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EPIDEMIOLOGICAL PROFILE AND TEMPORAL INCIDENCE OF NUTRITIONAL STATUS OF ADULTS IN THE STATE OF ESPÍRITO SANTO, FROM 2008 TO 2023

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ABSTRACT

Nutritional status is influenced by several factors, such as lifestyle, diet, physical activity, genetic, metabolic and pathological conditions, as well as socioeconomic factors. In Brazil, there is a paradoxical scenario where malnutrition and obesity coexist, evidencing the complexity of the nutritional situation in the country. Specifically in Espírito Santo (ES), there is a significant gap in the literature on the nutritional status of the population, which highlights the importance of further investigations in the region. Therefore, the objective of this article was to evaluate the epidemiological profile and temporal incidence of the nutritional status of adults in ES between 2008 and 2023. For this, a descriptive study was carried out using data from the Food and Nutrition Surveillance System, analyzing time series using the Joinpoint Regression Program®. The analysis revealed a predominance of women (90.4%) in the sample. In terms of color/race, browns represented the largest share (34.9%). There was a downward trend in the prevalence of underweight and normal weight, while overweight and obesity (grades 1, 2 and 3) increased. In view of the above, the findings indicate a worrying decrease in the number of eutrophic and underweight individuals, with an increase in overweight and obesity, reinforcing the need for public policies to promote healthy habits in Espírito Santo.

Keywords: Nutritional profile, Epidemiology, Eutrophs, Obesity, Overweight.

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INTRODUCTION

The nutritional status of each individual in a population goes through different stages and processes of change throughout life, reflecting an interaction between environmental, behavioral, metabolic, and genetic factors (Braga; Molina; CADE, 2007; Boeing, 2018)element. From the 70's, Brazil went through political, economic and social changes. Technological and industrial advances have driven most of the population, who previously lived in the countryside and used their plantations as a source of food and income, to move to the urban environment (Souza *et al.*, 2017)element. The rural exodus occurred quickly and without much preparation (Reichenheim; Harpham, 1990). The small farmer, with less financial capacity, began to occupy marginalized regions within the cities, living in precarious situations and often with food scarcity (Lignani *et al.*, 2020; Reichenheim; Harpham, 1990). At the same time, ultra-processed and high-calorie food options began to be marketed (Louzada *et al.*, 2015; Anastácio *et al.*, 2020)element. Over time, there was a moment of nutritional transition that resulted in a scenario in which people in a state of malnutrition coexisted and, paradoxically, people with obesity. This phenomenon, known as the "double burden", highlights the need to understand the dynamics underlying food and nutrition in contexts of rapid urbanization and changes in food consumption patterns (Aires *et al.*, 2009; Wells *et al.*, 2020)element.

Incorrect nutrient intake affects not only Brazil, but also the rest of the world (Aprelini *et al.*, 2021)element. Obesogenic environments show great propagation, while there was no decrease in the numbers related to malnutrition (Wells *et al.*, 2020)element. This fact is relevant since most of the malnutrition is related to countries with lower income and social insecurity, and obesity to developed countries, with larger economies and sedentary habits (Doak *et al.*, 2004; Silveira *et al.*, 2023)element. To combat this, the Organic Health Law No. 8,080 of 1990 stipulated a project to contain the advance of inadequate forms of nutrition, aiming at nutritional guidance, in order to ensure healthier and more sustainable diets for the population (Jaime *et al.*, 2018)element. This measure proved to be crucial, considering that about 1 in 3 individuals had irregular nutritional states (Lopes *et al.*, 2019)element. Based on this, the Brazilian government, together with the Ministry of Health (MS), adopted preventive measures to monitor the nutritional development of each citizen more closely and cautiously (Machado *et al.*, 2021; Camilo *et al.*, 2011)element.

Through the expansion of popular access provided by primary health care (PHC), the national food and nutrition policy implemented the food and nutrition surveillance system

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(SISVAN) (Camilo *et al.*, 2011; Rose; Molz; Pereira, 2014; Recine; Vasconcellos, 2011). Thus, data are collected during regular daily PHC activities, calculated through the body mass index (BMI), recorded according to its classification table and deposited on its online platform, SISVAN web (Pinheiro; French; Corso, 2004; Recine; Vasconcellos, 2011; Coutinho *et al.*, 2009)element. From SISVAN monitoring and data collection, it made it possible to access fundamental information for the process of nutritional assessment and mapping of regions (Nascimento; Silva; Jaime, 2017). In this way, the mapping makes it possible to identify places that are in a state of nutritional fragility, allowing the development of strategic plans that meet each population group, according to demand (Campos *et al.*, 2006; Mrejen; Cross; Rosa, 2023).

