

## Childhood obesity and food habits: the consequences in adult life

### Obesidade infantil e hábitos alimentares: as consequências na vida adulta

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#### ABSTRACT

**Aim:** To identify, through a literature review, the impact on the health of the individual as a result of childhood obesity, its impacts during the stages of life, describing the complications, and presenting the risks to the health of children as a result of bad habits of food. **Methods:** For the elaboration of the research, journals of scientific journals and scientific articles were analyzed, based on PubMed, Scielo, and Google Scholar, on the subject. The search was limited to English and Portuguese, and the articles analyzed were selected because they were highly relevant to the topic. **Results:** It was observed that overweight and obese children are more likely to develop various diseases in childhood, with repercussions throughout life, reducing quality and life expectancy. Low income, genetics, lack of physical exercise, bad eating habits, and socioeconomic problems are the main factors that contribute to the increase in childhood obesity. **Conclusion:** Health promotion strategies that have the most effect are improvements in lifestyle, such as healthy eating and physical activity.

**Keywords:** adolescent, nutritional status, pediatric obesity.

#### RESUMO

**Objetivo:** Identificar, por meio de uma revisão de literatura, o impacto na saúde do indivíduo em consequência da obesidade infantil, seus impactos durante as fases da vida, descrevendo quais as complicações e apresentando os riscos para a saúde das crianças em decorrência dos maus hábitos alimentares. **Métodos:** Para elaboração da pesquisa, foram analisados periódicos de revistas científicas e artigos científicos, tendo como base de dados PubMed, Scielo e Google Acadêmico, sobre o tema. A busca foi limitada à língua inglesa e portuguesa, e os artigos analisados foram selecionados por apresentarem grande relevância sobre o tema. **Resultados:** Observou-se que crianças com sobrepeso e obesidade apresentam maiores probabilidades de virem a desenvolver várias doenças na infância, repercutindo ao longo da vida, reduzindo a qualidade e expectativa de vida. Baixa renda, genética, a falta de exercícios físicos, maus hábitos alimentares e problemas socioeconômicos são os principais fatores que colaboram para o aumento da obesidade infantil. **Conclusão:** Estratégias de promoção de saúde que mais surtem efeitos são melhoras dos hábitos de vida, como, alimentação saudável e da prática de atividades físicas.

**Palavras-chave:** adolescente; estado nutricional; obesidade pediátrica.

## Introduction

Childhood obesity in recent decades has presented an alarming increase, its prevalence has grown rapidly, and this growth is associated with various factors, being one of the main public health challenges since the beginning of the 21st century, and can trigger various health damages to children [1,2]. Since the 1990s, childhood obesity has been considered the most common nutritional disorder in childhood. The World Health Organization (WHO) [3] has placed childhood obesity as a global epidemic, where there has been a greater increase in relation to malnutrition, more than 40 million children under 5 years old are overweight or obese, and over 60% of these children will become adults with overweight or obesity and will have lower life expectancy. Childhood obesity can be considered an indicator of the levels of health and quality of life of people, since bad habits in childhood, such as poor nutrition, can provide damage throughout the course of life [4]. In this sense, the nutritional state presents itself as an important variable for health, considering that eating habits, when a child, will influence their overall health in various stages of life, from childhood to the adult phase. Thus, maintaining bad eating habits with diets rich in sugars and fats can result in significant health damage [5].

Many diseases can be related to obesity in children and adolescents, such as, systemic hypertension, diabetes mellitus type II, coronary diseases, metabolic syndrome, dyslipidemias, atherosclerosis, obstructive sleep apnea and hypoventilation, and all these pathophysiological situations provide a great impact on the quality and life expectancy of this population [2,6-8].

In view of the above, this work aims to identify the impact of childhood obesity on the individual's health, through a literature review, describing what the complications are and presenting the risks to the health of children and adolescents due to bad eating habits.

## Methods

For the elaboration of the research, scientific articles were utilized as the primary source of information. The databases used for consultation were PubMed, Scielo and Google Scholar. The search was restricted to the English and Portuguese languages, and the Health Sciences Descriptors (DeCS) were used as keywords; Pediatric Obesity; Nutritional Status, and Adolescents, as well as their equivalents in the English language. The analyzed articles were selected based on their relevance to the theme. The inclusion criteria for the studies were that they had to have a direct approach to the topic in the English and Portuguese languages, published within the last five years (between 2017 and 2022). Some articles prior to this period were included as they were relevant reviews on the topic. Articles that dealt with other aspects of poor nutrition and obesity in adults were excluded, as they were not the focus of this study.

## Results e discussion

### *Childhood obesity*

Among the nutritional problems of childhood, obesity is the one that attracts the most attention in the field of health [9]. According to WHO [3], childhood obesity is considered a major public health problem for the 21st century, presented as the greatest challenge of the present, considered as an epidemic, being globally and compromising, especially low- and middle-income countries, in urban areas. This disease has a high incidence and its prevalence has grown alarmingly, with data showing that, by 2010, there were more than 42 million children under five years old with overweight or obesity, with the highest incidence of these cases being in developed countries.

Childhood obesity and overweight are defined as: abnormal or excessive accumulation of fat that harms children's health [3]. Obesity is defined as a chronic inflammatory non-communicable disease (NCD) and of multifactorial etiology, which can be globally divided into biological, behavioral, environmental, and social determinants [10]. These determinants include food intake, nutrient intake, meal environment, parental influence on food intake, physical activity, sedentary behavior and sleep pattern, family group, school and community, socioeconomic level and literacy, all of these factors directly affect children's health [10].

