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Nutritional status of children registered in the SISVAN and analysis of public policies for tackling childhood obesity in the municipality of Rio Verde, Goiás

Estado nutricional de crianças cadastradas no SISVAN e análise de políticas públicas para enfrentamento da obesidade infantil no município de Rio Verde, Goiás

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Bruna Neves Arantes
Nutrition Researcher

Jessika Dias Martins
Nutrition Researcher

Lorielly Brito Pereira
Nutrition Researcher

ABSTRACT

Obesity is a relevant topic, especially in children, as it is the period in which eating habits are formed, and it is possible to take preventive measures to prevent the spread of this disease and its consequences. Based on these arguments, the objective of the study was to point out the nutritional status of children aged 1 to 5 years old registered in SISVAN from 2018 to 2022 in the municipality of Rio Verde and Goiás and to describe public policies to combat obesity in the municipality of Rio Verde, Goiás . This research was cross-sectional, based on the SISVAN database. The sample covered all children under 10 years of age registered in the system in the municipality of Rio Verde-GO, from 2018 to 2022. The data show that in these years 6% of children aged 1 to 5 years in the municipality of Rio Green-go presented weight above age. Data considered high, due to the statistical sample and referring to the age group, a time when there should be many more healthy individuals.

Keywords: Childhood obesity, Nutritional status, Public policies.

1 INTRODUCTION

It is during childhood that we form our values, personality, and acquire eating habits, which when inadequate can lead to obesity, which is a complex disease and risk factor for several chronic diseases such as diabetes, cardiovascular disease, and cancer (WHO, 2018).

Childhood obesity is a relevant issue, since it is in childhood that the eating habits are formed, and it is possible at this time to take preventive measures to avoid the progression and consequences of this disease (Simão et al., 2020).

The epidemic nature and gradual prevalence of obesity occurs, in most cases, due to a combination of genetic, environmental, economic, and behavioral factors (Simão et al., 2020).

Due to this problem and for endemic management, there are several preventive health policies, as an example the Law No. 13,666 of May 16, 2018, which proposes to expand the cross-cutting theme of food and nutrition education in the school curriculum (Brazil, 2018).

Another prominent one is the Crescer Saudável Program, created in 2017, which establishes, within the scope of the School Health Program, a set of actions to be implemented with the aim of contributing to tackling childhood obesity in the country through actions to be carried out in the School Health Program (PSE), for children enrolled in Early Childhood Education (daycare centers and preschools) and Elementary I Education (Brazil, 2022).

The Food and Nutrition Surveillance System (SISVAN) is a tool for monitoring the advance of childhood obesity, using the classification of nutritional status and food consumption markers of children seen at SUS, to assess the prevalence of obesity in Brazil and the relationship with diet (Brazil, 2013).

Detecting the altered nutritional status through SISVAN is an alternative to control this disease among children, which reflects on the prevalence of the child-youth population in general, allowing the promotion of public health policies aimed at this public, in the field of food and nutrition (Corrêa et al., 2020).

It is through this system that we now observe that Brazilian children have undergone a major change in the nutritional aspect, highlighting the increased supply of processed foods to children from their early years of life, contributing to the advancement of obesity (Corrêa et al., 2020).

Given this scenario, it is possible that in the city of Rio Verde/GO we find similar results to most of the rest of the country. Evaluating the measures taken in the municipality to combat childhood obesity is fundamental to the fight against the problem.

2 JUSTIFICATION & RELEVANCE

In these last decades observing the global propensity, Brazil has been presenting structural changes regarding the behavioral model in relation to diet and daily habits, associated with economic, demographic, environmental and cultural changes, characteristics of a progress classified nutritional transition (WHO, 2018).

The nutritional transition is exactly associated with the increased search for practical and easy-to-organize foods, which directs the consumer to a mostly industrialized food with high calorie content to replace natural and healthier foods (Barros et al., 2021).

Another transition that needs to be considered is the epidemiological transition, which refers to the change in the pattern of mortality and morbidity of a population in a given period of time and space. As defined by Omram (2001), the epidemiological transition is the change in the pattern of illness and death, and is influenced by economic, biological, social, and demographic determinants.

The epidemiological and demographic transitions are closely related to the nutritional transition. With this increase in the consumption of industrialized products and sedentary lifestyle, obesity becomes a worrisome factor for the Brazilian population (Barros et al., 2021).

