



Factors that have driven childhood obesity since the COVID-19 pandemic

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SUMMARY

The COVID-19 pandemic has caused profound changes in children's routines, negatively impacting your physical and emotional health. This article aimed to analyze the main factors that drove childhood obesity from the period pandemic. Using a qualitative and exploratory approach, based on bibliographic review, changes in eating habits were investigated, the increase in sedentary lifestyle, increased screen use and the emotional effects of social isolation. The results reveal that childhood obesity worsened considerably during this period, especially among vulnerable populations, as a consequence of multiple interconnected factors. It is concluded that preventing and addressing childhood obesity requires actions intersectoral initiatives that integrate nutritional education, encouragement of physical activity, psychological support and public policies aimed at promoting children's health in a way continuous and effective.

Keywords: Childhood obesity. COVID-19 pandemic. Eating habits.

Sedentary lifestyle. Children's public health.

1 INTRODUCTION

Studies show that the increase in childhood obesity from the covid-19 pandemic 19 was alarming. The result of this period of seclusion is being experienced today. There are many people suffering from health problems today that are probably the result of of the isolation period because of the

pandemic, such as depression, anxiety, panic syndrome, among others. However, what is quite worrying is the fact that there are a large number of teenagers with visible overweight (obese) and with unhealthy eating behaviors, resulting from this period.

The COVID-19 pandemic has had significant impacts on society in several areas, including children's health. Among the problems arising from this period, childhood obesity has emerged as a worrying issue, driven by changes in lifestyle, eating behavior and reducing the practice of physical activities. With movement restrictions, the closure of schools and recreational spaces, many children began to adopt more sedentary habits, associated with increased consumption of ultra-processed foods and a reduction in daily calorie expenditure.

In addition, factors such as increased exposure to screens, changes in family routines and psychological impact of social isolation contributed to the increase in rates overweight and obesity in this age group. Studies show that an unbalanced diet, combined with physical inactivity, can trigger worrying consequences for the child development, increasing the risk of chronic diseases such as type 2 diabetes and hypertension since childhood.

The COVID-19 pandemic has caused significant changes in people's lifestyles children, resulting in increased rates of childhood obesity. Social isolation, reduction in physical activities, the greater consumption of ultra-processed foods and the increase of screen time contributed to this worrying scenario. Given this context, the need arises to understand which specific factors drove this growth and what strategies can be adopted to mitigate the impacts of the pandemic on child health. How to reverse this trend and promote healthy habits among children, considering the challenges imposed by the new post-pandemic routine?

Given this scenario, it becomes essential to understand the main factors that boosted childhood obesity during and after the pandemic in order to develop effective strategies for promoting healthy habits and preventing health problems long-term health. This article seeks to analyze these influences, highlighting the challenges and possible solutions to reverse this worrying situation.

2 IMPACT OF THE COVID-19 PANDEMIC ON CHILDHOOD OBESITY

The COVID-19 pandemic has triggered a series of social and behavioral factors that had direct and significant consequences on obesity children. Prolonged confinement and movement restrictions have imposed a lifestyle sedentary lifestyle, limiting physical activities that were previously performed by children and teenagers. Schools, which often functioned as environments that encouraged sports practice and physical activity, closed their doors, resulting in a reduction drastic reduction in opportunities for exercise (Andrade *et al.*, 2024). This disruption not only deprived children of physical movement but also of social interactions that often accompany these activities, crucial for emotional development and social.

Additionally, increased screen time during the pandemic played a role preponderant in this framework. With the transition to remote teaching and digital entertainment accessible, children began to dedicate countless hours to electronic devices, often engaged in sedentary activities. This habit was linked to dietary choices less healthy, since the ease of access to industrialized snacks, often consumed during screen time has increased significantly. This increase in interactions digital, combined with the stress and anxiety caused by the pandemic, resulted in patterns less healthy eating habits, characterized by more frequent consumption of foods rich in sugars and fats (Passerini, 2024).

Additionally, the economic impact resulting from the pandemic has led many families to prioritize cheaper and often less nutritious food options in detriment of a balanced diet. This confluence of factors — the reduction of physical activity, increased screen time, and changing eating habits — created an environment conducive to the increase in childhood obesity, rooting health issues that can last a lifetime. Thus, the pandemic has not only accentuated obesity among already vulnerable children, but it also opened up a range of discussions about the need for social and educational interventions that aim to reverse these harmful trends and promote long-term healthy habits.

