

Original

A proposal for clinical nutrition education for health care university students and professionals in the Amazon

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Abstract

Changes in nutritional status are related to an increase in morbidity and mortality. It is well established that health care professionals, particularly physicians, lack formal education to recognize nutritional disorders, which malnutrition may worsen in the hospital, and that appropriate education could effectively correct this problem.

Aim: To evaluate the awareness of the health care university students and professionals about the nutrition disorders in Amazon region hospitalized patients before and after a specific education program.

Study design: An intensive Course on Clinical Nutrition, given in three weekly classes was offered to the multidisciplinary health care students and professionals of the health care tem.

Cases and methods: 195 participants started the course. They were 97 students of nursing, 52 students of medicine, 20 nurses, 15 resident physicians, 3 physicians, 3 dietitians, 2 others, 1 no answer. 165 participants concluded it. Precourse and postcourse tests were answered. The results of these tests are presented in this study.

Results and Discussion: 76.4% of the participants were graduation students. 40% of participants had no contact with patients yet. When the exposure of the participants of the course to the theme Nutrition was analyzed, 46.7% of the resident physicians considered

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Resumen

Las alteraciones del estado nutricional están relacionadas con el aumento de la morbilidad y mortalidad. A pesar de no haber consenso en relación a los criterios diagnósticos de la malnutrición, ésta se agrava a medida que aumenta el tiempo de internación hospitalaria. Diversos autores concluyen que el equipo de salud, particularmente los médicos, no están siendo enseñados a reconocer la malnutrición, que esta malnutrición es agravada en el hospital y que la educación puede efectivamente corregir el problema.

Objetivo: Evaluar la concientización de los estudiantes de graduación en salud y de los profesionales de la comisión multidisciplinaria de salud al respecto de los desórdenes nutricionales de pacientes hospitalizados antes y después del programa intensivo de educación.

Diseño del estudio: Un curso intensivo de Nutrición Clínica, fue administrado en tres clases semanales para los estudiantes de graduación en salud y profesionales en el equipo de salud.

Pacientes y métodos: 195 participantes iniciaron el curso, frecuentado por 97 estudiantes de enfermería, 52 estudiantes de medicina, 20 enfermeros, 15 médicos residentes, 3 médicos, 3 nutricionistas, 2 otras actividades y 1 sin respuesta. 165 concluyeron el curso. Una prueba antes y una prueba después del curso fueron respondidas. El resultado de estas pruebas es presentado en este estudio.

Resultados y discusión: 76,4% de los participantes son alumnos, con edad media de 24,39 años. 40% de los participantes aún no habían tenido contacto con pacientes. Cuando la exposición de los participantes del curso al tema Nutrición fue analizada, 46,7% de los médicos resi-

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their contact with the subject superficial and 13.3% had no contact with it, reinforcing the physician's lack of knowledge to recognize malnutrition. Participants admitted having significantly profited from the course.

Conclusions: the lack of awareness of the multidisciplinary health care team about nutritional disorders may contribute to worsen hospital malnutrition. An intensive course for graduate students and residents may help to raise awareness for clinical nutrition. The great interest and enthusiasm shown by the students and other participants and the profit obtained by them from the course suggest that teaching of clinical nutrition should be implemented in all health care schools.

(*Nutr Hosp* 2004, 19:353-361)

Key words: *Nutrition disorders. Hospital malnutrition. Clinical Nutrition. Nutritional Assessment Hospital. Education-Nutrition. Acre. Brazil.*

Introduction

The first studies demonstrating that changes in nutritional status are related to an increase in morbidity and mortality started in the 30s of last century¹. But only later the classical work of Butterworth² entitled "The skeleton in the hospital closet", arouse attention for the possibility of finding malnutrition in inpatients³. Malnutrition predisposes to several severe complications, including a tendency to infection, difficulty of scar formation, respiratory failure⁴⁻⁶, cardiac failure, a decrease in hepatic protein synthesis, reduction of glomerular filtration and of gastric acid production^{7,8}. Malnutrition also contributes to increase morbidity in hospitalized patients, as slow scar formation with fistulas⁹, elevation of the rate of hospital infection^{10,11}. These complications lead to a delay in the duration of hospital stay, to a rise in costs and in mortality, especially in surgical patients^{11,12}. Otherwise, overweight and obesity are also risk factors for a varied number of health injuries, the most frequent being: ischemic heart disease, arterial hypertension, dyslipidemia, cerebral vascular accident, type 2 diabetes mellitus, cholelithiasis, osteoarthritis (especially of knees), postmenopausal breast cancer, endometrial cancer, reflux esophagitis, hiatus hernia and psychological problems^{14,15}.

