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Obesity and associated risk factors in elderly residents in the interior of Bahia

Obesidade e fatores de risco associados em idosos residentes no interior da Bahia

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ABSTRACT
To evaluate obesity and the risk factors associated with obesity in elderly people living in the interior of Bahia. This is an exploratory, descriptive and analytical research, with a cross-sectional design and quantitative approach. The research instrument consisted of socio-demographic data and health conditions. There was a higher frequency of elderly women (80.0%), aged between 60 and 69 years (50.0%), widowed (40.9%), income of 1 minimum wage (55, 5%) and literate (86.4%). Regarding functional capacity, most elderly people were classified as independent in Basic Activities of Daily Living (83.6%) and Instrumental Activities of Daily Living (70.9%). With regard to nutritional status, according to the BMI, 50.0% of the elderly people were overweight (> 27 kg / m²). With the application of the chi-square test ($\chi 2$) between all categories of BMI and the study variables, there was a statistically significant difference between the category of overweight (> 27 kg / m2) and the study variables: SAH (p=0.043), presence of disease (p=0.019) and female gender (p=0.000). There was a high frequency of overweight and chronic diseases related to overweight in the group of elderly people surveyed, with systemic arterial hypertension and diabetes being the most frequent.

Keywords: Aging. Body mass index. Health.

RESUMO
Avaliar a obesidade e os fatores de riscos associados à obesidade em idosos residentes no interior da Bahia. Trata-se de uma pesquisa do tipo exploratória, descritiva e analítica, com delineamento transversal e abordagem quantitativa. O instrumento de pesquisa foi constituído de dados sociodemográficos e condições de saúde. Constatou-se maior frequência de idosos do sexo feminino (80,0%), faixa etária de 60 a 69 anos (50,0%), viúvos (40,9%), renda de um salário mínimo (55,5%) e alfabetizados (86,4%). Em relação à capacidade funcional, a maioria dos idosos foi classificada como independente nas Atividades Básicas de Vida Diária (83,6%) e Atividades Instrumentais de Vida Diária (70,9%). No que se refere ao estado nutricional, segundo o IMC, 50,0% dos idosos apresentaram a condição de excesso de peso (>27 kg/m²). Com aplicação do teste Qui-quadrado ($\chi 2$) entre as todas categorias do IMC e as variáveis do estudo verificou-se diferença estatisticamente significante a categoria excesso de peso (>27 kg/m2) e as variáveis do estudo: HAS (p=0,043), presença de doença (p=0,019) e sexo feminino (p=0,000). Constatou-se alta frequência de sobrepeso e doenças crônicas relacionadas ao sobrepeso no grupo de idosos pesquisados, sendo a hipertensão arterial sistêmica e o *diabetes* as mais frequentes.

Palavras-chave: Envelhecimento. Índice de massa corporal. Saúde.

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INTRODUCTION

Population aging has become a scenario of changes either in the epidemiological, demographic or nutritional field. It is estimated that Brazil in 2020 will be the sixth largest elderly population in the world, with a total number of over 30 million people living in longevity. (BRAZIL).[1] Due to this new reality, public policies and research are increasingly necessary, as demographic changes as well as life expectancy have been a concern in the health field.[2]

Body alterations occurred with the aging process, such as the decrease in the amount of water in the body, reduction of body lean mass and increase of visceral fat accumulation have a direct link with human aging and relevance to obesity.[3]

Obesity is characterized by an excess of adipose tissue in the body, a complex and multifactorial disorder that, with this, becomes a complicator for the health status of the elderly.[4] Specific factors, such as: age (decrease in body mass and energy expenditure) genetic and emotional (hormonal problems, depression, anxiety) and nutritional (hypercaloric diets and lack of physical activities), consolidates for the aggravation of the high obesity index.[3]

By calculating the Body Mass Index (BMI), we can track obesity. BMI is used to assess whether weight is adequate or not according to height, it is calculated based on the height and body mass of a person [BMI=weight (kg)/height² (m²)].[5] Waist circumference (WC) is also used as an anthropometric meter to verify the obesity and overweight of the individual. These two measures are easy to manage, accurate when analyzing people's nutritional status and have an acceptable cost benefit.[6]

Knowing that obesity directly affects the quality of life of the elderly, mainly due to their unbalanced nutritional status, leading to comorbidities such as hypertension, cardiovascular diseases, diabetes and stroke.7 Thus, this study aims to evaluate obesity and risk factors associated with obesity in the elderly in the interior of Bahia.