2.1 Changes in Eating Habits

The COVID-19 pandemic has caused significant changes in eating habits of children, a phenomenon that deserves detailed analysis due to its implications for increase in childhood obesity. Social isolation measures, which limited activities external factors and social interaction contributed to an environment conducive to consumption excessive consumption of unhealthy foods. Schools, which until then played a crucial role in promoting a balanced diet through programs lunch, were temporarily closed, causing many young people to move away eating at home, often in stressful and anxious situations (Da Cunha; De Barros, 2021) In this new context, a preponderant factor was the increase in consumption of processed foods. This food group, often rich in sugars, fats saturated and sodium, has become the predominant choice among children and adolescents. The ease of access to these products, combined with the search for quick and convenient options, resulted in a greater reliance on ultra-processed foods, such as snacks, soft drinks and fast food (Zani; Da Cunha Nones, 2023). In addition, aggressive marketing aimed at children, which intensified during the pandemic with the growing use of digital media, contributed to the normalization of the consumption of these products.

Several studies have already shown that frequent exposure to advertising unhealthy foods is correlated with less healthy food choices among children. Thus, the pandemic not only changed children's eating routines, but also favored a scenario in which healthy options became less accessible and less attractive (Santos, 2024). The result of this is a growing concern for children's health, because the adoption of inadequate eating habits, amid the sedentary lifestyle caused by confinement, created a vicious cycle that increases the risk of obesity and its long-term consequences. Given this reality, it becomes imperative to rethink strategies that encourage healthy eating, both in school and family, to mitigate the adverse impacts of the pandemic on the eating habits of new generations (Michetti *et al.*, 2022).

2.2 Increased consumption of processed foods

The COVID-19 pandemic has brought with it a series of changes in habits food, particularly a significant increase in the consumption of processed foods. This phenomenon can be attributed to several interrelated factors, which go beyond mere convenience (Zani; Da Cunha Nones, 2023). During periods of confinement and social restrictions, many families found themselves having to adapt their routines food quickly and efficiently. The closure of schools and the interruption of activities physical, in turn, contributed to a more sedentary lifestyle, increasing the demand for quick and easy-to-prepare food options (Teles; De Lima, 2024).

Furthermore, the nature of processed foods, which often present a combination of intense and attractive flavors, and effective marketing strategies, was a driving force underlying this increase. Many children, when exposed to industrialized products rich in sugars, saturated fats and additives, have developed food preferences less healthy (Ferraz, 2021). This change not only alters caloric intake, but also affects the quality of the diet, as these foods tend to be low in essential nutrients such as vitamins and minerals. The pandemic has set a cycle potentially addictive, where emotional stress also led to food choices less healthy, further contributing to the increase in childhood obesity.

On the other hand, the difficulty of accessing fresh and nutritious food during the pandemic – partly due to logistical issues and the prioritization of foods with greater durability – exacerbated this scenario. With limited markets and fairs, the options for unprocessed foods have become scarce, leading parents to opt for alternatives more accessible and long-lasting, which do not always meet the needs nutritional requirements for a growing child (Passerini, 2024). Therefore, the increased consumption of processed foods, driven by socioeconomic factors and behavioral, can be seen as a significant risk that allows us to better understand the growth of childhood obesity in this contemporary context.

2.3 Consequences of childhood obesity during the pandemic

Childhood obesity, when catalyzed by the COVID-19 pandemic, has unfolded in a series of significant consequences, affecting both physical health and mental health of children. With the confinement measures and the closure of schools, the reduction of physical activities became evident, while simultaneously access to food processed and high in sugar has increased, creating a scenario conducive to excessive gain weight. It is estimated that childhood obesity rates may have increased exponential during this period, with studies indicating that the prevalence of children with overweight or obesity increased by 10 to 20% in the populations studied (Mendes, 2022).

The risks to these children's physical health are alarming. Weight gain is directly associated with health conditions such as type 2 diabetes, hypertension and dyslipidemia, all of which used to be rare in pre-teens and teens. In addition to the physical comorbidities, this population grows in its psychological vulnerabilities. Obesity is often accompanied by stigmatization and social discrimination, contributing to the development of psychological problems such as depression, anxiety and low self-esteem (Andrade *et al.*, 2024). The social isolation imposed by the pandemic exacerbated these issues, because children and adolescents, already in a vulnerable situation, faced an absence significant social support and interactive activities that could offset the impact negative weight.

