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PREVALENCE AND FACTORS ASSOCIATED WITH METABOLIC SYNDROME IN ELDERLY ATTENDED IN PRIMARY HEALTH CARE

Prevalência e fatores associados à síndrome metabólica em idosos atendidos na atenção primária em saúde

Prevalencia y factores asociados al síndrome metabólico en el cuidado del anciano en la atención primaria de salud

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ABSTRACT

Objective: to evaluate the prevalence of metabolic syndrome and association with sociodemographic, clinical, anthropometric and lifestyle variables in elderly people attended in primary care. **Method:** cross-sectional study carried out with 344 elderly in a Basic Health Unit in the Federal District. Analyzes of lipid profile, fasting glucose and glycated hemoglobin were performed. Sociodemographic data, lifestyle habits, blood pressure, anthropometry and fat percentage were evaluated. Poisson regression was performed to calculate the crude and adjusted prevalence ratio. **Results:** the prevalence of metabolic syndrome was 62.2%. The arterial hypertension (PRadjusted =1.31; 95%CI=1.02-1.67), increased waistline (PRadjusted=1.46; 95%CI=1.21-1.76), hypertriglyceridemia (PRadjusted=1.98; 95%CI=1.67-2.34) and decreased HDL (PRadjusted=1.19; 95%CI=1.03-1.37) were significantly associated with metabolic syndrome. **Conclusion:** the high prevalence of metabolic syndrome and association with modifiable factors point to the need to early identify and control risk factors in the elderly.

DESCRIPTORS: Aged; Metabolic Syndrome; Nursing; Primary Health Care.

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RESUMO

Objetivo: avaliar a prevalência de síndrome metabólica e sua associação com variáveis sociodemográficas, clínicas, antropométricas e estilo de vida em idosos atendidos na atenção primária. **Método:** estudo transversal realizado com 344 idosos em uma Unidade Básica de Saúde do Distrito Federal. Realizaram-se análises do perfil lipídico, glicemia de jejum e hemoglobina glicada. Foram avaliados dados sociodemográficos, hábitos de vida, pressão arterial, antropometria e percentual de gordura. Realizou-se regressão de Poisson para cálculo da razão de prevalência bruta e ajustada. **Resultados:** a prevalência de síndrome metabólica foi de 62,2%. A hipertensão arterial (RPajustada=1,31; IC95%=1,02-1,67), cintura aumentada (RPajustada=1,46; IC95%=1,21-1,76), hipertrigliceridemia (RPajustada=1,98; IC95%=1,67-2,34) e HDL diminuído (RPajustada=1,19; IC95%=1,03-1,37) foram significativamente associados à síndrome metabólica. **Conclusão:** a elevada prevalência de síndrome metabólica e sua associação com fatores modificáveis apontam para a necessidade de identificar e controlar precocemente os fatores de risco em idosos.

DESCRITORES: Idoso; Síndrome metabólica; Enfermagem; Atenção primária à saúde.

RESUMEN

Objetivo: evaluar la prevalencia del síndrome metabólico y su asociación con variables sociodemográficas, clínicas, antropométricas y de estilo de vida en ancianos atendidos en atención primaria. **Método:** estudio transversal realizado con 344 ancianos en una Unidad Básica de Salud del Distrito Federal. Se realizaron análisis del perfil lipídico, glucosa en ayunas y hemoglobina glucosilada. Se evaluaron datos sociodemográficos, hábitos de vida, presión arterial, antropometría y porcentaje de grasa. Se realizó regresión de Poisson para calcular la razón de prevalencia cruda y ajustada. **Resultados:** la prevalencia de síndrome metabólico fue del 62,2%. Hipertensión arterial (RPajustada=1,31; IC95%=1,02-1,67), aumento de cintura (RPajustada=1,46; IC95%=1,21-1,76), hipertrigliceridemia (RPajustada=1,98; IC95%=1,67-2,34) y la disminución de HDL (RPajustada= 1,19; IC del 95 % = 1,03-1,37) se asoció significativamente con el síndrome metabólico. **Conclusión:** la alta prevalencia del síndrome metabólico y su asociación con factores modificables apuntan a la necesidad de identificar y controlar precozmente los factores de riesgo en los ancianos.

DESCRIPTORES: Anciano; Síndrome Metabólico; Enfermería; Atención Primaria de Salud.