In addition, even with numerous benefits realized from the data collected, SISVAN goes through a series of adversities. Despite the implementation of social programs such as Bolsa Família, which require updating and collecting data as a condition for granting benefits, the total coverage of data remains significantly low (Silva *et al.*, 2022)element. This phenomenon is attributed to a number of factors, including precarious care services, difficulties in collecting and digitizing information, and the absence of integrated information systems, among others, which together culminate in a historical and well-known problem in the SUS: underreporting (Costa, 2012). In view of this, there is a need for greater incentive, stimuli and attention in the collection of information, considering that these data are the basis of health promotion programs and actions, which foster the development and progress of a healthier and longer-lived society (Aziz *et al.*, 2017; Martinez, 2013).

Therefore, considering the relevance of epidemiological mapping to improve society's quality of life and the scarcity of studies covering nutritional epidemiology in Espírito Santo, this study aimed to evaluate the epidemiological profile and temporal incidence of nutritional status of adults in Espírito Santo, from 2008 to 2023.

METHODOLOGY

This research was a descriptive study of notifications of the nutritional status of adult individuals in the southern, metropolitan and north-central health regions of the state of Espírito Santo, between 2008 and 2023. Notifications were obtained from the Food and Nutrition Surveillance System (SISVAN), and collected from its online platform, SISVAN WEB, a provider of nutritional epidemiological data. The epidemiological profile of the

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nutritional status of adult individuals was characterized according to the following variables: Stage of life (adult), distribution by sex (female and male); color/race (white, black, yellow, brown, and indigenous); regional health (South, Metropolitan, and North Center) and year of data collection (from 2008 to 2023). Nutritional status was assessed as: underweight, adequate/eutrophic, overweight, grade 1 obesity, grade 2 obesity and grade 3 obesity. The form of registration of SISVAN coverage was determined by the number of records of each variable (nutritional status, sex, color/race, stage of life, regional health and year of collection) obtained from the SISVAN Web site (numerator). This value was then divided by the total number of people who participated in the SISVAN data collection (denominator) and, based on this, the results of this division were multiplied by 100 to obtain the form of recording the system's coverage in percentage values (%).

As the study was carried out exclusively with secondary data obtained from a publicly accessible database, without identifying the individuals, it was not necessary, therefore, to submit this research project to the Research Ethics Committee.

The statistical analysis of the temporal incidence of nutritional status of adult individuals, in the period from 2008 to 2023, was performed using the *Joinpoint Regression Program*® (version 4.9.1.0). Thus, the annual incidence rates were evaluated through regression analysis by inflection point analysis, which uses the Student's t-test to compare the annual percentages of change (APCs).

RESULTS AND DISCUSSION

The analysis of temporal trends in the nutritional status of adults in Espírito Santo, from 2008 to 2023, was also carried out and reveals significant changes (Figure 1). In Figure 1A, a steady percentage decline in underweight individuals was observed from 2008 to 2023. Similarly, Figure 1B reveals an even more pronounced reduction in the values corresponding to the population with adequate weight/eutrophic during the same period. The overweight category (Figure 1C) showed a large peak increase between 2008 and 2011 and remained high, but with a lower percentage of increase until 2023. Similarly, the percentage of individuals with grade 1 obesity (Figure 1D) showed a peak increase in the period from 2008 to 2013, and the trend was a steady increase from 2013 to 2023. The categories of obesity grade 2 (Figure 1E) and obesity grade 3 (Figure 1F) showed a trend of constant and gradual increase in their results over the years, with Figure 1F obtaining more expressive values.

