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RESEARCH

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OVERWEIGHT IN BRAZIL: EVOLUTION AND INTERFACE WITH HEALTH POLICIES

Excesso de peso no Brasil: evolução e interface com as políticas de saúde
Sobrepeso en Brasil: evolución e interfaz con las políticas de salud

Sandra Rodrigues Salles de Carvalho¹ 
Valmin Ramos da Silva² 

ABSTRACT

Objective: to describe the evolution of the prevalence of overweight in adults and the policies to combat excess weight in Brazil. **Method:** an ecological, cross-sectional, descriptive, analytical and observational epidemiological study with a quantitative approach, using the database of the System of risk factors for non-communicable chronic diseases by telephone survey, in the years 2006, 2009, 2012, 2015 and 2018. **Results:** in the period studied, there was a constant increase in the prevalence of overweight in all groups. **Conclusion:** obesity is increasing in all regions of the country, in both sexes, with a tendency to affect more women. Although the Brazilian government presents public policies in this perspective of fighting the obesity epidemic, it is still a reality that evolves over time.

DESCRIPTORS: Obesity; Public policy; Comorbidity.

¹ Escola Superior de Ciências da Santa Casa de Misericórdia de Vitória – EMESCAM, Vitória, ES, Brasil.

² Universidade do Estado de Minas Gerais – UEMG, Divinópolis, MG, Brasil.

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Corresponding Author: Sandra Rodrigues Salles de Carvalho, Email: sandrars.enf@hotmail.com

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RESUMO

Objetivo: descrever a evolução da prevalência do excesso de peso em adultos e as políticas para o seu enfrentamento no Brasil. **Método:** estudo ecológico, transversal, descritivo, analítico e epidemiológico observacional de abordagem quantitativa, utilizando a base de dados do Sistema de fatores de risco para doenças crônicas não transmissíveis por inquérito telefônico, nos anos 2006, 2009, 2012, 2015 e 2018. **Resultados:** no período pesquisado, houve um aumento constante na prevalência de excesso de peso em todos os grupos. **Conclusão:** a obesidade é crescente em todas as regiões do país, em ambos os sexos, com tendência para afetar mais o sexo feminino. Apesar de o governo brasileiro apresentar políticas públicas nessa perspectiva de enfrentamento da epidemia de obesidade, ela ainda é uma realidade que evolui ao longo do tempo.

DESCRITORES: Obesidade; Políticas públicas; Comorbidade.

RESUMEN

Objetivo: describir la evolución de la prevalencia del sobrepeso en adultos y las políticas para combatirlo en Brasil. **Método:** estudio epidemiológico ecológico, transversal, descriptivo, analítico y observacional con enfoque cuantitativo, utilizando la base de datos del Sistema de factores de riesgo de enfermedades crónicas no transmisibles por encuesta telefónica, en los años 2006, 2009, 2012, 2015 y 2018. **Resultados:** en el período estudiado, hubo un aumento constante en la prevalencia de sobrepeso en todos los grupos. **Conclusión:** la obesidad está aumentando en todas las regiones del país, en ambos sexos, con tendencia a afectar a más mujeres. Si bien el gobierno brasileño presenta políticas públicas en esta perspectiva de lucha contra la epidemia de obesidad, sigue siendo una realidad que evoluciona con el tiempo.

DESCRIPTORES: Obesidad; Políticas públicas; Comorbilidad.