INTRODUCTION

In recent decades, the demographic and epidemiological transition has gained prominence on the national scene, with a trend towards population aging and increased prevalence of chronic noncommunicable diseases (NCDs), which especially affect more vulnerable populations, due to greater exposure to risk factors or restricted access to information and health services. Among the NCDs, systemic arterial hypertension (SAH), cardiovascular diseases (CVD), type 2 diabetes mellitus (DM2), cerebrovascular diseases, and cancer stand out.[1]

There is a remarkable association between the risk factors for the development of CVD, DM, and obesity with the presence of metabolic syndrome (MS), and for this reason, an attempt has been made to understand and propose strategies related to this issue. MetS occurs when three or more of the five criteria are present: central obesity, hypertension, altered glycemia or DM2 diagnosis, elevated triglycerides and decreased high density lipoprotein (HDL). Thus, MS can be defined as a set of complex metabolic alterations that occur simultaneously in the same individual, and has been widely discussed due to its negative repercussions on health.[2]

Therefore, an increasing effort has been made to understand the processes involved in the prevalence of MS, especially in the elderly, in order to assess the magnitude of the problem and establish prevention and control measures. The prevalence of MS is considered high in several countries around the world. National[3-6] and international[7-9] studies indicate high prevalence of MS in the elderly, ranging from 33.3 to 60.5%. In the Brazilian population, it has been observed that the prevalence of MS tends to increase with age.[10]

MS is considered a risk factor for early mortality.[2] In the elderly, MS may be associated with factors such as a sedentary lifestyle, inappropriate eating habits and genetic variations, besides being related to DM2, SAH, CVD, high triglyceride levels and abdominal obesity.[4,11] Therefore, this study proposed to analyze the prevalence of MS in the elderly, since epidemiological estimates can help in prevention strategies, carried out even in adulthood to control associated variables, knowing that it requires efforts and efficient programs to minimize the problem in primary health care. Given the above, the aim of this study was to evaluate the prevalence of metabolic syndrome and its association with sociodemographic, clinical, anthropometric and lifestyle variables in elderly patients treated in primary health care.

METHODS

Cross-sectional study conducted in a Basic Health Unit (BHU) of the Federal District (DF), between July and September 2019. For the sample calculation we considered the elderly registered in the Family Health Strategy (FHS) of that UBS, a confidence level of 95%, statistical error of 5%, population of 1150 and possibility of sample loss of 20%, ending in 344 elderly. The sampling was random, with a draw based on the number of people registered at the FHS. The drawn elderly were contacted by telephone and, after they agreed to participate in the research, they were instructed

to come to the UBS, fasting for 12 hours, to collect the research data, which was divided into two stages. All the researchers were trained to carry out the evaluations foreseen in the study.

The sample was made up of individuals who met the following inclusion criteria: age 60 years or older, of both genders, registered and followed-up by the respective UBS, to have access to their medical records. Elderly individuals with cognitive deficit, assessed by the Mini Mental State Examination (MEEN), who could not answer the questions, and those with severe clinical weakness, with conditions that prevented the performance of bone densitometry, were excluded.

Data collection occurred at the first moment in the UBS, in which the elderly were contacted by phone and given orientation to appear fasting for blood collection. The biochemical tests performed were fasting glucose (GLI), glycated hemoglobin (HbA1c), total cholesterol, triglycerides (TG), HDL, and low density protein (LDL), which were classified according to the guidelines of the Brazilian Society of Diabetes12 and Cardiology.[2]

After blood sampling, the elderly answered a structured questionnaire with questions related to sociodemographic variables and self-reported lifestyle habits. Blood pressure (BP) was checked according to the technical requirements of the Brazilian Guidelines on Hypertension.[2] Clinical variables, such as presence and duration of chronic disease, were checked in the elderly's medical records. At the end, the elderly subjects were scheduled to go to the university laboratory to have a bone densitometry exam (DEXA) to assess body composition.

In the second moment, at the university, anthropometric measurements were taken, such as waist circumference (WC), weight, and height, to calculate the body mass index (BMI), which was classified according to normal (up to 27kg/m²) and overweight (≥ 28kg /m²), according to the Lipschitz classifications.[13] Finally, the elderly were submitted to the body composition assessment exam to determine the body fat percentage (BMP), which was classified as high for women ≥38% and men ≥25%.[14] At the end of the research, all the elderly received the results of the exams performed.

