

# Association between Cardiovascular Risk and Nutritional Status of Elderly

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## Research Article

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## Abstract

During the aging process occur several changes, among them the increased weight and obesity contribute to the health risk potential of this population. Bringing losses as disability, increased morbidity and impaired quality of life. The aim of the research was Check if there is association between cardiovascular risk and nutritional status of assisted elderly outpatients. This is a cross-sectional study conducted at the Clinic in São Luís- MA, conducted on May 2015. participated in the survey 33 elderly diabetics. Data collection was conducted through two questionnaires and conducting anthropometric measurements. The distribution between age groups showed a higher proportion 54.55% of participants between 60 and 69 years. Regarding nutritional status, 39.39% had a diagnosis of overweight, to assess cardiometabolic risk by waist circumference 72.73% were at risk. There was a relationship between nutritional status and metabolic risk, with p- value (0.006) where the worse nutritional status, increased risk of cardiovascular complications. There was a high prevalence of obesity and risk of cardiovascular disease in the elderly population with significant association, following the global panorama of epidemiology current. Nutritional monitoring in conjunction with intervention strategies involving the various sectors of the community should. For the organization of the data were performed encodings of all the variables of the collection instruments with double data entry in Microsoft Office Excel® program (2011). Completed validation by double entry, data were analyzed in STATA 12.0® program. The significance level was 5 %. Statistically significant association was observed ( $p < 0.05$ ) between cardiometabolic risk measured by waist circumference and body mass index variable, the diagnosis of overweight correlates with increased risk of cardiovascular complications (92.31 %). 100% of obese elderly had risk presenting an increased waist circumference. There was a high prevalence of obesity and risk of cardiovascular disease in the elderly population with significant association, following the global panorama of epidemiology current. Nutritional monitoring in conjunction with intervention strategies involving the various sectors of the community should.

## Introduction

In Brazil, the growth rate of the elderly population has been systematic and consistent. According to the National Sample Survey of Households - PNAD 2012, the country had a population of about 24 million people 60 years or older.

With the aging population phenomenon increases, increasingly, the need for knowledge of the factors that influence the prevalence of NCDs associated with age [1]. The aging process causes functional changes as a reduction in lean body mass and increased fat especially among women. Therefore, to determine the nutritional status of elderly is necessary to associate the body mass index to other anthropometric variables that express the distribution of body fat [2].

Note that there is a need to understand the relationship between these indexes and the distribution of fat (total or trunk) in the elderly, in order to predict the risk factors associated with obesity of an early form this specific population [3].

## Objective

Check if there is association between cardiovascular risk and nutritional status of assisted elderly outpatients.

## Methods

This is a cross-sectional study conducted at the Clinic in São Luís- MA, conducted on May 2015. The sample was for convenience and older had the inclusion criteria women aged over 60 years, diabetic, and not to include those who were unable to perform some of the procedures involved in the study as: measurement of anthropometric measurements and cognitive difficulties to answer the questions. Data collection was conducted through two questionnaires and conducting anthropometric measurements.

For the measurement of weight, the elderly were placed in a previously calibrated anthropometric digital scale Welmy® brand for up to 150 kg and 100g precision, without shoes, properly supported on level ground in front walk to the scale scale with lateral distance of the feet, erect and stared straight ahead; the height was measured with fixed vertical anthropometer the balance with a maximum capacity of 220cm accuracy of 0.1 cm, with the elderly positioned standing with arms

outstretched over the body, head raised and looking at a fixed point at eye [4].

For the nutritional status was used the Body Mass Index (BMI): derived from the ratio of the current body weight (kg) and the square of height (m), BMI classified according cutoff point, according to which BMI <23.00 kg/m<sup>2</sup> indicates underweight; ≥ 23,00 and <28.00 kg/m<sup>2</sup>, eutrophic; ≥ 28.00 and <30.00 kg/m<sup>2</sup>, overweight; and ≥ 30.00 kg/m<sup>2</sup>, obesity [5]. Waist circumference was obtained by inelastic tape measure graduated Sanny® mark in centimeters, positioned between the iliac crest and the lower edge of the last rib. It was considered the average of two measurements in the standing position, with naked abdomen [6]; The accumulation of fat around the waist or abdominal obesity was classified as high risk of cardiovascular disease for women a DC ≥ 80.0 cm [7]. Hip circumference was obtained by inelastic tape measure graduated Sanny® mark in centimeters, where the measurement occurs at the level of the point of greatest circumference of the gluteal region.