The prevalence of malnutrition in patients has varied from 10 to 70%, depending on the diagnostic criteria used, the hospital studied and the duration of admission¹⁶. Therefore classifying malnutrition continues to be a controversial theme in the literature^{10,11}. Although there is no consensus about the criteria for the diagnosis of malnutrition, it seems to worsen meanwhile the hospitalization time increases^{10,11,17-21}.

Unfortunately, despite the high prevalence of malnutrition among inpatients, nutrition support is,

usually, neglected, that little attempt is made to reverse malnutrition and that physicians lack concern for the nutritional status of their patients^{10,11,18,22-25}.

Conclusiones: Malnutrición hospitalaria puede ser agravada por la falta de concientización de la comisión multidisciplinaria de salud al respecto del problema. Pero el gran interés y entusiasmo demostrado por los participantes y el lucro obtenido con el curso sugiere que la llave para abrir la puerta del armario es la educación. La enseñanza de Nutrición debe ser implementada en todas las escuelas de profesiones que cuidan de la salud.

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Palabras clave: *Desórdenes nutricionales. Desnutrición hospitalaria. Evaluación nutricional. Nutrición Clínica. Hospital. Educación-Nutrición. Acre. Brasil.*

usually, neglected, that little attempt is made to reverse malnutrition and that physicians lack concern for the nutritional status of their patients^{10,11,18,22-25}.

The high prevalence of nutritional deficiencies among hospital patients has also been attributed to insufficient pertinent knowledge of physicians due to the lack of emphasis given to nutrition in the medical curriculum¹⁷.

In 1982, Long²⁶ published a historical review about the problem of education in the nutrition area, relating his experience as president of the American Society of Parenteral and Enteral Nutrition (ASPEN). In his opinion, the key to open the closet door is medical education.

Roubenoff et al.²⁷ called attention that physicians are not presently being taught to recognize malnutrition, which such malnutrition is iatrogenically worsened in the hospital, and that physician education can effectively correct this problem.

In Brazil, a sectional, multicentric, study with random choice of 4,000 patients, entitled Brazilian National Survey (IBRANUTRI) was performed¹¹. This study revealed that almost half (48.1%) of hospitalized patients was malnourished and severe malnutrition was found in 12.5% of them. Hospital related malnutrition progressed in proportion to the duration of hospital stay; and only in 18.8% of the medical charts there was any report on nutritional status of the patient. Only 7.3% patients received nutritional therapy (6.1% enteral nutrition; 1.2% parenteral nutrition)¹¹. The authors concluded that the prevalence of malnutrition in hospitalized patients in Brazil is high, physician awareness of malnutrition is low, and nutrition therapy is underprescribed¹¹. Based on this study, the Brazilian Public Health Department, with the cooperation together Brazilian, Society of Parenteral and Enteral Nutrition, SBNPE, published rules for preparation and use of parenteral and enteral nutrition the-

rapy. According to these, Brazilian hospitals are required to maintain a formally appointed multidisciplinary nutrition support team composed of physicians, nurses, dietitians and pharmacists to provide parenteral and enteral nutrition therapies^{28,29}. Efforts were developed in order to bring education to physicians by many educational initiatives. One of these was the course entitled Total Nutrition Therapy³⁰ designed to introduce physicians to the bases of clinical nutrition¹¹.

Recently the impact of the TNT course was evaluated. Students were surveyed about the use of nutrition knowledge acquired, in their clinical practice. It was verified that the majority of the physicians participating in this survey increased their use of nutrition assessment and time dedicated to nutrition therapy, and increased the number of their patients placed on nutrition therapy²².

To our knowledge there are, in Brazil, only a few medical and nurse schools that have in the graduation curriculum time dedicated to the teaching of clinical nutrition.

In the other hand Amazon region is far away from the central medical centers in the country and suffers from its intercontinental size in terms of poor resources for education and health care. The State of Acre (fig. 1) is located in the Amazon Region, distant from the great Brazilian Metropolitan Areas, in a frontier region (with Peru and Bolivia). It has 557.526 habitants, but the capital Rio Branco concentrates 45.4% of the State population (IBGE, 2000). The annual *per capita* income is US\$ 1.841.