INTRODUCTION

Obesity, a Chronic Non-Communicable Disease (CNCD), has been drawing the attention of countries due to its prevalence. This is a worrisome scenario, as it reveals the existence of dietary behavioral changes and poor practice of physical exercise, in addition to affecting both sexes. Because of this, it has been the subject of national and international research.^{1,2,3}

In Brazil, over the last three decades, evidence has accumulated of a considerable increase in obesity in all states, which leads to an urgent need for reflection to support the debate on public health policies to fight obesity and the respective prevention strategies for this serious public health problem.⁴

Obesity is defined as the expansion of white adipose tissue, resulting from the excessive accumulation of body fat, conditioned by the inflammatory process of the organ responsible for storing lipids, increasing the production of fatty acids and that, consequently, in this deregulation caused by obesity, the pathogenesis of numerous diseases occurs.³

Given this context, obesity is considered by the World Health Organization an epidemic due to the interaction between multiple factors from lifestyle, eating habits, genetic, psychological and others that promote excess body fat so that the high amount is able to determine serious damage to health.⁵

Although the food issue has been the target of governmental actions since the 1940s, it was in 1999 that the Federal Government enacted the National Food and Nutrition Policy (PNAN), which outlined guidelines and programs defined by the Ministry of Health for actions to prevent and fight obesity. This has become a guideline for the development of public policies in Brazil in the last 30 years.

In this sense, the main objective of this study was to describe the evolution of the prevalence of overweight in adults and the policies for its confrontation in Brazil. Specifically, we aimed to a) identify the variables associated with lifestyle and chronic diseases in the Brazilian population; b) map the public policies aimed at facing obesity in the country.

METHODS

This is an ecological, cross-sectional, descriptive, analytical, observational epidemiological study with a quantitative approach. The sample consisted of data from the Risk Factors for Chronic Noncommunicable Diseases by Telephone Inquiry System (VIGITEL), from the Ministry of Health, referring to the years 2006, 2009, 2012, 2015, and 2018, including the population over 18 years of age, from all regions of Brazil, stratified by age group, sex, and education, to assess the evolution of the occurrence of overweight.⁶

The WHO diagnoses overweight when BMI reaches value $\geq 25 \text{ kg/m}^2$, while obesity is diagnosed from BMI of $\geq 30 \text{ kg/m}^2$.²⁷ The same criteria are used by the VIGITEL system to analyze the information on weight and height provided by respondents.⁶

To perform the inferential analysis of the mentioned periods, linear regression was used to evaluate the existence of a significant trend and the slope of the straight line on the logarithmic scale. When the value of $\alpha \leq 0.05$, there is a significant trend of falling or rising percentage to which the variable in the table refers. Values of $\alpha \geq 0.05$ indicate stationary trend of the said percentage. When $\alpha \leq 0.05$ means to say that the event in question is statistically valid. Furthermore, when $\alpha > 0.05$ the variable represents that there was no change, remaining stable during the aforementioned period.

The use of inferential statistics is due both to the difficulty in obtaining precise information about the exact quantity of the population that fits the parameters of overweight and obesity, and to the fact that the VIGITEL sample is quite representative.

RESULTS

Obesity in Brazil: data survey and evolution

There was a tendency to increase the prevalence of obesity in most capitals. In Brazil, the amount of obese and overweight adults has reached a significant increase, according to data from the National Health Survey (PNS), 2019.⁷ Such statement is observed in the Family Budget Survey, between the years 2002 and 2003, which jumped from 12.2% to 26.8% of people in this situation and, when evaluated those who were overweight in a similar period, the percentage that was 43.3% advanced to 61.7%.⁸ In this context, and according to the Brazilian Institute of Geography and Statistics (IBGE),⁹ it is worth noting that obesity is prevalent among women, indicating a prevalence of 14.5% to 30.2%; among men, the prevalence was 9.6% to 22.8%. Porto et al.¹⁰ relate this high prevalence of obesity and overweight to socioeconomic status, presence of diabetes and/or hypertension, and smoking.