To minimize this high rate of childhood obesity, monitoring is necessary. It is essential that regular monitoring of the nutritional status and food consumption of society be performed, aiming to subsidize interventions to contain the eminent prevalence of overweight (Dias, 2017)

The aforementioned monitoring can help in the field of Primary Health Care because users assisted in Basic Health Units (BHU) have their anthropometric and food consumption data collected, information that is entered into the Food and Nutrition Surveillance System (SISVAN), which is a system of collection, analysis, and consecutive processing of data from a given population. SISVAN generates the updated diagnosis of the nutritional profile of the monitored society over time (Rolim, 2015).

Based on these arguments the objective of the work was to point out the nutritional status of children aged 1 to 5 years old registered in SISVAN from 2018 to 2022 in the municipality of Rio Verde and Goiás and describe the public policies to confront obesity, in the municipality of Rio Verde, Goiás.

3 METHODOLOGY

This was a cross-sectional research, based on the SISVAN database. The sample covered all children under 10 years old registered in the system in the municipality of Rio Verde-GO, in the years 2018 to 2022.

The information was collected on the SISVAN website. The system generated data on food intake and nutritional diagnosis in absolute numbers and their respective percentages, which can be viewed through the site itself as well as through Microsoft Excel 2013 software. From these

data, a graph containing the prevalence of underweight, eutrophic, overweight, and obesity (total prevalence of obesity grades I, II, and II) was also prepared.

The nutritional status was assessed by means of the body mass index (BMI), by SISVAN itself, which was calculated by dividing the body mass in kilograms (Kg) and the square of the height in meters (m^2), taking as reference the cut-off points of percentiles and standard deviation of the growth curve, established by the World Health Organization (WHO) and used by the Ministry of Health.

The public policies to combat childhood obesity implemented in the municipality will be evaluated. These data will be collected from documents provided by primary health care nutritionists.

The data will be checked against the literature, using similar research for discussion of the paper, such as work by Nascimento et al., 2018

4 RESULTS AND DISCUSSION

In recent years, the Brazilian population has undergone a relevant change in nutritional profile, highlighting the increased supply of processed foods to children from their early years of life (Fonseca & Drumond, 2018).

Regional discrepancies and between population groups are observed. In the child population obesity is prevalent in 5% of the group (Monteiro, 2004). In addition, malnutrition, although it has declined steadily (more than 60%), still remains the most important worsening among children.

In tables 1 to 5 we can see the nutritional data of children in the municipality of Rio Verde-Go, in the years 2018 to 2022. The sample studied was children aged 1 to 5 years.

Table 1: Nutritional data of children aged 0 to 5 years in the municipality of Rio Verde-GO, during the year 2018.

Very Low Weight for Age	Low Weight for Age	Appropriate Weight or Eutrofic	High Weight for Age	Total
Quantity	Quantity	Quantity	Quantity	Quantity
17	42	2527	162	2748

Source: SISVAN.Reports of the nutritional status of the individuals followed by period, life cycle stage, and index.

Table 2: Nutritional data of children aged 0 to 5 years in the municipality of Rio Verde-GO, during the year 2019.

Very Low Weight for Age	Low Weight for Age	Appropriate Weight or Eutrofic	High Weight for Age	Total
Quantity	Quantity	Quantity	Quantity	Quantity

15	**39**	**2323**	**159**	**2536**

Source: SISVAN.Reports of the nutritional status of the individuals followed by period, life cycle stage, and index.

Table 3: Nutritional data of children aged 0 to 5 years in the municipality of Rio Verde-GO, during the year 2020.

Very Low Weight for Age	**Low Weight for Age**	**Appropriate Weight or Eutrofic**	**High Weight for Age**	**Total**
Quantity	**Quantity**	**Quantity**	**Quantity**	**Quantity**
10	**38**	**2251**	**144**	**2443**

Source: SISVAN.Reports of the nutritional status of the individuals followed by period, life cycle stage, and index.

Table 4: Nutritional data of children aged 0 to 5 years in the municipality of Rio Verde-GO, during the year 2021.