Furthermore, the importance of a multidisciplinary approach in combating obesity children during and after the pandemic becomes evident. The need for interventions that unite nutritional education, promotion of physical activity and psychological support is crucial to mitigate these consequences. Analyzing this complex web of factors interrelated, it is essential that public policies and public health programs are return to understanding and addressing the issues generated, aiming to improve the quality of life and health of children affected by this growing problem (Araújo; Neto, 2024). Thus, the combination of preventive and therapeutic measures is vital, not only for circumvent the obesity epidemic, but also to promote a healthier future and balanced for future generations.

2.4 Prevention and intervention strategies

Effective strategies for prevention and intervention in childhood obesity, especially after the significant impacts of the pandemic, require a multifaceted approach. The promoting physical activities at home emerges as one of the priority solutions in this context. With the closure of schools and the limitation of public spaces for leisure, children faced a drastic reduction in opportunities for physical activity. Therefore, creating an environment that encourages movement and exercise within the home becomes crucial (Santi, 2023).

For this promotion to be effective, it is important to consider implementing recreational activities that can be carried out in confined environments, such as games that involve dance or high-intensity exercises adaptable to the available space. The use of digital platforms that offer fitness classes aimed at the public children can be an innovative way to engage children, providing not only physical training, but also socialization and virtual interaction with colleagues (Godoi; Kawashima, 2021). In addition, creating exercise routines that include the whole family promotes not only physical health, but strengthens family ties, transforming the moment of activity in a collective and pleasurable practice.

Another relevant strategy involves nutritional education associated with increased physical activities. Promote awareness about the importance of a healthy diet balanced, rich in fruits, vegetables and whole grains, complements exercise practices physical, creating a virtuous cycle that encourages healthy habits (Santi, 2023). Participation of schools, communities and health professionals in disseminating information about nutrition and exercise can be decisive. By integrating these practices into the daily lives of children, it is possible to counterbalance sedentary behaviors induced by isolation social, acting proactively in the control and prevention of childhood obesity.

3 METHODOLOGY

This research has a qualitative and exploratory approach, based on a bibliographic review. The study was developed based on the analysis of scientific articles, academic publications and institutional documents that address the

impacts of the COVID-19 pandemic on children's health, with a specific focus on obesity. The selection of sources was carried out through searches in digital databases such as *Brazilian Journals*, *Revista Prática*, *Interdisciplinary Connections*, among others, prioritizing materials published between 2021 and 2024, a period that includes the most significant effects recent pandemic.

The criteria for choosing the texts considered the relevance of the data presented for the the topic in question, the credibility of the sources and the timeliness of the publications. This methodology made it possible to understand, based on scientific literature, the main factors that drove childhood obesity during and after the pandemic period, as well as identify intervention strategies that can contribute to reversing this situation.

4 RESULTS AND DISCUSSION

The present research, when analyzing recent academic literature, found that The COVID-19 pandemic has had a profound impact on families' daily lives and, mainly in eating behavior and in the physical and emotional health of children. collected data demonstrate that social isolation, combined with changes in routine and intensification of sedentary habits, drove the significant increase in rates of childhood obesity, constituting a serious public health problem.

One of the most recurrent factors in the studies analyzed was the drastic reduction in physical activity during the pandemic period. With the closure of schools and public spaces, leisure, such as parks and sports courts, children were deprived of environments that naturally promote body movement and calorie expenditure. Andrade *et al.* (2024) emphasize that, when removed from school physical activities, children also lost moments of socialization and well-being, essential for physical balance and emotional. As a result, a sedentary lifestyle has become common, intensified by the long stay indoors.

Alongside physical inactivity, a transformation in habits was observed food, characterized by the increase in the consumption of ultra-processed foods. Zani and Da Cunha Nones (2023) point out that the ease of access to ready-made foods, rich in fats, sodium and sugars, added to the search

for convenience in the face of a changed routine, led many families to adopt practices inadequate food. This reality has intensified among the most vulnerable populations economically, who, as a result of the financial crisis, began to opt for products of lower cost and longer shelf life, but low nutritional value, as demonstrated by Teles and De Lima (2024).