METHODOLOGY

STUDY DESIGN

It is an exploratory, descriptive and analytical type of research, with transversal design and quantitative approach, which is part of a larger project entitled: Interdisciplinary Program of Studies and Research on Human Aging: Actions of care and attention to the elderly. The research project was developed in the municipality of Vitória da Conquista at the Interdisciplinary Center for Studies and Research on Human Aging (ICSRHA).

SAMPLE SELECTION

The sample was composed of all the elderly who had mental conditions to respond to the research instrument, and the

mental state was evaluated by the Mini Mental State Examination/MMSE.[4]

The sample was non-probabilistic for convenience and consisted of 80 individuals who were selected through the inclusion and exclusion criteria, including: be a participant in the group of elderly living in the municipality of Vitória da Conquista and obtain a score above 24 points in the MMSE; and those of exclusion: individuals who are wheelchair users or have a visual and/or hearing impairment. Totaling a sample of 110 elderly.

The research instrument, was elaborated by the own authors of the research with the inclusion of validated scales, being constituted of socio-demographic data as date of the application of the questionnaire, the sex (female or male), schooling (literate or not literate), marital status (with partner or without partner), family income (one minimum wage, from 1-3 minimum wages, from 3-5 minimum wages, from 7 to 10 minimum wages).

The characterization of health conditions was evaluated by questioning the elderly if they had a health problem, if they were undergoing treatment, the assessment of disabilities in basic and instrumental activities of daily living was made through the Barthel Index[11] and the Lawton and Brody[11] Scales, respectively.

PROCEDURES

The invitation to participate in the research occurred randomly to individuals who were present at the time of the visits. Based on this approach, the objectives, risks and benefits of the research were explained and if the participant fits the research selection criteria was assessed. The period for data collection was August to December 2018.

THE BARTHEL INDEX

The Barthel Index assesses the level of independence of the individual to perform ten Basic Activities of Daily Living (BADL). [11] It aims to assess whether the individual is able to perform activities independently such as: feeding, bathing, routine activities, dressing, bowel, urinary system, Toilet use, transfer from bed to chair and vice versa, mobility and stairs. Your score goes from 0 to 100 points, the lower the score the higher the degree of dependence. The study adopted the dependent (score 100 points) and independent (score = 100 points). [11]

LAWTON AND BRODY SCALE

The scale for assessing disability in IADL, developed by Lawton and Brody, evaluates the individual's level of independence in performing Instrumental Activities of Daily Living (IADL) comprising nine tasks that enable the person to adapt to the environment and maintain

independence in the community as: use of the telephone, transport, shopping, preparing food, dealing with the house, carrying out manual work, washing and ironing his own clothes, correct use of medication and administration of money. Each question has three options, the first indicates independence, the second partial dependence and the third total dependence. For the calculation of the score, 3.2 and 1 points are attributed respectively with a score from 9 to 27 points. The higher the score, the higher the degree of independence. The study adopted the dependent (score 27 points) and independent (score = 27 points).[11]

BODY MASS INDEX (BMI)

The calculation of body mass index was performed by weight (kg) divided by height(m)² and the elderly who presented BMI > 27 Kg/m2 was considered obese. The classification was adopted: Insufficient Weight (22 kg/m2), Adequate Weight (22 to 27 kg/m2) and Overweight (>27 kg/m2). 2 For weight measurement, a Microlife Body Fat Scale WS 100 digital scale was used, which was calibrated before starting the collection, and for height, a tape measure was fixed on the wall in a flat and regular place.[4]

DATA ANALYSIS

The collected data were organized in a spreadsheet Excel® 2015 and then transported and analyzed in the program Statistical Pack age for the Social Science SPSS® version 21.0, and then descriptive statistical analysis and application of Pearson's Chi-square ($\chi 2$) was performed. The p-value adopted was 0.005.

ETHICAL ISSUES

Initially, an initial contact was made with those responsible for the development of the activities of the coexistence group, where the objectives of the research were explained, requesting authorization for data collection. After consent to participate in the research was given the Term of Free and Informed Consent (TCLE), being respected the ethical principles contained in resolution 466/12 of the National Health Council. Only after signing the term, the research was started with the elderly registered in the Active Life Project of UESB and in the basic health units of the family in the municipality of Vitória da Conquista/BA. The research project was approved by the Research Ethics Committee of the Independent Faculty of the Northeast Statement No. 1.064.789 and CAAE No.: 44876215.8.0000.5578

RESULTS

In the sociodemographic analysis, a higher frequency of elderly women (80,0%), 60 to 69 years old (50,0%), widowers (40,9%), income of 1 minimum wage (55,5%) and literate (86,4%) was found. (Table 1).