For the classification of MS, the criteria proposed by the National Cholesterol Education Program – Adult Treatment Panel III (NCEP-ATP III) were considered when three of the five factors presented were present: 1) TG ≥ 150 mg/dL or use of dyslipidemia medications; 2) Systolic blood pressure (SBP) ≥ 130 mmHg, diastolic blood pressure (DBP) ≥ 85 mmHg, or the use of antihypertensive medications; 3) GLI ≥ 110 mg/dL or use of DM medications; 4) HDL < 40 mg/dL (men) or < 50 mg/dL (women) or use of dyslipidemia medications; and 5) WC ≥ 88 cm (women) and ≥ 102 cm (men). [2]

Statistical analysis was performed in SPSS 25.0. Variables were categorized and presented using absolute and relative frequencies. Association analyses were performed by Pearson's chi-square test. The crude analysis presented the prevalence ratios (RPbruta) and respective confidence intervals with a 5% significance level (95%CI). Finally, in the multivariate or adjusted analysis, Poisson regression was performed, which presents as a measure of effect the prevalence ratio (PRadjusted), according to a hierarchical analysis model to control for confounding variables. The variables that reached p≤0.20 in the crude analysis were included in the final model, in which a 5% significance level (p<0.05) was considered to identify an association between MS and the exposure variants.

The project was approved by the Research Ethics Committee of the Secretariat of Health of the Federal District (SES/DF) with CAAE 50367215.5.0000.5553 and all participants signed the Informed Consent Form (ICF), as recommended by CNS Resolution 46/2012.

RESULTS

The sample of this study was 344 elderly, and the majority were female (72.7%), aged less than 70 years (63.7%), with ≤ 8 years of study (76.2%), income ≤ 1 minimum wage, married (53.8%), retired (70.6%), non-smokers (92.2%), did not consume alcoholic beverages (93.0%), sedentary (60.8%), reported normal sleep (52.3%), had DM2(72.1%) and SAH (81.4%). The prevalence of MS was 62.2%, being significantly more prevalent in those elderly with DM2 (68.1% versus 46.9%) and SAH (66.1% versus 45.3%) (Table 1).

Most of the elderly had ≤ 10 years of diagnosis of SAH (63.7%) and DM2 (73.0%), but the prevalence of MS was higher in those with more than 10 years of SAH (RP^{bruta}=1.38; 95%CI=1.01-1.87) and among the elderly with more than 10 years of DM2 (RP^{bruta}=1.48; 95%CI=1.03-2.12). Regarding obesity, it was found that MS was more prevalent both in the elderly with BMI ≥ 27 (RP^{gross}=1.69; 95%CI=1.30-2.19) and in those with high BMP (RP^{gross}=1.43; 95%CI=1.05-1.95) and increased waistline (RP^{gross}=1.92; 95%CI=1.48-2.49). Regarding biochemical indices, the prevalence of MS was higher in the elderly with hypertriglyceridemia (RP^{gross}=5.07; 95%CI=3.19-8.07), decreased HDL (RP^{gross}=2.05; 95%CI=1.45-2.89), hyperglycemia (RP^{gross}=1.79; 95%CI=1.38-2.33) and elevated glycated hemoglobin (RP^{gross}=2.05; 95%CI=1.48-2.83) (Table 2).

The variables that presented significance lower than or equal to 0.20 were included in the Poisson regression: sedentarism, DM2, SAH, time of SAH, time of DM2, BMI, BMP, WC, triglycerides, total cholesterol, HDL, LDL, glycemia, and HbA1c. After the analysis, according to the hierarchical model, only the presence of AHS ($RP_{adjusted}$=1,31; IC95%=1,02-1,67), Increased WC ($RP_{adjusted}$=1,46; IC95%=1,21-1,76), hypertriglyceridemia ($RP_{adjusted}$=1,98; IC95%=1,67-2,34), and lowered HDL ($RP_{adjusted}$=1,19; IC95%=1,03-1,37) remained associated with MS (Table 3).

