BMI, HYPERTENSION, AND DIABETES: A HEALTH PANORAMA IN GOIÁS

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ABSTRACT

Obesity is a chronic metabolic disease, measured by BMI, which has been increasing worldwide and is associated with chronic diseases such as diabetes mellitus and hypertension. Nutritional transition and a sedentary lifestyle are key factors in the etiology of obesity, glycemic dysregulation, and hypertension. The objective of this study is to analyze the nutritional profile of hypertension and diabetes among adults in the state of Goiás in 2019. The methodology used 2019 data from SISVAN and PNS for statistical analysis, which included the calculation of the weighted average BMI and Pearson's correlation coefficient to assess the relationship between BMI and comorbidities, characterizing the study as an analytical retrospective observational one. The analysis demonstrated a high prevalence of obesity in adults in Goiás, with eutrophic (35.19%), overweight (33.47%), and obese (28.59%) individuals. A strong correlation was found between BMI and hypertension (0.92 for males and 0.99 for females) and diabetes (1.0 for males and 0.99 for females), indicating a robust linear relationship. A strong association was found between obesity and an increased prevalence of hypertension and diabetes in adults in Goiás.

Keywords: Non-communicable diseases; Diabetes; Hypertension.

INTRODUCTION

Obesity is a chronic disease characterized by excess body fat, evaluated by body mass index (BMI). Identified by a BMI equal to or greater than 30 kg/m², obesity is directly related to chronic diseases such as type 2 diabetes mellitus (T2DM) and hypertension (HTN). Nutritional transition and a sedentary lifestyle are the main etiological factors of obesity, especially in developing countries such as Brazil.

The literature emphasizes that visceral obesity is one of the most serious risk factors for cardiovascular diseases and disorders in glucose-insulin homeostasis. The association between hypertension and obesity is well documented and can lead to cardiovascular and renal complications. Obesity is an independent risk factor for hypertension, prevalent among overweight individuals. [2,3]

This study aims to analyze the nutritional profile of hypertension and diabetes in adults in the state of Goiás in 2019, providing relevant data for public health policies.

MATERIALS AND METHODS

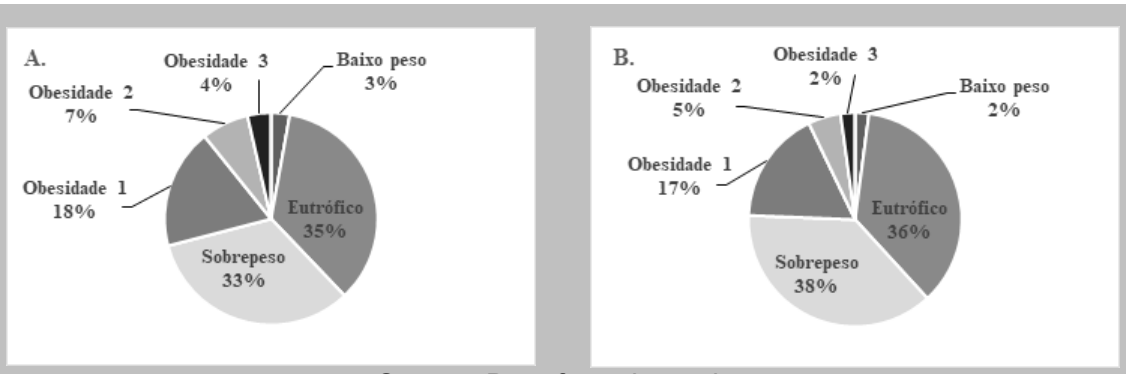
This retrospective observational study analyzed 2019 data on the nutritional profile and prevalence of hypertension in the population of Goiás, using information from the Food and Nutrition Surveillance System (SISVAN) and the National Health Survey (PNS), both conducted by IBGE. The data were analyzed using Microsoft Excel 2016 and included nutritional profiles classified by BMI (eutrophic, overweight, and obese) and the prevalence of hypertension and diabetes, segregated by sex. Pearson's correlation coefficients were calculated and linear regression was performed to assess the relationships between BMI and these conditions. Ethical considerations were considered and followed, but the study presents limitations such as data quality and the temporal restriction to 2019, which may affect the generalization of the results.

RESULTS

The 2019 epidemiological data reveal the nutritional profile and prevalence of hypertension in the adult population of Goiás. The sample included 295,210 individuals, of which 30,780 were men and 264,430 were women. Nutritional distribution was analyzed according to BMI, divided into eutrophic, overweight, and obese. In total, 35.19% were eutrophic, 33.47% were overweight, and 28.59% were obese, with a small percentage classified as underweight.

For males, the distribution was similar, with 36.09% eutrophic, 37.46% overweight, and 24.37% obese. Among women, 35.08% were eutrophic, 33% were overweight, and 29.09% were obese. These data suggest a high prevalence of overweight and obesity in both sexes, highlighting the need for nutritional and public health interventions (**Image 1)**.