Table 1. Distribution of the elderly according to sociodemographic data. Vitória da Conquista (BA), 2020

	N	%
Sex		
Female	88	80,0
Male	22	20,0
Age range		
60 to 69 years	55	50,0
70 to 79 years	45	40,9
80 years or more	10	9,1
Marital status		
With partner	36	32,7
Without partner	74	67,3
Income		
< 1 Salary	23	20,9
1 Salary	61	55,5
1 to 3 Salaries	17	15,5
4 to 5 Salaries	9	8,2
Schooling (in years)		
Illiterate	15	13,6
Literate	95	86,4
Total	110	100,0

Regarding health conditions, there was a greater distribution of elderly people with the presence of disease (70,9%), with systemic arterial hypertension/HAS (52,7%) and Diabetes Mellitus/DM (82,7%) being more frequent. Regarding functional capacity most of the elderly were classified as independent in BADL (83,6%) and IADL (70,9%).

Table 2. Distribution of the elderly when health conditions. Vitória da Conquista (BA), 2020

	n	%
Presence of disease		
Yes	78	70,9
No	32	29,1
BADL		
Independent	92	83,6
Dependent	18	16,4
IADL		
Independent	78	70,9
Dependent	32	29,1
Total	110	100,0

Regarding nutritional status, according to BMI, 50.0% of the elderly had overweight (>27 kg/m²).

Table 3. Distribution regarding anthropometric measurements. Vitória da Conquista (BA), 2020

	N	%
Body Mass Index/BMI		
Insufficient Weight (< 22 kg/m^2)	14	12,7
Adequate Weight (22 a 27 kg/m^2)	41	37,3
Overweight (>27 kg/m^2)	55	50,0
Total	110	100,0

The chi-square test ($\chi 2$) between all BMI categories and the study variables showed a statistically significant difference between the overweight category (>27 kg/m2) and the study variables: hypertension (p=0.043), presence of disease (p=0.019) and female gender (p=0,000).

DISCUSSIONS

By analyzing the results obtained in this study, it was possible to notice the greater predominance of females, which evidences a greater tendency of women to achieve longevity. Similar data found in the literature indicate that this advantage in relation to the female sex results from numerous factors, among them, the tendency of women to take more care of themselves and seek medical care and/or social support.[8-11] The feminization of the elderly population was also found in a study carried out in the same city as this research [9] and is in line with the last census and the national reality.[10] As for the age group, it is observed that the majority of the elderly are aged between 60 and 69 years, that is, there is a predominance of younger elderly that may be characteristic of the recent aging process of the Brazilian population.[11]

Regarding marital status, the data show that the number of elderly people in the "partnerless" condition has obtained a higher prevalence. According to the 2010 census conducted by the Brazilian Institute of Geography and Statistics -BIGS, there was an increase in the proportion of elderly people "without partners" (widows, single and divorced), thus indicating a greater number of elderly people living without a conjugal partner.[13]

With regard to income data, the study showed that the majority of the elderly have a family income of 1 minimum wage, which corroborates with another analysis[14] in which it was verified that 51.1% of the elderly had a family income similar to the present study. Several studies indicate that retirement is the main source of survival of the elderly, although the value is not sufficient to meet basic needs, which is sometimes compromised by purchases of medicines or medical examinations, thus leading to low-cost food purchases, containing low nutritional quality for the elderly, and a higher caloric concentration.[3]

According to the data obtained, there is a majority of literate elderly. Therefore, it is noted that these present an improvement in the educational

aspect, increasing the proportion of literate elderly, which diverge from other studies that point to the low educational level.[15] However, the education of the elderly still leaves much to be desired, High illiteracy rates are marked by contexts from past centuries, where public education was sometimes limited and women were expected to devote more time to their homework. For many times these elderly people had to opt for rural work helping their parents, instead of the study. Thus, this is an important piece of research in future studies, considering that schooling is a cause of concern for health professionals, especially in the Northeast region, where the highest rate of illiteracy in the country[17].

