial) agreement in %*
38	The functions and responsibilities of the Hospital Nutrition and Food Service staff must be attributed and assessed on a periodic basis.	97 (97)
39	The Hospital Nutrition and Food Service must assess all the staff, inclusive of nutritionists, periodically.	95 (91)
	Service plans and goals	
40	The Hospital Nutrition and Food Service must conduct periodic plans on the basis of information provided by the Service itself; goals should be set and registered in a written document.	97 (93)
41	In your opinion, which five priorities should the Hospital Nutrition and Food Service have?	Open-ended question
42	The Hospital Nutrition and Food Service must produce annual reports with assessment of its plan and goals.	95 (91)
43	The Hospital Nutrition and Food Service must seek insertion in the hospital institution administrative areas.	92 (81)
44	The Hospital Nutrition and Food Service must seek to associate the clinical nutrition area with the clinical direction, within the hospital organizational structure.	83 (77)
	Others	
45	In your opinion, which five main concerns should the Hospital Nutrition and Food Service have about hospitalized patients?	Open-ended question

* (Final Proposition 19) The Hospital Nutrition and Food Service must conduct first-visit procedures, nutritional status assessment, and interconsultations according to its protocols; a proper structured printed form should be used on this occasion and be later attached to the patient's medical record.
** (Final Proposition 33) The technical responsibility of the nutritionist working for the Hospital Nutrition and Food Service should be considered when purchasing food and managing resources.

rence after addition of total and partial agreement. The proposition *"The patient should agree with the nutritional intervention"* provided the lowest total agreement—70%.

Figure 1 shows the correspondence analysis and the levels of agreement for all the propositions, except for the open-ended questions 8, 12, 41, and 45.

Even though propositions 19 and 22 had total agreement from 73% and 70% of the interviewees, respectively, they presented the most dispersed results, which indicated wider variation in adherence. Nevertheless, proposition 19 received 7% and 3% of total and partial disagreement, respectively, which pointed to a certain degree of disagreement. Proposition 22 had 26% partial agreement.

Analysis of the arguments that justified partial agreement with proposition 19 showed that interviewees supported the adoption of a single record. The initial phrasing of proposition 19 gave the impression that the printed record forms would be exclusive to the Hospital Nutrition and Food Service, which was not the intention of the proposition. Therefore, we modified proposition 19 as follows: "*The Hospital Nutrition and Food Service must conduct first-visit procedures, nutritional status assessment, and interconsultations according to its protocols; a proper structured printed form should be used on this occasion and be later attached to the patient's medical record*."

Propositions 4, 5, 6, and 33 presented slightly dispersed results. Propositions 4 and 5 concerned the hospitalized patient's diagnosis and nutritional assessment. Interviewees who partially agreed or disagreed with the propositions questioned: (1) the validity of using serum albumin to assess nutritional status, due to its low sensitivity for short-term depletion. In this case, the interviewees recommended conduction of any necessary complementary examinations that the institution could afford; (2) the use of pre-determined examinations for all the patients, when individuals' illnesses and clinical conditions were different; and (3) the need to accomplish complementary examinations like serum ferritin, lymphocytometry, and acute-phase proteins. As for partial agreement or disagreement with proposition 5, interviewees argued that: (1) screening dismisses the need for nutritional monitoring; (2) monitoring is only necessary for secondary and tertiary patients; and (3) not all patients recognize the need for nutritional monitoring. With respect to proposition 6, interviewees added comments about the need for: (1) previous knowledge of physiology and pharmacology to prescribe a diet and (2) clinical assessment. Fifteen interviewees questioned whether the nutritionist

