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ORIGINAL ARTICLE

NUTRITIONAL STATUS AND FOOD CONSUMPTION OF ELDERLY ASSISTED IN A FAMILY HEALTH STRATEGY

ESTADO NUTRICIONAL E CONSUMO ALIMENTAR DE IDOSOS ASSISTIDOS NA ESTRATÉGIA SAÚDE DA FAMÍLIA

ESTADO NUTRICIONAL Y EL CONSUMO DE ALIMENTOS DE ANCIANOS ATENDIDOS EN LA ESTRATEGIA DE SALUD DE LA FAMILIA

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ABSTRACT

Objective: to evaluate the nutritional status and dietary intake of elderly assisted by teams of the Family Health Strategy. ***Method:*** a descriptive and cross-sectional study, with a population 210 seniors enrolled in the Family Health Strategy in Teresina/Piauí/Northeast of Brazil. The data collection was performed by an anthropometric measurements and applied questionnaires evaluating the nutritional status and dietary intake. The data were analyzed by unpaired t test and chi-square. The research project was approved by the Ethics Committee in Research, CAAE 0438.0.043.000-11. ***Results:*** the Mini Nutritional Evaluation showed 11,8% of the group at risk of malnutrition and 1,3 % undernourished, especially among men aged 70 or older. An inadequacy was observed in fractionation meals (4,2 meals/day) and an increased consumption among food groups of cereals, legumes and fruits. ***Conclusion:*** a considerable risk percentage of undernourishment was found and was observed a little fractionation of meals. ***Descriptors:*** Food Consumption; Nutritional Status; Elderly; Family Health.

RESUMO

Objetivo: avaliar o estado nutricional e consumo alimentar de idosos assistidos por equipes da Estratégia Saúde da Família. ***Método:*** estudo descritivo, transversal, com população de 210 idosos cadastrados na Estratégia Saúde da Família em Teresina/PI/Nordeste do Brasil. A coleta dos dados foi realizada por avaliação antropométrica e aplicação de questionários avaliando estado nutricional e consumo alimentar. Os dados foram analisados pelos testes t não pareado e Qui-Quadrado. O projeto de pesquisa foi aprovado por Comitê de Ética em Pesquisa, CAAE 0438.0.043.000-11. ***Resultados:*** a Mini Avaliação Nutricional mostrou 11,8% do grupo com risco de desnutrição e 1,3% desnutrido, especialmente entre os homens com 70 anos ou mais. Foi observada inadequação no fracionamento das refeições (4,2 refeições/dia) e maior consumo entre os alimentos dos grupos de cereais, leguminosas e frutas. ***Conclusão:*** percentuais consideráveis de risco de desnutrição foram encontrados e se observou pouco fracionamento das refeições. ***Descritores:*** Consumo de Alimentos; Estado Nutricional; Idoso; Saúde da Família.

RESUMEN

Objetivo: evaluar el estado nutricional y el consumo de alimentos de ancianos atendidos por equipos de la Estrategia de Salud de la Familia. ***Método:*** un estudio descriptivo y transversal, con la población de 210 adultos mayores inscritos en la Estrategia Salud de la Familia en Teresina/Piauí/Noreste de Brasil. La recolección de datos se realizó mediante medidas antropométricas y cuestionarios de evaluación del estado nutricional y el consumo de alimentos. Los datos fueron analizados mediante la prueba t no pareada y chi-cuadrado. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, CAAE 0438.0.043.000-11. ***Resultados:*** el test Mini Evaluación Nutricional mostró 11,8 % del grupo en riesgo de desnutrición y un 1,3% de personas desnutridas, especialmente entre los hombres de 70 años o más. Se observó la insuficiencia en el fraccionamiento de comidas (4,2 comidas/día) y un mayor consumo entre los grupos de alimentos de cereales, legumbres y frutas. ***Conclusión:*** porcentaje considerable de riesgo de desnutrición se ha encontrado y fue observado poco fraccionamiento de comidas. ***Descriptores:*** El Consumo de Alimentos; El Estado Nutricional; Tercera Edad; Salud de la Familia.