Health care graduate education is relatively new in Acre. The Course of Nursing of the Federal University of Acre - UFAC was created in 1976, and has 168 students. The Course of Medicine of UFAC was recently created (2002), for 40 students per year. The post-graduating training - medical residence program was also recently created (2000), as a part of the State government project to improve the local medical care. It offers basic medical training. There are only 20 Resident Physicians who work with adults and old age people. The Bahia Federal University Medical School (UFBA) is advising the State of Acre government with actions to improve Medicine development in the region.

In the tentative of reduce the lack of formal education in clinical nutrition in our region we have developed a new educational intervention.

The present study aims to evaluate the awareness of health care graduating students and professionals of the multidisciplinary health team about the malnutrition and nutrition disorders in hospitalized patients in the Amazon region before and after taking an intensive education program in clinical nutrition.

Cases and methods

The present intervention study was performed from september 29 to october 15, 2003, in the Fundação Hospital Estadual do Acre (FUNDHACRE) - Acre State Foundation - Hospital, in the town of Rio Branco, Brazilian Amazon Region. It's a tertiary hospital with 150 beds.



Fig. 1.—The Map of the State of Acre and the capital Rio Branco.

A Course on Clinical Nutrition, given in three weekly classes, of four hours each, was offered to the multidisciplinary health team, consisting on students of Nursing and Medicine of Acre Federal University (UFAC), nurses and physicians. The purpose of this course was to raise the awareness of the multidisciplinary health team about malnutrition and nutrition disorders, responsible for increases in morbidity and mortality in hospitalized patients.

It was approved by the Ethics Committee in Research, FUNDHACRE.

An open divulgation of the course, through posters, was done. The candidates were included after signing the Informed Consent in participating of the study.

The design of this study was similar to the proposition of Roubenoff et al. (1987).

During the first week, the class was exposed to the practice of nutritional assessment, in which each participant evaluated the nutritional status of the hospitalized patient. In this moment, they answered some basic questions about their awareness on clinical nutrition, and received a book entitled "Nutritional Assessment of Adult and Aged"⁸. In order to guide the participants during the course, four Nursing students and six Medical students had been trained for the previous six months.

On the second week, the students were required to discuss about the theoretical subjects from the book, formerly distributed. The contents were: 1. Nutrition disorders in the hospital setting; 2. Nutritional Assessment; 3. Nutritional History; 4. Nutritional Physical examination; 5. Subjective Global Assessment; 6. Anthropometry; 7. Laboratory tests; 8. Multiple indexes; 9. Peculiarities of old-age and nutrition; 10. Practical guide for adult nutritional assessment, for regions with shortage of resources; 11. Practical guide of old aged nutritional assessment, for regions with shortage of resources. The objective of the theoretical class was to awaken the multidisciplinary health team about hospital malnutrition and to teach a nutritional status assessment, possible for regions with shortage of resources, but that permit the diagnosis nutritional risk patients. It was a four hour class, using dynamic methodology. Anthropometrics measurements were taught.

In the last week, the practice of evaluating the nutritional status of the hospitalized patient was repeated. Then, the participants answered some basic questions about the course performance.

In this study, the results of the questions answered by the participants before and after the course are presented.

For data analysis the SPSS (version 9.0) program was used. The continuous variables were studied as averages, standard deviations, minimal and maximal values. The qualitative variables were evaluated by their percent values. It's a descriptive study.

Results

The course started with 195 participants. Their characteristics are presented in table I. Their age varied

from 17 to 51 years old. The mean age was 24.39 (\pm 6.21) years old. In table I their schooling is presented. Three dietitians and two professionals of other areas participated, although they didn't belong to the study group, so they were excluded from analysis. In three questionnaires the majority of the questions weren't answered, leading to their exclusion, totalizing 187 valid participants.

Considering that the characteristics of each category differed from each other, each one was studied separately. Basic questions about awareness on clinical nutrition were answered (table II). Clinical experience was also investigated (table III). The most frequent problems the participants of the course related to malnutrition were: immune function deficit, healing impairment, weight loss, anemia and increased predisposition to infections. They considered the major problems related to obesity as: hypertension, diabetes and dyslipidemia.