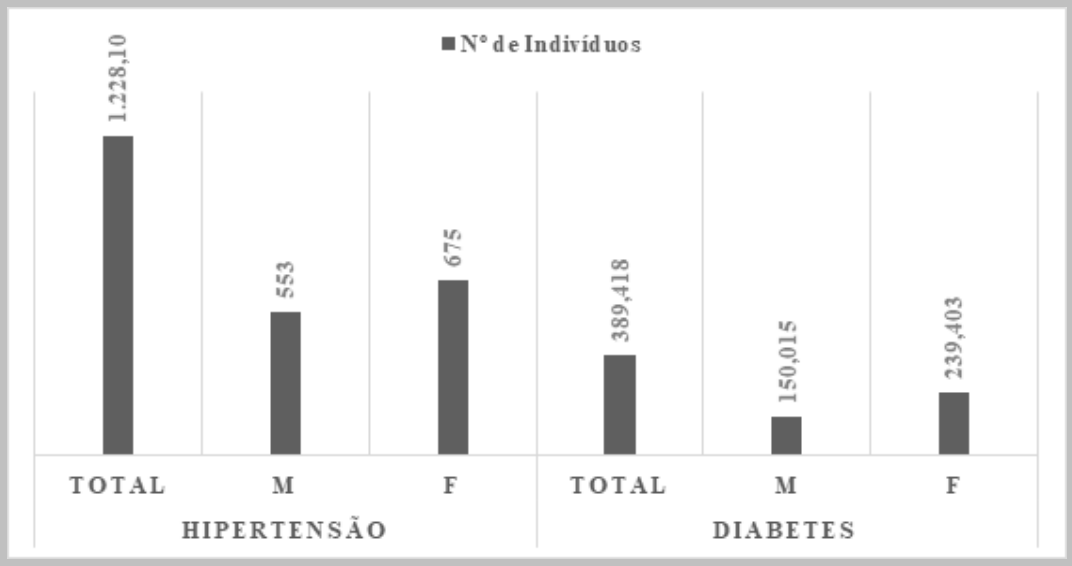
Image 1. Percentage distribution of nutritional status in females (A) and males (B).



Source: Data from the author.

The analysis of hypertension and diabetes cases shows that Goiás had 1,228,110 cases of hypertension, with 45.03% among men and 54.96% among women. For diabetes, there were 389,418 cases, with 38.52% in men and 61.48% in women (**Image 2)**.

Image 2. Cases of hypertension and diabetes in males and females in Goiás in 2019.

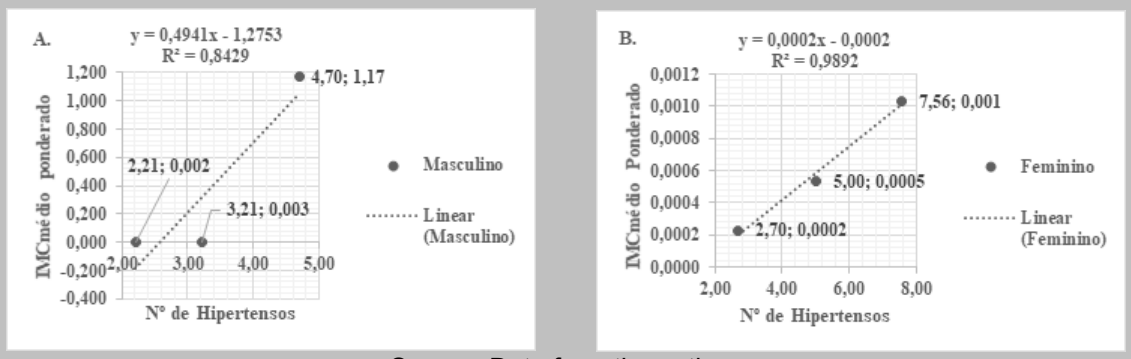


Source: Data from the author.

Abbreviations: F – Female; M – Male.

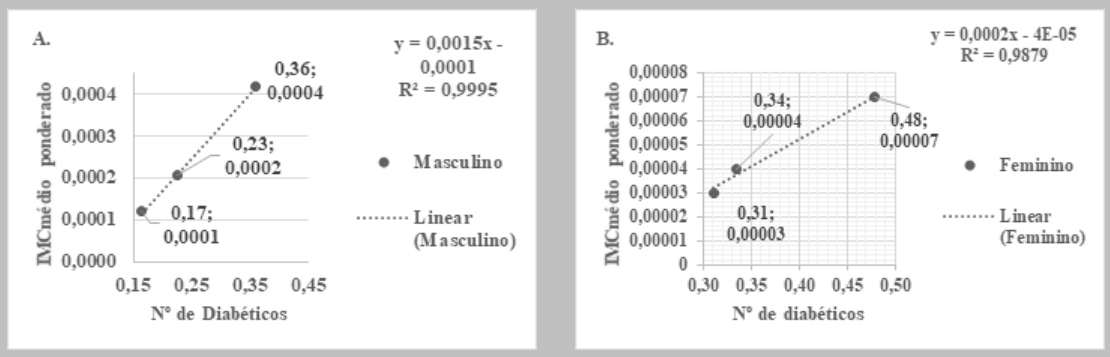
The Pearson correlation between BMI and the prevalence of hypertension and diabetes indicates a strong positive relationship. In males, the correlation coefficient was 0.92 for hypertension and 1.00 for diabetes, while in females, these values were 0.99 and 0.99, respectively. These results reinforce the importance of nutritional status as a determining factor for these conditions (**Images 3 and 4)**.

Image 3. Pearson's correlation – Weighted average BMI vs. number of hypertensive males (A) and females (B).



Source: Data from the author.

Image 4. Pearson's correlation – Weighted average BMI vs. number of diabetic males (A) and females (B).



Source: Data from the author.

CONCLUSION

The study reveals a strong correlation between body mass index (BMI) and the prevalence of hypertension and diabetes in Goiás in 2019. The increase in BMI is directly associated with the rise of these conditions, underscoring the importance of nutritional status in public health. With high correlation and determination coefficients, the study highlights the need for interventions to reduce BMI, such as dietary changes and regular physical activity. This reinforces the need for public policies that encourage healthy habits to prevent and control obesity and its comorbidities.

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