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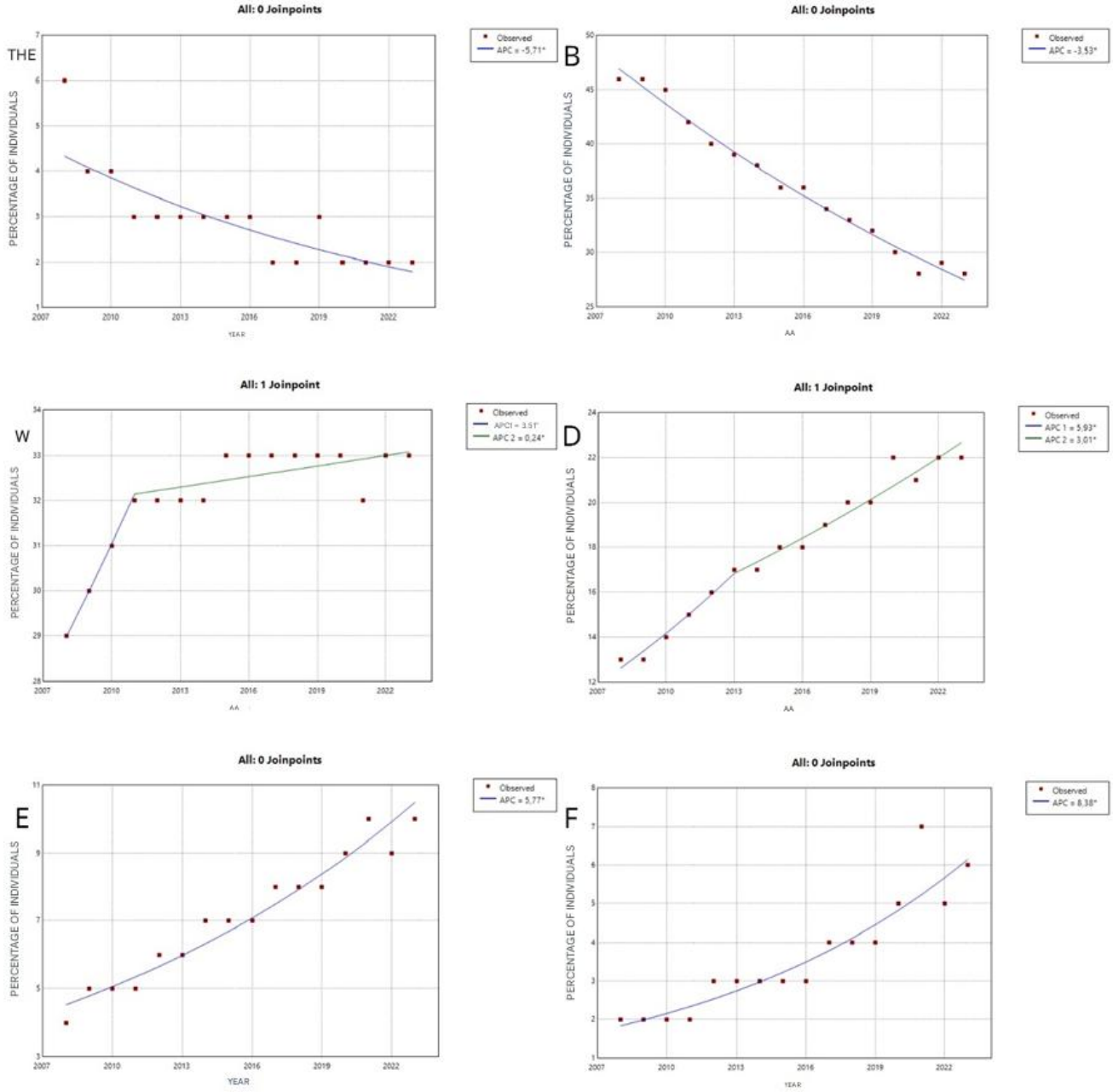
Figure 1: Temporal analysis of the prevalence of nutritional status of adults in Espírito Santo, in the categories of underweight (A), adequate/eutrophic (B), overweight (C), obesity grade 1 (D), obesity grade 2 (E) and obesity grade 3 (F), from 2008 to 2023. The data are expressed as a percentage (%). *Indicates that the annual percentage change (APC) is significantly non-zero at the alpha level = 0.05.



Source: DATASUS, 2024.

The literature has documented an upward trend in the prevalence of obesity in grades 1, 2 and 3 in Brazil over the years (Pinheiro; French; Corso, 2004). Similarly, Wang; Beydoun (2007) showed that between the 1960s and 2004, the prevalence of obesity in the United States increased from 13% to 32%. This growth continued, and by 2007, the rate had more than doubled, reaching 66% of the American population. The present study also showed a marked increase in the rate of overweight and obese adult individuals, as well as

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a reduction in the rate of adult individuals with adequate/eutrophic weight, in the state of Espírito Santo. In view of this, there is a need to combat excess weight, considering that in developed countries such as the United States, obesity is already the second leading cause of preventable diseases and deaths (Wang; Beydoun, 2007). This pattern of reduction in the number of individuals with eutrophic body weight, together with a sharp increase in the number of overweight and obese people, was also observed in the macro-regions of Brazil, as reported by Silva et al. (2022). These data reinforce the continuity of the trends observed in previous studies, reflecting a consistent pattern of growth in the prevalence of obesity. In view of this worrying scenario, multifactorial reasons are observed, which result in changes in the nutritional and dietary pattern of the population (Aprelini *et al.*, 2021)element. According to Ranjani *et al.* (2016), one of these changes in the nutritional profile is based on socioeconomic development, which is a direct driver of the trend of increasing overweight individuals. Aprelini *et al.* (2021) state that a determining factor for the growing number of obese individuals is the absence of physical activity, in addition to the excessive consumption of ultra-processed foods (Louzada *et al.*, 2015) and the influence of social determinants, such as schooling, housing, and sanitation, as pointed out (Barbosa et al. 2023). Our findings corroborate these observations, showing that racial minorities, including the indigenous, yellow and black population, have a higher prevalence of overweight compared to the eutrophic state. This difference highlights the inequality in the nutritional profile, reflecting the influence of socioeconomic and cultural factors on the distribution of nutritional status among different racial groups (Aprelini *et al.*, 2021)element.