During the last class, a questionnaire about the course performance was answered. A total of 165 participants concluded the course, distributed as follows: 86 (52.1%) students of nursing, 46 (27.9%) students of medicine, 14 (8.5%) nurses, 11 (6.71%) resident physicians, 3 (1.8%) physicians, 2 (1.2%) dietitians, 2 (1.2%) others, 1 (0.6) no answer. The answers given

Table I
Characteristics of the 195 health care students and professionals who started the Course of Clinical Nutrition, UFBA/FUNDHACRE/UFAC, september/october 2003

Characteristics	n	%
Gender		
Male	74	38.0
Female	119	61.0
No answer	2	1.0
Racial group		
White	126	64.6
Mulatto	58	29.7
Black	5	2.6
Indian mestice	3	1.5
No answer	3	1.5
Origin		
Rio Branco	78	40.0
Other city (Acre)	30	15.4
Other State	81	41.5
Other Country	2	1.0
No answer	4	2.1
Schooling		
Students of Nursing	97	49.7
Students of Medicine	52	26.9
Nurses	20	10.3
Resident physicians	15	7.7
Physicians	3	1.5
Dietitians	3	1.5
Others	2	1.0
No answer	3	1.5

Table II

Answers to basic questions about awareness on nutrition disorders given by 187 health care university students and professionals who participated in the Course of Clinical Nutrition. UFBA/FUNDHACRE/UFAC, september/october 2003

Question	University Students n (%)		Professionals n (%)			TOTAL
	Nursing	Medicine	Nurses	Resident Physicians	Physicians	
AWARENESS ON NUTRITION DISORDERS						
<i>1. During your professional formation, was the theme nutrition taught?</i>						
No	11 (11.4)	35 (67.4)	0	0	1 (33.3)	47 (25.1)
Yes	34 (35.0)	8 (15.4)	15 (75.0)	8 (53.3)	2 (66.7)	67 (35.8)
Superficially	49 (50.5)	7 (13.4)	5 (25.0)	7 (46.7)	0	68 (36.4)
No answer	3 (3.1)	2 (3.8)	0	0	0	5 (2.7)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>2. When was your greater contact with th theme nutrition before this course?</i>						
I had a little or no contact with the theme						
During the graduation	40 (41.4)	37 (71.2)	1 (5.0)	2 (13.3)	1 (31.3)	81 (43.3)
In extra-curricular activities	51 (52.6)	4 (7.7)	16 (80.0)	11 (73.4)	2 (66.7)	84 (44.9)
During post-graduation courses	4 (4.2)	9 (17.3)	0	2 (13.3)	0	15 (8.0)
No answer	1 (0.9)	2 (3.8)	3 (15.0)	0	0	3 (1.6)
TOTAL	1 (0.9)	2 (3.8)	0	0	0	0
TOTAL	97(100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>3. Do you become worried if your patient loses weight?</i>						
Yes	66(68.0)	8 (15.4)	19 (95.0)	14 (93.3)	3 (100.0)	110 (57.9)
No	3(3.1)	0	1 (5.0)	1 (6.7)	0	5 (2.6)
I had no contact with patients yet	28 (28.9)	44 (84.6)	0	0	0	72 (37.9)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>4. Do you worry about your patients' nutritional intake?</i>						
Yes	68(70.1)	7 (13.5)	20 (100.0)	15 (100.0)	3 (100.0)	113 (60.4)
No	0	0	0	0	0	0
I had no contact with patients yet	29 (29.9)	45 (86.5)	0	0	0	74 (39.6)
TOTAL	97(100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>5. Do you take note about nutritional disorders of your patients?</i>						
Yes	40(41.2)	2 (3.8)	13 (65.0)	9 (60.0)	1 (33.3)	65 (34.7)
No	6(6.2)	3 (5.8)	1 (5.0)	1 (6.7)	2 (66.7)	13 (6.9)
Sometimes	19 (19.6)	1 (1.9)	6 (30.0)	5 (33.3)	0	31 (16.7)
I had no contact with patients yet	32 (33.0)	46 (88.5)	0	0	0	78 (41.7)
TOTAL	97(100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>6. Do you observe the reports about nutrition disorders of your patients?</i>						
Yes	44 (45.4)	4 (7.7)	15 (75.0)	13 (86.7)	1 (33.3)	77 (41.2)
No	6(6.2)	1 (1.9)	0	0	2 (66.7)	9 (4.8)
Sometimes	15(15.5)	1 (1.9)	5 (25.0)	2 (13.3)	0	23 (12.3)
I had no contact with patients yet	32 (33.0)	46 (88.5)	0	0	0	78 (41.7)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>7. Do you worry about your patients' weight?</i>						
Yes	40(41.2)	5 (9.6)	14 (70.0)	15 (100.0)	2 (66.7)	76 (40.6)
No	26 (26.9)	1 (1.9)	6 (30.0)	0	1 (33.3)	34 (18.1)
I had no contact with patients yet	31 (32.0)	46 (88.5)	0	0	0	77 (41.7)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>8. And height?</i>						
Yes	19 (19.6)	4 (7.7)	6 (30.0)	8 (53.3)	2 (66.7)	39 (20.8)
No	47 (48.5)	2 (3.8)	13 (65.0)	7 (46.7)	1 (33.3)	70 (37.4)
I had no contact with patients yet	31 (32.0)	46 (88.5)	0	0	0	77 (41.1)
No answer	0	0	1 (5.0)	0	0	1 (0.5)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
<i>9. Are you informed that nutrition disorders are responsible for increases in complications and mortality?</i>						
Yes	37 (38.1)	17 (32.7)	17 (85.0)	13 (86.7)	2 (66.7)	86 (45.9)
No	21 (21.6)	20 (38.5)	2 (10.0)	1 (33.3)	1 (33.3)	45 (24.0)
Superficially	36 (37.1)	13 (25.0)	1 (5.0)	1 (6.7)	0	51 (27.4)
No answer	3 (3.0)	2 (3.8)	0	0	0	5 (2.7)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)

