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## Overweight and obesity in school adolescents: a systematic review

El sobrepeso y la obesidad en los adolescentes escolares: una revisión sistemática

Sobrepeso e obesidade em adolescentes escolares: uma revisão sistemática

### ABSTRACT

The objective of the study was to analyze the prevalence of overweight and obesity in school adolescents. It is a systematic review conducted in the BDNF, Lilacs and SciELO database, where 08 papers were analyzed, in Portuguese and Spanish languages from 2017 to 2019, in the thematic area of health and education. The results pointed to a picture of obesity and overweight of a significant portion of the schoolchildren surveyed, establishing the relationship between this situation and the prevalence and/or triggering of chronic non-communicable diseases, being more present in those who attend the educational environments of the public network. Thus, since the school environment is a privileged space for data collection and health intervention programs, it points to the need for preventive and health promotion measures, which aim to serve individuals and the family in an integral and continuous manner, through multisectoral actions.

**DESCRIPTORS:** Overweight; Obesity; Adolescent; Students.

### RESUMEN

El objetivo del estudio era analizar la prevalencia del sobrepeso y la obesidad en los adolescentes de las escuelas. Se trata de una revisión sistemática realizada en la base de datos del BDNF, Lilacs y SciELO, donde se analizaron 08 trabajos, en idiomas portugués y español de 2017 a 2019, en el área temática de la salud y la educación. Los resultados señalaron un cuadro de obesidad y sobrepeso de una parte importante de los escolares encuestados, estableciendo la relación entre esta situación y la prevalencia y/o el desencadenamiento de enfermedades crónicas no transmisibles, estando más presente en los que asisten a los entornos educativos de la red pública. Así pues, dado que el entorno escolar es un espacio privilegiado para la recopilación de datos y los programas de intervención en materia de salud, señala la necesidad de adoptar medidas preventivas y de promoción de la salud, que tengan por objeto servir a los individuos y a la familia de manera integral y continua, mediante acciones multisectoriales.

**DESCRIPTORES:** Overweight; Obesidad; Adolescentes; Estudiantes.

### RESUMO

O objetivo do estudo foi analisar a prevalência de sobrepeso e obesidade em adolescentes escolares. Trata-se de uma revisão sistemática realizada no banco de dados BDNF, Lilacs e SciELO, onde foram analisados 08 trabalhos, nos idiomas português e espanhol no período de 2017 a 2019, na área temática da saúde e educação. Os resultados apontaram para um quadro de obesidade e sobrepeso de parcela significativa dos escolares investigados, firmando a relação entre esta conjuntura e a prevalência e/ou desencadeamento das doenças crônicas não transmissíveis, sendo mais presente naqueles que frequentam os ambientes educacionais da rede pública. Assim sendo, uma vez que o ambiente escolar é um espaço privilegiado para realização de levantamento de dados e programas de intervenções em saúde, aponta-se para a necessidade de medidas preventivas e de promoção à saúde, que visem atender os indivíduos e a família de forma integral e contínua, por meio de ações multissetoriais.

**DESCRITORES:** Sobrepeso; Obesidade; Adolescentes; Estudantes.

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**INTRODUCTION**

**C**urrently, the world scenario is marked by a growing index of the prevalence of obesity and overweight, which can be observed in the most diverse countries, regardless of the level of socioeconomic development, although we do not rule out the possibility of a relationship between this factor, concomitantly with hereditary indications, lifestyle and the technological process.<sup>(1,2)</sup>

Becoming the nutritional disorder that has risen the most in the world, obesity and overweight, stand out as one of the most dominant conditions and one of the main public health problems, due to the physiological consequences, cognitive and behavioral losses and deleterious effects on the quality of life.<sup>(3)</sup> Risk factors have been credited to social, cultural, environmental and behavioral changes, expressed in changes in dietary and lifestyle patterns.