In addition, the analyses referring to underweight also deserve to be highlighted. Historically, underweight has been widely associated with unfavorable socioeconomic conditions, in which, the worse the financial condition of a given region, the greater the probability of the prevalence of underweight individuals (Barbosa et al. 2023). Despite this, the prevalence data of this study indicate a decrease in the number of underweight individuals in Espírito Santo. This can be explained by the high levels of socioeconomic development presented in the South and Southeast regions of Brazil, including the state of Espírito Santo. These regions provide better opportunities and conditions for schooling, housing, and services, factors that directly interfere with the availability, access, and consumption of the best foods, influencing food preferences and nutritional behavior throughout the life of each individual (Pereira; Spyrides; Andrade, 2016).

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When relating color/race with the nutritional status of the individuals (Table 1) whose data were collected by the SISVAN of Espírito Santo, the following distribution was observed: 34.9% are brown, 26.6% are white, 21.2% had no information on color/race collected, 11.7% are yellow, 8.5% are black, and 0.2% are indigenous. In addition, when segregated according to nutritional status, 25,306 individuals were underweight, 297,277 were normal weight, 268,830 were overweight, 154,611 were obese grade 1, 63,635 were obese grade 2 and 33,773 were obese grade 3. Furthermore, the division of white individuals by nutritional status includes 15,329 underweight individuals, 208,707 eutrophic individuals, 186,740 overweight individuals, 100,572 with grade 1 obesity, 38,864 with grade 2 obesity and 19,788 with grade 3 obesity. In addition, 6,622 people were underweight, 90,970 were eutrophic, 91,496 were overweight, 56,492 were obese grade 1, 24,052 were obese grade 2 and 13,064 individuals were obese grade 3 were yellow. Black was segregated according to nutritional status into: 5,268 underweight adults, 64,460 eutrophic adults, 65,190 overweight adults, 41,433 adults with grade 1 obesity, 18,308 with grade 2 obesity and 1,780 with grade 3 obesity. Finally, the indigenous people totaled 122 underweight adults, 1,349 eutrophic, 1,455 overweight, 1,003 with grade 1 obesity, 392 with grade 2 obesity and 189 individuals with grade 3 obesity. In addition, 513,415 individuals did not have data related to color/race collected, which makes it impossible to segregate these individuals according to nutritional status.

Table 1: Distribution of color/race (white, black, yellow, brown, indigenous, and without information) according to criteria for assessing nutritional status (underweight, adequate/eutrophic, overweight, grade 1 obesity, grade 2 obesity, and grade 3 obesity), in Espírito Santo, from 2008 to 2023.

Criteria	Color/Race	Brown	White	No information	Yellow	Black	Indigenous	Total
Low weight	**N**	25.306	15.329	14.526	6.622	5.268	122	67.173
	%	3,0%	2,7%	2,8%	2,3%	2,6%	2,7%	2,8%
Adequate/ Eutrophic	**N**	297.277	208.707	183.993	90.970	64.460	1.349	846.756
	%	35,2%	36,6%	35,8%	32,2%	31,4%	29,9%	35,0%
Overweight	**N**	268.830	186.740	165.884	91.496	65.190	1.455	779.595
	%	31,9%	32,8%	32,3%	32,4%	31,7%	32,3%	32,2%
Grade 1 obesity	**N**	154.611	100.572	93.369	56.492	41.443	1.003	447.490
	%	18,3%	17,6%	18,2%	20,0%	20,2%	22,2%	18,5%
Obesity grade 2	**N**	63.635	38.864	37.110	24.052	18.308	392	182.361
	%	7,5%	6,8%	7,2%	8,5%	8,9%	8,7%	7,5%
Obesity grade 3	**N**	33.773	19.788	18.533	13.064	10.780	189	96.127
	%	4,0%	3,5%	3,6%	4,6%	5,2%	4,2%	4,0%
Total	**N**	843.432	570.000	513.415	282.696	205.449	4.510	2.419.502
	%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: DATASUS, 2024.