Regarding the elderly, person aged 60 years or more, has been maintaining a significant growth over the years. In 2012, the population in this age group was 25.4 million, and in 2017 it reached the 30.2 million mark. This is due to the increase in life expectancy, the improvement in health conditions, and also the fertility rate.¹¹ However, with longevity, the prevalence of obesity in this population was 17.9%, comprised between 65 and 74 years of age, and 15.8% for the elderly aged 75 years or older.⁹

In the last 20 years, the prevalence of overweight has alarmed the whole world, added to other comorbidities, especially sedentarism, the high incidence of weight gain can be seen in all age groups. However, it is during adolescence that the obesity factor becomes even more worrisome, being one of the most serious issues for public health, which can bring damage to adult life and can begin early.¹⁰ In this sense, in four decades it was possible to notice that the number of obese children and adolescents worldwide jumped from 11 to 124 million. As a result, 123 million children, adolescents, and youth aged five to 19 years are overweight.⁵

The evaluation of overweight in the different Brazilian capitals presents the coefficients of the VIGITEL⁶ data in the study periods, it is verified that, in most cases, there is a predominance of a significant tendency to ascension (positive slope) of the straight line on the logarithmic scale, given the significance level $\alpha < 0.05$, remaining stable in the capitals Goiânia, Curitiba, and in the age group 18 to 24 years where the value $\alpha > 0.05$ (Table 1).

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Public policies

in the Brazilian scenario, the so-called “nutritional transition” occurred around 1975, and can be understood as the phenomenon in which there is a reversal in the distribution patterns of nutritional problems of a given population over time.¹²

For Souza et al.,² in general, the nutritional transition can either represent a rapid decline of malnutrition in children and adults or an increase in the prevalence of overweight and obesity in the Brazilian population. Thus, as the Brazilian nutritional transition took shape, we noted the occurrence of altered/exaggerated food consumption, a greater preference among the population for ultra-processed foods with high levels of salt, sugar, and fat, rapid urban development and physical inactivity, and the massive influence of advertising.¹³

The Brazilian Federal Constitution of 1988 provides, in turn, in its articles 196 and 197, about the basic right to health of every individual.¹⁴ Thus, faced with the urgency of a specific policy that would meet the real needs inherent to strengthening the quality of food and nutrition of the population and its implications, the Brazilian government created a series of public policies about food and nutritional situations of the population.¹⁵

The initial milestone occurred in 1940, with the creation of the Social Security Food Service (SAPS), giving rise to the first public policy actions aimed at the food and nutritional quality of the working class.¹ At the same time, other organizations were established to implement feeding policies, such as the National Technical Food Service (1942-1945); Food Technology Institute (1944); and the National Food Commission (1945-1972).¹⁶ From 1972 to 1997, the National Institute of Food and Nutrition (INAN) was created, which worked on the development of food and nutritional actions for groups at risk and/or nutritionally deprived, as well as the establishment of the National Food and Nutrition Program (PRONAN) focused on food and nutrition for pregnant women, trabalhadores, dentre outros grupos prioritários, conforme destacam Haack et al.¹⁶

As of 1990, the detection, description, and analysis of the food and nutritional trends of Brazilians began to be registered by SISVAN.¹⁷ In 1999, the PNAN was created and began to guide strategies, not only for the eradication of hunger and malnutrition in the country, but also for the prevention and treatment of obesity.¹ In 2004, the strengthening of discussions inherent to Food and Nutritional Security became a priority, culminating in the approval of the Organic Law of Food and Nutritional Security and the creation of the National System of Food and Nutritional Security in 2006.¹⁸

In 2006, the Health Promotion Program was created, having as its strategic axis the Promotion of Adequate and Healthy Food, a set of strategies that provide individuals and communities with food practices appropriate to their biological and sociocultural aspects and the sustainable use of the environment.¹⁹

In 2007, the School Health Program started with the purpose of being a link between schools and the basic health network, strengthening the social relationships between the different areas and through interventions with physical activity practices and healthy eating aimed at obesity prevention.²⁰

Table 1 – Coefficients of VIGITEL data referring to the period 2006, 2009, 2012, 2015 and 2018, in the evolution of overweight in Brazilian capitals.