The World Health Organization - WHO defines obesity as a pathology characterized by abnormal or excessive accumulation of fat in the body, resulting in loss of quality of life and decreasing longevity, which results from the

**Becoming the nutritional disorder that has risen the most in the world, obesity and overweight, stand out as one of the most dominant conditions and one of the main public health problems**

chronic imbalance between food consumption and energy expenditure.<sup>(4)</sup>

This panorama presents a multifactorial etiology, with biological, metabolic, sociocultural, behavioral and environmental factors, thus, they have been the target of several scientific investigations, mainly because in adolescence there is a high probability of increasing these cases due to metabolic alterations<sup>(5)</sup> and due to the thesis that the duration and severity of obesity at this stage determine the level of metabolic changes that are extended to adulthood.

In adolescence, growth, development and nutrition are essential and interdependent aspects. This stage of life is analyzed, in a special way, as vulnerable, in nutritional aspects, due to a greater general deficiency and special needs of nutrients, instigated by the speed of growth and by the alterations of the assumed lifestyle and eating habits.<sup>(6)</sup>

The chronological limits of adolescence are defined by the WHO between 10 and 19 years old, and in Brazil, the Statute of Children and Adolescents, Law n. 8.069, of 1990, considers adolescence as the age group of 12 to 18 years old (art. 2nd)<sup>(7)</sup>.

In adolescence, individuals experience biological, cognitive, emotional and social changes. They experience an important moment for the adoption of new practices, since the habits acquired in this stage can persist for life and the early onset of harmful behaviors creates risk for the emergence of chronic non-communicable diseases.<sup>(8,9)</sup> We can consider obesity and overweight as the new worldwide syndrome, in Brazil, as well as in developed countries, since there is an increasing progression regarding the nutritional transition and overweight in schoolchildren.<sup>(10)</sup>

There are several procedures for controlling obesity and overweight, depending on the cause and severity of your condition, highlighting that these procedures must be followed by professionals in the field.<sup>(11)</sup> It is understandable that health professionals keep their knowledge up to date in relation to the consequences, causes and ways of treating overweight and obesity, as well as the components used.

In school environments, we have

the need and concern about the health theme, and we highlight the Health at School Program (Programa Saúde na Escola – PSE) as a primary tool in the prevention of this situation related to obesity and overweight, as the political and social evolution influenced the appropriation of the school as health promotion space. The program aims to raise awareness and change habits, contributing to the comprehensive education of students in the public school system, through actions of promotion, prevention and health care.<sup>(12,13)</sup>

Thus, observing the need to create mechanisms to guide the actions of health services, as well as their respective professionals, to meet the needs and demands of the population, the referred study aims to analyze the prevalence of overweight and obesity in school adolescents.

## METHOD

This is a systematic review type study, carried out during the months of

April and May 2020. The articles analyzed are from the electronic databases BDENF, Lilacs and SciELO, in Portuguese and Spanish in the period from 2017 to 2019, in the thematic area of health, education and its consequences. The search was performed based on the Health Sciences Descriptors - DeCS, using the following terms "Overweight", "Obesity", "Adolescents" and "Students" with Boolean operator "and".

As inclusion criteria, all original articles indexed in the full and free version were used, with characterization of case studies, observational, documentary and performed in Brazil. Duplicate articles were excluded, those without a central idea based on the theme addressed, in the business area and that did not fit the health and education modalities and those in the systematic and / or integrative review modality.

The articles were submitted to the following stages of evaluation, based on the Prisma protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses): Identification of the Records by searching the databases; Screening by excluding duplicate files and those that did not meet the inclusion criteria by reading the titles and abstracts; Eligibility through reading the full article; and Inclusion of works that fit the criteria and objectives of that research.