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In this sense, relating the influence of socioeconomic factors on the distribution of color and race by nutritional status, this study showed that the prevalence of underweight is higher in the brown population. In addition, this study also showed that individuals of brown color occupy the first positions in the classification of highest obesogenic levels, such as the categories of obesity grade 2 and obesity grade 3. Silveira *et al.* (2023) address the issue of the impact of racial oppressions, specifically structural racism, on the nutritional health of racialized populations. The study reveals that such forms of oppression place individuals with non-white skin on the margins of society, resulting in limited access to adequate food resources. This context of social and economic exclusion contributes significantly to the exposure of these individuals to a diet of low nutritional value. This inadequate eating pattern, in turn, is associated with both the development of underweight conditions and obesity. In addition, Gripper *et al.* (2022) report that peripheral environments and those with lower financial conditions tend to have a higher concentration of *fast food*, in addition to easy access to unhealthy foods, a situation that corroborates the results found in the present study.

This evidence also clarifies why individuals of white race/color predominate in the nutritional classification of normal health, as indicated in the present study. This is due to the fact that, in general, this racial group has better socioeconomic conditions compared to other racial categories, an advantage that allows better housing conditions, far from environments that provide social and, consequently, food vulnerabilities (Lopes, 2005).

In addition, the present study pointed out that the brown population was the one that presented the most data collected among all the other races. This can be explained as a result of a historical factor, related to the time of colonization and its antecedents related to slaves and quilombolas (Santos *et al.* 2019)element.

In addition, another highlight in this study was the low amount of data collected from indigenous individuals, when compared to other races. Silveira *et al.* (2023) suggest that this deficiency may result from errors in data collection and registration, or from underreporting of data. In addition, geographic isolation is another factor that directly impacts data collection among indigenous populations. Access to these communities is often limited, often relying on small planes and helicopters, followed by long hours of walking. When arriving at the villages, the absence of adequate infrastructure to accommodate the health teams that will collect data is a recurring difficulty, as observed by Pantoja *et al.* (2014) in his study on the Yanomami indigenous population. The lack of

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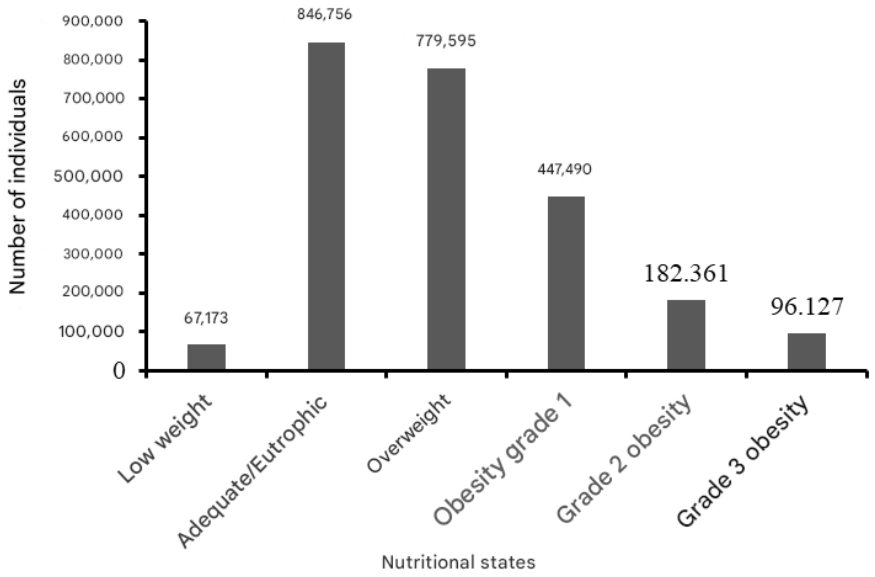
adequate information on the epidemiological profile of the nutritional status of minorities, such as indigenous peoples, hinders the development and implementation of programs and projects aimed at promoting and ensuring adequate nutritional conditions for indigenous peoples (Leite et al. 2006).

The data related to the segregation of the population by nutritional status was represented in Figure 2A. Among the individuals who had their data collected (2,419,502 individuals), 67,173 were underweight, while 846,756 were of adequate weight. In contrast, 779,595 individuals were classified as overweight. Among those identified as obese, 447,490 were classified as grade 1 obesity, 182,361 as grade 2 obesity, and 96,127 as grade 3 obesity. In addition, the distribution of nutritional status by sex (female and male) was also analyzed (Figure 2B). The percentage of females classified as underweight is 2.8%, while 2.1% are male; adequate/eutrophic is distributed in 35.8% of females, while 34.8% is male. On the other hand, in the overweight criterion, the percentage of males is higher, with 36.1%, while for females it is 31.8%. In addition, among adults with grade 1 obesity, 18.5% are female and 18.1% are male, grade 2 obesity, 7.7% are female and 5.8% are male; obesity grade 3, 4.1% are female and 3.2% are male.