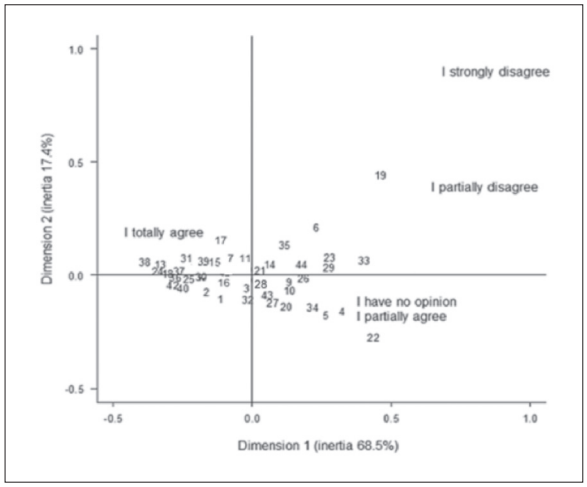

Fig. 1.—Correspondence analysis among the propositions and level of agreement.

should prescribe the diet. The fact that hospitals did not count on a sufficient number of nutritionists to carry out this activity was also mentioned.

Regarding proposition 33, interviewees questioned its dependence on a purchase policy and on the institution organizational structure, as well as the need for a specialized purchase and resources management sector. In this sense, interviewees highlighted that the nutritionist has technical responsibility for purchase policy. Arguments put forward by the interviewees who did not completely agree with the proposition led us to reformulate the proposition as follows: "*The technical responsibility of the nutritionist working for the Hospital Nutrition and Food Service should be considered when purchasing food and managing resources*."

Analysis of the replies to the four open-ended questions (which asked about service priorities) identified that interviewees saw patients at nutritional risk, under use of enteral nutrition, and with chronic diseases as the major priorities when it comes to offering diet guidance at hospital discharge. As for the need for outpatient care, the priorities lay on patients with chronic diseases related to nutrition and obesity.

The Hospital Nutrition and Food Service should prioritize: (1) patient care (by assessing nutritional status, prescribing adequate and customized diets, promoting nutritional education, offering nutritional guidelines at hospital discharge, and conducting team work); (2) human resources qualification (to improve service quality especially in terms of producing diets with good nutritional, sanitary, and sensory quality); and (3) effective service management.

Discussion

The scientific community presented high level of agreement with the HNCP, which suggested that it constitutes an important consensual basis for hospital nutritional care recommendations. To obtain an improved of the HNCP, we had to reword two propositions (19 and 33).

The differences and disparities in the area of hospital nutritional care have called for the establishment of guidelines in this field. The HNCP includes propositions that help to describe the scope of activities and responsibilities of a Hospital Nutrition and Food Service in the various segments of nutritional care.

The proposition suggesting the possibility that the patient plays an active role in nutritional intervention met with the lowest level of total agreement (70%). To a certain extent, this result showed that professionals believe technical knowlegde should take precedence over patients' opinion and demands. Professionals and patients usually establish a prescriptive and imposing relationship. In the case of nutritionists, this attitude originates from hyerarchical relationships that the nutritionists themselves experience in hospital organizations[6,17]. This unequal relationship between professionals and patients: (1) does not value dialogue or more active patient participation in their own therapeutic process; (2) disregards the patients' human rights[6,18]; and (3) goes against the notion that hospital care should adopt a less technical and more humane and flexible approach, to reach goals that lie far beyond simply meeting the patient's physiological demands[19].

Low hospital diet acceptance is a common finding. Dupertuis et al.[20] have verified that 70% of hospitalized patients consume less food than the recommended values, a fact that is not often related to illness or treatment, but to inadequate meals (e.g., unpalatable food). Sorensen et al.[21] have reported that the sensory quality (in terms of appearance, aroma, taste, texture, temperature, and variety) of food offered by the Hospital Nutrition and Food Service determines how well patients at nutritional risk accept the diet. Other authors have also found low food ingestion during hospitalization, which underlie weight loss, clinical complications during hospital stay and mortality [22-24]. For these reasons, food quality should constitute a priority of intrahospital nutritional care.