DISCUSSION

This study showed that more than half of the elderly had MS, similar to another Brazilian study.[15] A higher prevalence of MS in women was observed in other studies.[4, 9, 16, 17] It is noteworthy that more than half of the sample in the present study was composed of women. Furthermore, it is known that this number increases

Table 1 – Sociodemographic variables, lifestyle habits and comorbidities in relation to the prevalence of metabolic syndrome (MS) in the elderly. Brasília, 2022. (n=344)

Exposure Variables	n (%)	Prevalence of MS	Gross PR (IC95%)	p* value
Gender				
Female	250 (72,7)	61,6	1	0,704
Male	94 (27,3)	63,8	1,06 (0,77-1,44)	
Age				
< 70 years old	219 (63,7)	60,7	1	0,454
≥ 70 years old	125 (36,3)	64,8	1,11 (0,83-1,49)	
Education				
≤ 8 years old	262 (76,2)	63,0	1,05 (0,86-1,28)	0,600
> 8 years old	82 (23,8)	59,8	1	
Monthly income				
≤ 1 MW	184 (53,5)	61,4	0,97 (0,82-1,14)	0,744
> 1 MW	160 (46,5)	63,1	1	
Marital status				
Married	185 (53,8)	60,0	1	0,362
Single/divorced/widowed	159 (46,2)	64,8	1,13 (0,86-1,49)	
Retired				
Yes	243 (70,6)	63,8	1,09 (0,90-1,32)	0,350
No	101 (29,4)	58,4	1	
Smoking				
Yes	27 (7,8)	51,9	0,82 (0,56-1,19)	0,248
No	317 (92,2)	63,1	1	
Consumption of alcoholic beverages				
Yes	24 (7,0)	62,5	1,00 (0,72-1,38)	0,976
No	320 (93,0)	62,2	1	
Sedentary lifestyle				
Yes	209 (60,8)	67,4	1,26 (0,94-1,69)	0,110
No	135 (39,2)	58,9	1	
Sleep				
Regular	180 (52,3)	60,6	1	0,507
Difficult to sleep	164 (47,7)	64,0	1,09 (0,83-1,44)	
DM2				
Yes	248 (72,1)	68,1	1,45(1,15-1,82)	**<0,001**
No	96 (27,9)	46,9	1	
SAH				
Yes	280 (81,4)	66,1	1,45 (1,10-1,93)	**0,002**
No	64 (18,6)	45,3	1	

Pearson's *x^2; MW: minimum wage R$998.00; DM2: type 2 diabetes mellitus; SAH: hypertension; PR: prevalence ratio.

Table 2 – Clinical, anthropometric and biochemical variables in relation to the prevalence of metabolic syndrome (MS) in the elderly. Brasília, 2022. (n=344)

Exposure Variables	n (%)	Prevalence of MS	Gross PR (IC95%)	p-value*
Time of SAH				
≤ 10 years	219 (63,7)	58,0	1	**0,033**
> 10 years	125 (36,3)	68,6	1,38 (1,01-1,87)	
DM Time				
≤ 10 years	251 (73,0)	58,6	1	**0,022**
> 10 years	93 (27,0)	72,0	1,48 (1,03-2,12)	
BMI				

Table 2 – Cont.

< 27 kg/m²	111 (32,3)	47,7	1	**<0,001**
≥ 27 kg/m²	233 (67,7)	69,1	1,69 (1,30-2,19)	
PGC				
♂< 38%; ♀ < 25%	53 (15,4)	49,1	1	**0,032**
♂≥ 38%; ♀ ≥ 25%	291 (84,6)	64,6	1,43 (1,05-1,95)	
Waist				
♂ ≤ 102 cm; ♀ ≤ 88 cm	113 (32,8)	44,2	1	**<0,001**
♂ >102 cm; ♀ >88 cm	231 (67,2)	71,0	1,92 (1,48-2,49)	
Triglycerides				
< 150 mg/dl	195 (56,7)	42,1	1	**<0,001**
≥ 150 mg/dl	149 (43,3)	88,6	5,07 (3,19-8,07)	
Total Cholesterol				
< 190 mg/dl	149 (43,3)	57,7	1	0,133
≥ 190 mg/dl	195 (56,7)	65,6	1,23 (0,94-1,61)	
HDL				
♂ ≥ 40 mg/dl; ♀ ≥ 50 mg/dl	213 (61,9)	53,1	1	**<0,001**
♂ <40 mg/dl; ♀ <50 mg/dl	131 (38,1)	77,1	2,05 (1,45-2,89)	
LDL				
< 130 mg/dl	228 (66,3)	58,8	1	0,065
≥ 130 mg/dl	116 (33,7)	69,0	1,32 (0,97-1,81)	
Blood glucose				
< 100 mg/dl	123 (35,8)	47,2	1	**<0,001**
≥ 100 mg/dl	221 (64,2)	70,6	1,79 (1,38-2,33)	
HbA1c				
< 6,5%	196 (57,0)	51,5	1	**<0,001**
≥ 6,5%	148 (43,0)	76,4	2,05 (1,48-2,83)	

*Pearson's x²; ♂: male sex; ♀: female sex. PR: prevalence ratio.