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INTRODUCTION

The demographic transition is a process experienced in the world. In Brazil, has been described significant changes in the population pyramid with increased life expectancy, falling fertility rates, mortality and population growth.[1-2]

The extreme deviations of nutritional status are common in the elderly, who are at risk for developing malnutrition and obesity. Therefore, the nutritional assessment is crucial because using specific indicators can identify nutritional disorders, allowing appropriate intervention in order to assist in the recovery and/or maintenance of the health status of the individual as well as provide information on the nutritional adequacy in relation the pattern compatible with long-term health.[3]

Considering that body composition is altered during aging, a reduction of muscle tissue, fat redistribution, decreased hydration and elasticity of the skin, it is essential to use specific reference standards for this age group because of the accumulation of years.[4]

The clinical-nutrition in geriatrics should include detailed medical history, anthropometry and body composition, physical examination, current dietary history, search history of food and biochemical tests covering clinical and research specific nutritional deficiencies.[5]

For an effective nutritional assessment to check the standard of food consumption of a population is essential, because the obtained data, enables the targeting of public policies for different areas, including: prevention and promotion of health, agriculture, food safety, identification of endemic areas, among others. In addition, epidemiological studies that analyze food intake have provided evidence on the importance of diet in the etiology of various diseases.[6] As a result, this study is justified by contributing to the development and direction of specific public policies to improve the quality of life portion of the population served by the FHS thus benefiting them directly.

Given the evident gap in the scientific literature that address nutrition and nutrition in the elderly, justified the relevance of the development of this study. Furthermore, it is believed that the results of this investigation demonstrated contributions to the teaching, research and service counterparts. [7-8]

From the above, the purpose of the study is:

- To evaluate the nutritional status and dietary intake of elderly assisted by teams of the Family Health Strategy.

METHOD

A descriptive and cross-sectional study with a quantitative approach, performed with 81 seniors enrolled in Family Health Teams (FHT) of the neighborhoods Angelim, Mafrense and Planalto Uruguay in the city of Teresina, capital of the State of Piauí, Brazil. There was used as a criterion for choosing those teams with groups of seniors in each of the regional health authorities of the city. The data collection was conducted in homes and places where the meetings took place in groups of elderly.

The study population consisted of 210 patients of both sexes enrolled in the FHS residing in the catchment area of Mafrense (n=53), Planalto Uruguai (n=65) and Angelim (n=92). The sample was defined by convenience, from counting, at the group meetings, the members who have agreed to contribute to the survey, a total sample of 81 individuals.

As inclusion criteria for participation in the study it was considered: group participant elderly, aged 60 years; comprehension and verbal communication to respond to inquiries; preserved cognitive functions; wandering seniors, not amputees and non-carriers of dementias.

The variables studied were age, weight, height, body mass index-BMI, sex and food consumption of the elderly addressed these issues relating to global health and eating habits of the same.

We used the BMI classification recommended by the Ministry of Health (MOH) for diagnostic procedures and monitoring the nutritional status of the elderly in health services, following the same cutoffs Incorporating Nutrition Screening (1994): underweight BMI<22kg/m² normal weight or normal weight of 22 to 27kg/m² and overweight BMI>27kg/m². [9-10]

Prior to the established protocol was obtained informed consent from participants across the IC - Instrument of Consent. After, we performed the anthropometric measurements of the individual, with measurement of weight, height, arm circumference and calf, according to the Technical Standards System Nutritional Surveillance-SISVAN. [9] The circumference measures were taken for being part of the protocol Mini nutritional assessment - MAN and directly influence the outcome of the

assessment of nutritional status, it is not used alone.

Proceeded to the application of the two instruments for data collection: MAN, questionnaire to assess nutritional status and risk of the target population, and made parallel to assess dietary intake of the elderly through the Food Frequency Questionnaire (FFQ), instrument previously validated in similar research with elderly hypertensive correlate the municipality, which included a list of foods, and checked the frequency of intake daily, weekly and monthly.[11]

The forms were reviewed and categorized, and are then entered using the Statistical Package for Social Science (SPSS) version 19.0. Statistical analysis was performed by applying the chi-square test to evaluate the association between nutritional status and dietary intake with sociodemographic variables and by unpaired t test to compare means of socio demographic and anthropometric.