To assess the risk of cardiovascular and / or metabolic complications, waist-hip ratio was used, which was obtained by dividing the numerical value of the waist circumference at the hips, both in centimeters, the result classified according cutoff for women, at risk for CVD estimated values ≥ 0.85 cm [7].

For the organization of the data were performed encodings of all the variables of the collection instruments with double data entry in Microsoft Office Excel® program (2011). Completed validation by double entry, data were analyzed in STATA 12.0® program. The significance level was 5 %.

## Results

The sample consisted of 33 elderly women with mean age 67.2 (± 4.68) years. The distribution between age groups showed a higher proportion of participants between 60 and 69 years (54.55%). The largest contingent of Brazilian elderly is also represented in this age group, about 28.6 % of the population [8].

Regarding marital status predominated married women [9], followed by widows (21.21%). Even with increased life expectancy of Brazilians, women have greater longevity to the men, which makes widowhood is commonly in the population of elderly. Besides the fact that women remains widowed after her husband's death, which among men marriage after widowhood is predominant [8].

When asked about their occupation the retired category and / or pensioner was the highest percentage (51,52 %), similar to that found by the National Sample Survey (PNAD), where elderly had 66.2 % of their income coming from retirement and / or pension [9].

Variables	n	%
Age (years)		
60 a 69	18	54,55
≥ 70	15	45,45
Marital status		
Married	19	57,58
Single	4	12,12
Separate	3	9,09
Widow	7	21,21
Occupation		
Active	1	3,03
Retired With Activity Paid	1	3,03
Unemployed	3	9,09
Work At Home	11	33,33
Pensioner	17	51,52
TOTAL	33	100,00

Table 1: Demographic characteristics of elderly in outpatient care (n=33). São Luís - MA, 2015.

39.39% had a diagnosis of overweight, and when assessing the percentage of elderly overweight and obesity, this percentage significantly increased to 51.51 %, representing more than half of the sample.

The diagnosis of low weight, was found in 30.30% of the elderly deserves special mention.

According to Ferreira, 2014 [10] both the low-weight and obesity are associated with increased morbidity and mortality in the elderly.

In research by Santos & Sichieri 2005 [11], it found that overweight was present 52.4 % in older women.

Variable	n	%
Body mass index		
Low weight	10	30,30
Eutrophic	6	18,18
Overweight	13	39,39
Obesity	4	12,12
Total	33	100,00

Table 2: Nutritional status according to body mass index of elderly in outpatient care (n=33). São Luís - MA, 2015.

Increased abdominal fat measured by waist circumference in older women, is seen as a good indicator of coronary risk for this population [12].

72.73% of the elderly were at risk of developing cardiovascular and metabolic complications.

A similar result was found by Previato et al, 2014 [2], where high circumference 84% had the highest prevalence among the elderly.

Variable	n	%
Waist circumference		
With cardiovascular risk	24	72,73
No cardiovascular risk	9	27,27
TOTAL	33	100,00

Table 3: cardiovascular risk assessed by waist circumference of elderly in outpatient care (n=33). São Luís - MA, 2015.

Table 4 shows the association between waist circumference according to nutritional status.

Statistically significant association was observed ( $p < 0.05$ ) between cardiometabolic risk measured by waist circumference and body mass index variable, the diagnosis of overweight correlates with increased risk of cardiovascular complications (92.31 %). 100 % of obese elderly had risk presenting an increased waist circumference.

Showing also that the eutrophic nutritional status is a protective factor for lower prevalence (16.67 %) of cardiovascular risk measured by waist circumference.

Variables and Categories	Waist circumference		No risk	%	p
	With risk				
	n	%	n	%	
BMI (Body mass index)					
Low Weight	3	30,0	7	70,0	0,006
Eutrophic	1	16,67	5	83,33	
Overweight	12	92,31	1	7,69	
Obesity	4	100	0	0,0	

Table 4: Association between waist circumference and nutritional status of elderly in outpatient care (n=33). São Luís - MA, 2015.

## Conclusion

There was a high prevalence of obesity and risk of cardiovascular disease in the elderly population with significant association, following the global panorama of epidemiology current. Nutritional monitoring in conjunction with intervention strategies involving the various sectors of the community should.

Minizar be considered for the losses arising from the nutritional status and its components, thus contributing to a better quality of life.

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