Table III

Clinical Experience of the 187 health care university students and professionals who participated in the Course of Clinical Nutrition, UFBA/FUNDHACRE/UFAC, september/october, 2003

Question	University Students n (%)		Professionals n (%)			TOTAL
	Nursing	Medicine	Nurses	Resident Physicians	Physicians	
CLINICAL EXPERIENCE						
1. Have you already accompanied some malnourished patient?						
No	54 (55.7)	48 (92.3)	0	1 (6.7)	0	103 (55.0)
A few	36 (37.1)	4 (7.7)	8 (40.0)	3 (20.0)	2 (66.7)	53 (28.4)
Some	0	0	2 (10.0)	5 (33.3)	1 (33.3)	8 (4.3)
A lot	6 (6.2)	0	10 (50.0)	6 (40.0)	0	22 (11.8)
No answer	1 (1.0)	0	0	0	0	1 (0.5)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
2. How often do you have contact with malnourished patients?						
Never	39 (40.2)	45 (86.5)	0	1 (6.7)	0	85 (45.5)
Seldom	37 (38.1)	6 (11.5)	2 (10.0)	3 (20.0)	1 (33.3)	49 (26.2)
Occasionally	17 (17.5)	1 (1.9)	13 (65.0)	5 (33.3)	2 (66.7)	38 (20.4)
Very often	2 (2.1)	0	0	0	0	2 (1.0)
No answer	2 (2.1)	0	5 (25.0)	6 (40.0)	0	13 (6.9)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)
3. Have you seen any complications in malnourished patients?						
No	69 (71.1)	48 (92.3)	0	1 (6.7)	0	118 (63.1)
A few	22 (22.7)	3 (5.8)	8 (40.0)	9 (60.0)	2 (66.7)	44 (23.5)
Some	0	0	2 (10.0)	3 (20.0)	0	5 (2.7)
A lot	4 (4.1)	0	10 (50.0)	2 (13.3)	1 (33.3)	17 (9.1)
No answer	2 (2.1)	1 (1.9)	0	0	0	3 (1.6)
TOTAL	97 (100.0)	52 (100.0)	20 (100.0)	15 (100.0)	3 (100.0)	187 (100.0)

by the 2 dietitians, 2 other professions and 1 no answer were excluded resulting in 160 valid answers. The absolute majority (96.7%) considered the course a very important initiative. Considering the scale (0= very bad to 10.0= excellent), the grades for it varied from 7.0 to 10.0, with the average grade of 8.64 (± 0.87). The opinions about the course given by the participants were: Fair 2, 1.2%; Good 34, 20.6%; Very good 99, 60.0%; Excellent 30, 18.2%.

Various aspects were investigated, reinforcing the changing of procedures to prevent malnutrition in the hospitalized patients (table IV).

An amount of 105 participants (53.8%) didn't know about the Nutrition Support Multidisciplinary Team, 135 (69.2%) didn't get the information about the recent rules for Clinical Nutrition in Brazil, but 148 (89.7%) agreed that creation of the multiprofessional team facilitates and enriches the nutrition support offered to the inpatient.