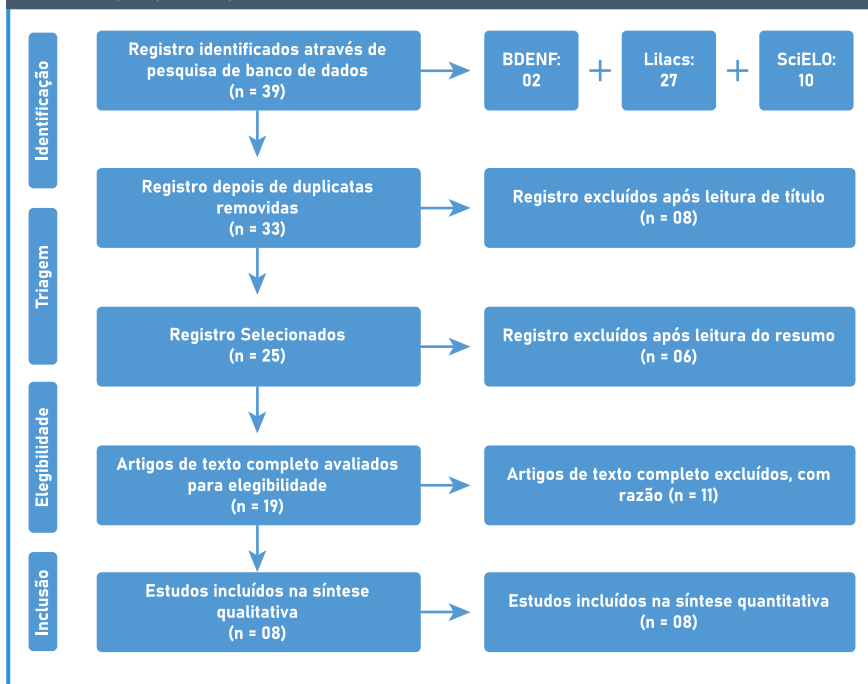
For the analysis of the selected materials, the problem was reflected in the following question "What is the prevalence of overweight and obesity in school adolescents?". According to the acronym PICo, where P = adolescents, I = prevalence and Co = prevalence of overweight and obesity.

## RESULTS

In Image 01 we present the results found, according to the flowchart of the review process. In sequence, in Table 01, an overview of the analyzed articles is presented.

After the material selection process, 33 references were restored after

Image 01: Flowchart of the selection process of the researched articles. Juazeiro do Norte, CE, Brazil, 2020.



the research with the crossing of the generating themes in the database and ELIMINATION of duplicate materials, after this removal, through the reading of the titles, 25 works were chosen for

consultation of the abstracts, where 19 works were selected for reading in full and after reading in full for evaluation of methods and results, 08 works were selected.

## DISCUSSION

From the data analysis, it was noticeable that a significant portion of the studies addressed, in addition to

Table 01: Profile of the data obtained from the analyzed articles. Juazeiro do Norte, CE, Brazil, 2020.