OVERWEIGHT			
Variables	Coefficient of the variable	Value- α	
North Region	Manaus	0,09498	0,010
	Rio Branco	0,06935	0,014
	Porto Velho	0,06914	0,017
	Boa Vista	0,06361	0,024
	Macapá	0,07121	0,017
	Belém	9,489 ⁻⁰²	0,001
	Palmas	0,08275	0,011
Northeast Region	São Luís	0,07976	0,027
	Teresina	0,08313	0,022
	Natal	0,06573	0,017
	Fortaleza	8,144 ⁻⁰²	0,003
	João Pessoa	0,07298	0,021
	Salvador	0,08012	0,005
	Recife	0,07135	0,010
	Maceió	0,08792	0,026
	Aracajú	0,06843	0,028
Midwest Region	Goiânia	0,05203	0,112
	Cuiabá	7,457 ⁻⁰²	0,002
	Campo Grande	0,07475	0,029
	Distrito Federal	0,07994	0,053
Southeast Region	Belo Horizonte	0,09583	0,006
	Vitória	0,06759	0,027
	Rio de Janeiro	0,04556	0,0002
	São Paulo	6,019 ⁻⁰²	0,009
Southern Region	Florianópolis	6,338 ⁻⁰²	0,008
	Curitiba	0,04892	0,083
	Porto Alegre	0,06320	0,024
Gender	Masculino	5,226 ⁻⁰²	0,0073
	Feminino	5,405 ⁻⁰²	0,0018
Age Group	18 to 24 years old	0,08918	0,123
	25 to 34 years old	7,717 ⁻⁰²	0,002
	35 to 44 years old	5,775 ⁻⁰²	0,004
	45 to 54 years	0,0377	0,011
	55 to 64 years	0,0249	0,018
	Over 65 years old	0,0299	0,003
Education	0 to 8 years	0,0740	0,008
	9 to 11 years	0,0952	0,0009
	More than 12 years	0,0543	0,0196

Source: Prepared by the author based on VIGITEL data.

In 2009, PNAE was strengthened with regard to school feeding in basic education as a right of students and duty of the State, becoming one of the largest food and nutrition security policies in the world.²¹

In the following decade, the Brasil Sem Miséria program was instituted in 2011, and the Brasil Carinhoso program in 2012, interventions of considerable importance in containing extreme poverty and building public policies focused on food security.^{22,23} Also in 2011, in the sphere of SUS, the Academia da Saúde program was launched with the aim of contributing to the reduction of obesity through actions involving the practice of physical activities, health education, and promotion of healthy eating and cultural activities.

In 2014, the Ministry of Health created the Food Guide for the Brazilian Population and the Food Guide for Brazilian Children Under 2 Years of Age. In 2017, the Health Academy Program is expanded with public spaces structured in the presence of professionals. Finally, aiming to contain the growth of obesity in the Brazilian territory, an action plan with goals to be achieved by 2022 (MS, 2020) was prepared, with a set of programs defined by the Ministry of Health, interpose a series of guidelines that are able to propose advances that reduce the rates of overweight and obesity as of the insertion of the disease in the “Health Care Network for People with Chronic Diseases”, through the SUS.^{1,24}

DISCUSSION

Considering the data and information presented, it is possible to reiterate that age and sex influence overweight and obesity in different ways. Note that the highest percentage of overweight in females is given by the age group between 55 and 64 years; in males, it is from 45 to 54 years. As for obesity, for females the highest percentage is given by the 55 to 64 age group; for males, the highest percentage is between 35 and 44 years old. As for the Brazilian state capitals and the Federal District, there is the same pattern regarding the percentage of overweight and obesity. Only in relation to the variables, capitals and male gender, the city of Manaus presents a higher percentage of obesity in comparison to the capitals of São Luís and Goiânia.

It can be noted that there is a positive tendency in overweight for the capitals of the North, Northeast, and Southeast regions, and in the capitals Cuiabá, Campo Grande, Florianópolis, and Porto Alegre, besides sex, age group, and education.