Figure 2: Segregation of the population by nutritional status and its distribution by sex. Distribution of adults (A) and percentage of the distribution of adults between females and males (B) in nutritional states of underweight, adequate/eutrophic, overweight, grade 1 obesity, grade 2 obesity and grade 3 obesity in the state of Espírito Santo, from 2008 to 2023.
A



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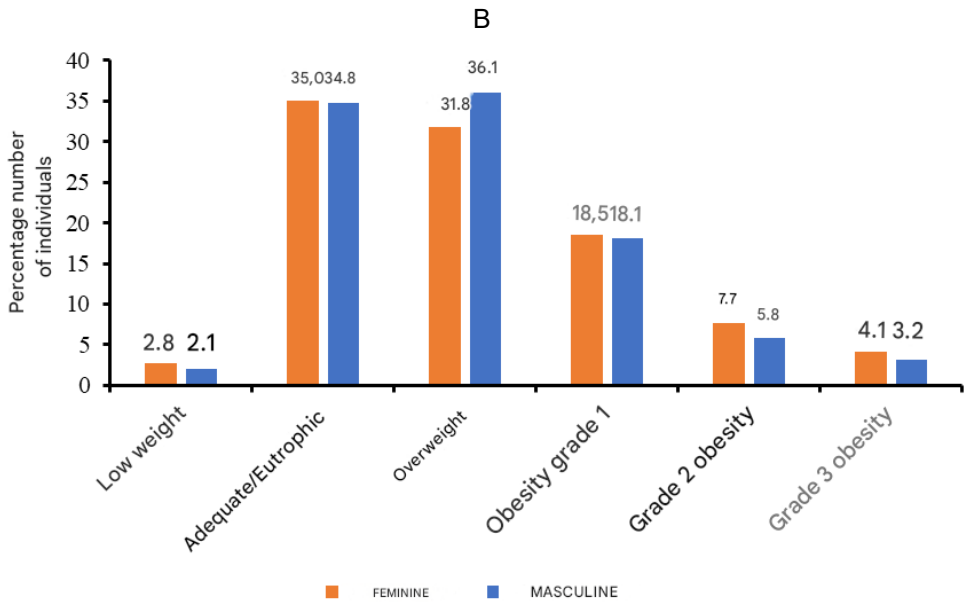

Source: DATASUS, 2024.

Regarding the distribution of the population by nutritional status, literary history has documented that eutrophic individuals predominate among those whose data were collected, as evidenced by Rosa; Molz; Pereira (2014) and Aires *et al.* (2009). Likewise, the present study also shows eutrophic nutritional status as the most prevalent. However, when comparing the overweight results obtained in this study with those of other studies, significant discrepancies are observed. The data from this study indicate considerably higher levels of overweight than those reported in other investigations, which showed more moderate levels of overweight, as indicated by Braga; Molina; CADE (2007).

In addition, the underweight values found in this study place it as the lowest prevalence of nutritional status among all the categories evaluated here. According to Campos *et al.* (2006), these results are compatible with other studies that portray the theme, which judge the prevalence of underweight as considerably low, when compared to other nutritional statuses.

The present study showed a declining trend in the number of eutrophic individuals and an increase in overweight individuals, as also pointed out by Silva *et al.* (2022)element. These results suggest that, over the years, the prevalence of overweight may surpass that of normal weight, potentially leading to a scenario where overweight individuals become the majority in prevalence analyses.

The data on the epidemiological profile of adult individuals living in Espírito Santo and registered in SISVAN are described in Table 2. Among the 2,419,502 adults who had

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their data collected by SISVAN, the majority are female, totaling 2,187,590 individuals (90.41%), while only 231,912 (9.59%) are male. Regarding color/race, 843,432 (34.86%) adults are brown, segregated into 32.75% of women and 2.11% of men; 570,000 (23.56%) individuals are white, 20.58% of whom are female and only 2.98% are male; 282,696 (11.68%) were yellow, with 9.79% representing females and 1.90% males; 205,449 (8.49%) adults of black color/race, 7.76% female and 0.73% male; 4,510 (0.19%) indigenous, composed of 0.18% females and 0.01% males. In addition, 513,415 (21.22%) individuals did not obtain their information related to color/race collected, of which 19.36% were women and 1.86% were men (Table 2). It was also observed that the sum of brown and white individuals represent more than half of the notifications (58.42%), while indigenous peoples are present in only 0.19% of the total population evaluated.