The study was approved by the Ethics Committee of the Faculty NOVAFAPI - Faculty of Health Sciences and Technology of Piauí, CAAE 0438.0.043.000-11. It is noteworthy that all ethical principles contained in Resolution 196/96 of the National Health were followed.

RESULTS

The results presented in this study contribute to a better understanding of the subjects' nutritional status and food consumption "elderly assisted by the Family Health Program in the city of Teresina.

The sample consisted of 81 elderly patients, consisting of 58 women who accounted for 71,6% of the total population. Table 1 shows data on the average by gender in relation to age, body weight, height and BMI.

The elderly showed about 64 kg, the value being significantly higher in men (p=0,010). With regard to height, they had an average of 1,5 m with significantly higher also for men (p=0,00).

Table 1. Mean values and standard deviation of age, body weight, height and BMI of the elderly according to sex. Teresina / PI, Brazil, 2013.

Parameter evaluated	Male		Female		Total		
	n	Average	n	Average	n	Average	p
Age (in years)	23	71,8	58	70,3	81	70,7	0,10
Weight (kg)	23	68,6	58	61,8	81	63,7	0,01
Stature (m)	23	1,6	58	1,5	81	1,5	0,00
BMI (kg/m²)	23	26,9	58	27,4	81	27,3	0,61

*Unpaired T test

Regarding the assessment of nutritional status by the MNA and BMI were observed opposing results (Table 2). While BMI showed that most of the elderly (49,3%) were overweight, MAN revealed that the majority (86,8%) met up with normal nutritional status.

Table 2. Distribution of elderly assessed by BMI and MAN according to sex. Teresina / PI, Brazil, 2013.

	Gender					
	Male		Female		General	
Nutritional Status	n	%	n	%	n	%
According to BMI						
Overweight	11	47,8	29	50	40	49,3
Eutrophy	11	47,8	25	43,1	36	44,4
Low weight	01	4,3	04	6,3	05	6,2
According to MAN						
Normal	17	85	49	87,5	66	86,8
Risk of Undernourishment	03	15	06	10,7	09	11,8
Undernourishment	00	00	01	1,8	01	1,3

In relation to the nutritional status of the aged, according to the total scores of MAN (Table 3) showed that 11,8% of older people were at risk of malnutrition and 1,3% were malnourished. The risk of malnutrition was larger in males (17,4%), elderly people aged greater than or equal to 70 years (15.0%) and classified as overweight by BMI (15,0%). Malnutrition was more prevalent in men over 70 years and normal by BMI.

In all variables - gender, age and BMI - there was no statistically significant association (p <0.05) when compared with nutritional status determined by MAN.

Table 3. Association between nutritional status, gender and age of the elderly studied. Teresina / PI, Brazil, 2013.

Nutritional Status - MAN								
	Normal			Risk of undernourishment		Undernourishment		
Gender	N**	C***	%	C	%	C	%	
Male	23	18	78,3	4	17,4	1	4,3	X^2 = 0,927
Female	58	50	86,2	7	12,1	1	1,7	p = 0,629
Age (in Years)								
<70	41	35	85,4	5	12,2	1	2,4	X^2 = 0,137
≥70	40	33	82,5	6	15,0	1	2,5	p = 0,934
Total	81	68	84,0	11	13,6	2	2,5	
Nutritional status - BMI								
Eutrophy	36	32	88,9	3	8,3	1	2,8	X^2 =1,855
Overweight	40	34	85,5	6	15,0	0	0,0	p = 0,395
Total	76	66	86,8	9	11,8	1	1,3	

*The Chi-square Statistical Analysis; * N = number of people in the stratum parsed; * ** C = # of cases.

The characterization of the elderly by sex and held daily at meals is shown in Table 4, it emphasizes the low frequency performance of small meals - morning snack and supper - for men and women.

It was observed that despite the males meet in a smaller proportion in the survey, the percentage was higher number of meals (breakfast, morning snack and dinner).

Data not presented also show that the average meals eaten by all individuals is 4,2 meals / day.

Table 4. Frequency distribution of daily meals made by elderly according to the gender. Teresina / PI, Brazil, 2013.