Autor	Título	Objetivo	Resultados
Dalmaso et al. <sup>(14)</sup>	Prevalência de sobrepeso e obesidade em escolares do ensino fundamental de Vitória/ES	Investigar a prevalência de sobrepeso e obesidade em crianças do ensino fundamental de Vitória/ ES.	A alta prevalência de sobrepeso e obesidade reafirma que o excesso de peso atinge crianças e adolescentes que frequentam escolas municipais significativamente.
Eid et al. <sup>(15)</sup>	Hábitos alimentares e fatores de risco para hipertensão arterial sistêmica em escolares	Avaliar os hábitos alimentares e a frequência dos seguintes fatores de risco para hipertensão arterial em escolares: obesidade, sobrepeso, obesidade abdominal, inatividade física, antecedentes familiares e níveis pressóricos elevados.	Evidencia a exposição de escolares a múltiplos fatores de risco para doenças crônicas e podem nortear ações intersectoriais de comunidades acadêmicas, autoridades educacionais e de saúde.
Teixeira et al. <sup>(16)</sup>	Estado nutricional de adolescentes relacionado ao risco cardiovascular e imagem corporal	Identificar estado nutricional relacionado à imagem corporal e ao risco cardiovascular de adolescentes das escolas pública e privada.	Independente do estado nutricional há insatisfação da imagem corporal entre os adolescentes e o risco cardiovascular está associado ao sobrepeso e obesidade.
Mendonça et al. <sup>(17)</sup>	Avaliação dos níveis pressóricos e antropométricos de escolares no interior do nordeste brasileiro	Avaliar a influência do excesso de peso nos valores de pressão arterial de escolares 4 a 17 anos em uma cidade no interior de Sergipe.	Crianças e adolescentes com pressão arterial alterada exibem maior média de IMC, confirmando a necessidade de intervenção para prevenção e promoção da saúde.
Conde et al. <sup>(18)</sup>	Estado nutricional de escolares adolescentes no Brasil: a Pesquisa Nacional de Saúde dos Escolares 2015	Descrever dados Antropométricos da Pesquisa Nacional de Saúde dos Escolares (PeNSE) 2015 e sua distribuição segundo estratos geográficos e socioeconômicos.	O excesso de peso é mais frequente entre adolescentes dos estratos de baixa renda, indicando, além do estado nutricional, desigualdade social no Brasil.
Mundstock et al. <sup>(19)</sup>	Resultados da primeira fase do Programa Esporte e Saúde em Canela, Rio Grande do Sul: avaliação do perfil nutricional	Apresentar os resultados da avaliação nutricional de crianças e adolescentes, como parte de um programa municipal voltado à saúde de escolares.	Os estudantes apresenta expressivo índice de sobrepeso/obesidade, reforçando a necessidade de programas de prevenção e tratamento da obesidade, estimulando a prática de atividade física e alimentação saudável.
Pereira et al. <sup>(20)</sup>	Fatores de risco e proteção contra doenças crônicas não transmissíveis entre adolescentes	Conhecer a prevalência dos fatores de risco para doenças crônicas não transmissíveis entre adolescentes assistidos pelo programa municipal Saúde e Prevenção na Escola - SPE.	A população apresenta distintos padrões de exposição a fatores de risco e proteção, e evidencia a necessidade de ações educativas no ambiente escolar conduzidas pelos profissionais do SPE e demais gestores escolares.
Anjos; Silveira <sup>(21)</sup>	Estado nutricional dos alunos da Rede Nacional de Ensino de Educação Infantil e Fundamental do Serviço Social do Comércio (Sesc), Brasil, 2012	Identificar e descrever o crescimento e o perfil nutricional antropométrico das crianças matriculadas na Rede Nacional de Ensino do Sesc.	A prevalência de excesso de massa corporal para crianças acima de 10 anos foi de 37,4%, sendo necessário o acompanhamento do estado nutricional devido aos agravos e efeitos na vida adulta.

adolescents, children. Which brings us to the purpose of identifying and preventing this nutritional condition in its most incipient signs, for greater control, awareness and prevention, avoiding more acute culminations in the future and the risk of affecting non-communicable chronic diseases, since the sooner obesity develops, the greater the chances of incidence in adulthood.<sup>(14,17,18,22)</sup>

The research methods, in their entirety, exempt themselves from longitudinal interventions and follow-up, a method that could bring us closer to instruments / means, of practical application, to deal with this specific picture of obesity and overweight. Several factors in contemporary times favor an increasing rate of obesity at a young age, and it is worth emphasizing the influence of parental habits, the domestic environment and technological development.<sup>(15)</sup>

It points out the need for preventive approaches, health education programs and effective multidisciplinary public policies to control these conditions, given the multifactorial factors, with an emphasis on healthy eating habits and regular physical activity,<sup>(14,16,19)</sup> it is invaluable that health professionals direct a reflective look at the panorama and consider it an opportunity to implement prevention and monitoring measures of a multisectoral nature.<sup>(15)</sup>