After taking the course the participants improved their diagnostic ability to diagnose malnutrition. Most important almost 100% of the participants have agreed that the course has motivated their interest into practice of preventive measures to avoid the development of hospital malnutrition.

The practical procedures enumerated by the participants as being important were: measuring weight and height at hospital admission, weighting the patients at re-

gular intervals, to respect patients' food preferences, to avoid prolonged patients fasting and to take legible notes.

Discussion

In 1987, Roubenoff et al.²⁷ developed a study in the John Hopkins Hospital in which they studied all patients admitted to an acute medical ward service before and after their physicians and medical students were taught to recognize nutritional deficiencies early and to intervene appropriately. They demonstrated that physician education can bring about significant improvement in the nutritional care of patients. The present study was inspired in the methodology proposed by Roubenoff et al.²⁷.

The TNT course was developed for physicians by physicians²², and its impact in improving physicians knowledge of clinical nutrition and the resulting benefits on the patients care were demonstrated.

But the problem of hospital malnutrition involves the multidisciplinary health team, because nurses are not aware about the problem too³³.

And this may happen because both physicians and nurses were not taught clinical nutrition or their contact with the theme was superficial in the graduated school.

So this study was designed to present this subject to university students and health professionals with different educational level.

Table IV
Evaluation of knowledge developed, by the 160 valid finalists, during the Course of Clinical Nutrition, UFBA/FUNDHACRE/UFAC, september/october, 2003

Question	University Students n (%)		Professionals n (%)			TOTAL
	Nursing	Medicine	Nurses	Resident Physicians	Physicians	
<i>1. Did you incorporate some procedures in your clinical practice after the Course of Clinical Nutrition?</i>						
No	7 (8.1)	0	0	0	0	7 (4.3)
Yes	28 (32.7)	8 (17.4)	13 (92.9)	11 (100.0)	3 (100.0)	63 (39.4)
I'm not developing clinical practice now	49 (56.9)	37 (80.4)	1 (7.1)	0	0	87 (54.4)
No answer	2 (2.3)	1 (2.2)	0	0	0	3 (1.9)
TOTAL	86 (100.0)	46 (100.0)	14 (100.0)	11 (100.0)	3 (100.0)	160 (100.0)
<i>2. Did any modification of your diagnostic ability happen after the Course?</i>						
No	2 (2.3)	4 (8.7)	0	0	0	6 (3.7)
A little	30 (34.9)	9 (19.6)	7 (50.0)	5 (45.5)	0	51 (31.9)
Very much	52 (60.5)	32 (69.6)	7 (50.0)	6 (54.5)	2 (66.7)	99 (61.9)
No answer	2 (2.3)	1 (2.2)	0	0	1 (33.3)	4 (2.5)
TOTAL	86 (100.0)	46 (100.0)	14 (100.0)	11 (100.0)	3 (100.0)	160 (100.0)
<i>3. After the course, did you become more worried about your patients' food intake?</i>						
No	0	0	1 (7.1)	1 (9.1)	0	2 (1.2)
A little	4 (4.7)	4 (8.7)	1 (7.1)	0	0	9 (5.6)
Very much	60 (69.8)	21 (45.7)	11 (78.6)	10 (90.9)	3 (100.0)	105 (65.7)
I had no contact with patients yet	20 (23.3)	20 (43.5)	1 (7.1)	0	0	41 (25.6)
No answer	2 (2.3)	1 (2.2)	0	0	0	3 (1.9)
TOTAL	86 (100.0)	46 (100.0)	14 (100.0)	11 (100.0)	3 (100.0)	160 (100.0)
<i>4. Did this course motivate your interest in practice of preventive measures to avoid the development of hospital malnutrition?</i>						
No	0	1 (2.2)	0	0	0	1 (0.6)
A little	6 (7.0)	3 (6.5)	2 (14.3)	0	0	11 (6.8)
Very much	86 (93.0)	42 (91.3)	12 (85.7)	11 (100.0)	3 (100.0)	148 (92.5)
TOTAL	86 (100.0)	46 (100.0)	14 (100.0)	11 (100.0)	3 (100.0)	160 (100.0)
<i>5. In your opinion how is the relationship between the different professionals, which take part of the Nutrition Multidisciplinary Team?</i>						
Very bad	9 (10.5)	0	2 (14.3)	1 (9.1)	0	12 (7.5)
Fair	50 (58.1)	14 (30.4)	5 (35.7)	6 (54.5)	1 (33.3)	76 (47.5)
Good	24 (27.9)	23 (35.7)	4 (28.6)	3 (27.3)	2 (66.7)	57 (35.6)
Very Good	3 (3.5)	7 (28.6)	2 (14.3)	1 (9.1)	0	13 (8.1)
Excellent	0	0	2 (14.3)	0	0	2 (1.3)
No answer	0	0	0	0	0	0
TOTAL	86 (100.0)	46 (100.0)	14 (100.0)	11 (100.0)	3 (100.0)	160 (100.0)