Table 3 – Adjusted prevalence ratio in relation to the outcome metabolic syndrome (MS) in the elderly. Brasília, 2022. (n=344)

Exposure Variables	Adjusted PR (CI 95%)	p* value
Sedentary lifestyle		
Yes	1,05 (0,91-1,23)	0,454
No	1	
DM2		
Yes	1,15 (0,91 – 1,45)	0,231
No	1	
HAS		
Yes	1,31 (1,02 – 1,67)	**0,030**
No	1	
Time of SAH		
≤ 10 years	1	0,715
> 10 years	1,03 (0,87 – 1,21)	
DM2 time		
≤ 10 years	1	0,267
> 10 years	1,10 (0,92 – 1,46)	
BMI		
< 27 kg/m²	1	0,117
≥ 27 kg/m²	1,18 (0,95 – 1,46)	
PGC		
♂< 38%; ♀ < 25%	1	0,919

Table 3 – Cont.

♂≥ 38%; ♀ ≥ 25%	0,98 (0,74 – 1,30)	
WC		
♂ ≤ 102 cm; ♀ ≤ 88 cm	1	<0,001
♂ >102 cm; ♀ >88 cm	1,46 (1,21 – 1,76)	
Triglycerides		
< 150 mg/dl	1	<0,001
≥ 150 mg/dl	1,98 (1,67 – 2,34)	
Total Cholesterol		
< 190 mg/dl	1	0,192
≥ 190 mg/dl	0,88 (0,73 – 1,06)	
HDL		
♂ ≥ 40 mg/dl; ♀ ≥ 50 mg/dl	1	**0,018**
♂ <40 mg/dl; ♀ <50 mg/dl	1,19 (1,03 – 1,37)	
LDL		
< 130 mg/dl	1	0,071
≥ 130 mg/dl	1,17 (0,98 – 1,50)	
Glicemia		
< 100 mg/dl	1	0,093
≥ 100 mg/dl	1,20 (0,96 – 1,50)	
HBA1c		
< 6,5%	1,17 (0,98 – 1,40)	0,079
≥ 6,5%		

*Poisson regression: final model fitted by variables with p≤0.20 in the crude analysis. ♂: male sex; ♀: female sex. PR: prevalence ratio.

proportionally with advancing age, as pointed out by a study conducted in the southern region of Brazil, with individuals aged between 18 and 65 years, which showed a prevalence of MS of 24.3%; however, in the elderly, this value ranged from 47.2% in men and 64.4% in women.[18] The high prevalence of MS in the present study can be explained by the fact that the sample was composed of women, assisted in the PHC, a place for monitoring chronic diseases, where a high frequency of diabetics and hypertensive patients is observed. Moreover, abdominal obesity, hypertension, dyslipidemias and changes in blood glucose levels, the main components of MS, tend to be more prevalent in the elderly.

In this study, MS was more prevalent in the elderly with more than 10 years of diagnosis of SAH and DM2, corroborating the findings in the literature. Other studies showed a higher prevalence of MS in the elderly with SAH and DM2.[8, 11] In PHC, a prevalence of 60.5% of MS was found, more frequent in those with SAH and high blood glucose levels.[5] Individuals with MS are five times more likely to develop DM2, which reinforces the need for changes in lifestyle habits, especially the practice of physical activity, considered the first choice for the treatment of MS, since it helps to reduce WC and consequently reduces the risk factors for DM2. [19] In this sense, a population-based cohort study conducted in South Korea followed 10,806,716 individuals for 4 years and concluded that the risk of DM2 significantly reduced with the decrease in the number of components of MS, regardless of the type of component of MS, thus suggesting new strategies to prevent DM2.[20]

The onset of these dysregulations is associated with the lifestyle of the elderly, since being overweight and sedentary are directly associated with the development of DM2. Moreover, these conditions promote an increase in WC and the risk of obesity, which are conditioning factors for MS. Furthermore, it is known that the presence of SAH, DM2 and MS significantly increase cardiovascular risk (CVR). A study in the Federal District showed that elderly with MS were 7.19 times more likely to have high CVR.[21]