	Male %(n)	Female %(n)
Breakfast	100,0% (23)	98,3% (57)
Snack (morning)	43,5% (10)	39,7% (23)
Lunch	100,0% (23)	100% (58)
Snack (afternoon)	60,9% (14)	67,2% (39)
Dinner	91,3% (21)	87,9% (51)
Supper	26,1% (6)	31,0% (18)

* Descriptive statistics Analysis of frequency

Table 5 shows the distribution of the frequency of food consumption of the elderly by the gender. Groups of foods consumed by men and women respectively were cereals (100%), legumes (91,3%/100%) and fruits (91,3%/98,2%).

Results not shown in tables revealed that 16% of the population consumed daily any kind of fruit or vegetable, and only 9,8% consumed five or more servings of fruits and vegetables.

Statistically significant associations were observed when comparing gender with the consumption of legumes and vegetables; however, there was no association between gender and the consumption of other food groups.

Data not shown showed that older respondents did not consume certain type of food by dislike (79,7%), and the high price paid for not habit (10,2%).

Table 5. Frequency distribution of food consumption of the elderly by gender. Teresina / PI, Brazil, 2013.

Food groups	Gender			
	Male n(%)	Female n(%)	Total n(%)	p value
Milk and derivatives				0,09
Consume	08(34,7)	32(55,1)	40(49,3)	
Non consume	15(65,3)	26(44,9)	41(50,7)	
Meats and eggs				0,66
Consume	17(73,9)	40(68,9)	57(70,3)	
Non consume	06(26,1)	18(31,1)	24(29,6)	
Legumes				0,02
Consume	21(91,3)	58(100)	79(97,5)	
Non consume	02(8,7)	-	02(2,4)	
Sugar, fat and drinks				0,90
Consume	08(34,7)	21(36,2)	29(35,8)	
Non consume	15(65,3)	37(63,7)	52(64,1)	
Cereals				-
Consume	23(100)	58(100)	81(100,0)	
Fruits				0,13
Consume	21(91,3)	57(98,2)	78(96,2)	
Non consume	02(8,7)	01(1,7)	03(3,7)	
Vegetables				0,002
Consume	17(73,9)	56(96,5)	73(90,1)	
Non consume	06(26,1)	02(3,4)	08(9,8)	

*The p value was obtained by the Chi-square test. The statistical significance level set at p≤ 0.05.

It was found that most of the analyzed foods do not have a statistically significant association when comparing gender with the habitual consumption of the same. Food groups meat and eggs, beans, cereals, sugars and fruits had no food with significant association (results not shown).

Only statistically significant association was observed when comparing gender with the habitual consumption of butter (p=0,014) and vegetables (p=0,009).

DISCUSSION

The results were interpreted taking into account the characteristics of the study group, restricted to a clientele of seniors enrolled by convenience sampling. It should be emphasized that these results cannot be extrapolated to all seniors in the city of Teresina (PI), as included in the study only included individuals who were cited in teams.

The predominance of women in this study is in agreement with data from the Population Census - 2010, showing that the population of Teresina elderly consists of 58,7% women. [12] The different percentages found can be explained by the fact that the present study has evaluated only individuals placed in groups of elderly patients with predominance of women in programs and actions the 3rd age. A similar study that diagnosed the nutritional status of the elderly group in the city of Paraná confirmed the predominance of women (84,7%) in the study population.[1]

Regarding age, it was observed that 50,6% of seniors surveyed found with less than 70 years, according to the percentage of Census - 2010 noting that 55,1% of the elderly population is aged between 60-69 years. [12] Other studies with non-institutionalized elderly population are 73,2% and 62,6% m respectively, subjects older than 70 years. [1,8] These valorem tend to change in the near future due to the rapid growth in the group of older subjects caused by the reduction in mortality in the age groups above, increased life expectancy of octogenarians, with a growing proportion reaching 90 years and also growth of centenarians.[13]

Analysis of body weight corroborates research that evaluated elderly by different instruments and found higher values of weight and height in the individual male.[14] Fact supposedly justified by maturity differences occurring in adolescence and hormonal and greater physical structure of man.[15]