In relation to health conditions, there was a greater distribution of older adults with the presence of disease. These results were similar to those found in another study18 in which 69% of the elderly had at least one chronic disease, a result close to 80,0% found by other authors.[19] The health problems of the elderly are multiple and complex, and the risk factors in relation to chronic diseases increase with the increase in the life expectancy of the elderly. Currently, it is observed that the reduction in mortality rates is followed by significant numbers of older adults with chronic diseases and clinical limitations, thus increasing the demand for health services.[20]

In the present study, the most frequent disease among the elderly was hypertension. Currently, this pathology is considered as a serious public health problem in Brazil and worldwide, in recent years there has been a significant increase in cases among the elderly, and studies indicate that there is a direct link with inadequate nutrition, sedentary lifestyle and the abusive consumption of salt in meals, bringing effects such as a decrease in the elderly's quality of life[5].

Another relevant result was DM type 1 or 2, since most of the older adults surveyed presented this condition. It is noteworthy that the percentage of diabetics found in this study was higher than those found in other studies.[19-22] DM is a serious public health problem, where the most affected population is elderly. In the classification of chronic-degenerative diseases, DM is considered the most common disease, whose treatment requires not only changes in diet, but also the intake of specific medicines and lifestyle of the elderly, in which, if it does not have an adjusted orientation regarding treatment and does not know the real importance of complications that may occur, it will directly compromise the quality of life of this population group.[23] The main risk factors considered for DM are: obesity, sedentary lifestyle, bad eating habits, heredity and aging of the population.[24]

Regarding the evaluation of functionality, it is observed that the majority of the elderly were considered independent for BADL. These results are similar to those found in another study[25] in which 63.9% were independent for basic activities, as well as the 74.0% cited by another study.[26] This greater independence

for basic activities occurs because they are related to personal care and because they are less complex than instrumental activities.[27]

In addition to BADL, this research also evaluated instrumental tasks. It was identified that the majority of the elderly are totally independent for the IADL. These results are not compatible with the findings in the literature that discuss the functional capacity of the elderly. Studies conducted in which the researchers also used the Lawton index, a more evident functional impairment was observed for the performance of IADL, a result different from that found in this research. Although instrumental activities are considered more complex tasks than basic activities, and require help to perform them, the results of this research diverge from other studies, considering that 70.9% of the elderly are totally independent of the IADL.[25-27]

In relation to obesity, a higher prevalence of overweight elderly individuals was found, according to BMI. The development of obesity in the elderly involves not only physiological changes, but also the marked caloric intake, lack of physical exercise, genetics and the relationship with their living environment. The consequences of overweight and obesity in the elderly are considered the main risk factors for a sequence of chronic diseases.[28] In view of this, the relationship between overweight and hypertension and DM is taken into account, that affects and alters the quality of life of the elderly being mostly women, as was found in this study, where it was verified the association of BMI (>27 kg/m2) with SAH (p=0.043), presence of disease (p=0.019) and female sex (p=0.000).

Studies confirm that there is a higher prevalence of diabetes among women, since there is a direct relationship between them.[28,29] Due to menopause, there is a possibility that women have higher WC than men, because of increased visceral fat as a result of hormonal disorder. As there is less estrogen production in menopause, the internal layers of the blood vessels become more fragile, causing the release of vasoconstrictor substances to be impaired, also causing an increase in blood pressure.[29]

One study showed that abdominal fat is directly related to SAH and DM problems, as there is an association with increased insulin resistance and glucose intolerance[18]. In this sense, it is necessary to point out that the health problems that cause overweight occur in any age group, but in the population specifically, obesity increases the risk of problems such as hypertension, type II DM and cardiovascular diseases.[30]

As a limitation of this study, the type of sample selection by convenience stands out, it is emphasized that to minimize sample selection bias, probabilistic sampling was used.

CONCLUSIONS

A high frequency of overweight and chronic diseases related to overweight was found in the group of elderly people surveyed, with hypertension and diabetes

being the most frequent. Therefore, given the findings in this study, it is necessary that public health strategies (actions, programs and health policies) be directed to health promotion, overweight control and prevention and early diagnosis of hypertension and DM. Therefore, professionals should encourage adherence to the various forms of prevention and treatment of overweight and disease control, raising awareness of this population to adopt practices of physical activities and healthy eating, as a way to reduce weight and, consequently prevent diseases associated with obesity.

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