In addition, the distribution in regional regions of the state of Espírito Santo was also analyzed. In this case, the metropolitan region has 1,158,425 (47.88%) adult individuals registered in SISVAN, with 43.20% women and 4.68% men; The Central North region has 710,516 (29.37%) adults, divided into 27.31% and 2.06% of females and males, respectively; the South region has 550,561 (22.76%) adults, of which 19.91% are females and 2.85% are males (Table 2).

Table 2: Epidemiological profile of individuals registered in the Food and Nutrition Surveillance System (SISVAN), in Espírito Santo, from 2008 to 2023.

Criteria	**Female**		**Male**		**Total**	
Color/Race	**N**	**%**	**N**	**%**	**N**	**%**
Brown	792.385	32,75%	51.047	2,11%	843.432	34,86%
White	497.844	20,58%	72.156	2,98%	570.000	23,56%
No information	468.518	19,36%	44.897	1,86%	513.415	21,22%
Yellow	236.816	9,79%	45.880	1,90%	282.696	11,68%
Black	187.722	7,76%	17.727	0,73%	205.449	8,49%
Indigenous	4.305	0,18%	205	0,01%	4.510	0,19%
Regional						
Metropolitana	1.045.232	43,20%	113.193	4,68%	1.158.425	47,88%
North Central	660.741	27,31%	49.775	2,06%	710.516	29,37%
South	481.617	19,91%	68.944	2,85%	550.561	22,76%
Total	2.187.590	90,41%	231.912	9,59%	2.419.502	100,00%

Source: DATASUS, 2024.

Regarding the percentage distribution of nutritional status by female and male sex, Wang; Beydoun (2007) report that, in the United States, there is a higher prevalence of overweight and obesity among male individuals. In the present study, some divergences were identified in relation to these findings. Although women have a higher proportion of obesity in all grades, there is a significantly higher number of overweight men compared to

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women, in line with what was reported by Wang; Beydoun (2007). In addition, among eutrophic individuals, the present study showed great proximity and parity between the proportional results of men and women. Despite this, in both nutritional states, it is observed that most individuals are female. Regarding the nutritional status of normal weight, a study conducted by Braga; Molina; Cade (2007) points out divergences in comparison with this study, since they indicate a male predominance among eutrophic individuals in their findings. Also with regard to the distribution of nutritional status by sex, it was observed in this study that the prevalence of females represents 90.41% of the collections among individuals who had their data collected, compared to 9.51% of data represented by men. According to Barbosa *et al.* (2023), this divergence is due to the use of the former Bolsa Família Program and the current Auxílio Brasil Program, the main channel for obtaining data from SISVAN, in which one of the criteria for joining the program is the monitoring of the health of women aged 14 to 44 years (Cotta; Machado, 2013). In view of this scenario, it is also crucial to promote and guide male participation in the routine use of medical and nutritional care, in order to ensure adequate support and surveillance for this portion of the population (Separavich; Canesqui, 2013).

The distribution of nutritional status in the southern, metropolitan and north-central regions of Espírito Santo is shown in Figure 3. The southern region, which had the lowest number of individuals with data collected, accounted for 550,562 adult individuals. These were categorized according to nutritional status as: underweight (14,571 individuals), eutrophic (194,096 individuals), overweight (179,792 individuals), grade 1 obesity (100,719 individuals), grade 2 obesity (40,260 individuals), and grade 3 obesity (21,123 individuals), as illustrated in Figure 3. On the other hand, the metropolitan region had the highest number of individuals with data collected, totaling 1,158,425. These data were segmented according to nutritional status as follows (Figure 2): underweight (32,599 individuals), eutrophic (385,759 individuals), overweight (373,279 individuals), grade 1 obesity (222,086 individuals), grade 2 obesity (93,369 individuals) and grade 3 obesity (51,333 individuals). In addition, the central-north region accounted for 710,516 individuals, distributed according to nutritional status into: underweight (20,003 individuals), eutrophic (266,901 individuals), overweight (226,524 individuals), grade 1 obesity (124,685 individuals), grade 2 obesity (48,732 individuals) and grade 3 obesity (23,671 individuals).