Very Low Weight for Age	**Low Weight for Age**	**Appropriate Weight or Eutrofic**	**High Weight for Age**	**Total**
Quantity	**Quantity**	**Quantity**	**Quantity**	**Quantity**
15	**41**	**2073**	**160**	**2289**

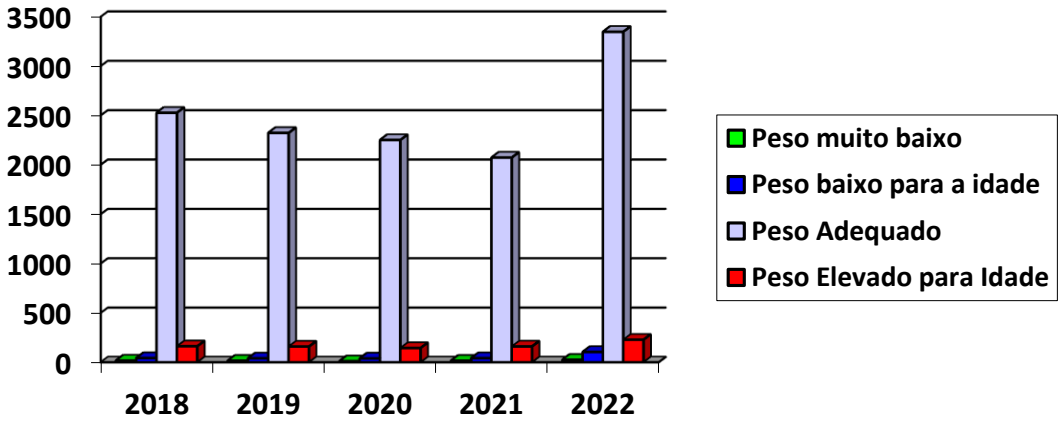
Source: SISVAN.Reports of the nutritional status of the individuals followed by period, life cycle stage, and index.

Table 5: Nutritional data of children aged 0 to 5 years in the city of Rio Verde-GO, during the year 2022.

Very Low Weight for Age	**Low Weight for Age**	**Appropriate Weight or Eutrofic**	**High Weight for Age**	**Total**
Quantity	**Quantity**	**Quantity**	**Quantity**	**Quantity**
25	**104**	**3347**	**228**	**3704**

Source: SISVAN.Reports of the nutritional status of the individuals followed by period, life cycle stage, and index.

Graph 1: Nutritional data of children aged 0 to 5 years in the municipality of Rio Verde-GO, during the years 2018 to 2022.



Caption: Green: Very low weight Blue: Very low weight for age Light blue: Appropriate weight Red: Appropriate weight for age

As we can see from the data presented in the tables and graph above, in recent years, children from 1 to 5 years old in the city of Rio Verde-GO have become around 6% obese.

Data considered high, due to the statistical sample and referring to the age range, a time when it should present many more healthy individuals.

For Motter et al. (2015), the foods consumed by young individuals are characterized by high levels of sugar and salt, saturated and trans fats, low levels of complex carbohydrates and fiber, and also processed or ultra-processed foods, such as cookies, sausages, canned food, soft drinks, and ready-to-eat meals. Food consumption is one of the factors that cause weight gain, not only by the portion of food consumed, but also by the type of food consumed.

The reduced consumption of fresh foods and the increased consumption of ultra-processed foods contribute to weight gain, since these products have excessive amounts of salt and sugar in their manufacture and are associated with the emergence and increase of obesity and non-transmissible chronic diseases (Brazil, 2014).

Obesity is considered one of the main Brazilian public health problems, which has been growing rampantly, with high supremacy (WHO, 2018). It has several etiologies, such as genetic, emotional, socioeconomic, and cultural, which should be considered in a unique way, particularly in Brazil, due to its heterogeneous population (Rocha, 2013).

The form of inadequate diet, as well as other danger factors - such as smoking, sedentary lifestyle, alcohol consumption, and family background - has a large and gradually negative impact on the health of populations. Cardiovascular diseases, diabetes, chronic kidney disease, and some cancers associated with dietary risks are among the biggest causes of premature and preventable deaths in Brazil. In addition, they burden health systems due to treatment costs and burden the economy with income losses (Silva et al, 2022).

A quantitative research that investigated the nutritional characteristics and food consumption of employees of a private company in Cuiabá showed that 41.18% of people are classified as overweight and obesity grade I or II. When exploring the constancy and food consumption of these employees, it was observed that a large part consumed fried, sugary, processed foods and alcoholic beverages in a range of 5 to 7 times per week, estimated a high consumption of foods poor in nutritional values and that contribute to weight gain(Do Nascimento et al., 2018).

Along with poor eating habits, sedentary lifestyle is observed in the juvenile population, which suffers the impacts early because it needs to deal with the various morbidities probably *caused by overweight and obesity (Cadamuro; Oliveira, 2015).*

As a good governmental conduct, we can notice actions in some countries that have stood out to motivate healthy eating and reduce obesity with attitudes directed towards food and nutrition education. The purpose of public policies is to unite programs and actions from various sectors, governmental and societal at the municipal, state, and national levels, acting to caucus the Human Right to Adequate Food (DHAA), which is a measure to confront obesity (BRASIL, 2018).