In the present study, regression analysis showed that the presence of SAH, increased WC, hypertriglyceridemia and decreased HDL remained associated with the higher prevalence of MS. Regarding the components of MS, the variable elevated triglyceride showed higher PR. It is known that the unbalance in the inflammatory picture of the elderly can alter lipid metabolism, BP and insulin sensitivity, factors that predispose to MS. Although the pathophysiology of MS is not conclusive, there is evidence that insulin resistance causes hyperglycemia and peripheral vasoconstriction, which contributes to sodium retention. In addition, there is an increase in the production of triglycerides, cholesterol and LDL, predisposing to the onset of SAH and dyslipidemia.[6]

As regards dyslipidemia, decreased HDL has also been associated with a higher prevalence of MS in the elderly.[20,22] A study carried out with elderly individuals in Piauí identified a 46.3% prevalence of MS, and HDL was decreased in 47.3% of the elderly, significantly lower in women and obese individuals.[11] In Spain, it

was observed that elderly individuals with elevated triglycerides and reduced HDL had a high risk of developing MS.[23]

A study evaluating a sample of patients with DM2, with a predominant age group of 60 years or older, found a prevalence of 82.2% of dyslipidemia, significantly associated with female gender, sedentary lifestyle and smoking. Moreover, 57.8% of the participants had elevated triglycerides, a lipid abnormality more commonly observed in individuals with DM2.[4] Triglyceride plasma levels are higher in the elderly than in younger individuals, which may be attributed to the delay in postprandial triglyceride metabolism. Therefore, it is observed that aging is associated with increased triglycerides and visceral fat, which together increase the risk of MS.[24] From this perspective, a study found a prevalence of 27.1% of hypertriglyceridemic waistlines in the elderly in Bahia, associated with female gender, sedentary lifestyle and overweight.[25]

Obesity plays an important role in the development of MS, since it contributes to the inflammatory cascade, increases insulin resistance and the effects of adipokines.[6,26] In Brazil, a fourfold increase in the prevalence of MS in overweight elderly people has been evidenced, since the disorders caused by the increase in visceral adiposity and the presence of free fatty acids alone, with the presence of a constant inflammatory condition, are enough to lead to all the factors that make up MS.[27]

Given the findings, it is observed that the variables that increased the prevalence of MS in this study are often related to behavioral factors. In PHC, nurses can actively work in the identification of these components, providing guidance to improve lifestyle habits that will beneficially reflect on the metabolic parameters of the elderly. The insertion of MS assessment in the PHC context is a phenomenon that deserves special attention from nurses in the management of this condition, considering that these patients present clinical findings that are strong predictors of health problems. The adoption of simple and easy-to-use methods, such as the measurement of anthropometric measurements, besides the interpretation of laboratory tests, are tools that professionals should use to promote the quality of life of the elderly. Moreover, nurses must know the diagnostic criteria and components of MS, as well as the diseases that increase the chance of onset of MS.[28]

The results of this study point to the importance of the nurse's intervention in the modifiable factors of the elderly, such as adopting a healthy lifestyle, good nutrition and regular physical exercise, which can precede favorable results in the control of MS, eating patterns that prioritize fruits, vegetables and low-fat foods, as they have a protective effect in diseases with a chronic inflammation pattern, thus being benefits in reducing lipid levels.[2]

The nurse is inserted in the process of identifying the need for monitoring the individual with MS and has the role of promoting, encouraging, and talking about health education aimed at changing lifestyle. In this context, nursing consultations and home visits stand out as essential in PHC for the health care of people with NCDs, which require special strategies because they put the individual at risk of health.[28]

Finally, a limitation of the study was the cross-sectional design, which does not allow establishing cause and effect relationships. It should also be considered that the variable sedentarism was self-reported, thus not allowing an evaluation of the level of physical activity. It is recommended that future studies use validated scales to measure the level of physical activity of the elderly. Despite the limitations pointed out, we believe that the results contribute to the discussion and generation of knowledge on the theme.

CONCLUSION

In this study, a high prevalence of MS was found among elderly users of PHC, with SAH, increased WC, hypertriglyceridemia and decreased HDL showing a higher prevalence ratio of MS. These findings suggest the need for prevention strategies for MS in PHC and reveal the importance of early identification and control of risk factors for MS, a public health problem, since prevention and control strategies can improve the metabolic profile of the elderly.

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