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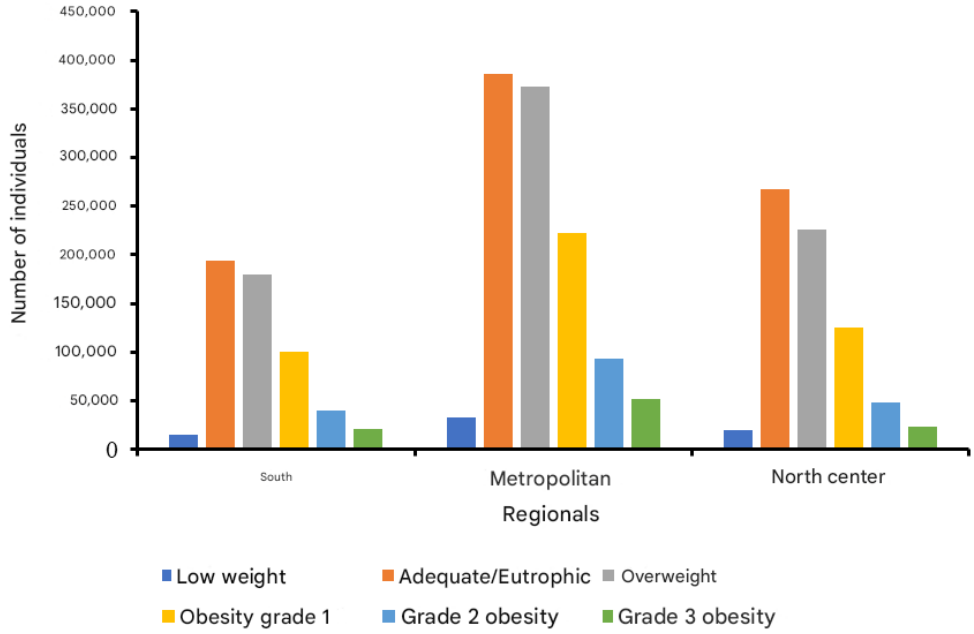
Figure 3: Distribution of the number of individuals in the nutritional states of underweight, adequate/eutrophic, overweight, grade 1 obesity, grade 2 obesity, and grade 3 obesity in the southern, metropolitan, and north-central regions of the state of Espírito Santo, from 2008 to 2023.



Source: DATASUS, 2024.

Regarding the results found in the present study based on the segregation of nutritional status by the southern, metropolitan and central-northern regions of Espírito Santo, it was observed that almost half of the individuals who had their data collected live in the metropolitan region. Similarly, in an epidemiological study conducted by Aprelini *et al.* (2021), it was also found that of the individuals who participated in the research, residents of Espírito Santo, mostly live in the metropolitan region of the state. In addition, when analyzing the present study, it was found that the difference in the proportion of overweight individuals in relation to eutrophic individuals was significantly greater in the metropolitan region compared to the other regions evaluated. In summary, in the metropolitan region, there is a greater number of overweight people for each individual with adequate weight than in the South and Center-North regions. Corroborating these findings, Lopes *et al.* (2019) demonstrated in their study that areas with greater urban development have a significantly higher average of individuals with a BMI higher than what is considered adequate, compared to rural regions.

In view of this, it is important to highlight that the present study has some limitations. As discussed above, related to indigenous peoples, all the other variables found in this study may present the possibility of having population groups that suffered negligence or absence of data collection, resulting in underreporting; in addition to information

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inappropriately filled in the data collection forms; situations that must be combated aiming at greater data reliability.

Finally, despite the limiting components, this study aims to guide actions and interventions in the areas of health and nutrition in Espírito Santo. Through the evaluation of the epidemiology of each individual's nutrition, it becomes possible to analyze the categories involved and classify the population according to its nutritional status, and its evolution over the years. Therefore, information on epidemiological data on the nutritional profile of individuals in Espírito Santo is of great importance for the development of public health promotion policies, as well as reducing the number of individuals who are out of their ideal weight, and increasing the prevalence of eutrophic individuals.

CONCLUSION

It is concluded, therefore, that the nutritional data of individuals residing in the state of Espírito Santo, in the period from 2008 to 2023, show a transition process in the nutritional profile of the population. This transition is mainly characterized by a reduction in the number of eutrophic and underweight individuals, concomitantly with an increase in the prevalence of overweight and obesity in grades 1, 2 and 3. Such a change is observed in all regions of the state, regardless of sex or race. A higher prevalence of overweight was also observed among adult males. Thus, if the current scenario remains unchanged, in the long term, individuals residing in the region may face a series of unfavorable health consequences. Among these consequences, the increase in chronic diseases stands out, which are directly linked to the lack of nutritional control, which can reduce the quality of life of adults and further overload health services in the region.

Finally, the relevance of this study is as a way of recognizing measures and controls necessary in the identification of nutritional deficiencies and dietary patterns. From this, it becomes possible to develop effective measures to promote better nutritional management and the implementation of specific preventive actions in health, aiming at preventing and/or delaying the progression of related diseases. At the same time, the study also contributes strongly to the observation of economic and social changes experienced in the region, which culminate in the divergence of eating habits and, consequently, of the nutritional profile of the population over time.

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