No significant differences were found between the BMI of men and women, confirming research that analyzed elderly parishioners belonging to groups and found BMI of 28,31 kg/m² and 25,76 kg/m² for women and men, respectively.[1] Overweight is most often related to women, given that women have a greater chance of being overweight or obese, higher visceral fat accumulation and hormonal changes common in menopause accompanied by weight gain and adiposity. There, during the aging process, progressive redistribution of fat with decreased subcutaneous adipose tissue accumulation and members of intra-abdominal.[3]

Observed when the classification of nutritional status by BMI, the majority of the sample were overweight, agreeing to study evaluating elderly in the metropolitan region of Curitiba and also showed a higher prevalence of overweight, a fact that is

associated with a high risk of chronic diseases. Overweight is increasing in developed countries, questioning its implications for future morbidity and mortality, especially in the aging population. [1]

The classification of nutritional status based on BMI is not the best choice when used in isolation it does not consider changes in body composition of the elderly, such as the redistribution of body fat in the abdominal region increases. However, despite not represent the individual's body composition, the ease of obtaining data on weight and height justifies the use of BMI in epidemiological studies, provided they use specific cutoff points for age and to associate with other anthropometric measurements that express the composition and body fat distribution.[16]

Parallel to BMI, was performed by assessing the nutritional status of MAN, which identified significant percentage of malnutrition and risk of malnutrition. In a study of non-institutionalized elderly FHS in Londrina values were similar risk of malnutrition (19,8%) and malnutrition (1,8%).[17] In contrast to the results observed in these studies showed prevalence values dissonant 25% risk of malnutrition and 8,3% of malnutrition in the elderly living in a nursing home in the Federal District.[18] These results suggest that institutionalized elderly have a higher prevalence of malnutrition and risk of malnutrition that residents in their homes.

Study has shown that nutritional deficiencies characterized by depleted nutritional status are more frequent in elderly patients older than 65 years; episode that can be attributed to socioeconomic conditions, presence of diseases, changes in lifestyle and eating habits. [19] In the present study were observed higher rates of malnutrition and risk of malnutrition in the population aged 70 or older, a result that could be justified by expected changes in muscle mass, which tends to decrease, and the pattern of body fat distribution, where the fatty tissue of the arms and legs decreases, increasing the trunk.[3]

Partially corroborating the literature, [14-6] was found in this study, a higher prevalence of malnutrition and risk of malnutrition among men. Similar study conducted in the city of Curitiba assessing the nutritional status of the elderly by MAN, found that 69,1% of men presented themselves at risk of malnutrition and 7,1% were malnourished.[20] Finding that possibly be related to little concern that man has with issues related to health and practice healthy eating

Anthropometric indicators weight, height and BMI are essential in geriatric assessment, but the changes that occur in aging, such as weight loss and difficulty in precisely collect height and weight, can compromise the determination of accurate diagnosis and precise.[5]

Facing this situation, there is an indication of the association of BMI and MAN for achieving more accurate and precise. Cross-sectional study aimed to diagnose the nutritional status of the elderly through the association between BMI and MAN noted that 34% of individuals considered overweight by BMI, 6% were malnourished and 15% at risk of malnutrition according to the MAN.[21] Findings reaffirm that allow no indication of the use of an indicator in isolation, apart from finding the sensitivity of MAN for early detection of nutritional risk and his statement not as a marker of overweight.

Moreover, the diagnosis of malnutrition risk obtained with MAN can occur when the elderly has not yet rated weight loss or changes in serum albumin, since the questionnaire can identify risk of malnutrition in elderly people with low food intake.[22]

Furthermore, one must consider the methods of nutritional assessment classifying the individual as eutrophic, while others classify nutritional parameters at nutritional risk because they can put the elderly at risk for the installation or worsening malnutrition, and slows the beginning of a specialized nutritional therapy.[20]

It was observed that MAN allows qualitatively evaluate food intake, which questions the interviewee on the consumption of dairy products, legumes, meats, fruits, vegetables and liquids.[14] This relationship between nutritional assessment and food intake is well exemplified in studies that show a high prevalence of nutritional problem in the elderly population, where malnutrition, overweight and obesity compared to normal weight predominate. [19]