Aspects inherent to hospitalization itself and to the hospital environment, such as prescribed drug therapy, fasting periods prior to examinations, gastric disorders, and differences between patients' usual meal times and hospital meal times, contribute to low food intake and intrahospital weight loss[25]. Other relevant aspects like the monotony of the food commonly offered by hospital services (especially government services) associated with the lack of hospital food identification with the patients' history, preference, habits, and food culture also culminate in low food acceptance during hospital stay. Moreover, studies have reported inadequacies in the nutritional content of hospital diets offered to patients[26,27] .Together, these aspects can trigger and/or accelerate the development of intrahospital undernutrition and affect the hospitalization outcomes.

In this scenario, the treatment that patients receive during hospital stay should highlight not only clinical but also nutritional aspects. Patient participation in nutritional intervention, especially in terms of food, should help health professionals to face nutritional issues and their consequences.

It is true that implementation of most hospital nutritional care interventions demands a larger number of professionals and appropriate infrastructure. It is also true that the reduced number of nutritionists working in hospital meal production units and wards makes adequate performance of nutrition professionals difficult[28]. To meet all the patients' nutritional requirements, a resolution of the Brazilian Federal Nutrition Council number 380/2005[29] recommends that tertiary hospitals have one nutritionist available for every 15 patients 12 hours a day, including weekends and holydays. The reality we face in Brazilian health institutions is far from this recommendation. Most of the times, only one nutritionist conducts activities in the hospital ward and in the Hospital Nutrition and Food Service, which jeopardizes the performance of the professional working in this field.

Propositions 4 and 5 were the most polemical; total agreement was 75% and 76%, respectively. Arguments against the propositions stated that there is no need for nutritional monitoring after nutritional screening, and that not all the patients recognize the need for nutritional monitoring. The European Society of Parenteral and Enteral Nutrition (ESPEN) recommends that nutritional risk be routinely monitored for all patients prior to or during hospitalization, and that this assessment be regularly repeated along the length of hospital stay[30]. Therefore, apart from the initial nutritional screening, it is essential to establish and implement criteria and routine procedures to monitor the patients' nutritional status progress[31]. This strategy should allow for early detection of patients at nutritional risk during hospitalization, a period when nutritional depletion can occur. Previous studies have documented high prevalence of undernutrition progression along hospital stay[22,32]. Duchini et al.[33] have proposed a screening propositions that defines the nutritional care complexity. These propositions could constitute an excellent tool to aid prevention of undernutrition events and progression along hospitalization—the adoption of simple nutritional care measures such as monitoring of food acceptance during intervention and monitoring of weight and body composition parameters could aid nutritionists in this matter. Indeed, definition of the level of nutritional care complexity could help professionals establish priorities, improve the management of demands, and deal with the reduced number of nutritionists working in this field.

Developing and applying protocols that can help to identify hospital undernutrition is crucial to the early detection and management of this condition. Nevertheless, one cannot underestimate the importance of adequate and constant staff training for effective implementation of the measures. Maitland et al.[34] have highlighted that the lower mortality rates among children admitted to hospitals depends on the existence of a protocol as well as on adequate staff training.

Professionals have recognized that it is important to: (1) establish intrahospital nutritional care protocols that have defined nutritional status assessment and monitoring criteria and (2) conduct nutritional and food care actions. Apart from the nutritional benefits, protocols should prioritize the production of food that fosters a more positive hospitalization experience. The propositions that generated more discussion herein must continue to be the object of future studies, to improve the HNCP and extend the discussion about patient participation in diet prescription and management.

The development of strategies that help to overcome operational difficulties in implementing a HNCP must constitute the aim of further studies, in order to face physical, structural, and human resources limitations in hospital nutrition and food services.

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Authorship

RWDG was the mentor of the work, was involved in the protocol and study design, data collecting and analysis, carried out the statistical analysis and wrote the manuscript. FROP participated in the data collections and review of manuscript corrected. CCJ participated in the data collections, discussion and critical review of manuscript. All authors approved the final manuscript.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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