Some national policy documents show contradictions according to the strategies adopted by the government's own action, since they recognize that the practices of the private commercial domain contribute to the increase of obesity, but suggest actions that attribute to this sector the status of "partner" (Henriques et al., 2020).

The EAN practices were not having consistent results, as there was continuity of nutritional deficiencies and non-transmissible chronic diseases, such as obesity and cardiovascular diseases, which had been increasing and one of the many causes would be poor quality food (Bezerra, 2020).

As education is part of a public policy measure, the school was listed as the most strategic space for the creation of actions to prevent and control childhood obesity, enabling children to have a healthier diet and at the same time to experience activities favorable to health and proper nutrition. It was agreed among all the deponents that the State's attributions in this regard should focus on programs at the school level and on food and nutrition education actions. There are government documents that establish PAAS guidelines in schools (Brazil, 2006) .

To encourage healthy eating, actions are proposed to stimulate food and nutrition education; agroecologically based production systems; family farming; food accessibility; healthy environments; and regulatory behaviors (Dias et al., 2017).

The school has an essential role in the composition of the children's lifestyle habits, also becoming the leader for the educational content, including from the nutritional point of view. School meals both in the public and private network, aims to partially provide the nutritional needs of students (Silva, 2019). However, some children opt for the choice of nutritionally poor foods, which in addition to causing in weight gain, imply a serious picture of nutritional deficiencies. These choices have consequences that are beyond obesity, triggering feelings of guilt, depression and shame for the inability to contain weight, affecting self-esteem (Brito, 2012). Interventions depend on the active participation of parents, on their ability to distinguish overweight and/or obesity to understand that it is a cause of risk for future health problems. However, it is exactly the lack of parental involvement in this approach that is the biggest barrier cited by health professionals working (Silva, 2019).

Well-conducted interventions require the commitment of parents, since they are role models for dietary and physical behavior. They are the ones who determine what foods are available to their children, in portion and quality, and they are the ones most responsible for creating an emotional environment in which obesity may or may not be discouraged. But as mentioned before, the lack of parental involvement in treatment creates a major barrier encountered by health care professionals working in this area. Precaution is a sure method for controlling childhood obesity, however, a better understanding of the factors associated with parental behavior is essential to encourage a greater commitment to obesity treatment (Silva, 2019)

When it comes to public policy, one of the measures also created in government programs would be the limitation and inspection of what is sold in school canteens and their surroundings, being forbidden the sale of unhealthy foods, thus making possible only healthy choices by children.(Brazil 2019).

Another way to contribute to healthy eating is to facilitate families to have easier access to fruits, vegetables, and greens, schools should create ways to publicize fairs, local markets, and grocery stores near the community in which the school is located. Another project for the cooperation of promoting healthy eating would be the creation of school gardens where the food produced in them could contribute to school meals (Brazil, 2019).

They enable the encouragement, support and support of the population to enable the acceptance of healthy eating practices. Such behaviors potentially interfere in different conditions of childhood obesity, present different conceptions on how to face it, therefore, affect different interests in dispute (Dias et al., 2017).

Anthropometric and food intake data of SUS users are entered into the system by primary care workers, through an online platform accessed at the health unit or secretariat. The central administration of this system is carried out by the General Coordination of Food and Nutrition (CGAN) of the Ministry of Health. The nutritional status monitoring data entered in the Bolsa Família Program Management System (SIGPBF) are migrated to SISVAN Web every six months (Ministério da Saúde, 2015).

The Food and Nutrition Surveillance System (SISVAN) is a health information system (SIS) that enables data storage and continuous generation of information on the nutritional status and food consumption of users of primary health care in the Unified Health System (SUS), in order for such information to provide the diagnosis and monitoring of the food and nutritional situation of the Brazilian population and contribute to the development of interventions on risk factors

associated with nutritional diseases and the social determinants of food and nutritional insecurity, both in the context of individual and collective care (MINISTRY OF HEALTH, 2015).

Currently, one of the main barriers to the expansion and consolidation of the systems is the fragmentation of work or rework in the collection, typing and inclusion of data in different platforms. In addition, problems of lack of structure in the municipalities can compromise data collection and registration in the system, compromising the indicators, which is up to managers to correct this failure (Morais, 2015).

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