Was found an average consumption of 4,2 meals a day, a finding that agrees with similar research conducted with non-institutionalized elderly hypertensive patients and program participants Hiperdia in Caxias do Sul-RS showing that most of the elderly respondents (43,3%) performed four meals daily.[23]

The results presented in this study are unsatisfactory, since the fractionation of meals is recommended to avoid long periods of fasting, keeping blood glucose levels suitable for efficient cellular energy supply. Offer more frequent meals of smaller volume

for this population should also be prioritized in light of the changes associated with aging.[2]

Facing this scenario, we highlight the importance of nutrition professional in the FHS, given that it is able to prevent nutritional inadequacies and nutritionally adequate food, considering the physiological dysfunctions and degenerative characteristics of this stage of life.[24]

Regarding factors that affect food consumption of the gerontes, this research found different results from a retrospective study that presents the economic factor as one of the most present in the genesis of malnutrition in the elderly due to low purchasing power, compounded by the exclusion of the elderly market, a fact that certainly results in the acquisition of food more affordable and contributes to the monotony of the food.[19]

The elderly of both sexes consumed in greater quantities cereals, legumes and fruits, positive fact, since they are good sources of fiber, and rich in dietary fiber diet protects against weight gain and obesity, risk factors for cardiovascular disease. These findings partially corroborate study that assessed food consumption group of non-institutionalized elderly in Londrina (PR) and found legume consumption by 28,9% of the elderly. [17]

It is important to note that although large fruit consumption occurs with the elderly assisted by teams addressed in this study, this does not reach WHO recommendations, [25] which guides the daily intake of five or more servings of fruits and vegetables.

In this study was observed that a small portion of respondents consuming five or more servings of fruits and vegetables daily and a large portion reports not daily consumption. Similar findings were observed in cross-sectional study that assessed dietary intake of fruits and vegetables for low-income seniors in the city of São Paulo-SP by food frequency questionnaire and found that about a third of the elderly did not consume any kind of fruit daily or vegetable, and only 19,8% reported consuming five or more servings daily.[26]

Investigations in Brazil suggest that the low consumption of fruits and vegetables may be related to low education and incomes, lack of appetite, difficulty in acquiring and preparing food.[19]

The fact of having observed the consumption of various healthy foods must be considered, from the time that individuals with diseases in which food has a direct and power improvement or worsening of the clinical condition tend to overlook abuses and excesses. The obese are biased to underestimate their dietary intake and include in your report the consumption of foods considered healthy.[27]

The Household Budget Survey (HBS) from 2008 to 2009, showed that the food intake of the population combines traditional diet of rice and beans, this study confirms the large consumption of food groups of cereals and pulses. [28] Proving that the elderly population has preserved this eating habit, which can be considered positive compared to younger age groups, especially when doing a comparison between the latest Household Budget Surveys completed in 2003 and 2009, and observed a decrease of 28,5% in the consumption of rice and 16% in the consumption of beans.[28-9]

The present study revealed discordant POF 2008-2009, when it shows higher consumption of sweets and sugar over fruit and vegetables. Increased consumption of fruits and vegetables in this research can be justified because of the surveyed population being low income and have few resources to purchase foods and low nutritional value. [28]

It was observed a positive association between an appropriate body weight, balanced diet and regular physical activity. Primary factors in reducing the risk for heart disease, chronic diseases, dyslipidemia and cancer.[30]

It is important to note the limitations of this study, remembering that the study sample may not reflect the consumption of the elderly Teresina other regions or even other cities in the state of Piauí and, therefore, the argument made here should be directed to the studied given region. Further studies are needed in order to examine in greater depth other aspects related to nutritional status and dietary intake of the elderly, including: assessment of biochemical parameters, influence of diseases and drugs on feeding, quantitative assessment of consumption of macro and micronutrients.

CONCLUSION

Most seniors surveyed were overweight when their BMI and normal nutritional status as assessed by MAN, especially those under 70 and females. In relation to food intake, there is the high consumption of *cereals, legumes and fruits, food diversity within standards and economic inadequacy* of the fractionation of the meals, which can contribute to increased hunger and lead to overcompensation following meals.

These findings can be taken as the basis for the development of educational interventions

and public policy development aimed specifically at this group.

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