The advancement of the prevalence of childhood obesity is evident in many countries, even in Brazil, presenting a direct impact on the health and quality of life of children with repercussions even in adulthood, due to comorbidities associated with this NCD [11].

### *Childhood obesity and its consequences in adult life*

The growth in the rates of childhood obesity is related to many factors. About 20 years ago, it is observed in middle- and low-income countries, genetics, lack of physical exercise and socioeconomic problems, contribute to the growth of childhood obesity, resulting in NCDs [12,13].

According to WHO [3], NCDs result from a high body mass index, classified as overweight or obesity. Cardiovascular diseases that accompany the metabolic syndrome are part of this set. This, in turn, is a complex disorder represented by a set of risks associated with excess body fat, such as hypertension, diabetes mellitus and dyslipidemia, which, if not treated in the long term, can extend into adulthood. Physical inactivity and inadequate eating habits have significant associations for overweight [14,15].

One in five young people between 10 and 19 years old presents overweight. The estimate is that 20% of the child population has this problem and can result in a generation of future obese, because children with overweight or obesity become adolescents with overweight and about 80% of these become obese in adult life [16]. Care should be doubled with the child with overweight or obesity in childhood, as

excess weight can be an important risk marker for the early onset of chronic diseases in adulthood [14]. Obese children can be future hypertensive, diabetic, patients of non-alcoholic fatty liver disease, have some types of cancer such as breast, colorectal, endometrial, kidney, esophagus, and pancreas, presenting increased renal, cardiovascular, and cerebral risks [17]. Therefore, these comorbidities provide a reduction in quality of life, in addition to psychological and social complications that can extend throughout life [18,19].

According to Souza [19], when obese in childhood, the picture may persist throughout adolescence and adulthood, causing the development of associated diseases throughout life. Currently, year after year, cardiovascular diseases, diabetes, and cancer, account for more than half of global deaths. Every two decades, there is an increased risk of 2.5 deaths in individuals with obesity [16].

All of these factors, such as low levels of physical activity, sedentary behavior, and poor eating habits, reinforce that childhood obesity is a major public health problem and causes high costs for the country's health system at the time when the cycle ends with individuals without health [20,21].

#### *Childhood obesity and bad eating habits*

In the early years of life, it is of paramount importance that children are stimulated to develop their potentials. At this time, maintaining a balanced and healthy diet is essential, being one of the various components to prepare children for satisfactory growth and development, as nutrition is an essential factor for human beings globally [22].

Brazil has been struggling against poor nutrition and obesity [23]. The increasing prevalence of obese children is becoming greater and is related to multiple factors, such as early interruption of breastfeeding, behavioral disorders related to food and family relationships, lifestyle, and improper eating habits. This is due to the availability of a variety of products in the market, which are easily accessible and low cost, but have high caloric values and low nutritional value [5,24].

Therefore, modifying eating habits can contribute to a more balanced energy balance and, consequently, to a more effective management of weight control, functioning as a preventive measure, which becomes decisive in improving quality of life [25].

#### *Prevention of childhood obesity*

The nutritional trajectory in Brazil is characterized by the concurrent presence of malnutrition, obesity, and poor health, linked to specific deficiencies caused by poor nutrition, as is the case in other developing countries. The epidemiological situation and its current determinants are extremely complex.

Incentive, support, and protection actions for health are interventions that integrate, disseminate information, and motivate individuals to adopt healthy practices, aiming to promote healthy choices among motivated and determined indivi-

duals, as well as prevent individuals and communities from being exposed to factors that encourage unhealthy practices [26].

It is noted that Brazilian public policies aim to promote a healthier future through interventions to prevent disease and treat childhood obesity, relying on actions such as education, guidance on physical activity and healthy eating [27]. According to Machado et al. [28], adequate nutrition combined with physical activity practices are highlighted as the main tools to combat childhood obesity, therefore, children who receive better guidance on good habits have a better chance of weight control and better quality of life.

According to Oliveira et al. [29], the combination of strategies that aim to change both dietary habits and physical activity levels appears to be of paramount importance. Maintaining energy balance is crucial in controlling obesity, highlighting this strategy as the first and main recommendation for obesity in childhood and adulthood [26]. The literature shows that the best time to intervene in the fight against obesity is in childhood, because interventions in overweight or obese adults are less effective, making it more difficult to re-educate adults who already eat poorly than to educate children to eat well [30].

## Conclusion

In conclusion, this literature review highlights that childhood obesity presents itself as a major public health problem, considered a universal epidemic with a significant increase in its prevalence each year. Furthermore, children with overweight and obesity have a higher probability of developing various diseases related to this disorder in childhood, which persists throughout their lives, reducing their quality of life and life expectancy. Low income, genetics, lack of physical exercise, poor dietary habits, and socioeconomic problems are the main factors that contribute to the growth of childhood obesity.

Given the difficulties and considering the complexity of this problem, we must establish strategies for ongoing promotion and awareness-raising for healthier lifestyles, such as a combination of interventions aimed at changing both dietary habits and regular physical exercise. These actions aim to make long-term changes, resulting in benefits in different stages of life, providing care not only for obesity but also for various diseases and helping to improve the health and quality of life of children.

### Academic affiliation

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### Conflict of interests

The authors declare that there is no conflict of interest.

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### Authors' contribution

**Conception and design of the research:** Dias TS, Morais GF; **Data collection:** Dias TS, Morais GF, Agostinho PAG, Cota AR, Almada LB; **Data analysis and interpretation:** Dias TS, Morais GF, Agostinho PAG, Cota AR, Almada LB; **Writing of the manuscript:** Dias TS, Morais GF; **Critical revision of the manuscript for intellectual content:** Agostinho PAG, Cota AR, Almada LB.

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