In its entirety, the results pointed to the picture of obesity and overweight of a significant portion of the investigated students, also establishing the relationship between this situation and the prevalence and / or triggering of chronic non-communicable diseases, regardless of economic conditions, but being more present in those who attend public school educational environments.<sup>(18)</sup>

Obesity and overweight, in short, compromise not only health, but quality of life and economic impact, especially due to the vulnerability of adolescents,<sup>(17,19,20)</sup> we can consider this

picture as a pandemic.<sup>(17)</sup> According to the WHO, more than 340 million children and adolescents were overweight and obese in 2016, an increase of 14% when compared to data from 1975 for the same collection with individuals aged 5 to 19 years.<sup>(14)</sup>

In Brazil, as well as developing countries, it has been showing an evolution of the overweight of its population, this factor is due to the new living standards and habits associated with social and technological development, favoring physical inactivity which is a contributing factor for sedentary lifestyle, and the process of eating foods rich in sugars and fats.<sup>(23,24)</sup>

We reaffirm the thesis that obesity is a multifactorial chronic non-communicable disease and represents one of the main public health problems in developed and developing countries,<sup>(14,16,17,21)</sup> as well as its expansion follows a faster pace for the poorest, accentuating inequalities.<sup>(18)</sup> Excess weight affects a significant proportion of schoolchildren and age has a direct effect on body weight, this index reinforces the recommendation and need for preventive actions to the development of obesity and overweight during youth, a phase of physical, cognitive, emotional and social transformations.<sup>(15,16,21)</sup>

Another aspect that deserves to be highlighted is the establishment of obesity and overweight in the young population regardless of sex, since some studies highlight that girls presented higher proportions, but maintaining proximal values.<sup>(14,18)</sup> However, some other studies indicate that the highest averages of fat accumulation were observed in males.<sup>(15,20)</sup> In other cases, the data were statistically similar for both sexes.<sup>(17,21)</sup>

The data direct, despite pathologies, as cardiovascular risk and arterial hypertension,<sup>(14)</sup> for a dissatisfaction of the adolescents' body image, based on social standards, when affected by excess weight, regardless of social class and educational institution (public or private).<sup>(16)</sup> One of the studies

highlights the concern that eating disorders and / or inappropriate diets may be triggered without professional guidance, amid the search for body self-esteem and the school's indispensable relationship in raising awareness about food education and fighting obesity, reinforcing even that, being overweight in schoolchildren offers them a greater risk of developing health problems of a cardiometabolic nature.<sup>(17)</sup>

The Strategic Action Plan for Coping with Chronic Non-Communicable Diseases 2011-2022, drawn up by Brazil, stands out with the aim of promoting the development and implementation of effective public policies, based on evidence. In this context, the Health and Prevention in Schools Project, part of this plan, aiming to contribute intensively to the integral training of students in the public basic education network, through prevention, promotion and health care actions.<sup>(20)</sup> The school environment stands out as a privileged space for conducting data collection and health intervention programs.<sup>(21)</sup>

The researches analyzed point to limitations related to: the sample number analyzed, highlighting the need to extrapolate an analysis at national level; data collection methods, where reference values may not be relatively contextual; the transversality of studies.<sup>(17,18)</sup>

## CONCLUSION

It is possible to state that the significant increase in the prevalence of obesity in adolescents has become irrefutable, pointing to the need for preventive measures, since this group is directly exposed to favorable environments and habits. Thus, prevention, compared to treatment, through interventions in early stages, is still the most effective way to combat this disease, interventions that are able to relate the family, social and educational environment of adolescents.

Given the context, it is necessary to implement measures not only for prevention, but also for more comprehensive health promotion, perhaps primary health care

and the school environment, which aims to serve individuals and families in an integral and continuous way, be the initial space for this health promotion process, since these

professionals often have the opportunity to work advising on nutrition, physical activity and clarifying doubts about chronic non-communicable diseases. ■

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