A three class course was offered to students and professionals of Nursing and Medicine. The Course of Clinical Nutrition, UFBA/FUNDHACRE/UFAC attracted a public of 195 participants. Of them, 97 (57.8%) of the 168 Students of Nursery of Acre Federal University (UFAC) participated. The Nursery Course of UFAC has two theoretical disciplines related to Clinical Nutrition, of 30 hours each in the second and fifth periods. This explains the fact that 34 (35.0%) of them said they had contact with the theme during the graduation course, but due to the small class hours and the absence of practical credits, 49 (50.5%) classified this contact as superficial. Calls attention the fact that 47 (48.5%) of the Nursery stu-

dents and 13 (65.0%) Nurses didn't worry about the patients' height.

Of the 80 Medical students of UFAC, 52 (65.0%) participated. They are in the beginning of the course, what explains the high amount (88.5%) of them that had no contact with patients yet. In the curriculum of the Medicine Course of UFAC, there is no formal discipline that teaches Clinical Nutrition, which is superficially taught during Internal Medicine in the seventh period.

Of the 20 medical residents of FUNDHACRE that lead with adults and aged, 15 (75%) participated. When we analyze their contact with the theme Nutrition we observe that 46.7% of the Resident physicians

considered their exposure to the theme superficial and 13.3% had no contact with it. Considering that the Residents Physicians were selected from the best graduated physicians through tests, this present observation reinforces the idea of many authors that the physicians are not presently being taught to recognize malnutrition²⁷, that there is a lack of emphasis given to nutrition in the medical curriculum”, and that nutrition awareness is the exception and not the rule in the hospital setting¹¹.

A total of 165 participants concluded the course. Almost all considered the course a very important initiative, giving it an high average grade. Besides the positive evaluation, participants of the course admitted having profited significantly from it, with the incorporation of procedures and almost 100% of the participants have agreed that the course has motivated their interest into practice of preventive measures to avoid the development of hospital malnutrition, despite their clinical experience. This observation reinforces the conclusions of Roubenoff et al²⁷, who detected a great interest and enthusiasm shown by the students and house staff in their study, again suggesting that physicians are not *a priori* reluctant to consider nutrition in evaluating their patients.

Coats et al.²¹ demonstrated a great reduction in the increasing of malnutrition prevalence in hospitalized patients after the implementation of medical education and the creation of a multidisciplinary nutrition support service. The influence of the present course on diagnosis ability and incorporation of procedures by the multidisciplinary health team, and the nutrition assessment of hospitalized patients are being analyzed for future publication soon.

Corish & Kennedy⁵ emphasize the importance of the nutrition support team and the proposition that Nutrition should be recognized as a medical specialty in Ireland. In Brazil, it is already recognized as a medical specialty (Nutrology) and there are rules that impose to hospitals the work of the Multidisciplinary Nutrition Support Teams¹¹. More than half of the participants of the course considered that the relationship between the different professionals, which take part of the Nutrition Multidisciplinary Team is very bad/fair and 148 (89.7%) agreed that the creation of the Multidisciplinary Nutrition Support Teams facilitates and enriches the nutrition support offered to the inpatient. Recently, FUNDHACRE is structuring its Multidisciplinary Nutrition Support Team, according to Brazilian rules.

Conclusions

Several studies demonstrated that hospital malnutrition is a very serious health problem, which increases greatly the prevalence of complications and mortality. Many factors contribute for its development, but the lack of awareness of the multidisciplinary team about the problem has an important participation. This is the

result of the lack of emphasis given to Nutrition in the medical curriculum. But the great interest and enthusiasm shown by the participants as well as the apparent profit obtained suggest that the key to open the closet door is education. Teaching of Nutrition must then be implemented in Medical, Nursing and Pharmacy schools, and should include theoretical and practical credits.

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