Thus, even with the adoption of public policies since the 1940s, it appears that the prevalence of obesity has increased worldwide in the last 50 years, reaching pandemic levels. This increase was also observed in this study, which showed a trend towards a higher prevalence of obesity among women. This increase can be explained by women's shorter height, effects of pregnancy, and hormonal action.^{1,25}

It can be noted that both developed and developing countries show an increase in the prevalence of overweight. The nutritional transition is a process of sequential changes in the pattern of

nutrition and consumption, which accompanies economic, social, and demographic changes, as well as changes in the health profile of populations. In this new profile, urbanization has determined a change in eating behavior patterns that, together with the reduction of physical activity in populations, has been playing an important role. The increase in obesity prevalence in Brazil is relevant and proportionally higher in low-income families, even though there are some public policies aimed at this public, such as the Brasil sem Miséria Program and the Brasil Carinhoso Program.¹⁰

The concern with the repercussions of obesity in disadvantaged groups requires further theoretical study and the design of public policies for prevention and control of the disease in these segments.²⁶ Importantly, there is evidence of the association of obesity with unemployment, social disadvantages and reduced socioeconomic productivity, increasingly creating an economic burden.²⁵

The increased prevalence is also due to the fact that prevention and treatment strategies for obesity, both at the individual and population level, have not been successful in the long term. Lifestyle and behavioral interventions aimed at reducing calorie intake and increasing energy expenditure have limited effectiveness because complex and persistent hormonal, metabolic, and neurochemical adaptations interfere with weight loss and weight regain.¹

Thus, in part, the cause of this increased prevalence of overweight in almost all Brazilian capitals can be explained by living in an obesogenic environment due to the consumption of cheap high calorie density foods, high carbohydrate intake, and an excess of ultra-processed foods made available by industry, including low-cost products aimed at the poor, added to sedentarism as part of the modern lifestyle. Health actions and efforts are frustrated because success depends on individual willpower and public acceptance of external interventions. Control requires approaches that combine individual interventions, with changes in the environment and society. Genetic causes are important in the genesis of obesity, but in many cases, they depend on environmental factors for their expression.^{1,25}

It is also important to consider that Latin American countries are undergoing a nutritional and demographic transition that predisposes to the spread of the obesity epidemic, especially among the socially and economically disadvantaged, and the food industry, for profit, always provides products to meet this large contingent. Thus, public health measures are urgently needed to combat the spread of the obesity epidemic, focusing on the low-income and low-education segments of society.²⁶

Obesity substantially increases the risk of diseases such as type 2 diabetes mellitus and fatty liver disease, however, prevention in Primary Health Care can prevent or minimize these comorbidities.^{25,4} Souza et al.² also reflect that obesity contributes to the onset of serious diseases, directly associated with feeding conditions of the individual. Its role in controlling obesity is well established, but public policies can interfere little because it is an

individual attitude. It is understood that governmental advertising campaigns in the media can at least encourage the population to develop physical activities and take care of their bodies.²⁶

FINAL CONSIDERATIONS

This study promoted a population-based and long-term survey of information regarding obesity in CNCND parameters, healthy eating, and physical inactivity. It showed that obesity is increasing in all regions of the country, in both sexes, with a tendency to affect more females, as shown in the world literature.

In this sense, this study alerts to the need to recognize the multiple faces of obesity in Brazil, especially the specificities and singularities of different segments of the population. Such a perspective is important for the proposition of new strategies and actions in the field of food and nutrition policies, considering strategies that cater individually to social groups.

It is valid to reiterate that the approach given to the problem of obesity in the study in question follows the epidemiological bias for the survey of information concerning the disease, since such a look at the circumstances and determinants of the obesity condition is essential for the subsidy of health policies aimed at this portion of the population.

Thus, in view of the established context, this study conducted an analysis of strategic actions developed by health policies to confront obesity in Brazil, because although the Brazilian government presents public policies in this perspective of confronting the obesity epidemic, it is still a reality that evolves over time.

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