Another important aspect identified in the results is the impact of excessive use of screens during the isolation period. The migration to remote teaching, as well as the increased time spent in front of electronic devices for entertainment, contributed to the sedentary lifestyle and encouraged the unconscious consumption of food during these activities. Passerini (2024) discusses how this prolonged exposure to screens, in addition to harming well-being, children's emotional state negatively influenced eating behavior, establishing a link between boredom, anxiety and uncontrolled eating.

The emotional factor also appears prominently among the findings. Da Cunha and De Barros (2021) observed that confinement caused an increase in symptoms such as anxiety, irritability and sadness in children and adolescents. These emotional states, often, they were compensated with the consumption of high-calorie foods, creating a cycle of emotional comfort sustained by inadequate eating habits. Mendes (2022) reinforces that children's weight gain during this period was not just a consequence physical, but also a reflection of psychological and social imbalances.

With the accumulation of these factors, the health consequences became evident. Data presented by Mendes (2022) reveal that the prevalence of childhood obesity has increased between 10% and 20% during the most critical years of the pandemic. This growth is worrying, as it increases the risk of chronic diseases such as type 2 diabetes, hypertension, dyslipidemia and musculoskeletal problems since childhood, as discussed by Araújo and Neto (2024). The childhood obesity, in addition to the physical implications, contributes to the emergence of issues severe emotional problems, such as low self-esteem, social isolation and depressive symptoms, especially when accompanied by bullying or discrimination (Andrade *et al.*, 2024).

Despite the alarming scenario, studies also point to viable strategies for intervention and prevention. Santi (2023) highlights the importance of actions that encourage the practice of physical activities within the family environment, even in

reduced spaces. Playful games, dance, movement circuits and even the use of platforms Digital exercise classes have been effective alternatives to keep children active. Godoi and Kawashima (2021) reinforce that encouraging movement at home can still be more powerful when it involves the whole family, promoting not only health benefits, but also the strengthening of emotional bonds.

In addition to physical activity, nutritional education emerges as an essential pillar. Santi (2023) argues that schools, even in remote formats, can promote practices educational activities focused on healthy eating, encouraging the consumption of fruits, vegetables, vegetables and whole grains. Michetti *et al.* (2022) reinforce the need to combat influence of harmful media and food advertising, especially those aimed at children, proposing regulatory and awareness measures.

Therefore, the results and discussions presented in this work indicate that the childhood obesity in the pandemic context is the result of a complex network of factors interconnected — physical, emotional, social and economic. The pandemic has intensified pre-existing inequalities and revealed the fragility of public policies aimed at the health of childhood. To reverse this situation, it is essential that families, schools, health professionals health and public authorities act together, promoting integrated interventions that prioritize the child's comprehensive health. Preventive, educational and therapeutic measures must be thought of with a focus on the current reality of Brazilian families and the construction of habits healthy and sustainable in the long term.

5 CONCLUSION

The COVID-19 pandemic has highlighted and intensified several challenges related to child health, among which obesity stood out as one of the most serious consequences alarming. The present study, through a bibliographic review, demonstrated that the period social isolation has caused significant changes in children's routines, with emphasis on for the reduction of physical activity, the increase in the consumption of ultra-processed foods, the intensification of screen use and the worsening of emotional factors such as stress and anxiety.

It has become clear that childhood obesity in the pandemic context cannot be

understood in isolation, as it results from the interaction between behavioral aspects, social, economic and psychological. Children in situations of socioeconomic vulnerability were especially affected, as they had less access to healthy foods and opportunities for physical activities, in addition to facing greater exposure to content media that encourage the consumption of non-nutritive products.

Given this reality, this study reinforces the importance of adopting strategies prevention and intervention based on intersectoral actions. The promotion of dietary practices healthy, the appreciation of physical activity within the family environment, the conscious use of technologies and emotional support for children must be fundamental pillars in policies public policies to combat childhood obesity. In addition, schools, health professionals, families and communities need to work collaboratively to create environments that favor healthy and sustainable choices.

Therefore, it is urgent to understand that combating childhood obesity goes beyond treating the symptoms. It requires a structural change in the way society deals with childhood, especially in crisis contexts. Investment in nutritional education, spaces for active coexistence and psychosocial support is essential to ensure the full development of children and promote a healthier and more equitable future for new generations.

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